Care of Communities: Community Health Nursing

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Contents

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What Is Public Health and Public Health Nursing?

Marie Truglio-Londrigan
Sandra B. Lewenson

> *. . . while the district nurse is laboring with the individual, she should also contribute her knowledge towards the study of the large general conditions of which her poor patient may be victim. Many of these conditions seem hopelessly bad, but many are capable of prevention and cure when the public shall be stimulated to a realization of the wrong to the individual as well as to the society in general if such are to persist. Therefore, her knowledge of the laws that have been enacted to prevent and cure, and her intelligence in recording and reporting the general as well as the individual conditions that make for degradation and social iniquity are but an advance from her readiness to instruct and correct personal and family hygiene to giving attention to home sanitation and then to city sanitation, an advance from the individual to the collective interest.* (Wald, 1907, p. 3)

LEARNING OBJECTIVES

At the completion of this chapter, the reader will be able to:

- Define the meaning of public health and public health nursing.
- Describe what is meant by the terms *care of the public* and *population-based care*.
- Describe national health initiatives.
- Examine the 10 essential public health services in relation to the core functions of public health practice.
- Examine the role of the public health nurse within the larger context of public health.

KEY TERMS

☐ Assure
☐ Core functions of public health
☐ Ensure
☐ Essentials of public health
☐ Health promotion
☐ Maintaining health
☐ National health initiatives
☐ Preventing disease
☐ Public health
☐ Public health nursing
☐ Risk reduction

It never fails. Sit around a table discussing the health of the public or population-based care, and one frequently receives blank stares. What is **public health**? What does it mean when one speaks about the health of the public or population-based care? What is the role of the public health nurse within this larger framework? Who pays for public health? These questions need to be answered for those in practice, and this chapter provides answers to these questions, thus enhancing practitioners' working knowledge of the scientific discipline known as public health. Creating a professional nursing workforce that demonstrates a vigorous practice of integrating culturally congruent nursing actions based on evidence and recognizing the funding streams lay the groundwork for a strong public health infrastructure that will ultimately enhance and sustain the public's health.

Public Health Defined

To fully understand the concept of public health, it is important to review the definitions put forth over time by those in practice. This exercise will assist the reader in knowing and understanding the important characteristics and features of this discipline.

"Public health work is as old as history," wrote J. Howard Beard in 1922. Beard's article, published in *The Scientific Monthly,* charts the early progress of public health starting with the early Egyptians, who filtered mud from the Nile River to create a safer water source for citizens. Throughout history, the health of the public has been a concern for local and national governments and all members of society. The public health movement in the United States originated in Boston, Massachusetts, in the mid-1800s when Lemuel Shattuck's noted reports on the healthcare needs of the community became the "blueprint for American health organization" (Beard, 1922; Scheele, 1949, p. 293). A noted public health leader in the early 20th century, C. E. Winslow (1920), defined public health as follows:

> *[T]he science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health. (p. 30)*

The definition of public health has changed over time.

In 1988, the Institute of Medicine (IOM) defined public health as "what we, as a society, do collectively to assure the conditions in which people can be healthy" (IOM, 1988, p. 1). Society collectively works together to provide services generally to a population to prevent disease and maintain health (Buttery, 1992). The Association of Schools and Programs of Public Health

(2016) website identifies that public health "protects and improves the health of individuals, families, communities, and populations, locally and globally" (para. 1). In 2003, the IOM published *The Future of the Public's Health in the 21st Century.* This report was comprehensive in nature and spoke to partnerships; intersectoral collaboration; the strengthening of the public health infrastructure, including the building of our nation's public health workforce; and an enhanced understanding of what we mean when we speak of community and population, along with an awareness of the shifting of our demographics represented by the aging of the population. Another IOM report, titled *For the Public's Health: The Role of Measurement in Action and Accountability* (2010), looked at the critical importance of measurements in summarizing the impact that the health system has on the population, thus emphasizing the importance of outcomes. More recently, the IOM (2012) report *For the Public's Health Investigating in a Healthier Future* challenges the nation to establish a "minimum package of public health services" through the delivery of basic public health programs that are flexible, coordinated, and seamless for populations where they live, work, and play. Although brief, this information serves as a template to remind us of the progressive steps we have taken over the decades.

Populations

When one considers the preceding definitions of public health, one comes to understand that the discussion of health moves beyond the health of the individual, family, and community to the health of the population. For example, Hurricane Katrina hit the U.S. Gulf Coast, with particular destruction in Louisiana, on August 29, 2005. In the weeks that followed, healthcare professionals cared for individuals and their family members who were evacuees without shelter and who had suffered from physical and emotional distress. Brodie, Weltzien, Altman, Blendon, and Benson (2006) surveyed the experiences of the Hurricane Katrina evacuees. Their results provide valuable information for public health professionals, "highlighting challenges of effectively evacuating cities' most at-risk residents during a disaster and providing for long-term health needs of vulnerable populations in the aftermath" (p. 1407). The outcomes of this research also provided important guidelines for public health officials as they planned for future evacuations when disasters hit and discussed how to ensure the protection of the public during this evacuation. More recently, the high levels of lead discovered in the drinking water of Flint, Michigan, showed how the health of individuals, families, the entire population, and indeed the community were placed at risk (Kennedy, 2016). This occurred when Flint's water source was changed from treated Detroit water to the untreated Flint River in 2014 without due diligence as to the safety of that water. Lead from the new source seeped into the water supply, as the pipes corroded as a result of this change, placing those who drank the water, especially those most vulnerable, at risk for elevated lead levels and related health problems, so much so that President Obama called for a natural state of emergency as a result of the widespread public health issue to all concerned that emerged (Kennedy, 2016). This public health issue demonstrates the link between public health, policy, advocacy, and the media.

The concept of caring for populations can be difficult to understand and perhaps serves as a barrier to the way nurses or other healthcare workers are educated and approach care. The noted 20th-century nursing leader Virginia Henderson, when questioned on how one may care for an aggregate or population, said, "I think it impossible to nurse an aggregate effectively until you have effectively nursed individuals and acquired considerable judgment as to what helps clients or patients prevent disease, cope with it, or die with dignity when death is inevitable" (Abrams, 2007, p. 384). The question, what and who is a population, has been raised many times in hopes of understanding what a population means and what it means to care for a population. Definitions of *populations* illustrate characteristics and features specific to the particular population. Examples of these population characteristics or features are further delineated by

Warner and Lightfoot (2014) as age, gender, risk factors, disease, time, and place of employment. The American Nurses Association (2013) expands on the definition of population as those "living in a specific geographic area (e.g., town, city, state, region, nation, multinational region)" (p. 3). An example may include the nurse working with individuals diagnosed with tuberculosis living in a particular state or a nurse working with those incarcerated in a county prison system. These nurses work with the entire population and continually assess the health and wellness of the entire population within the specific environment that care is being rendered.

Henderson's concern about nursing populations versus nursing individuals may stem from her concern about the division in health care that separates the care of populations from the care of individuals. Henderson asked, "Should we have one category of health workers treating disease and another preventing it? Or should we all be trying primarily to prevent disease, and, even while treating it, to be helping the victim to prevent a recurrence?" (Abrams, 2007, p. 384). Henderson's words challenge nurses to give careful consideration to what is involved in practice in terms of the process and the strategies that must be implemented for positive health outcomes whether they are working with individuals, families, communities, or populations. These processes and strategies include health promotion and protection, risk factor identification, early detection and treatment, as well as restorative care. The important point to remember is that at whatever health point the individual, family, community, or population is, health promotion care is always essential. **Table 1** gives examples of how the implementation of the specific public health intervention or education may vary depending on whether the focus is on individuals, families, populations, or communities.

Prevention

Preventing disease and **maintaining health** are important strategies for public health along with emphasis on **health promotion** and **risk reduction**. To understand these concepts fully, public health nurses can turn to the historic work of Leavell and Clark (1965), who note, "The ultimate objectives of all medical, dental, and public health practice, whether carried out in the office, the clinic, the laboratory, or the community-at-large, are the promotion of health, the prevention of disease, and the prolongation of life" (p. 14).

According to Leavell and Clark's (1965) seminal work, there are three levels of prevention. The first level, *primary prevention*, includes interventions designed to promote health via health promotion strategies to specifically protect the individual and the population from disease "by providing immunizations and reducing exposure to occupational hazards, carcinogens, and other environmental health risks" (Greiner & Edelman, 2006, p. 17). These interventions take place before the presence of disease and disability, in the period known as the prepathogenesis period. *The second level of prevention*, which occurs in the period of pathogenesis, takes place once disease is present. Interventions include screening activities and early treatment to prevent the consequences of advanced disease, such as disabilities. Finally, the *third level of prevention* includes rehabilitation intervention strategies. "This is more than stopping a disease process; it is also the prevention of complete disability. . . . Its positive objective is to return the affected individual to a useful place in society and make maximum use of his remaining capacities" (Leavell & Clark, 1965, p. 26).

Today, public health nursing activities in primary, secondary, and tertiary prevention have evolved and take into consideration the idea that health is not linear. In fact, if a person requires tertiary rehabilitative services, health promotion strategies are still important. The question raised by Henderson speaks to this nonlinear approach and encourages public health nurses to think about providing care for disease while simultaneously promoting health.

Interprofessional and Intersectorial Work

The definitions of public health thus far given demonstrate the collective nature of public health and the need for multiple disciplines to work together

Table 1 Examples of the Educational Interventions for Individuals, Families, Populations, and Communities

	Individual	Family	Population	Community
	Refers to the individual, who may be part of a family, or a population, and live in a community.	Refers to a family system, which may be defined as any or all individuals who live in what they consider a family system.	Refers to a defined number of people.	Refers to individuals, families, populations, and organizations (for-profit and not-for-profit) that may or may not share the same ideas, values, beliefs, and/or physical location and may or may not intervene and network with each other.
Lyme disease prevention and early detection programs	Target the client (e.g., young adult gardeners) and provide education about Lyme disease, its cause, and methods of prevention, such as pulling socks over pants and wearing repellent. This education can be provided in a pamphlet and placed in areas where individuals may pick it up and read it, such as pharmacies and gardening supply stores.	Target families and provide education for caretakers of children about the cause of Lyme disease and methods of prevention. This information may be developed and delivered in magazines available in primary care practitioner offices or at organizations such as Boys and Girls Clubs of America.	Targeted population education about Lyme disease. This information may be developed and delivered on signs in high-risk areas (such as hiking trails) or in special service announcements on the radio or via the use of technology and social media.	A healthy community ensures that a hiking trail in their geographical area is clear of bush and that appropriate signs are posted warning of high-risk areas. A healthy community will also ensure that funding is available to sustain these endeavors.
Child car seat prevention programs	Target the child, using developmentally appropriate play strategies that illustrate use of child car seats and booster seats.	Target caretakers (e.g., parents, grandparents, day care workers), educating them about the importance of using child car seats, with pamphlets and videos in preschools.	Targeted population education through the use of billboards or other forms of or message delivery via technology, highlighting the importance of appropriate use of child car seats.	A healthy community will have strong organizations that provide programs to support use of child car seats. For example, a local hospital may stage a drive-through child car seat safety check; a fire department may install safety car seats for newborns.

Figure 1 The intersectorial public health system.

Reproduced with permission from National Academy of Sciences. (2003). *The future of the public's health in the 21st century*. Washington, DC: Author. Courtesy of the National Academies Press, Washington, DC.

in ensuring the health of the public. **Figure 1** is a visual depiction of this.

The IOM speaks to this collective endeavor as a process that must involve multiple individuals from various disciplines and multiple organizations. "The concept of a public health system describes a complex network of individuals and organizations that have the potential to play critical roles in creating the conditions for health. They can act for health individually, but when they work together toward a health goal, they act as a system—a public health system" (2003, p. 28). The IOM further describes participants as actors in the public health system. Actors include the governmental public health infrastructure, such as local and state departments of health, the healthcare delivery system, academia, and communities. In turn, communities may include schools, religious organizations, and other not-for-profit organizations, just to name a few. Businesses and corporations are considered important actors because they too play a role in influencing population health with regard to the working conditions. Those involved in the media are important actors in the public healthcare system. Consider the impact that the media can have with its ability to reach populations through the various media streams. Furthermore, the layperson in the community also has a role in the intersectorial public health system as an essential active participant and collaborator. Ultimately, public health system actors, with their integrative and participatory roles, serve as a reminder of the historic Declaration of Alma-Ata International Conference (1978) that recognized primary health care as a major strategy for achieving health for all. At this historic international conference, participants expressed a need for all governments and other international organizations to engage in actions that would ensure the implementation of primary health care around the world. The Declaration of Alma-Ata International Conference (1978) described and explained primary health care as follows:

> *[R]equires and promotes maximum community and individual self-reliance and participation in the planning, organization, operation, and control of primary health care, making fullest use of local, national, and other available resources; and to this end develops through appropriate education the ability of communities to participate. (para. 12)*

Public health fits within a primary health care philosophical paradigm whereby elements of population-based care, community orientation, social justice, shared decision-making, collaboration, and access to and equity of healthcare services for all exist (Truglio-Londrigan & Lewenson, 2017).

Assure and Ensure the Public's Health

Public health providers **assure** the health and well-being for individuals, families, communities, and populations by **ensuring** and guaranteeing the achievement of health through the development of specific policy and laws. Working together as actors is important, but the ability to assure and ensure the health of the public is critical. How does one assure and ensure the health of the public? The involvement of the government, as an actor in the intersectorial public health system, is important in this regard. The IOM (2003) speaks to this very issue:

> *In the United States, the government's responsibility for the health of its citizens stems, in part, from the nature of democracy itself. Health officials are either directly elected or appointed by democratically elected officials. To the extent, therefore, that citizens place a high priority on health, these elected officials are held accountable to ensure that the government is able to monitor the population's health and intervene when necessary through laws, policies, regulations, and expenditure of the resources necessary for the health and safety of the public. (p. 101)*

The public cannot be healthy without strong governmental support to assure and ensure the protection of its citizens, access to health care and essential health services, and the ongoing maintenance and expansion of a strong infrastructure. The government does not do this on its own but plays a role as a broker of services by negotiating appropriate collaborations between and among those actors in intersectorial work (World Health Organization [WHO], 2008). Late-19th- and early-20th-century public health nursing leaders—such as Lillian Wald and Mary Brewster, who began the Henry Street Settlement in the Lower East Side of New York City—recognized the need to garner government support for their efforts to improve the health of the immigrant population that flooded the streets of New York during this period. As they visited the homes of the families in the community, Wald and Brewster's public health nurses wore official badges showing endorsement by the New York Board of Health (Buhler-Wilkerson, 2001). Wald, along with the other public health nurses, continued to advocate for playgrounds for children in the community, school nurses in the public schools, and votes for women as a means of ensuring the public's health (Lewenson, 2007). Suffragist and public health nurse Lavinia Dock equated the ability to vote with the ability to improve health. In an early issue of the *American Journal of Nursing*, Dock (1908) asks nurses to consider the value of the women's vote, saying, "[T]ake the present question of the underfed school children in New York. How many of them will have tuberculosis? If mothers and nurses had votes, there might be school lunches for all those children" (p. 926).

Service

Finally, the definitions of public health mention the types of services to be provided—for example, the importance of education as a service. Providing services to a population can be approached in many ways. This book, for example, features the application of the Minnesota Department of Health population-based public health nursing practice intervention wheel model. This model contains 17 intervention strategies or services that are population-based and can be applied to different levels or focused areas of practice, including individuals, families, communities, and systems. Presently this model is referred to as the intervention wheel, or simply the wheel (Keller & Strohschein, 2016).

The definitions of public health presented in this chapter highlight certain key characteristics and features. **Box 1** presents an overview of these key characteristics and features that are further explained in later chapters.

Public Health Nursing

Public health nurses play a central role in supporting the health of the public. Chapter 2 is dedicated to the history of public health nursing, showing the development

Box 1 Overview of Key Characteristics and Features of Public Health

- Population based
- Health Promotion and Preventing Disease
- Maintaining Health
- Interprofessional and Intersectorial Work
- Assure and Ensure
- Population-focused Services

of this role over time. *Public health nursing*, a term first coined in the late 19th century by nursing leader Lillian Wald (Buhler-Wilkerson, 1993), included the roles of health visitor, health teacher, social worker, and even health inspector (Crandall, 1922, p. 645). Crandall wrote that these roles evolved on the basis of the rich foundation of nursing (Crandall, 1922). This strong nursing background continues today as public health nursing serves the health of the public.

In a statement originally published in 1996, the American Public Health Association, Public Health Nursing Section (2013) defined public health nursing as:

> *. . .the practice of promoting and protecting the health of populations using knowledge from nursing, social, and public health sciences. Public health nursing is a specialty practice within nursing and public health. It focuses on improving population health by emphasizing prevention and attending to multiple determinants of health. . . .this nursing practice includes advocacy, policy development, and planning, which addresses issues of social justice. (para. 2)*

The Missouri Department of Health and Senior Services (2006) developed a public health nursing manual where public health nursing is defined as "the practice of promoting and protecting the health of populations using knowledge from nursing, social, and public health sciences" (p. 8). The manual further describes public health nursing practice as being a systematic process that includes an assessment of the population, families, and individuals; the development of a plan with the defined community along with an implementation of that plan; the evaluation of that plan to determine its effectiveness and the impact on the population; and finally, based on the outcomes, the development of local and national policy to assure and ensure the health of the population. More recently, the American Nurses Association (2013) defined **public health nursing** as a practice that "focuses on population health through continuous surveillance and assessment of the multiple determinants of health with the intent to promote health and wellness; prevent disease, disability, and premature death; and improve neighborhood quality of life" (p. 2).

What the reader may glean from this is that public health nursing by definition mirrors the general definitions of public health, with an emphasis on the systematic process that nurses use to do their work. This process is the nursing process. Therefore, throughout this book, the reader will note that the nursing process is the guiding framework for assessing the population, diagnosing the needs of the population, planning interventions based in evidence using the intervention wheel, implementing those strategies, and ultimately evaluating outcomes of the population. The preceding definitions of public health nursing also stipulate how results of the process are used to influence and direct the current healthcare delivery system, thus making assurances to the public when results and outcomes are positive that these outcomes will be sustained over time. The readers of this book will find it useful to access *The Public Health Nursing: Scope and Standards of Practice* (American Nurses Association, 2013). This document serves as a detailed outline of the role and expectations of the public health nurse. This document is also helpful in that it serves as a guide and offers direction for the public health nurse's professional and noble practice.

Public Health Now

For centuries, diseases such as the Black Death, leprosy, smallpox, tuberculosis, and influenza terrorized the population with extraordinary death tolls. Similarly, for centuries it was assumed that nothing could be done about these little-understood outbreaks because they were a message from the supernatural that was, in some way, dissatisfied with humans. Since these earlier times, the scientific discipline of public health has made remarkable strides, noted by the decrease in communicable diseases along with the marked improvements in sanitation efforts (Beard, 1922).

In recent years, communicable and infectious diseases such as the Ebola virus have experienced a resurgence, along with a renewed cry to strengthen the public health infrastructure in the United States. Problems such as chronic illnesses; obesity; a healthcare system in which the cost of care is still out of control despite attempts at curbing costs, coupled with populations who continue to experience limited access to available care; health disparities; the stripping of the environment; rising mental health issues; and violence of all types clearly inform public health professionals of the need for a call to action.

Ten Essential Public Health Services

Historically, public health professionals have responded to the call to action by making changes and progress in meeting the needs of the public. One outcome was the development of the 10 essential public health services by the Public Health Functions Steering Committee (U.S. Department of Health and Human Services [DHHS] Public Health Service, 1994). This steering committee included representatives from U.S. Public Health Service agencies and other major public health organizations. Over the years, minor revisions have lead us to the more recent 10 **essentials of public health** that provide a guiding framework for the responsibilities of local public health systems and the foundation for strategy-building toward a healthy, integrated public health system capable of ensuring the health of the public. **Box 2** presents these 10 essential public health services, which include the key characteristics and features noted in the previous definitions of public health.

Box 2 The Ten Essential Public Health Services

1. Monitor health status to identify and solve community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate, and empower people about health issues.
4. Mobilize community partnerships and action to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. Assure competent public health and personal healthcare workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

Reproduced from U.S. Department of Health and Human Services, Public Health Service. (1994a). The public health workforce: An agenda for the 21st century. A report of the Public Health Functions Project. Retrieved from http://www.health.gov/phfunctions/pubhlth.pdf; Centers for Disease Control and Prevention. (2014). The public health system and the 10 essential public health services. Retrieved from http://www.cdc.gov/nphpsp/essentialservices.html

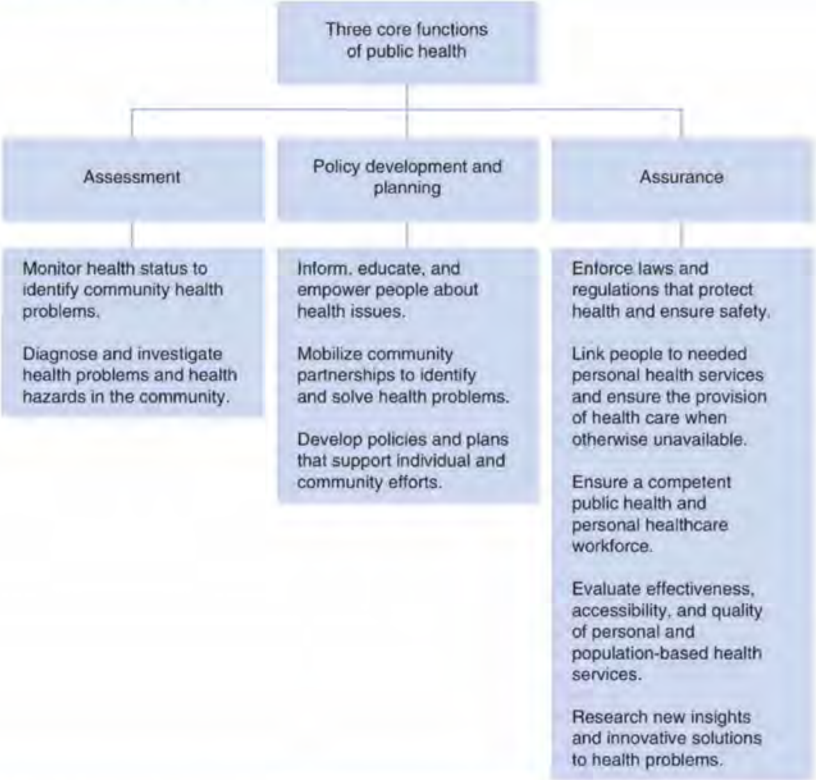
Three Core Functions

Each of these 10 essential services falls under one of the three **core functions of public health:** assessment, policy development, and assurance (Center for Disease Control and Prevention [CDC], 2015; IOM, 1988). To assess the health of the population for early identification of health problems and/or other potential problems, a public health agency must collect and analyze data systematically. The policy development function means that public health agencies serve the public by developing public health policies, based on evidence, for the correction of issues or problems. Finally, assurance requires that public health agencies provide services directly or through other private or public agencies. In addition, assurance guarantees services for those unable to afford them. These three core functions guide the public health professional in the development, implementation, and evaluation of various public processes that assist in meeting the healthcare needs of the public (**Figure 2**).

Healthy People 2020

The three core functions of public health and the 10 essential public health services provide the foundation for the health agenda for the nation, known as **Healthy People**. *Healthy People 2020* is a continuation of previous initiatives that began in 1979 when the report *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention* was released, which provided national goals for reducing premature deaths and preserving independence for older adults. *Healthy People 2020* "provides science-based, 10-year national objectives

Figure 2 Three core functions of public health.



Monitor health status to identify community health problems.

Diagnose and investigate health problems and health hazards in the community.

Inform, educate, and empower people about health issues.

Mobilize community partnerships to identify and solve health problems.

Develop policies and plans that support individual and community efforts.

Enforce laws and regulations that protect health and ensure safety.

Link people to needed personal health services and ensure the provision of health care when otherwise unavailable.

Ensure a competent public health and personal healthcare workforce.

Evaluate effectiveness, accessibility, and quality of personal and population-based health services.

Research new insights and innovative solutions to health problems.

Data from Institute of Medicine. (1988); *The future of public health.* Washington, DC: National Academies Press; U.S. Department of Health and Human Services. (1994b). *The public health workforce: An agenda for the 21st century.* Washington, DC: US Government Printing Office; Centers for Disease Control and Prevention. (2015). *Core functions of public health and how they relate to the 10 essential services.* Retrieved from http://www.cdc.gov/nceh/ehs/ephli/core_ess.htm for improving the health of all Americans" (U.S. DHHS, 2010a, para. 1). It was unveiled on December 2, 2010, and represents the ongoing work of public health through the systematic use of overarching goals, topics, and objectives that facilitate action facilitated by a vision and mission.

VISION AND MISSION

The vision and mission of the Healthy People initiative provides the direction in terms of where we wish to go as a nation regarding the health of our people and what we are going to do to get there. **Box 3** includes the vision and mission of *Healthy People 2020*. The vision statement is critical because it creates the point on the horizon to which all stakeholders set their sights in their combined efforts to achieve public health. The mission of *Healthy People 2020* is to identify how the vision is realized. It essentially guides the action of the stakeholders.

Box 3 *Healthy People 2020* Vision and Mission

Vision: A society in which all people live long, healthy lives.
Mission: *Healthy People 2020* strives to:

- Identify nationwide health-improvement priorities.
- Increase public awareness and understanding of the determinants of health, disease, and disability and the opportunities for progress.
- Provide measurable objectives and goals that are applicable at the national, state, and local levels.
- Engage multiple sectors to take actions to strengthen policies and improve practices that are driven by the best available evidence and knowledge.
- Identify critical research, evaluation, and data collection needs.

Reproduced from U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (2010a). *Healthy People 2020*. Retrieved from http://www.healthypeople.gov/2020/about/default.aspx

OVERARCHING GOALS

The earlier *Healthy People 2010* included two goals: (1) to increase the quality of years of healthy life and (2) to eliminate health disparities. The first goal also addressed life expectancy, defined as "the average number of years people born in a given year [were] expected to live based on a set of age-specific death rates" (U.S. DHHS, 2000, p. 8). This goal speaks to the need for not only extending life but also for improving the quality of those years lived. The second goal addressed the health disparities evident among various U.S. demographic groups, including groups based on "gender, race or ethnicity; education or income; disability; geographic location; or sexual orientation" (U.S. DHHS, 2000, p. 11). An awareness of the existence of these disparities and others are still evolving; however, its importance is seen in *Healthy People 2020*, as it is highlighted as one of the four foundational heath measures (U.S. DHHS, 2010a, para. 6).

Today, *Healthy People 2020* is presented as four overarching goals, presented in **Box 4**. The overarching goals were developed with a twofold purpose: to develop the objectives and to assist the stakeholders in their work to achieve the stated objectives. See Box 4 to view these overarching goals.

Box 4 *Healthy People 2020*: Overarching Goals

- Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death.
- Achieve health equity, eliminate disparities, and improve the health of all groups.
- Create social and physical environments that promote good health for all.
- Promote quality of life, healthy development, and healthy behaviors across all life stages.

Reproduced from U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (2010a). *Healthy People 2020*. Retrieved from http://www.healthypeople.gov/2020/about/default.aspx

Topics and Objectives

Healthy People 2020 includes 46 topic areas, each with important information such as an overview, goals, objectives, interventions, and resources as well as national snapshots (U.S. DHHS, 2010b). Public health nurses can use *Healthy People 2020* as a tool to create health initiatives to address public health concerns. Suppose a public health nurse conducts an assessment and identifies tobacco smoking as a major problem in the adolescent population they serve. An understanding of the population-based issue and the corresponding etiology is critical for public health nurses and their partners to develop initiatives to create a balanced healthcare system in which health parity rather than health disparity is the rule.

In this particular situation, the public health nurse will link into the Healthy People main web page (see **Figure 3**) and then click into the Topic and Objective tab. The topic and objectives list in *Healthy People 2020* is extensive, but a quick glance down the page will take the public health nurse to the topic area of Tobacco Use. Once the public health nurse clicks into the Tobacco Use topic area, they will see four tabs along the top of the screen: overview, objective, interventions and resources, and national snapshot (see **Figure 4**). Each of these separate tabs provides valuable information for the public health nurse and others involved in the collaborative effort to address tobacco use in the adolescent population. The overview tab provides specific information about the topic area, including why preventing tobacco use is important and a framework for ending tobacco use, as well as other important information (see Figure 4).

Figure 3 Main page of *Healthy People 2020*.

Courtesy of U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (2010c). *Healthy People 2020*. Retrieved from https://www.healthypeople.gov

Figure 4 *Healthy People 2020* topics and objectives: Overview.

Courtesy of U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (2010d). *Healthy People 2020.* Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use

The objective tab presents the 21 objectives (see **Figure 5**). Two of the objectives specifically address the adolescent population: Tobacco Use—Objective 2: Reduce tobacco use by adolescents, and Tobacco Use—Objective 3: Reduce the initiation of tobacco use among children, adolescents, and young adults. Each of these objectives contain subobjectives. As the public health nurse enters into each of these objectives, they will see baseline, target, target-setting method, data source, and other pertinent information. It is important for the reader to note that *Healthy People 2020* is a living document and, as such, changes continually with new evidence, stakeholder interest, and participants.

Finally, the interventions and resources and the national snapshots tabs offer the public health nurse direct links to clinical recommendations for evidence-based community intervention strategies and consumer information (see **Figure 6** and **Figure 7**).

FOUR FOUNDATIONAL HEALTH MEASURES

The final component of the Healthy People initiative is the Four Foundational Health Measures. These foundational measures include General Health Status, Health-Related Quality of Life and Well-Being, Determinants of Health, and Disparities. These foundational health measures are identified as way to measure what progress is being made toward the achievement of the overarching goals.

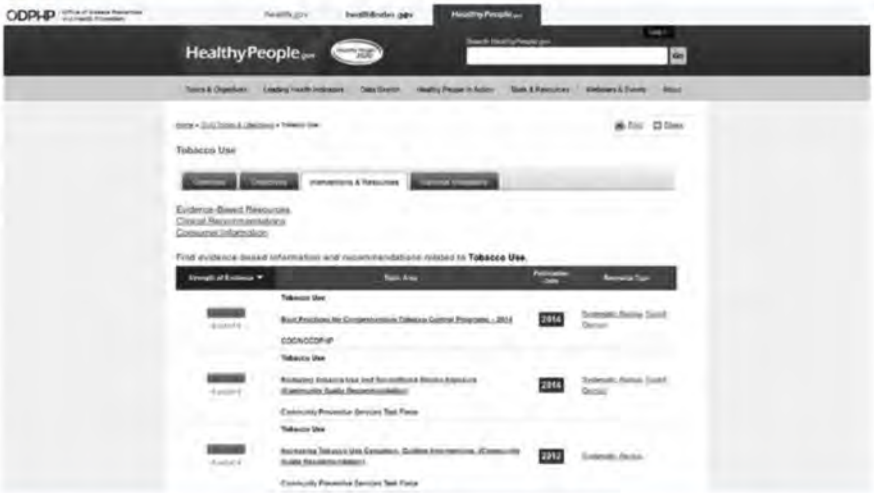
HEALTHY PEOPLE MOVEMENT IN ACTION

The Healthy People initiative serves as a guide for healthcare professionals and their partners as they decide collectively what types of health initiatives to engage in and how to implement and evaluate these initiatives. These partners are central to the success of the *Healthy People 2020* agenda: "Addressing the challenge of health improvement is a shared responsibility

Figure 5 *Healthy People 2020* topics and objectives: Objective.

Courtesy of U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (2010e). *Healthy People 2020.* Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use/objectives

Figure 6 *Healthy People 2020* topics and objectives: Interventions and resources.



Find evidence-based information and recommendations related to **Tobacco Use**.

Courtesy of U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (2010f). *Healthy People 2020.* Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use/ebrs

Figure 7 *Healthy People 2020* topics and objectives: National Snapshots

Courtesy of U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (2010g). *Healthy People 2020.* Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use/national-snapshot

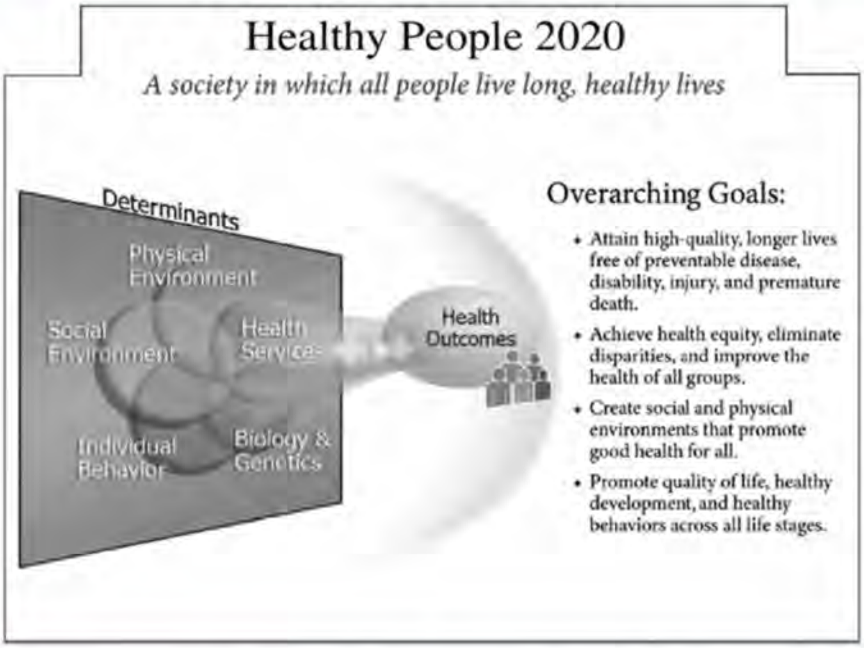
that requires the active participation and leadership of the federal government, states, local governments, policymakers, healthcare providers, professionals, business executives, educators, community leaders, and the American public itself" (U.S. DHHS, 2000, p. 4). This resonates with the need mentioned earlier for interprofessional and intersectoral collaborative work. Public health nurses are important actors in this collaborative work and have historically been present in public health initiatives.

The *Healthy People 2020* website is interactive and a powerful tool for all stakeholders.

The graphic model, portrayed in *Healthy People 2020,* is shown in **Figure 8**. The graphic model portrays the determinants of health and includes physical environment, health services, social environment, individual behavior, biology, and genetics. Although this model does not pictorially display policymaking as one of the concentric circles, policymaking is described as a determinant of health on the website (U.S. DHHS, 2010a). The authors of this text expanded the graphic model for *Healthy People 2020,* including this additional determinant of policymaking. They developed the visual depiction called the process model for *Healthy People 2020* that readers can view on the inside front cover of this book.

The multiple components of the process model depict the entire Healthy People process, not just the determinants of health as outlined in the Healthy People graphic model. The outcome of this model is the promotion and improvement of the health of the general public as well as the potential for policy change to assure and ensure the sustainability of the specific change for health.

Figure 8 Screenshot of the graphic model for *Healthy People 2020*.



Healthy People 2020

A society in which all people live long, healthy lives

Overarching Goals:

- Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death.
- Achieve health equity, eliminate disparities, and improve the health of all groups.
- Create social and physical environments that promote good health for all.
- Promote quality of life, healthy development, and healthy behaviors across all life stages.

Courtesy of U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (2010h). *Healthy People 2020*. Retrieved from https://www.healthypeople.gov/2020/About-Healthy-People

Application to Communities

How do public health nurses apply and use *Healthy People 2020* for a community of interest? Public health nurses and their partners can apply *Healthy People in Healthy Communities*. The U.S. DHHS (2001) presented this document in an attempt to enlist communities to apply the Healthy People initiatives to ensure a healthy population locally. A healthy community is defined as "one that embraces the belief that health is more than merely an absence of disease; a healthy community includes those elements that enable people to maintain a high quality of life and productivity" (U.S. DHHS, 2001, p. 1).

To become a healthy community and to implement *Healthy People 2020*, the public health nurse and members of the community must work together using multiple strategies. One such strategy is to use MAP-IT, a mnemonic for mobilize, assess, plan, implement, and track (U.S. DHHS, 2001). MAP-IT is a broader application of the nursing process. In addition to assessment, diagnosis, planning, implementation, and evaluation, the MAP-IT process includes the critical step of mobilization, which sets the stage for coalition, collaboration, and shared decision-making to occur. The process model depicted on the inside front cover of this book also presents the MAP-IT process and demonstrates how it is aligned with the entire process model. The first step in MAP-IT is to mobilize. One way to mobilize a group is through partnering with others and developing a coalition.

Truglio-Londrigan (2015) notes, "This coming together to work together leads to the notion of making decisions together. Working together in groups, therefore, allows individuals or organizations to come together to work toward a goal and ultimately achieve their vision via shared decision-making" (p. 142). In this case, the vision is a healthier community.

The next step in the MAP-IT technique is to assess the community of interest. Chapter 3 contains detailed information on assessment of a community and population. There are a number of ways to assess a community, both quantitatively and qualitatively. What is important is that assessment is the collection of data to identify the priority needs of the community. Those who have been mobilized, including the community participants, must look at the data collected and identify whether the issues are in line with one or more of the topic areas listed in *Healthy People 2020*. If yes, the community members can then use *Healthy People 2020* as a guide for the development of initiatives. If the issue is not identified as a topic area in Healthy People, the systematic process is still valuable for the achievement of positive health outcomes.

Once an issue is identified, the mobilized group moves on to the third step, the development of the plan. The plan takes into consideration resources such as funding, people, technology, methods of communication, and time. It is critical that those involved work with the topic areas and the objectives, with particular emphasis on the baseline, target, target-setting method, and data source for the identified topic area of need. Specific steps need to be developed, along with time frames and the clear identification of who is responsible for which portions of the plan. It is very important to include the community participants in the development of this plan, as being inclusive accounts for the various social, political, economic, and cultural factors that affect the plan. Successful plans are culturally congruent with the values, the beliefs, and the needs of the population and are based in evidence. Plan development uses the intervention strategies found on the intervention wheel.

Once the plan is identified, the next step in the MAP-IT technique is to implement the plan. Again, clear communication between and among all members is important so that every member knows who is responsible for which activities. For this communication to be effective, one must remember, "There is no 'power over' in a coalition, only 'power with.' . . . This requires equal empowerment of all members of the coalition in order for the members to communicate and work together" (Truglio-Londrigan, 2015, pp. 152–153). The application of technology to reach populations is critical to consider in the implementation phase, and the technology applied must be appropriate for the population in question. Methods for tracking progress during the implementation process are also important to consider.

The final step in the MAP-IT technique is to track progress and evaluate movement toward the outcomes. What was the original baseline? Was the target reached? Sharing success is critical. If there is a need to improve, then all members of the group, including community members, must analyze what transpired. Were the initial data collected correctly? Was the plan accessible and appropriate? What changes need to be made? How will the new plan be implemented and evaluated? These are just some questions that should be asked. As mentioned, the MAP-IT strategy is presented in the *Healthy People 2020* process model located on the inside front cover of this book. It is placed there to enhance clarity for users.

Public health nurses must become familiar with the *Healthy People 2020* website, especially the Implementing *Healthy People 2020* tab, which offers guidelines and resources for the MAP-IT process.

Conclusion

This chapter serves as a guiding framework. It discusses public health and the nation's agenda to achieve a society in which people live long and healthy lives (U.S. DHHS, 2010a). This framework demonstrates how to incorporate the public health nursing agenda into the nation's agenda. Chapter 3 uses this guiding framework to design the Public Health Nursing Assessment Tool. Later chapters are based on the intervention wheel strategies, which serve as a template for action for the profession and are models by which public health nurses can guide their own practice.

Additional Resources

U.S. Department of Health and Human Services/*Healthy People 2020* at: https://www.healthypeople.gov/

U.S. Department of Health and Human Services/Healthy People in Healthy Communities at: http://www.healthypeople.gov/2010/default.htm

Healthy Campus 2020 at: http://www.acha.org/healthycampus/

Center for Disease Control and Prevention About Healthy Places at: http://www.cdc.gov/healthyplaces/about.htm

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CHAPTER FOCUS

Classical Era

The Greeks and Health

Roman Era

Middle Ages

- Black Death
- The "Witch Craze" of the Early Middle Ages

The Renaissance

The Emergence of Home Visiting

The Reformation

The Advancement of Science and Health of the Public

The Dark Period of Nursing

Early Organized Health Care in the Americas: A Brave New World

- The Chadwick Report and the Shattuck Report

The Industrial Revolution

John Snow and the Science of Epidemiology

And Then There Was Nightingale . . .

- The Crimean Experience: "I Can Stand Out the War with Any Man"
- Florence Nightingale and Sanitation

Returning Home a Heroine: The Political Reformer

- Nightingale and Military Reforms
- The Nightingale School at St. Thomas: The Birth of Professional Nursing
- Taking Health Care to the Community: Nightingale and Wellness
- Nightingale's Legacy

Early Nursing Education and Organization in the United States

The Evolution of Nursing in the United States: The First Century of Professional Nursing

The Emergence of Community and Public Health Nursing

- Lillian Wald, Public Health Nursing, and Community Activism
- Dorothea Lynde Dix
- Clara Barton
- Birth of the Midwife in the United States
- The Nursing Profession Responds to the Great Depression and World War II
- Early Education and Standardization of Practice of Public Health Nursing
- Challenges of the 1930s
- Progressive Initiatives After the War Years
- Social and Political Influence of the 1960s and 1970s
- Public Health Nursing Services in the 1980s and 1990s

Science and Health Care, 1945–1960: Decades of Change

Years of Revolution, Protest, and the New Order, 1961–2000

Managed Care and Healthcare Reform: First Decades of the 21st Century

The Patient Protection and Affordable Care Act (ACA) of 2010

QUESTIONS TO CONSIDER

After reading this chapter, you will know the answers to the following questions:

1. When did humans first begin thinking about the causes of illness?
2. What were the contributions of the Greeks and Egyptians to our health practices today?
3. What are the origins of public health?
4. Who did the first home visits?
5. What were major health concerns of the Middle Ages?
6. What were Florence Nightingale's contributions to nursing as a profession?
7. What was the Chadwick Report, and why is it significant to community health nursing?
8. What role did William Rathbone play in the evolution of community health nursing?
9. Who is Lillian Wald, and why is she considered a prominent figure in the development of community health nursing in the United States?
10. What led to early standardization of public health nursing practice in the United States?
11. What are the major legislative events, discoveries, and inventions that have improved the health status of populations and communities?
12. What is the Patient Protection and Affordable Care Act of 2010 (ACA, or "Obamacare") and why is this healthcare reform legislation considered one of the most significant federal mandates for public and community health in the history of the United States?

History of Community and Public Health Nursing

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Kaye W. Bender

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KEY TERMS

- *American Journal of Nursing (AJN)*
- American Nurses Association (ANA)
- Clara Barton
- Black Death (bubonic plague)
- Frances Payne Bolton
- Mary Breckenridge
- Mary Brewster
- Cadet Nurse Corps
- case management
- deaconesses
- Jane A. Delano
- Dorothea Lynde Dix
- Lavinia Lloyd Dock
- Frontier Nursing Service
- Goldmark Report
- Annie Goodrich
- Greek era
- health visiting
- Henry Street Settlement
- Edward Jenner
- Kaiserwerth Institute
- Edwin Klebs
- Robert Koch
- Joseph Lister
- managed care
- Nightingale School of Nursing at St. Thomas
- *Nursing's Agenda for Health Care Reform*
- Louis Pasteur
- Patient Protection and Affordable Care Act of 2010
- William Rathbone
- Reformation
- Isabel Hampton Robb
- Roman era
- Margaret Sanger
- Jessie Sleet Scales
- Saint Vincent de Paul
- Elizabeth Tyler
- Lillian Wald

REFLECTIONS

What do you know about the history of health care and the role of nursing in health prevention and promotion? How do you define healing and healers as related to human history? How do you think Florence Nightingale would react if she were alive today regarding nursing, healing, and health care?

FOR AS LONG AS HUMANITY has existed, so have the nursing of the sick and community attempts to prevent illness. Health practices of early humans most likely evolved as a way for groups to survive. Many of these early causal links between humans and their environment were attributed to superstition and religion. Evidence from our earliest human ancestors suggests that techniques such as mind–body connections (e.g., voodoo, alchemy, and/or spells), isolation, migratory patterns, and/or societal estrangement of those community members who were defined by the group as sick were used to manage disease and protect the health of the community (Hanlon & Pickett, 1984).

Classical Era

More than 4,000 years ago, Egyptian physicians and nurses used an abundant pharmacological repertoire to cure the ill and injured. The Ebers Papyrus lists more than 700 remedies for ailments from snake bites to puerperal fever. The Kahun Papyrus (circa 1850 B.C.) identified suppositories (e.g., crocodile feces) that could be used for contraception (Kalisch & Kalisch, 1986).

Healing appeared in the Egyptian culture as the successful result of a contest between invisible beings of good and evil (Shryock, 1959). The physician was not a shaman; instead, there was specialization and separation of function, with physicians, priests, and sorcerers all practicing separately and independently. Some patients would consult the physician, some visited the shaman, and others sought healing from magical formulas. Many tried all three approaches. The Egyptians, quite notably, did not accept illness and death as inevitable but rather believed that life could be indefinitely prolonged.

Because Egyptians blended medicine and magic, the concoctions believed to be the most effective were often bizarre and repulsive by today's standards. For example, lizard's blood, swine's ears and teeth, putrid meat and fat, tortoise brains, the milk of a lactating woman, the urine of a chaste woman, and excreta of donkeys and lions were frequently used ingredients. At least some explanation for these odd ingredients can be found in the following:

> These pharmacological mixtures were intended to sicken and drive out the intruding demon, which was thought to cause the disease. Drugs containing fecal matter were in fact used until the end of the eighteenth century in Europe as common practice. (Kalisch & Kalisch, 1986)

As early as 3000 to 1400 B.C., the Minoans created ways to flush water and construct drainage systems. Circa 1000 B.C., the Egyptians constructed elaborate drainage systems, developed pharmaceutical herbs and preparations, and embalmed the dead. The Hebrews formulated an elaborate hygiene code that dealt with laws governing both personal and community hygiene, such as contagion, disinfection, and sanitation through the preparation of food and water. Hebrews, although few in number, exercised great influence in the development of religious and health doctrine. According to Bullough and Bullough (1978), most of their genus was religious, giving birth to both Christianity and Islam. The Jewish contribution to public health is greater in sanitation than in their concept of disease. Garbage and excreta were disposed of outside the city or camp, infectious diseases were quarantined, spitting was outlawed as unhygienic, and bodily cleanliness became a prerequisite for moral purity. Although many of the Hebrew ideas about hygiene were Egyptian in origin, Moses and the Hebrews were the first to codify them and link them with spiritual godliness. Their notion of disease was rooted in the "disease as God's punishment for sin" idea.

The civilization that grew up between the Tigris and Euphrates Rivers is known geographically as Mesopotamia (modem Iraq) and includes the Sumerians. Disease and disability in the Mesopotamian area, at least in the earlier period, was considered a great curse, a divine punishment for grievous acts against the gods. Having such a curse of illness resulting from sin did not exactly put the sick person in a valued status in the society. Experiencing illness as punishment for a sin linked the sick person to anything even remotely deviant: Such things as murder, perjury, adultery, or drunkenness could be the identified sins. Not only was the person suffering from the illness, but he or she was also branded by society as having deserved it. The illness made the sin apparent to all; the sick person was isolated and disgraced. Those who obeyed divine law lived in health and happiness. Those who transgressed the law were punished, with illness and suffering thought to be consequences. The sick person then had to make atonement for the sins, enlist a priest or other spiritual healer to lift the spell or curse, or live with the illness to its ultimate outcome. In simple terms, the person had to get right with the gods or live with the consequences (Bullough & Bullough, 1978). Nursing care by a family member or relative would be needed in any case, regardless of the outcome of the sin/curse/disease–atonement/recovery or death cycle. This logic became the basis for explanation of why some people get sick and some don't for many centuries, and it still persists to some degree in most cultures today (Achterberg, 1990).

> I have an almost complete disregard of precedent and a faith in the possibility of something better. It irritates me to be told how things always have been done . . . I defy the tyranny of precedent. I cannot afford the luxury of a closed mind. I go for anything new that might improve the past.
>
> You must never so much as think whether you like it or not, whether it is bearable or not; you must never think of anything except the need, and how to meet it.
>
> —*Clara Barton, Civil War nurse and founder of the American Red Cross*

The Greeks and Health

In Greek mythology, the god of medicine, Asclepius, cured disease. One of his daughters, Hygeia, from whose name we derive the word "hygiene," was the goddess of preventive health and protected humans from disease. Panacea, Asclepius's other daughter, was known as the all-healing "universal remedy"; today her name is used to describe any ultimate "cure-all" in medicine. Panacea was known as the "light" of the day, and her name was invoked and shrines built to her during times of epidemics (Brooke, 1997).

During the **Greek era**, Hippocrates emphasized the rational treatment of sickness as a natural, rather than god-inflicted, phenomenon. Hippocrates of Cos (460–370 B.C.) is considered the father of medicine because of his arrangements of the oral and written remedies and diseases, which had long been secrets held by priests and religious healers, into a textbook of medicine that was used for centuries (Bullough & Bullough, 1978). Hippocrates's contribution to the science of public health was his recognition that making accurate observations of and drawing general conclusions from actual phenomena formed the basis of sound medical reasoning (Shryock, 1959).

In Greek society, health was considered to result from a balance between mind and body. Hippocrates wrote a most important book, *Air, Water and Places*, which detailed the relationship between humans and the environment. It is considered a milestone in the eventual development of the science of epidemiology as the first such treatise on the connectedness of the web of life. This topic of the relationship between humans and their environment did not reoccur until the development of bacteriology in the late nineteenth century (Fromkin, 1998; Rosen, 1958).

Perhaps the idea that most damaged the practice and scientific theory of medicine and health for centuries was the doctrine of the four humors, first spoken of by Empedocles of Acragas (493–433 B.C.). Empedocles was a philosopher and a physician, and as a result, he synthesized his cosmological ideas into his medical theory. He believed that the same four elements (or "roots of things") made up the universe and were found in humans and in all animate beings (Bullough & Bullough, 1978). Empedocles believed that each human was a microcosm, a small world within the macrocosm, or external environment. The four humors of the body (blood, bile, phlegm, and black bile) corresponded to the four elements of the larger world (fire, air, water, and earth) (Kalisch & Kalisch, 1986). Depending on the prevailing humor, a person was sanguine, choleric, phlegmatic, or melancholic.

Because of this strongly held and persistent belief in the connection between the balance of the four humors and health status, treatment was aimed at restoring the appropriate balance of the four humors through the control of their corresponding elements. By manipulating the two sets of opposite qualities—hot and cold, wet and dry—balance was the goal of the intervention. Fire was hot and dry, air was hot and wet, water was cold and wet, and earth was cold and dry. For example, if a person had a fever, cold compresses would be prescribed for a chill and the person would be warmed. Such doctrine gave rise to faulty and ineffective treatment of disease that influenced medical education for many years (Taylor, 1922).

Plato, in *The Republic*, detailed the importance of recreation, a balanced mind and body, nutrition, and exercise. A distinction was made among gender, class, and health as early as the Greek era; that is, only males of the aristocracy could afford the luxury of maintaining a healthful lifestyle (Rosen, 1958).

In *The Iliad*, Homer's poem about the attempts to capture Troy and rescue Helen from her lover Paris, 140 different wounds are described. The mortality rate averaged 77.6%, with the highest mortality resulting from sword and spear thrusts and the lowest mortality resulting from superficial arrow wounds. There was considerable need for nursing care, and Achilles, Patroclus, and other princes often acted as nurses to the injured. The early stages of Greek medicine reflected the influences of Egyptian, Babylonian, and Hebrew medicine. Therefore, good medical and nursing techniques were used to treat these war wounds: The arrow was drawn or cut out, the wound washed, soothing herbs applied, and the wound bandaged. However, in sickness in which no wound occurred, an evil spirit was considered the cause. For example, the cause of the plague was unknown, so the question became how and why affected soldiers had angered the gods. According to *The Iliad*, the true healer of the plague was the prophet who prayed for Apollo to stop shooting the "plague arrows." The Greeks applied rational causes and cures to external injuries, while internal ailments continued to be linked to spiritual maladies (Bullough & Bullough, 1978).

Roman Era

During the rise and the fall of the **Roman era** (31 B.C.–A.D. 476), Greek culture continued to be a strong influence. The Romans easily adopted Greek culture and expanded the Greeks' accomplishments, especially in the fields of engineering, law, and government. The development of policy, law, and protection of the public's health was an important precursor to our modern public health systems (Fromkin, 1998; Rosen, 1958). For Romans, the government had an obligation to protect its citizens, not only from outside aggression such as warring neighbors, but also from inside the civilization in the form of health laws. According to Bullough and Bullough (1978), Rome was essentially a "Greek cultural colony" (p. 20).

During the 3rd century B.C., Rome began to dominate the Mediterranean, Egypt, the Tigris–Euphrates Valley, the Hebrews, and the Greeks (Boorstin, 1985). Greek science and Roman engineering then spread throughout the ancient world, providing a synthesized Greco-Roman foundation for eventual public health policies (Bullough & Bullough, 1978).

Galen of Pergamum (A.D. 129–199), often known as the greatest Greek physician after Hippocrates, left for Rome after studying medicine in Greece and Egypt and gained great fame as a medical practitioner, lecturer, and experimenter. In his lifetime, medicine evolved into a science; he submitted traditional healing practices to experimentation and was possibly the greatest medical researcher before the 17th century (Bullough & Bullough, 1978). Galen was considered the last of the great physicians of antiquity (Kalisch & Kalisch, 1986).

The Greek physicians and healers certainly made the most contributions to medicine, but the Romans surpassed the Greeks in promoting the evolution of nursing. Roman armies developed the notion of a mobile war nursing unit as their battles took them too far from home to be cared for by their wives and family. This portable hospital was a series of tents arranged in corridors; as battles wore on, these tents gave way to buildings that became permanent convalescent camps along the battle sites (Rosen, 1958). Many of these early military hospitals have been excavated by archaeologists along the banks of the Rhine and Danube Rivers. They had wards, recreation areas, baths, pharmacies, and even rooms for officers who needed a "rest cure" (Bullough & Bullough, 1978). Coexisting were the Greek dispensary forms of temples (*iatreia*), which started out as a type of physician waiting room. These eventually developed into a primitive type of hospital—that is, places for surgical patients to stay until they could be taken home by their families. Although nurses during the Roman era were usually family members, servants, or slaves, nursing had strengthened its position in medical care and emerged during the Roman era as a separate and distinct specialty (Minkowski, 1992).

During this era, the Romans developed massive aqueducts, bath houses, and sewer systems. Even though these engineering feats were remarkable at the time, poorer and less fortunate residents often did not benefit from the same level of public health amenities, such as sewer systems and latrines (Bullough & Bullough, 1978). However, the Romans did provide many of their citizens with what we would consider public health services.

NOTE THIS!

Did you know that engineers during the Roman era developed an aqueduct system capable of providing 40 gallons of water per person per day to Rome's 1 million residents, comparable to our consumption rates today?

As one of the oldest hospitals in existence, Hotel Dieu, in Paris, France, was founded in A.D. 650. The hospital is located adjacent to Notre Dame Cathedral on the Seine River and continues to provide state-of-the-art health care services. The motto of Hotel Dieu translates "Liberty, Equality, Brotherhood."

Middle Ages

The Middle Ages, or the medieval era, served as a transition between ancient and modern civilizations. The medical knowledge of the Greeks and Romans was preserved and expanded in the Islamic world, which underwent a "Golden Age" at this time but disappeared in Europe after the decline of the Roman Empire (476–1453 A.D.). While 9th- and 10th-century Muslim physicians such as Al-Razi, or Rhazes (841–926 A.D.), and Ibn-Sina, known as Avicenna (980–1037 A.D.), were developing the foundations of modern pharmacology in Persia, in Europe medicine was experiencing a reversal. Once again, myth, magic, and religion were explanations and cures for illness and health problems. For Europeans, the medieval world was the result of fusion among three streams of thought, actions, and ways of life—Greco-Roman, Germanic, and Christian—into one (Donahue, 1985).

CULTURAL CONNECTION

During the Early Middle Ages, Europeans seldom washed or changed their clothes more than once or twice a year. This lack of personal sanitation set up ideal conditions for the bubonic plague where one out of three faces disappeared from these human communities.

Source: Kelly, J. (2005). *The great mortality: An intimate history of the Black Death, the most devastating plague of all time.* New York, NY: HarperCollins.

Nursing was most influenced by Christianity with the beginning of **deaconesses**, or female servants, doing the work of God by ministering to the needs of others. Deacons in the early Christian churches were apparently available only to care for men; deaconesses cared only for the needs of the women. This role of the deaconess in the church was considered a forward step in the development of nursing, and in the 19th century it would strongly influence the young Florence Nightingale.

During this era, Roman military hospitals were replaced by civilian ones. In early Christianity, the *diakonia*, a kind of combination outpatient and welfare office, was managed by deacons and deaconesses and served as the equivalent of a hospital. Jesus served as the example of charity and compassion for the poor and marginal of society.

Communicable diseases were rampant during the Middle Ages, primarily because of the walled cities that emerged in response to the paranoia and isolation of the populations. Infection was next to impossible to control. Physicians had little to offer, deferring to the church for management of disease. Nursing roles were carried out primarily by religious orders. The oldest hospital (other than military hospitals in the Roman era) in Europe was most likely the Hôtel-Dieu in Lyons, France, founded in about 542 by Childbert I, king of France. The Hôtel-Dieu in Paris was founded in about 652 by St. Landry, bishop of Paris.

During the Middle Ages, charitable institutions, hospitals, and medical schools increased in number, with the religious leaders as caregivers. The word "hospital" which derives from the Latin *hospitalis*, meaning "service of guests," was most likely used for a shelter for travelers and other pilgrims as well as the occasional person who needed extra care (Kalisch & Kalisch, 1986). Early European hospitals were more like hospices or homes for the aged, sick pilgrims, or orphans. Nurses in these early hospitals were religious deaconesses who chose to care for others in a life of servitude and spiritual sacrifice (Minkowski, 1992).

Black Death

During the Middle Ages, a series of horrible epidemics, including the **Black Death (bubonic plague)**, ravaged the civilized world (Diamond, 1997; Fromkin, 1998). In the 14th century, Europe, Asia, and Africa saw nearly half their populations lost to the bubonic plague. According to Bullough and Bullough (1978), an interesting account of the arrival of the bubonic plague in 1347 claims that the disease had started in the Genoese colony of Kaffa in the Crimea. The story passed down through the ages was that the city was being besieged by a Mongol khan. When the disease broke out among the khan's men, he catapulted the bodies of its victims into Kaffa to infect and weaken his enemies. The soldiers and colonists of Kaffa then carried the disease back to Genoa.

THINK ABOUT THIS

The Pima Indians of the American Southwest referred to the plague as *oimmeddam* or "wandering sickness." Below is an ancient Indian legend that describes the horror of their ancestors suffering from *oimmeddam*.

"Where do you come from?" an Indian asks a tall, black-haired stranger.

"I come from far way," the stranger replies, "from . . . across the Eastern Ocean."

"What do you bring?" the Indian asks.

"I bring death," the stranger answers. "My breath causes children to wither and die like young plants in the spring snow. I bring destruction. No matter how beautiful a woman, once she has looked at me, she becomes as ugly as death. And to men, I bring not death alone, but the destruction of their children and the blighting of their wives. . . . No people who look upon me are ever the same."

Worldwide, more than 60 million deaths were eventually attributed to this horrible plague. In some parts of Europe, only one-fourth of the population survived, with some places having too few people to bury the dead. Families abandoned sick children, and the sick were often left to die alone (Cartwright, 1972).

Nurses and physicians were powerless to avert the disease. Black spots and tumors on the skin appeared, and petechiae and hemorrhages gave the skin a darkened appearance. There was also acute inflammation of the lungs, burning sensations, unquenchable thirst, and inflammation of the entire body. Hardly anyone afflicted survived the third day of the attack. So great was the fear of contagion that ships were set to sail with bodies of infected persons without a crew, drifting through the North, Black, and Mediterranean seas from port to port with their dead passengers (Cohen, 1989). Bubonic plague is caused by the bacillus *Pasteurella pestis*, which is usually transmitted by the bite of a flea carried by an animal vector, typically a rat. After the initial flea bite, the infection spreads through the lymph nodes, and the nodes swell to enormous size; the inflamed nodes are called bubos, from which the bubonic plague derives its name. Medieval people knew that this disease was in some way communicable, but they were unsure of the mode of transmission (Diamond, 1997)—hence the avoidance of victims and a reliance on isolation techniques. The practice of quarantine in city ports was developed as a preventive measure and is still used today (Bullough & Bullough, 1978; Kalisch & Kalisch, 1986).

ETHICAL CONNECTION

The Gallup Poll organization named nursing as the most "ethical" profession in the United States in 2013, according to a survey of American adults. More than 80% of respondents categorized nurses as having very high or high ethics. Nursing has been ranked the number one most ethical profession during the last 10 years, passed only in 2001 by fire fighters in the wake of the 9/11 terrorist attacks.

The plague had far-reaching social and religious consequences. The authority of the Catholic Church was weakened, due to the inability of priests to halt the disease and protect their parishioners from the Black Death, which was commonly assumed to be God's vengeance for the sins of humans. Although dreadful and terrifying, the plague brought about radical societal changes through the drop in value of land, due to a reduction in workers, thus raising the price of labor and ultimately ending Europe's feudal system (Fromkin, 1998).

The "Witch Craze" of the Early Middle Ages

As respected "wise women" through the centuries, during the Middle Ages midwives and women healers gradually transformed into members of a "demonized" avocation. As formal training in medicine gradually developed in Europe, leaders of the church and officials at the time restricted such education to men only, consequently creating a legal male monopoly of the practice of medicine and healing (Achterberg, 1990; Barstow, 1994; Briggs, 1996). As women found themselves "ineligible" to practice in their roles as healers, they faced an even greater threat as they were labeled as witches.

A revival of the Holy Inquisition, a body formed in France in 1022 and codified by the Catholic Church in the 1486 *Malleus maleficarum* (Hammer of Witches) by Pope Innocent VIII, allowed the persecutions to take form. By formalizing the legal punishment of witches and midwives, the Pope codified this "step-by-step, how-to manual" for dealing with the witch problem. Achterberg (1990) describes this significant endorsement in this way: "We are dealing here with an evil that surpasses rational understanding. Here was, indeed, the worst aberration of humanity and it trickled down the hierarchy of authority" (p. 86). The legal system throughout Europe became increasingly harsh with each new conviction, and as the distinction between sorcery and heresy was further blurred, those accused of witchcraft and heresy were found guilty of devil worship. With the support of both the church and civil authorities, as many as 250,000 women were accused, "tried," and tortured into making confessions and eventually burned at the stake simply for being women healers (Briggs, 1996). The accusers linked women's special healing "powers" to an alliance with Satan, and over three centuries they punished and eliminated women as perceived threats to their medical supremacy in society.

Our stereotype of a witch today reflects these ancient and deadly associations of women healers and evil magic: the elderly, unattractive woman dressed in black on a broomstick with a black cat at her side. Women in Europe who practiced as healers often used empirically sound herbal and alternative health practices (hence the caldron association), provided gynecological and obstetric care of women at all hours (hence the broom, because proper women did not go out at night and were presumed to "fly"), and relied on other women for advice and shared practices of healing (hence the "coven" association; Achterberg, 1990; Barstow, 1994). As described by Briggs (1996), "To this end they have allegedly flown by night to meetings where orgiastic, blasphemous or cannibalistic rituals symbolized their defection from social and personal virtue" (p. 4).

Briggs (1996) estimates that 100,000 trials of witches occurred in Europe between the years 1450 and 1750, with at least 50% of the accused being executed in brutal hangings and burnings. This "witch craze" reached its height during the 12th through 14th centuries in France, Germany, and other European countries (Achterberg, 1990; Barstow, 1994; Briggs, 1996). Religion, magic, healing, and witchcraft were inextricably linked throughout human history, but during this era dramatic changes in cultural values and paranoia about women's perceived powers resulted in a mass cultural movement to eliminate women as healers (Briggs, 1996; Minkowski, 1992).

The Renaissance

During the rebirth of Europe, great political, social, and economic advances occurred along with a tremendous revival of learning. Donahue (1985) contends that the Renaissance has been "viewed as both a blessing and a curse" (p. 188). There was a renewed interest in the arts and sciences, which helped advance medical science (Boorstin, 1985; Bullough & Bullough, 1978). Columbus and other explorers discovered new worlds, and belief in a sun-centered rather than earth-centered universe was promoted by Copernicus (1473–1543); Sir Isaac Newton's (1642–1727) theory of gravity changed the world forever. Gunpowder was introduced, and social and religious upheavals resulted in the American and French revolutions at the end of the 18th century (Weiner, 1993).

In the arts and sciences, Leonardo da Vinci, known as one of the greatest geniuses of all time, made a number of anatomical drawings based on dissection experiences. These drawings have become classics in the progression of knowledge about the human anatomy. Many artists of this time left an indelible mark and continue to exert influence today, including Michelangelo, Raphael, and Titian (Donahue, 1985; Minkowski, 1992; Weiner, 1993).

The Emergence of Home Visiting

In 1633, **Saint Vincent de Paul** founded the Sisters of Charity in France, an order of nuns who traveled from home to home visiting the sick. As the services of the sisters grew, St. Vincent appointed Mademoiselle Le Gras as supervisor of these visitors. These nurses functioned as the first organized visiting nurse service, making home visits and caring for the sick in their homes. De Paul believed that for family members to go to the hospital was disruptive to family life and that taking nursing services to the home enabled health to be restored more effectively and more efficiently (Weiner, 1993).

The Reformation

Religious changes during the Renaissance were to influence nursing perhaps more than any other aspect of society. Particularly important was the rise of Protestantism as a result of the reform movements of Martin Luther (1483–1546) in Germany and John Calvin (1509–1564) in France and Geneva, Switzerland. Although the various sects were numerous in the Protestant movement, the agreement among the leaders was almost unanimous on the abolition of the monastic or cloistered career. The effects on nursing were drastic: Monastic-affiliated institutions, including hospitals and schools, were closed, and orders of nuns, including nurses, were dissolved. Even in countries where Catholicism flourished, seizures of monasteries by royal leaders occurred frequently.

Religious leaders, such as Martin Luther in Germany, who led the **Reformation** in 1517, were well aware of the lack of adequate nursing care as a result of these sweeping changes. Luther advocated that each town establish something akin to a "community chest" to raise funds for hospitals and nurse visitors for the poor (Dietz & Lehozky, 1963; Fromkin, 1998). For example, in England, where there had been at least 450 charitable foundations before the Reformation, only a few survived the reign of Henry VIII, who closed most of the monastic hospitals (Donahue, 1985). Eventually, Henry VIII's son, Edward VI, who reigned from 1547 to 1553, was convinced and did endow some hospitals—namely St. Bartholomew's Hospital and St. Thomas's Hospital, which would eventually house the Nightingale School of Nursing in the 19th century (Bullough & Bullough, 1978).

GOT AN ALTERNATIVE?

Ehrenreich and English (1973), in their seminal work, *Witches, Midwives, and Nurses: A History of Women Healers*, note that in the Middle Ages it was the women who were testing new herbs and innovative ways of healing, leading to the adoption of humane, empirical paradigms of healing. All the while, they contend, their male counterparts clung to their ritualistic and outdated procedures, such as leeching, use of mercury, and purgation.

These authors contend that the witch craze, where thousands of women were tried and put to death, was a ruling-class campaign of terror against the female peasant healers who dared to introduce what is now considered holistic or complementary healing modalities. Given that God considered illness and suffering as payment for sin, anyone who offered healing interventions, such as boiling up herbs and potions in big pots, must be anti-God and, therefore, must be working for the "other side" or the Devil. It is hardly surprising, according to Ehrenreich and English, that nursing fell into disrepute by the 18th century, and that the only women who had any status for being involved in healing were those in holy orders. Yet for many poor people, their only remedies were these traditional healing "potions." As medicine grew with scientific models of illness management, these tried and tested remedies were held up as "old wives' tales."

Source: Ehrenreich, B., & English, D. (1973). *Witches, midwives, and nurses: A history of women healers.* Old Westbury, NY: Feminist Press.

The Advancement of Science and Health of the Public

It took the first 50 years of the 18th century for the new knowledge from the Enlightenment to be organized and digested, according to Donahue (1985). In Great Britain, **Edward Jenner** discovered an effective method of vaccination against the dreaded smallpox virus in 1798. Psychiatry developed as a separate branch of medicine, and instruments such as the pulse watch and the stethoscope were invented that measured and allowed for assessment of the body.

One of the greatest scientists of this period was **Louis Pasteur** (1822–1895). A French chemist, Pasteur first became interested in pathogenic organisms through his studies of the diseases of wine. His discovery, that heating wine to a temperature of 55° to 60°C killed the microorganisms that spoiled wine, was critical to the wine industry's success in France. This process of pasteurization led Pasteur to investigate many fields and save many lives from contaminated milk and food.

Joseph Lister (1827–1912) was a physician who set out to decrease the mortality resulting from infection after surgery. He used Pasteur's research to eventually arrive at a chemical antiseptic solution of carbolic acid for use in surgery. Widely regarded as the father of modern surgery, he practiced his antiseptic surgery with great results, and the Listerian principles of asepsis changed the way physicians and nurses practice to this day (Dietz & Lehozky, 1963).

Robert Koch (1843–1910), a physician known for his research in anthrax, is regarded as the father of microbiology. By identifying the organism that caused cholera, *Vibrio cholerae*, he also demonstrated its transmission by water, food, and clothing.

Edwin Klebs (1834–1913) proved the germ theory—that is, that germs are the causes of infectious diseases. This discovery of the bacterial origin of diseases may be considered the greatest achievement of the 19th century. Although the microscope had been around for two centuries, it remained for Lister, Pasteur, and Koch—and ultimately Klebs—to provide the missing link (Dietz & Lehozky, 1963; Fromkin, 1998; Rosen, 1958).

MEDIA MOMENT

***Troy* (2004)**

This movie starring Brad Pitt as Achilles is based on the epic poem *The Iliad* by Homer. The movie recounts the legend of the Trojan War, as the fortress city is attacked by a Greek army led by Menelaus of Sparta and Agamemnon of Mycenae.

Achilles, the mighty Greek warrior, had been dipped as an infant by his mother in the River Styx so that he would be invincible to iron weapons. Because his mother had held him by his heel, this was the only vulnerable part of his body. In the adaptation of Homer's *Iliad*, the Trojan warrior Paris (played by Orlando Bloom) shoots Achilles in the heel with a poison arrow and brings about his death. A simple superficial wound to the heel would not have been deadly; consequently, history provides us with an early account of biochemical warfare.

Source: Peterson, W. (Producer & Director). (2004). *Troy.* United States: Warner Bros.

NOTE THIS!

The Reformation had a devastating effect upon nursing. Imagine our situation in the United States if a decree went out that hospitals would be closed in 2 years. There would be no places available to care for the ill. Such were the conditions in England from 1538–1540 during the reign of Henry VIII. No provision was made for the sick and poor, there was no lay organization to replace those who had fled, and no one to develop or teach others to carry on.

Source: Dietz, D. D., & Lehozky, A. R. (1963). *History and modern nursing.* Philadelphia, PA: F. A. Davis.

The Dark Period of Nursing

The last half of the period between 1500 and 1860 is widely regarded as the "dark period of nursing" because nursing conditions were at their worst (Donahue, 1985). Education for girls, which had been provided by the nuns in religious schools, was lost. Because of the elimination of hospitals and schools, there was no one to pass on knowledge about caring for the sick. As a result, the hospitals were managed and staffed by municipal authorities; women entering nursing service often came from illiterate classes, and even then there were too few to serve (Dietz & Lehozky, 1963). The lay attendants who filled the nursing role were illiterate, rough, inconsiderate, and often immoral and alcoholic. Intelligent women and men could not be persuaded to accept such a degraded and low-status position in the offensive municipal hospitals of London. Nursing slipped back into a role of servitude as menial, low-status work. According to Donahue (1985), when a woman could no longer make it as a gambler, prostitute, or thief, she might become a nurse. Eventually, women serving jail sentences for crimes such as prostitution and stealing were ordered to care for the sick in the hospitals instead of serving their sentences in the city jail (Dietz & Lehozky, 1963). The nurses of this era took bribes from patients, became inappropriately involved with them, and survived the best way they could, often at the expense of their assigned patients.

During this era, nursing had virtually no social standing or organization. Even Catholic sisters of the religious orders throughout Europe "came to a complete standstill" professionally because of the intolerance of society (Donahue, 1985, p. 231).

MEDIA MOMENT

Martin Chuzzlewit (1843–1844)

By Charles Dickens

Charles Dickens created the immortal character of Sairey Gamp, who was a visiting nurse based on an actual hired attendant whom Dickens had met in a friend's home:

> She was a fat old woman, this Mrs. Gamp, with a husky voice and a moist eye, which she had a remarkable power of turning up and showing the white of it. Having very little neck, it cost her some trouble to look over herself, if one may say so, to those to whom she talked. She wore a very rusty black gown, rather the worse for snuff, and a shawl and bonnet to correspond. . . . The face of Mrs. Gamp—the nose in particular—was somewhat red and swollen, and it was difficult to enjoy her society without becoming conscious of the smell of spirits. Like most persons who have attained to great eminence in their profession, she took to hers very kindly; insomuch, that setting aside her natural predilections as a woman, she went to a lying-in [birth] or a laying-out [death] with equal zest and relish.

Sairey Gamp was hired to care for sick family members but was instead cruel to her patients, stole from them, and ate their rations; she was an alcoholic and has been immortalized forever as a reminder of the world in which Florence Nightingale came of age (Donahue, 1985; Minkowski, 1992).

Early Organized Health Care in the Americas: A Brave New World

In the New World, the first hospital in the Americas—the Hospital de la Purisima Concepcion—was founded some time before 1524 by Hernando Cones, the conqueror of Mexico. The first hospital in the continental United States was erected in Manhattan in 1658 for the care of sick soldiers and slaves. In 1717, a hospital for infectious diseases was built in Boston; the first hospital established by a private gift was the Charity Hospital in New Orleans. A sailor, Jean Louis, donated the endowment for the hospital's founding (Bullough & Bullough, 1978).

During the 17th and 18th centuries, colonial hospitals were often used to house the poor and downtrodden, though they bore little resemblance to modern hospitals. Hospitals called pesthouses were created to care for people with contagious diseases; their primary purpose was to protect the public at large, rather than to treat and care for the patients. Contagious diseases were rampant during the early years of the American colonies, often being spread by the large number of immigrants who brought these diseases with them on their long journeys to America. Medicine was not as developed as in Europe, and nursing remained in the hands of the uneducated. Average life expectancy at birth was only around 35 years by 1720. Plagues were a constant nightmare, with outbreaks of smallpox and yellow fever. In 1751, the first true hospital in the new colonies, Pennsylvania Hospital, was erected in Philadelphia on the recommendation of Benjamin Franklin (Kalisch & Kalisch, 1986).

By today's standards, hospitals in the 19th century were disgraceful, dirty, unventilated, and contaminated by infections; to be a patient in a hospital actually increased one's risk of dying. As in England, nursing was considered an inferior occupation. After the sweeping changes as a result of the Reformation, educated religious health workers were replaced with lay people who were "down and outers," in prison, or had no option left except to work with the sick (Kalisch & Kalisch, 1986).

The Chadwick Report and the Shattuck Report

Edwin Chadwick became a major figure in the development of the field of public health in Great Britain by drawing attention to the cost of the unsanitary conditions that shortened the lifespan of the laboring class and posed threats to the wealth of Britain. Although the first sanitation legislation, which established a National Vaccination Board, was passed in 1837, Chadwick found in his classic study, *Report on an Inquiry into the Sanitary Conditions of the Laboring Population of Great Britain*, that death rates were high in large industrial cities such as Liverpool. A more startling finding, from what is often referred to simply as the Chadwick Report, was that more than half the children of labor-class workers died by age 5, indicating poor living conditions that affected the health of the most vulnerable. Laborers lived only half as long as members of the upper classes.

One consequence of the report was the establishment of the first board of health, the General Board of Health for England, in 1848 (Richardson, 1887). More legislation followed that initiated social reform in the areas of child welfare, elder care, the sick, the mentally ill, factory health, and education. Soon sewers and fireplugs, based on an available water supply, appeared as indicators that the public health linkages from the Chadwick Report had an impact.

In the United States during the 19th century, waves of epidemics of yellow fever, smallpox, cholera, typhoid fever, and typhus continued to plague the population as in England and the rest of the world. As cities continued to grow in the industrialized young nation, poor workers crowded into larger cities and suffered from illnesses caused by the unsanitary living conditions (Hanlon & Pickett, 1984). Similar to what occurred with Chadwick's classic study in England, Lemuel Shattuck, a Boston bookseller and publisher who had an interest in public health, organized the American Statistical Society in 1839 and issued a census of Boston in 1845. Shattuck's census revealed high infant mortality rates and high overall population mortality rates. In his *Report of the Massachusetts Sanitary Commission* in 1850, Shattuck not only outlined his findings on the unsanitary conditions, but also made recommendations for public health reform that included the keeping of population statistics and development of a monitoring system that would provide information to the public about environmental, food, and drug safety as well as infectious disease control (Rosen, 1958). He also called for services such as well-child care, school-age children's health, immunizations, mental health, health education for all, and health planning. The Shattuck Report was revolutionary in its scope and vision for public health, but it was virtually ignored during Shattuck's lifetime. It would not be until 19 years later, in 1869, that the first state board of health was formed (Kalisch & Kalisch, 1986; Minkowski, 1992).

The Industrial Revolution

During the mid-18th century in England, capitalism emerged as an economic system based on profit. This emerging system resulted in mass production, as contrasted with the previous system of individual workers and craftsmen. In the simplest terms, the Industrial Revolution was the application of machine power to processes formerly done by hand. Machinery was invented during this era and ultimately standardized quality; individual craftsmen were forced to give up their crafts and lands and become factory laborers for the capitalist owners. All types of industries were affected; this newfound efficiency produced profits for owners of the means of production. As a result, the era of invention flourished, factories grew, and people moved in record numbers to work in the cities. Urban areas grew, tenement housing projects emerged, and overcrowded cities became serious threats to wellbeing (Donahue, 1985).

Workers were forced to go to the machines, rather than the other way around. Such relocations meant giving up not only farming, but also a way of life that had existed for centuries. The emphasis on profit over people led to child labor, frequent layoffs, and long workdays filled with stressful, tedious, unfamiliar work. Labor unions did not exist, nor was there any legal protection against exploitation of workers, including children (Donahue, 1985). All of these rapid changes and often threatening conditions were described in the work of Charles Dickens; in his book *Oliver Twist*, for example, children worked as adults without question.

According to Donahue (1985), urban life, trade, and industrialization contributed to these overwhelming health hazards, and the situation was confounded by the lack of an adequate means of social control. Reforms were desperately needed, and the social reform movement emerged in response to the unhealthy by-products of the Industrial Revolution. It was in this world of the 19th century that reformers such as John Stuart Mill (1806–1873) emerged. Although the Industrial Revolution began in England, it quickly spread to the rest of Europe and to the United States (Bullough & Bullough, 1978). The reform movement is critical to understanding the emerging health concerns that were later addressed by Florence Nightingale. Mill championed popular education, the emancipation of women, trade unions, and religious toleration. Other reform issues of the era included the abolition of slavery and, most important for nursing, more humane care of the sick, the poor, and the wounded (Bullough & Bullough, 1978). There was a renewed energy in the religious community with the reemergence of new religious orders in the Catholic church that provided service to the sick and disenfranchised.

Epidemics had ravaged Europe for centuries, but they became even more serious with urbanization. Industrialization had brought people to cities, where they worked in close quarters (as compared with the isolation of the farm) and contributed to the social decay of the second half of the 19th century. Sanitation was poor or nonexistent, sewage disposal from the growing population was lacking, cities were filthy, public laws were weak or nonexistent, and congestion of the cities inevitably brought pests in the form of rats, lice, and bedbugs, which transmitted many pathogens. Communicable diseases continued to plague the population, especially those who lived in these unsanitary environments. For example, during the mid-18th century typhus and typhoid fever claimed twice as many lives each year as did the Battle of Waterloo (Hanlon & Pickett, 1984). Through foreign trade and immigration, infectious diseases spread to all of Europe and eventually to the growing United States.

John Snow and the Science of Epidemiology

John Snow, a prominent physician, is credited with being the first epidemiologist. In 1854, he demonstrated that cholera rates were linked with water pump use in London (Cartwright, 1972; Johnson, 2006). Snow investigated the area around Golden Square in London and arrived at the conclusion that cholera was not carried by bad air, nor necessarily by direct contact. He formed the opinion that diarrhea, unwashed hands, and shared food somehow played a large part in spreading the disease.

People around Golden Square in London were not supplied with water by pipes, but rather drew their water from surface wells by means of hand-operated pumps. A severe outbreak of cholera occurred at the end of August 1853, resulting in at least 500 deaths in just 10 days in Golden Square. By identifying rates of cholera, Snow for the first time linked the sources of the drinking water at the Broad Street pump to the outbreaks of cholera, thereby proving that cholera was a waterborne disease. Snow's epidemiological investigation started a train of events that eventually would end the great epidemics of cholera, dysentery, and typhoid (Minkowski, 1992).

When Snow attended the now-famous community meeting of Golden Square and gave his evidence, government officials asked him what measures were necessary. His reply was, "Take the handle off the Broad Street pump." The handle was removed the next day, and no more cholera cases occurred (Snow, 1855). Although he did not discover the true cause of the cholera—the identification of the organism—he came very close to the truth (Johnson, 2006; Rosen, 1958).

And Then There Was Nightingale . . .

Florence Nightingale was named one of the 100 most influential persons of the last millennium by *Life* magazine (1997), one of only eight women so identified. Of those eight women, who included such luminaries as Joan of Arc, Helen Keller, and Elizabeth I, Nightingale was identified as a true "angel of mercy," having reformed military health care in the Crimean War and used her political savvy to forever change the way society views the health of the vulnerable, the poor, and the forgotten. She is probably one of the most written-about women in history (Bullough & Bullough, 1978). Florence Nightingale has become synonymous with modern nursing.

Florence Nightingale was the second child born to the wealthy English family of William and Frances Nightingale on May 12, 1820, in her namesake city, Florence, Italy. As a young child, Florence displayed incredible curiosity and intellectual abilities not common to female children of the Victorian age. She mastered the fundamentals of Greek and Latin, and she studied history, art, mathematics, and philosophy. To her family's dismay, she believed that God had called her to be a nurse (Bostridge, 2008). Nightingale was keenly aware of the suffering that industrialization created; she became obsessed with the plight of the miserable and suffering. Conditions of general starvation had accompanied the Industrial Revolution, along with overflowing prisons and workhouses, and displaced persons in all sections of British life. Nightingale wrote in the spring of 1842, "My mind is absorbed with the sufferings of man; it besets me behind and before. . . . All that the poets sing of the glories of this world seem to me untrue. All the people that I see are eaten up with care or poverty or disease" (Woodham-Smith, 1951, p. 31).

NOTE THIS!

Florence Nightingale never made a public appearance, never issued a public statement, and did not have the right to vote.

RESEARCH ALERT

As part of her work, Florence Nightingale collaborated with William Farr, the eminent medical statistician. Nightingale's epidemiological investigations, supported by Farr, illustrated that attention to environmental cleanliness was an important factor in preventing spread of disease (Bostridge, 2008). Nightingale channeled her investigations to support hospital reforms and the need for educated nurses who could provide better management of the hospital environment. Statistical support and solicited criticism allowed Nightingale to argue more forcefully for her reforms.

Source: Keeling, A. W. (2006). "Carrying ointments and even pills!" Medicines in the work of Henry Street Settlement visiting nurses, 1893–1944. *Nursing History Review, 14.*

For Nightingale, her entire life would be haunted by this conflict between the opulent life of gaiety that she enjoyed and the plight and misery of the world, which she was unable to alleviate. She was, in essence, an "alien spirit in the rich and aristocratic social sphere of Victorian England" (Palmer, 1977, p. 14). Nightingale remained unmarried, and at the age of 25, she expressed a desire to be trained as a nurse in an English hospital. Her parents emphatically denied her request, and for the next 7 years, she made repeated attempts to change their minds and allow her to enter nurse training. She wrote, "I crave for some regular occupation, for something worth doing instead of frittering my time away on useless trifles" (Woodham-Smith, 1951, p. 162).

During this time, Nightingale continued her education through the study of math and science, and she spent 5 years collecting data about public health and hospitals (Dietz & Lehozky, 1963). While in Egypt, Nightingale studied Egyptian, Platonic, and Hermetic philosophy; Christian scripture; and the works of poets, mystics, and missionaries in her efforts to understand the nature of God and her "calling" as it fit into the divine plan (Calabria, 1996; Dossey, 2000).

The next spring, Nightingale traveled unaccompanied to the **Kaiserwerth Institute** in Germany and stayed there for 2 weeks, vowing to return to train as a nurse. In June 1851, Nightingale took her future into her own hands and announced to her family that she planned to return to Kaiserwerth and study nursing. According to Dietz and Lehozky (1963, p. 42), her mother had "hysterics" and "scene followed scene." Her father "retreated into the shadows," and her sister, Parthe, expressed that the family name was forever disgraced (Cook, 1913).

In 1851, at the age of 31, Nightingale was finally permitted to go to Kaiserwerth. She studied there for 3 months with Pastor Fliedner. Her family insisted that she tell no one outside the family of her whereabouts, and her mother forbade her to write any letters from Kaiserwerth. While there, Nightingale learned about the care of the sick and the importance of discipline and commitment of oneself to God (Donahue, 1985). She returned to England and cared for her then-ailing father, from whom she finally gained some support for her intent to become a nurse—her lifelong dream (Bostridge, 2008).

In 1852, Nightingale wrote the essay "Cassandra," which stands today as a classic feminist treatise against the idleness of Victorian women. Through her voluminous journal writings, Nightingale reveals her inner struggle throughout her adulthood with what was expected of a woman and what she could accomplish with her life. The life expected of an aristocratic woman in her day was one she grew to loathe; throughout her writings, she poured out her detestation of the life of an idle woman (Nightingale, 1979, p. 5). In "Cassandra," Nightingale put her thoughts to paper, and many scholars believe that her eventual intent was to extend the essay to a novel. She wrote in "Cassandra," "Why have women passion, intellect, moral activity—these three—in a place in society where no one of the three can be exercised?" (Nightingale, 1979, p. 37). Although uncertain about the meaning of the name "Cassandra," many scholars believe that it came from the Greek goddess Cassandra, who was cursed by Apollo and doomed to see and speak the truth but never to be believed. Nightingale saw the conventional life of women as a waste of time and abilities. After receiving a generous yearly endowment from her father, Nightingale moved to London and worked briefly as the superintendent of the hospital Establishment for Gentlewomen During Illness, finally realizing her dream of working as a nurse (Bostridge, 2008; Cook, 1913).

The Crimean Experience: "I Can Stand Out the War with Any Man"

Nightingale's opportunity for greatness came when she was offered the position of female nursing establishment of the English General Hospitals in Turkey by the British Secretary of War, Sir Sidney Herbert. Soon after the outbreak of the Crimean War, stories of the inadequate care and lack of medical resources for the soldiers became widely known throughout England (Woodham-Smith, 1951). The country was appalled at the conditions so vividly portrayed in the *London Times*. Pressure increased on Sir Herbert to rectify the situation. He knew of one woman who was capable of bringing order out of the chaos and wrote the following now-famous letter to Nightingale on October 15, 1854, as a plea for her service:

> There is but one person in England that I know of who would be capable of organising and superintending such a scheme. . . . The difficulty of finding women equal to a task after all, full of horrors, and requiring besides knowledge and good will, great energy and great courage, will be great. Your own personal qualities, your knowledge and your power of administration and among greater things your rank and position in Society give you advantages in such a work which no other person possesses. (Woodham-Smith, 1951, pp. 87–89)

Nightingale took the challenge from Sir Herbert and set sail with 38 self-proclaimed nurses with varied training and experiences, of whom 24 were Catholic and Anglican nuns. Their journey to the Crimea took a month. On November 4, 1854, the brave nurses arrived at Istanbul and were taken to Scutari the same day. Faced with 3,000 to 4,000 wounded men in a hospital designed to accommodate 1,700 patients, the nurses went to work (Kalisch & Kalisch, 1986). This is the scene that the nurses faced: There were 4 miles of beds 18 inches apart. Most soldiers were lying naked with no bed or blanket. There were no kitchen or laundry facilities. The little light present took the form of candles in beer bottles. The hospital was literally floating on an open sewage lagoon filled with rats and other vermin (Donahue, 1985).

The barracks "hospital" was more of a death trap than a place for healing before Nightingale's arrival. In a letter to Sir Herbert, Nightingale, demonstrating her sense of humor, wrote, with tongue in cheek, that "the vermin might, if they had but unity of purpose, carry off the four miles of beds on their backs and march them into the War Office" (Stanmore, 1906, pp. 393–394).

By taking the newly arrived medical equipment and setting up kitchens, laundries, recreation rooms, reading rooms, and a canteen, Nightingale and her team of nurses proceeded to clean the barracks of lice and filth. Nightingale was in her element: She set out not only to provide humane health care for the soldiers, but also to essentially overhaul the administrative structure of the military health services (Williams, 1961). Nightingale and her nurses faced overwhelming odds and deplorable conditions. No accommodations had been made for their quarters, so they ended up in one of the hospital towers, 39 women crowded into six small rooms. In addition to having no furniture, one of the rooms even contained a long-neglected, forgotten corpse swarming with vermin! Ever the disciplinarian, Nightingale insisted on strict adherence to a standard nurse uniform: gray tweed dresses, gray worsted jackets, plain white caps, short woolen cloaks, and brown scarves embroidered in red with the words "Scutari Hospital" (Bullough & Bullough, 1978).

Florence Nightingale and Sanitation

Although Nightingale never accepted the germ theory, she demanded clean dressings; clean bedding; well-cooked, edible, and appealing food; proper sanitation; and fresh air. After the other nurses were asleep, Nightingale made her famous solitary rounds with a lamp or lantern to check on the soldiers. Nightingale had a lifelong pattern of sleeping few hours, spending many nights writing, developing elaborate plans, and evaluating implemented changes. She seldom believed in the "hopeless" soldier; instead, she saw only one that needed extra attention. Nightingale was convinced that most of the maladies that the soldiers suffered and died from were preventable (Williams, 1961).

Before Nightingale's arrival and her radical and well-documented interventions based on sound public health principles, mortality rates for the Crimea War were estimated to range from 42% to 73%. Nightingale is credited with reducing that rate to 2% within 6 months of her arrival at Scutari. She did so by conducting careful, scientific epidemiological research (Dietz & Lehozky, 1963). Upon arriving at Scutari, Nightingale's first act was to order 200 scrubbing brushes. The death rate fell dramatically once Nightingale discovered that the hospital was built literally over an open sewage lagoon. A dead horse was even retrieved from the sewer system under Scutari (Andrews, 2003).

> Bad sanitary, bad architectural, and bad administrative arraignments often make it impossible to nurse.
>
> —*Florence Nightingale*

GLOBAL CONNECTION

"I made up my mind that if the army wanted nurses, they would be glad of me, and with all the ardor of my nature, which ever carried me where inclination prompted, I decided that I would go to the Crimea; and go I did, as all the world knows."

—Mary Seacole

Mary Seacole, contemporary of Florence Nightingale, was named in 2004 the greatest black Briton of all time. Although few have heard of Seacole, she was an important figure in the establishment of nursing as a profession. The Royal College of Nursing President Sylvia Denton said of this honor: "Mary Seacole stood up against the discrimination and prejudices she encountered. Against all odds, Mary had an unshakeable belief in the power of nursing to make a difference."

Seacole was born in the early 1880s as Mary Grant, in Kingston, Jamaica, to a Scottish father and a free black Jamaican mother. Her mother taught her about Creole medicine and she grew up well educated. In 1838, she married Edward Seacole, who died shortly afterward. During their short marriage, they traveled around the Caribbean and Central America. After her husband's death, she returned to Kingston to help run the family boardinghouse. During two epidemics of cholera and one epidemic of yellow fever, she sharpened her skills as a nurse, even performing a postmortem autopsy of a baby who had died of cholera.

Seacole eventually traveled with her brother to other South American countries, establishing hotels and providing care for the sick. When she learned of the Crimean War, she traveled to England, at her own expense, and offered her services to the British Army. She was refused because of the color of her skin. The putdown did not deter Seacole, who funded her own 3,000-mile trip to Crimea, where she offered her services to Florence Nightingale. Nightingale refused her offer as a nurse, so Seacole set up a "hotel for invalids"—called the British Hotel—in nearby Baklava.

At her hotel, Seacole banned drunkenness and gambling, dispensed medicines, fed soldiers meals, and tended to the wounded on the battlefield under fire, making home visits to campsites in the area. Seacole's hotel was a financial disaster,

Continued

because she did not require payment for services and did not have the support of the British government. She used all of her savings to secure medicine and other needed supplies for the sick. When the Crimean War ended in 1856, Seacole was in severe debt and struggled in her lifetime residence in England. Her writings provided some financial support.

Through the years, historians have come to recognize Seacole's heroic and strong commitment to the development of war nursing. It is possible that Nightingale and Seacole never met. Historical evidence is inconclusive regarding the exact nature of their personal contact at Scutari. Nightingale's refusal to accept Seacole's offer to join her nurses at Sebastopol reflected the discrimination and prejudice of the day. Seacole received the Crimean Medal, the French Legion of Honor, and a Turkish Medal. She died in 1881 and is buried in London.

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According to Palmer (1982), Nightingale possessed the qualities of a good researcher: insatiable curiosity, command of her subject, familiarity with methods of inquiry, a good background of statistics, and the ability to discriminate and abstract. She used these skills to maintain detailed and copious notes and to codify observations. Nightingale relied on statistics and attention to detail to back up her conclusions about sanitation, management of care, and disease causation. Her now-famous "cox combs" are a hallmark of military health services management, through which she diagrammed deaths in the Army from wounds and from other diseases and compared them with deaths that occurred in similar populations in England (Palmer, 1977).

Nightingale was first and foremost an administrator: She believed in a hierarchical administrative structure with ultimate control lodged in one person to whom all subordinates and offices reported. Within a matter of weeks of her arrival in the Crimea, Nightingale was the acknowledged administrator and organizer of a mammoth humanitarian effort. From her Crimean experience on, Nightingale involved herself primarily in organizational activities and health planning administration. Palmer (1982) contends that Nightingale "perceived the Crimean venture, which was set up as an experiment, as a golden opportunity to demonstrate the efficacy of female nursing" (p. 4). Although Nightingale faced initial resistance from the unconvinced and oppositional medical officers and surgeons, she boldly defied convention and remained steadfastly focused on her mission to create a sanitary and highly structured environment for her "children"—the British soldiers who dedicated their lives to the defense of Great Britain. Proving her resilience and insistence on absolute authority regarding nursing and the hospital environment, Nightingale was known to send nurses home to England from the Crimea for suspicious alcohol use and character weakness.

It was her success at Scutari that enabled Nightingale to begin a long career of influence on the public's health through social activism and reform, health policy, and the reformation of career nursing. Using her well-publicized successful "experiment" and supportive evidence from the Crimean War, Nightingale effectively argued the case for the reform and creation of military health that would serve as the model for people in uniform to the present (D'Antonio, 2002). Nightingale's ideas about proper hospital architecture and administration influenced a generation of medical doctors and the entire world, in both military and civilian service. Her work in *Notes on Hospitals*, published in 1859, provided the template for the organization of military health care in the Union Army when the U.S. Civil War erupted in 1861. Her vision for health care of soldiers and the responsibility of the governments who send them to war continues today; her influence can be seen throughout the last century and into the 21st century, as health care for the women and men who serve their countries is a vital part of the wellbeing of not only the soldiers but also society in general (D'Antonio, 2002). See **Box 1**.

Many soldiers wrote about their experiences of the Angel of Mercy, Florence Nightingale. One soldier wrote perhaps one of the most revealing tributes to this 'Lady with the Lamp':

> What a comfort it was to see her pass even. She would speak to one and nod and smile to as many more, but she could not do it all, you know. We lay there by hundreds, but we could kiss her shadow as it fell, and lay our heads on the pillow again content.
>
> *—Tyrell, 1856, p. 310*

BOX 1 Singing to Promote a Healthy Body and Soul: "The Nightingale's Song to the Sick Soldier"

Florence Nightingale set an example to all with her commitment and compassion to the weary and the sick. She had a special fondness for animals and birds and regularly showed compassion for them in correspondence. In one such letter to her cousin, she said, "There is nothing that makes my heart thrill like the voice of birds, much more than the human voice. It is the angels calling us with their songs." After her extraordinary acclaim resulting from her heroic actions during the Crimean War, numerous articles, songs, and poems of praise were written that linked Nightingale's compassion to the beautiful song of a nightingale. One such broadside that circulated after the war was published anonymously by *Punch* magazine entitled "The Nightingale's Song to the Sick Soldier." A broadside was a song or poem that was written to reflect the feelings and sentiment of the community.

The title of this poem is used as a metaphor for Nightingale's contribution to the war as a beautiful song. Last summer while preparing to enter nursing school, I volunteered at a hospital where my job was to help conduct recreational activities for the patients on the hospice ward. My favorite part of the day was when I got the chance to sing hymns to the patients. They would reach their hands out to me and smile. The nurses often remarked that many of these patients had not smiled in weeks. I was able to use singing as a way to touch the souls of the sick and bring comfort to those who were sad. After realizing how the singing touched my patients, I thought about how I could integrate singing, my other profession, into my nursing practice as a way to focus on the needs of the soul and the body. I believe that a nurse can communicate the joy that is inside us to the patient through the use of music as an act of compassion.

In this poem, Nightingale's legacy as a model, compassionate caregiver is conveyed through singing and the song of a nightingale. A song that was to keep a weary soldier alive and hopeful. It is this song that should be kept in the hearts of each nurse. It should radiate outwardly to "infect" all those around and emit a joyful spirit that is highly contagious.

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Professional singer
The University of Southern Mississippi
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An African nurse from Jamaica, Mary Grant Seacole, offered her services to Nightingale after hearing of the need for nurses in Scutari. Although Nightingale rejected Seacole as a part of her nursing staff, Seacole persisted in her passion to provide care to the British military (Payne, 1999). Using her own money, she set up a type of inn that provided food and lodging for soldiers and their families near Scutari (Hine, 1989). Although Seacole is less well known than Nightingale, her contributions to nursing in wartime were significant in the history of minority nursing. Seacole is often referred to as "the other lady with the lamp" and "the Florence Nightingale of Jamaica." The School of Nursing in Kingston, Jamaica, is today named in her honor (Crawford, 1992).

Scores of books and articles have been written about Nightingale—she is an almost mythic figure in history. She truly was a beloved legend throughout Great Britain by the time she left the Crimea in July 1856, 4 months after the war ended. Longfellow immortalized this "Lady with the Lamp" in his poem of "Santa Filomena" (Longfellow, 1857).

Returning Home a Heroine: The Political Reformer

When Nightingale returned to London, she found that her efforts to provide comfort and health to the British soldier succeeded in making heroes of both Nightingale and the soldiers (Woodham-Smith, 1951). Both had suffered from negative stereotypes: The soldier was often portrayed as a drunken oaf with little ambition or honor; the nurse was perceived as a tipsy, self-serving, illiterate, promiscuous loser. After the Crimean War and the efforts of Nightingale and her nurses, both returned with honor and dignity, never more to be downtrodden and disrespected.

After her return from the Crimea, Florence Nightingale never made a public appearance, never attended a public function, and never issued a public statement (Bullough & Bullough, 1978). Even so, she single-handedly raised nursing from, as she put it, "the sink it was" into a respected and noble profession (Palmer, 1977). As an avid scholar and student of the Greek writer Plato, Nightingale believed that she had a moral obligation to work primarily for the good of the community. Because she believed that education formed character, she insisted that nursing must go beyond care for the sick; the mission of the trained nurse must include social reform to promote the good. This dual mission of nursing—caregiver and political reformer—has shaped the profession as we know it today, especially in the field of community health nursing. LeVasseur (1998) contends that Nightingale's insistence on nursing's involvement of a larger political ideal in the historical foundation of the field distinguishes us from other scientific disciplines, such as medicine.

How did Nightingale accomplish this transformation? You will learn throughout this text how nurses effect change through others. Florence Nightingale is the standard by which we measure our effectiveness. She effected change through her wide command of acquaintances: Queen Victoria was a significant admirer of her intellect and ability to effect change, and she used her position as national heroine to get the attention of elected officials in Parliament. She was tireless and had an amazing capacity for work. She used people (Bostridge, 2008). Everyone who could be of service to her was enlisted to help her meet her goals. Her brother-in-law, Sidney Herbert, was a member of Parliament and often delivered her "messages" in the form of legislation. When Nightingale wanted the public incited, she turned to the press, writing letters to the *London Times* and having others of influence write articles. She was not above threats to "go public" by certain dates if an elected official refused to establish a commission or appoint a committee. And when those commissions were formed, Nightingale was ready with her list of selected people for appointment (Palmer, 1982).

Nightingale and Military Reforms

The first real test of Nightingale's military reforms came in the United States during the "War Between the States"—the Civil War. Nightingale was asked by the Union to advise on the organization of hospitals and care of the sick and wounded. She sent recommendations back to the United States based on her experiences and analysis in the Crimean War, and her advisement and influence gained wide publicity. Following her recommendations, the Union Army set up a sanitary commission and provided for regular inspection of camps. Nightingale also expressed a desire to help with the Confederate military but, unfortunately, had no channel of communication with them (Bullough & Bullough, 1978).

The Nightingale School of Nursing at St. Thomas: The Birth of Professional Nursing

The British public honored Nightingale by endowing 50,000 pounds in her name upon her return to England from the Crimea. The money had been raised from the soldiers under her care and donations from the public. This Nightingale Fund eventually was used to create the **Nightingale School of Nursing at St. Thomas**, which was to be the beginning of professional nursing (Donahue, 1985).

Nightingale, at the age of 40, decided that St. Thomas's Hospital was the place for her training school for nurses. While the negotiations for the school went forward, she spent her time writing *Notes on Nursing: What It Is and What It Is Not*, which was published in 1859 (Bostridge, 2008). The small book of 77 pages, written for the British mother, was an instant success. An expanded library edition was written for nurses and used as the textbook for the students at St. Thomas. The book has since been translated into multiple languages, although it is believed that Nightingale refused all royalties earned from the publication of the book (Cook, 1913).

The nursing students chosen for the new training school were handpicked; they had to be of good moral character, sober, and honest. Nightingale believed that the strong emphasis on morals was critical to gaining respect for the new "Nightingale nurse," with no possible ties to the disgraceful association of past nurses. Nursing students were monitored throughout their 1-year program both on and off the hospital grounds; their activities were carefully watched for character weaknesses, and discipline was severe and swift for violators. Accounts from Nightingale's journals and notes revealed instant dismissal of nursing students for such behaviors as "flirtation, using the eyes unpleasantly and being in the company of unsavory persons." Nightingale contended that "the future of nursing depends on how these young women behave themselves" (Smith, 1934, p. 234). She knew that experiment at St. Thomas to educate nurses and raise nursing to a moral and professional calling represented a drastic departure from the past images of nurses and would take extraordinary women of high moral character and intelligence. Nightingale knew every nursing student (called a probationer), personally, often having the students at her house for weekend visits. She devised a system of daily journal keeping for the probationers; Nightingale herself read the journals monthly to evaluate their character and work habits. Every nursing student admitted to St. Thomas had to submit an acceptable "letter of good character," and Nightingale herself placed graduate nurses in approved nursing positions (Nightingale, 1915).

One of the most important features of the Nightingale School was its relative autonomy. Both the school and the hospital nursing service were organized under the head matron. This was especially significant because it meant that nursing service began independently of the medical staff in selecting, retaining, and disciplining students and nurses (Bullough & Bullough, 1978; Nightingale, 1915).

Nightingale was opposed to the use of a standardized government examination and the movement for licensure of trained nurses. She believed that schools of nursing would lose control of educational standards with the advent of national licensure, most notably those standards related to moral character. Nightingale led a staunch opposition to the movement by the British Nurses Association (BNA) for licensure of trained nurses, which the BNA believed critical to protecting the public's safety by ensuring the qualification of nurses by licensure exam. Nightingale was convinced that qualifying a nurse by examination tested only the acquisition of technical skills, not the equally important evaluation of character. She believed nursing involved "divergencies too great for a single standard to be applied" (Nutting & Dock, 1907; Woodham-Smith, 1951).

> I look to the day when there are no nurses to the sick but only nurses to the well.
>
> *—Florence Nightingale, 1893*

Taking Health Care to the Community: Nightingale and Wellness

Early efforts to distinguish hospital from community health nursing include Nightingale's views on "health nursing," which she distinguished from "sick nursing." She wrote two influential papers: "Sick-Nursing and Health-Nursing," which was read in the United States at the Chicago Exposition in 1893, and "Health Teaching in Towns and Villages" in 1894 (Monteiro, 1985). Both papers praised the success of prevention-based nursing practice. Winslow (1946) acknowledged Nightingale's influence in the United States by being one of the first in the field of public health to recognize the importance of taking responsibility for one's own health. As she wrote in 1891, "there are more people to pick us up and help us stand on our own two feet" (Attewell, 1996). According to Palmer (1982), Nightingale was a leader in the wellness movement long before the concept was identified. Nightingale saw the nurse as the key figure in establishing a healthy society, and she envisioned a logical extension of nursing in acute hospital settings to the broadest sense of community used in nursing today. Writing in *Notes on Nursing*, she visualized the nurse as "the nation's first bulwark in health maintenance, the promotion of wellness, and the prevention of disease" (Palmer, 1982, p. 6).

William Rathbone, a wealthy ship owner and philanthropist, is credited with the establishment of the first visiting nurse service, which eventually evolved into district nursing in the community. He was so impressed with the private-duty nursing care that his sick wife had received at home that he set out to develop a "district nursing service" in Liverpool, England. At his own expense, in 1859, he developed a corps of nurses who were trained to care for the sick poor in their homes (Bullough & Bullough, 1978; Howse, 2007; Minkowski, 1992). He divided the community into 16 districts; each was assigned a nurse and a social worker who provided nursing and health education. Rathbone's experiment in district nursing was so successful that he was unable to find enough nurses to work in the districts. Rathbone then contacted Nightingale for assistance. Her recommendation was to train more nurses, and she advised Rathbone to approach the Royal Liverpool Infirmary with a proposal for opening another training school for nurses (Rathbone, 1890). The infirmary agreed to Rathbone's proposal, and district nursing soon spread throughout England as successful "health nursing" in the community for the sick poor through voluntary agencies (Rosen, 1958).

Ever the visionary, Nightingale (1893) contended that "Hospitals are but an intermediate stage of civilization. The ultimate aim is to nurse the sick poor in their own homes" (Attewell, 1996). She also wrote in regard to visiting families at home (1894), "We must not talk to them or at them but with them" (Attewell, 1996). A service similar to that begun by Rathbone, **health visiting,** began in Manchester, England, in 1862 by the Manchester and Salford Sanitary Association. The purpose of placing "health visitors" in the home was to provide health information and instruction to families. Eventually, health visitors evolved to provide preventive health education and district nurses to care for the sick at home (Bullough & Bullough, 1978; Howse, 2007).

Nightingale's Legacy

When Nightingale returned to London after the Crimean War, she remained haunted by her experiences related to the soldiers dying of preventable diseases. She was troubled by nightmares and had difficulty sleeping in the years that followed. She wrote in her journal: "Oh my poor men; I am a bad mother to come home and leave you in your Crimean graves. . . . I can never forget. . . . I stand at the altar of the murdered men and while I live, I fight their cause" (Woodham-Smith, 1983, pp. 178, 193). Nightingale became a prolific writer and a staunch defender of the causes of the British soldier, sanitation in England and India, and trained nursing.

As a woman, Nightingale was not able to hold an official government post or to vote. Historians have had varied opinions about the exact nature of the disability that kept her homebound for the remainder of her life. Recent scholars have speculated that she experienced post-traumatic stress disorder from her experiences in the Crimea; there is also considerable evidence that she suffered from the painful disease brucellosis (Barker, 1989; Nightingale, 1915; Young, 1995). Nevertheless, Nightingale exerted incredible influence through friends and acquaintances, directing from her sickroom sanitation and poor law reform. Her mission to "cleanse" spread from the military to the British Empire; her fight for improved sanitation both at home and in India consumed her energies for the remainder of her life (Vicinus & Nergaard, 1990).

According to Monteiro (1985), two recurrent themes are found throughout Nightingale's writings about disease prevention and wellness outside the hospital. *The most persistent theme is that nurses must be trained differently and instructed specifically in district and instructive nursing.* Nightingale consistently wrote that the "health nurse" must be trained in the nature of poverty and its influence on health, something she referred to as the "pauperization" of the poor. She also believed that above all, health nurses must be good teachers about hygiene and helping families learn to better care for themselves (Nightingale, 1893). She insisted that untrained, "good intended women" could not substitute for nursing care in the home. Instead, Nightingale pushed for an extensive orientation and additional training, including prior hospital experience, before someone was hired as a district nurse. She outlined the qualifications in her paper "On Trained Nursing for the Sick Poor," in which she called for 1 month's "trial" in district nursing, 1 year's training in hospital nursing, and 3 to 6 months training in district nursing (Monteiro, 1985). According to Nightingale, "There is no such thing as amateur nursing."

The second theme that emerged from her writings was the focus on the role of the nurse. *Nightingale clearly distinguished the role of the health nurse in promoting what we today call self-care.* In the past, philanthropic visitors under the aegis of Christian charity would visit the homes of the poor and offer them relief (Monteiro, 1985). Nightingale believed that such activities did little to teach the poor to care for themselves and further "pauperized" them—keeping them dependent and vulnerable, unhealthy, prone to disease, and reliant on others to keep them healthy. The nurse had to help the families at home manage a healthy environment for themselves, and Nightingale saw a trained nurse as being the only person who could pull off such a feat. She stated, "Never think that you have done anything effectual in nursing in London, till you nurse not only the sick poor in workhouses, but those at home."

Although Nightingale is best known for her reform of hospitals and military health care, she was a great believer in the future of health care, which she anticipated should be preventive in nature and would more than likely take place in the home and community. Her accomplishments in the field of "sanitary nursing" extended beyond the walls of the hospital to include workhouse reform and community sanitation reform. In 1864, Nightingale and Rathbone once again worked together to lead the reform of the Liverpool Workhouse Infirmary, where more than 1,200 sick paupers were crowded into unsanitary and unsafe conditions (Bostridge, 2008). Under the British Poor Laws, the most desperately poor of the large cities were gathered into large workhouses. When they became sick, they were also sent to the workhouse. Trained nursing care in these venues was all but nonexistent. Through legislative pressure and a well-designed public campaign describing the horrors of the workhouse infirmary, reform of the workhouse system was accomplished by 1867. Although it was not as complete as Nightingale had wanted, nevertheless nurses were in place and being paid a salary (Nightingale, 1915; Seymer, 1954).

ETHICAL CONNECTION

There are five essential points in securing the health of houses:

Pure air
Pure water
Efficient drainage
Cleanliness
Light

Sources: Nightingale, F. (1860). *Notes on nursing: What it is and what it is not.* London: Harrison; Cook, 1913, p. 133.

> To set these poor sick people going again, with a sound and clean house, as well as with a sound body and mind, is about as great a benefit as can be given them—worth acres of gifts and relief. This is depauperizing them."
>
> —*Florence Nightingale*

> My view you know is that the ultimate destination of all nursing is the nursing of the sick in their own homes. . . . I look to the abolition of all hospitals and workhouse infirmaries. But no use to talk about the year 2000.
>
> —*Florence Nightingale, letter to Henry Bonham Carter, 1867*

By 1901, Nightingale lived in a world without sight or sound, leaving her unable to write. Over the next 5 years, she lost her ability to communicate and most days existed in a state of unconsciousness. In November 1907, Nightingale was honored with the Order of Merit by King Edward VII, the first time the award was ever given to a woman. In May 1910, the Nightingale Training School of Nursing at St. Thomas celebrated its Jubilee. By that time, there were now more than 1,000 training schools for nurses in the United States alone (Cook, 1913).

Nightingale died in her sleep around noon on August 13, 1910, and was buried quietly and without pomp near the family's home at Embley, her coffin carried by six sergeants of the British Army (Bostridge, 2008).

Only a small cross marks her grave at her request: "FN. Born 1820. Died 1910." (Brown, 1988). The family refused a national funeral and burial at Westminster Abbey out of respect for Nightingale's last wishes. She had lived for 90 years and 3 months.

> Money would be better spent in maintaining health in infancy and childhood than in building hospitals to cure disease.
>
> —*Florence Nightingale, 1894*
>
> It is cheaper to promote health than to maintain people in sickness.
>
> —*Florence Nightingale, 1894*

A DAY IN THE LIFE

Barbara Dossey

Barbara Dossey is a noted Nightingale scholar and the author of the book *Florence Nightingale: Mystic, Visionary, Healer* (Philadelphia, PA: Lippincott Williams & Wilkins, 2000).

Was Nightingale a mystic? Mysticism is often defined as an individual's direct, unmediated experience of God. A mystic is a person who has such an experience, to a greater or lesser degree. Nightingale received her first call from God at age 16 and received three more direct calls from God in her life. She believed the messages of Christianity, but was tolerant and ecumenical in her attitude toward world religions. She wrote, "To know God we must study Him in the Pagan and Jewish dispensations as in the Christian."

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Early Nursing Education and Organization in the United States

In the United States, the first training schools for nursing were modeled after the Nightingale School of Nursing at St. Thomas in London. Bellevue Training School for Nurses in New York City; Connecticut Training School for Nurses in New Haven, Connecticut; and the Boston Training School for Nurses at Massachusetts General Hospital in Boston were the earliest programs for trained nurses in the United States (Nutting & Dock, 1907). Based on the Victorian belief in the natural affinity for women to be sensitive, possess high morals, and be caregivers, early nursing training required that applicants be female. Sensitivity, high moral character, purity of character, subservience, and "ladylike" behavior became the associated traits of a "good nurse," thus setting the "feminization of nursing" as the ideal standard for a good nurse. These historical roots of gender- and race-based caregiving excluded males and minorities from the nursing profession, a trend that continued for many years and still influences career choices for men and women today. These early training schools provided a stable, subservient, white female workforce, as student nurses served as the primary nursing staff for these early hospitals.

A significant report, known simply as the **Goldmark Report** (more formally, *Nursing and Nursing Education in the United States*), was released in 1922; it advocated the establishment of university schools of nursing to train nursing leaders. The report, initiated by Nutting in 1918, was an exhaustive (500-page) and comprehensive investigation into the state of nursing education and training. Author Josephine Goldmark, a social worker and pioneer in research into nursing preparation in the United States, stated:

> From our field study of the nurse in public health nursing, in private duty, and as instructor and supervisor in hospitals, it is clear that there is need of a basic undergraduate training for all nurses alike, which should lead to a nursing diploma. (Goldmark, 1923, p. 35)

The first university school of nursing was established at the University of Minnesota in 1909. Although the new nurse training school was under the college of medicine and offered only a 3-year diploma, the Minnesota program nevertheless represented a significant leap forward in nursing education.

Nursing for the Future (the so-called Brown Report), authored by Esther Lucille Brown in 1948 and sponsored by the Russell Sage Foundation, was critical of the quality and structure of nursing schools in the United States. The Brown Report ultimately became the catalyst for the implementation of educational nursing program accreditation through the National League for Nursing (NLN; Brown, 1936, 1948).

Positive changes also occurred for minority and male nurses. As a result of the post–World War II nursing shortage, the associate degree in nursing (ADN) was established by Mildred Montag in 1952 as a 2-year program for registered nurses (Montag, 1959). In 1950, nursing became the first profession for which the same licensure exam, the State Board Test Pool, was used throughout the nation to license registered nurses (RNs). This increased mobility for the registered nurse resulted in a significant advantage for the relatively new profession of nursing (State Board Test Pool Examination, 1952).

THINK ABOUT THIS

Some nurses believe that the legacy of Florence Nightingale is holding nursing back and represents the negative and backward elements of nursing. This view cites as evidence Nightingale's support for the subordination of nurses to physicians, opposition to registration of nurses, and failure to see mental health nurses as part of the profession. Wheeler has gone so far as to say, "The nursing profession needs to exorcise the myth of Nightingale, not necessarily because she was a bad person, but because the impact of her legacy has held the profession back too long." After reading this chapter, what do you think? Is Nightingale relevant in the 21st century to the nursing profession? Why or why not?

Source: Wheeler, W. (1999). Is Florence Nightingale holding us back? *Nursing 99, 29*(10), 82-23.

> Preventable disease should be looked upon as a social crime.
>
> —*Florence Nightingale, 1894*

The Evolution of Nursing in the United States: The First Century of Professional Nursing

Early nurse leaders of the century included **Isabel Hampton Robb**, who in 1896 founded the Nurses' Associated Alumnae. In 1911, this organization officially became known as the **American Nurses Association (ANA)**. **Lavinia Lloyd Dock** was a militant suffragist who linked women's roles as nurses to the emerging women's movement in the United States. By contrast, Isabel Hampton Robb—like Nightingale herself—opposed the women's suffragist movement, instead focusing on the need for women to own property in Great Britain. Her well-reasoned position was that property ownership was the link to women's voting power.

Mary Adelaide Nutting, Lavinia Lloyd Dock, Sophia Palmer, and Mary E. Davis were instrumental in developing the first nursing journal, ***American Journal of Nursing (AJN)***, in October 1900. Through the ANA and the *AJN*, nurses then had a professional organization and a national journal with which to communicate with one another (Kalisch & Kalisch, 1986).

State licensure of trained nurses began in 1903 with the enactment of North Carolina's licensure law for nursing. Shortly thereafter, New Jersey, New York, and Virginia passed similar licensure law for nursing. Professional nursing was well on its way to public recognition of practice and educational standards, as state after state passed similar legislation over the next several years.

Margaret Sanger worked as a nurse on the Lower East Side of New York City in 1912 with immigrant families. She was astonished to find widespread ignorance among these families about conception, pregnancy, and childbirth. After a horrifying experience with the death of a woman from a failed self-induced abortion, Sanger devoted her life to teaching women about birth control. A staunch activist in the early family planning movement, Sanger is credited with founding Planned Parenthood of America (Sanger, 1928).

THINK ABOUT THIS

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> As the modern nursing movement is emphatically an outcome of the original and general woman's movement . . . it would be a great pity for them [nurses] to allow one of the most remarkable movements of the day to go on under their eyes without comprehending it. . . . Unless we possess the ballot we shall not know when we may get up in the morning to find all that we had gained has been taken from us.
>
> —*Lavinia Lloyd Dock, 1907*

MEDIA MOMENT

African American Nurses in History

Read more about the contributions of African American nurses . . .

Alexander, Z., & Dewjee, A. (1981). Mary Seacole. *History Today, 31*, 45.

Bell, P. L. (1993). "Making do" with the midwife: Arkansas's Mamie O. Hale in the 1940s. *Nursing History Review, 1*, 155–169.

Brewman, M. P. (1952). The Negro nurse. *Nation, 175*(8), 160.

Buhler-Wilkerson, K. (1992). Caring in its "proper place": Race and benevolence in Charleston, SC, 1813–1930. *Nursing Research, 41*(1), 14–20.

Campinha-Bacote, J. (1988). The Black nurses' struggle toward equality: An historical account of the National Association of Colored Graduate Nurses. *Journal of National Black Nurses Association, 2*(2), 15–25.

Carnegie, M. E. (1992). Black nurses in the United States: 1879–1992. *Journal of National Black Nurses Association, 6*(1), 13–18.

Chayer, M. E. (1954). Mary Eliza Mahoney. *American Journal of Nursing, 54*(4), 429–431.

Davis A. T. (1999). *Early black American leaders in nursing: Architects for integration and equality.* (National League for Nursing Series.) Sudbury, MA: Jones and Bartlett.

Doona, M. E. (1986). Glimpses of Mary Eliza Mahoney (7 May 1845–4 January 1929). *Journal of Nursing History, 1*(2), 20–34.

Elmore, J. A. (1976). Black nurses: Their service and their struggle. *American Journal of Nursing, 76*(3), 435–437.

George, V. D., Bradford, D. M., & Battle, A. (2000). Yesterday, today, and tomorrow: Transitioning through time with the Cleveland Council of Black Nurses. *Nursing & Health Care Perspectives, 21*(5), 219–227.

Goldstein, R. L. (1960). Negro nurses in hospitals. *American Journal of Nursing, 60*(2), 215–217.

Mabel Staupers, who led battle to end prejudice, dies at 99. (1990). *American Journal of Nursing, 9*(2), 121.

Mosley, M. O. P. (1995). Beginning at the beginning: A history of the professionalization of black nurses in America, 1908–1951. *Journal of Cultural Diversity, 2*(4), 101–109.

Mosley, M. O. P. (1995). Despite all odds: A three-part history of the professionalization of black nurses through two professional nursing organizations, 1908–1955. *Journal of National Black Nurses Association, 7*(2), 10–20.

Mosley, M. O. P. (1995). Mabel K. Staupers: A pioneer in professional nursing. *N & HC Perspectives on Community, 16*(1), 12–17.

Mosley, M. O. P. (1996). A new beginning: The story of the National Association of Colored Graduate Nurses, 1908–1951. *Journal of National Black Nurses Association, 8*(1), 20–32.

Smith, S. L. (1994). White nurses, black midwives, and public health in Mississippi, 1920–1950. *Nursing History Review, 2*, 29–49.

Staupers, M. K. (1937). The Negro nurse in America. *Opportunity, 15*(11), 339–341.

Staupers, M. K. (1961). *No time for prejudice: A story of the integration of Negroes in nursing in the United States.* New York, NY: MacMillan.

Tucker-Allen, S. (1997). The founding of the Association of Black Nursing Faculty: My memories of the first five years. *ABNF Journal, 8*(4), 73–80.

Washington, B. T. (1910). Looking through the years: 1910. Training colored nurses at Tuskegee. *American Journal of Nursing, 11*, 167–171. (Reprinted by permission in *Creative Nursing: A Journal of Values, Issues, Experience & Collaboration, 3*(1), 16, 1997.)

Wilkins, R. (1943). Black women in white. *Negro Digest, 1*(6), 61–63.

By 1917, the emerging nursing profession was driven by two significant events that dramatically increased the need for additional trained nurses in the United States: World War I and the influenza epidemic. Nightingale's work and the devastation of the Civil War had firmly established the need for nursing care in war. Mary Adelaide Nutting, who became a professor of nursing and health at Columbia University, chaired the newly established Committee on Nursing in response to the call for more nurses as the United States entered the war in Europe. U.S. nurses realized early on that World War I was unlike previous wars: It was a global conflict that involved coalitions of nations against nations, involving vast amounts of supplies and demanding the organization of all the nation's resources for military purposes (Kalisch & Kalisch, 1986). Along with **Lillian Wald** and **Jane A. Delano**, director of nursing in the American Red Cross, Nutting initiated a national publicity campaign to recruit young women to enter nurse training. The Army School of Nursing, headed by **Annie Goodrich** as dean, and the Vassar Training Camp for Nurses prepared nurses for the war and for home nursing and hygiene nursing through the Red Cross (Dock & Stewart, 1931). The Committee on Nursing estimated that there were at most 200,000 active "nurses" in the United States at the beginning of World War I, both trained and untrained, which was inadequate to support the military effort abroad (Kalisch & Kalisch, 1986). At home, the influenza epidemic of 1917–1919 led to increased public awareness of the need for public health nursing and public education about hygiene and disease prevention.

The successful campaign to attract nursing students focused heavily on patriotism, which ushered in the new era for nursing as a profession. By 1918, nursing school enrollments were up by 25%. In 1920, Congress passed a bill that provided nurses with military rank (Dock & Stewart, 1931). Following close behind, the passage of the 19th Amendment to the U.S. Constitution granted women the right to vote. According to Stewart (1921):

> Probably the greatest contribution of the war experience to nursing lies in the fact that the whole system of nursing education was shaken for a little while out of its well-worn ruts and brought out of its comparative seclusion into the light of public discussion and criticism. When so many lives hung on the supply of nurses, people were aroused to a new sense of their dependence on the products of nursing schools, and many of them learned for the first time of the hopelessly limited resources which nursing educators have had to work with in the training of these indispensable public servants. Whatever the future may bring, it is unlikely that nursing schools will willingly sink back again into their old isolation or that they will accept unquestionably the financial status which the older system imposed on them. (p. 6)

While nursing as a profession was emerging in the United States, it remained a "white, female only" career choice during these early years. Men and minorities were excluded from the field, and those who wanted to enter nursing school found themselves essentially "locked out." Eventually, quotas were established in select nursing programs to permit African Americans' and other minorities' admission. Even when these nurses graduated, they had very few employment opportunities owing to segregationist policies of hospitals and other health agencies. Males faced the same challenges, and eventually schools of nursing were developed specifically for male nurse training. Early roles for male nurses were limited to psychiatric facilities, where their strength and larger stature were considered advantages in dealing with these populations.

These early discriminatory policies reflected the era but were also patterned after Nightingale's belief that nursing was best suited for women and their nurturing instinct. Nightingale did not write specifically about the inclusion of minorities in the nursing profession. However, as indicated by her attitude toward Mary Seacole (as discussed earlier in this chapter), she seemed to have a preference for white female nurses as the face of the emerging profession of nursing.

The Emergence of Community and Public Health Nursing

The pattern for health visiting and district nursing practice outside the hospital was similar in the United States to that in England (Roberts, 1954). U.S. cities were besieged by overcrowding and epidemics after the Civil War. The need for trained nurses evolved as in England, and schools throughout the United States developed along the Nightingale model. Visiting nurses were first sent to philanthropic organizations in New York City (1877), Boston (1886), Buffalo (1885), and Philadelphia (1886) to care for the sick at home. By the end of the century, most large cities had some form of visiting nursing program, and some headway was being made even in smaller towns (Heinrich, 1983). Industrial or occupational health nursing was first started in Vermont in 1895 by a marble company interested in the health and welfare of its workers and their families. Tuberculosis (TB) was a leading cause of death in the 19th century; nurses visited patients bedridden from TB and instructed persons in all settings about prevention of the disease (Abel, 1997).

Lillian Wald, Public Health Nursing, and Community Activism

Lillian Wald, a wealthy young woman with a great social conscience, graduated from the New York Hospital School of Nursing in 1891 and is credited with creating the title "public health nurse." After a year working in a mental institution, Wald entered medical school at Woman's Medical College in New York. While in medical school, she was asked to visit immigrant mothers on New York's Lower East Side and instruct them on health matters (see **Box 2**). Wald was appalled by the conditions there. During one now famous home visit, a small child asked Wald to visit her sick mother.


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Nurse midwives in rural areas contributed to the decline in maternal and infant mortality during the 1950s.

And the rest, as they say, is history. According to Wald: "Nursing is love in action and there is no finer manifestation of it than the care of the poor and disabled in their own homes" (Wald, 1915, p. 14). What Wald found changed her life forever and secured a place for her in American nursing history. Wald said, "all the maladjustments of our social and economic relations seemed epitomized in this

BOX 2 Lillian Wald Takes a Walk

From the schoolroom where I had been giving a lesson in bed-making, a little girl led me one drizzling March morning. She had told me of her sick mother, and gathering from her incoherent account that a child had been born, I caught up the paraphernalia of the bed-making lesson and carried it with me.

The child led me over broken roadways . . . between tall, reeking houses whose laden fire-escapes, useless for their appointed purpose, bulged with household goods of every description. The rain added to the dismal appearance of the streets and to the discomfort of the crowds which thronged them, intensifying the odors which assailed me from every side. Through Hester and Division Streets we went to the end of Ludlow; past odorous fish-stands, for the streets were a market-place, unregulated, unsupervised, unclean, past evil-smelling, uncovered garbage cans . . .

All the maladjustments of our social and economic relations seemed epitomized in this brief journey and what was found at the end of it. The family to which the child led me was neither criminal nor vicious. Although the husband was a cripple, one of those who stand on street corners exhibiting deformities to enlist compassion, and masking the begging of alms by a pretense of selling, although the family of seven shared their two rooms with boarders—who were literally boarders, since a piece of timber was placed over the floor for them to sleep on—and although the sick woman lay on a wretched, unclean bed, soiled with a hemorrhage two days old, they were not degraded human beings, judged by any measure of moral values.

In fact, it was very plain that they were sensitive to their condition, and when, at the end of my ministrations, they kissed my hands (those who have undergone similar experiences will, I am sure, understand), it would have been some solace if by any conviction of the moral unworthiness of the family I could have defended myself as a part of a society which permitted such conditions to exist. Indeed, my subsequent acquaintance with them revealed the fact that miserable as their state was, they were not without ideals for the family life, and for society, of which they were so unloved and unlovely a part.

That morning's experience was a baptism of the fire. Deserted were the laboratory and the academic work of the college. I never returned to them. On my way from the sick-room to my comfortable student quarters my mind was intent on my own responsibility. To my inexperience it seemed certain that conditions such as these were allowed because people did not know, and for me there was a challenge to know and to tell. When early morning found me still awake, my naive conviction remained that, if people knew things—and "things" meant everything implied in the condition of this family—such horrors would cease to exist, and I rejoiced that I had a training in the care of the sick that in itself would give me an organic relationship to the neighborhood in which this awakening had come.

Source: Wald, L. D. (1915). *The House on Henry Street.* New York, NY: Henry Holt and Company.

brief journey" (p. 6). Wald was profoundly affected by her observations; she and her colleague, **Mary Brewster,** quickly established the **Henry Street Settlement** in this same neighborhood in 1893. She quit medical school and devoted the remainder of her life to "visions of a better world" for the public's health.

This effort later evolved into the Visiting Nurse Service of New York City, which laid the foundation for the establishment of public health nursing in the United States. The health needs of the population were met through addressing social, economic, and environmental determinants of health, in a pattern after Nightingale. The nurses helped educate families about disease transmission and stressed the importance of good hygiene. They provided preventive, acute, and long-term care. As such, the Henry Street Settlement went far beyond the care of the sick and the prevention of illness: It aimed at rectifying those causes that led to the poverty and misery.

Wald was a tireless social activist for legislative reforms that would provide a more just distribution for the marginal and disadvantaged in the United States (Donahue, 1985). She began her work with 10 nurses in 1893, which grew to 250 nurses serving 1,300 patients each day by 1916. During this same period, the budget for the service grew from nothing to more than $600,000 per year, all from private donations.

Wald hired African American nurse **Elizabeth Tyler** in 1906, which evidenced her commitment to cultural diversity. Although unable to visit white patients, Tyler made her own way by "finding" African American families who needed her service. In 3 months, Tyler had so many African American families in her caseload that Wald hired a second African American nurse, Edith Carter. Carter remained at Henry Street for 28 years until her retirement (Carnegie, 1991).

During her tenure at Henry Street, Wald demonstrated her commitment to racial and cultural diversity by employing 25 African American nurses over the years, and she paid them salaries equal to white nurses, and provided identical benefits and recognition to minority nurses (Carnegie, 1991). This practice was exceptional during the early part of the 20th century, a time when African American nurses were often denied admission to white schools of nursing and membership in professional organizations and were denied opportunities for employment in most settings. Because hospitals of this era often set quotas for African American patients, those nurses who managed to graduate from nursing schools found themselves with few patients who needed or could afford their services. African American nurses struggled for the right to take the registration examination available to white nurses.

Wald submitted a proposal to the city of New York after learning of a child's dismissal from a New York City school for a skin condition. Her proposal was for one of the Henry Street Settlement nurses to serve for free for 1 month in a New York school. The results of her experiment were so convincing that salaries were approved for 12 school nurses. From this beginning, school nursing was born in the United States and became one of many community specialties credited to Wald (Dietz & Lehozky, 1963).

In 1909, Wald proposed a program to the Metropolitan Life Insurance Company to provide nursing visits to its industrial policyholders. Statistics kept by the company documented the lowered mortality rates of policyholders attributed to the nurses' public health practice and clinical expertise. The program demonstrated savings for the company and was so successful that it lasted until 1953 (Hamilton, 1988).

RESEARCH ALERT

Three exceptional African American nurses—Jessie Sleet, Elizabeth Tyler, and Edith Carter—are considered pioneers in community health nursing. This research article details how these three African American community health nurses made significant contributions to the development of New York City's community health nursing by providing much-needed health care to unserved members of the African American community (1900–1937). They provided strong leadership in diverse roles such as supervisors, administrators, and educators in patients' homes, babies' health stations, settlement houses, and clinics. Their work occurred during a period of rapid industrialization, immigration, and great population growth in the midst of teeming slums, diseases, and death. In community health nursing history, it was a period of establishment, activism, expansion, and development. For these African American nurse pioneers, it was a time of significant challenges and growth. They faced educational, professional, and racial barriers and increased mortality among people of their own race. This research chronicles their brave and skilled efforts to transcend these barriers and improve the health of African American citizens during the early part of the 20th century.

Source: Mosley, M. O. (1996). Satisfied to carry the bag: Three black community health nurses' contributions to health care reform, 1900–1937. *Nursing History Review, 4,* 65–82.

Wald's other significant accomplishments include the establishment of the Children's Bureau, set up in 1912 as part of the U.S. Department of Labor. She was also an enthusiastic supporter of and participant in women's suffrage, lobbied for inspections of the workplace, and supported her employee, Margaret Sanger, in her efforts to give women the right to birth control. She was active in the American and International Red Cross and helped form the Women's Trade Union League to protect women from sweatshop conditions.

Wald first coined the phrase "public health nursing" and transformed the field of community health nursing from the narrow role of home visiting to the population focus of today's community health nurse (Robinson, 1946). According to Dock and Stewart (1931), the title of "public health nurse" was purposeful: The role designation was designed to link the public's health to governmental responsibility, not private funding. As state departments of health and local governments began to employ more and more public health nurses, their role increasingly focused on prevention of illness in the entire community. A distinction was made between the visiting nurse, who was employed by the voluntary agencies primarily to provide home care to the sick, and the public health nurse, who concentrated on preventive measures (Brainard, 1922). Early public health nurses came closer than hospital-based nurses to the autonomy and professionalism that Nightingale advocated. Their work was conducted in the unconfined setting of the home and community, they were independent, and they enjoyed recognition as specialists in preventive health (Buhler-Wilkerson, 1985). Public health nurses from the beginning were much more holistic in their practice than their hospital counterparts. They were involved with the health of industrial workers, immigrants, and their families, and were concerned about exploitation of women and children. These nurses also played a part in prison reform and care of the mentally ill (Heinrich, 1983).

Considered the first African American public health nurse, **Jessie Sleet Scales** was hired in 1902 by the Charity Organization Society, a philanthropic organization, to visit African American families infected by TB. Scales provided district nursing care to New York City's African American families and is credited with paving the way for African American nurses in the practice of community health (Mosley, 1996).

Dorothea Lynde Dix

Dorothea Lynde Dix, a Boston schoolteacher, became aware of the horrendous conditions in prisons and mental institutions when asked to conduct a Sunday school class in the House of Correction at Cambridge, Massachusetts.

She was appalled at what she saw and went about studying if the conditions were isolated or widespread; she took 2 years off to visit every jail and almshouse from Cape Cod to the Berkshire Mountains (Tiffany, 1890, p. 76). Her report was devastating. Boston was scandalized by the reality that the most progressive state in the union was now associated with such horrible conditions. The shocked legislature voted to allocate funds to build hospitals. For the rest of her life, Dorothea Dix stood out as a tireless zealot for the humane treatment of the insane and imprisoned. She had exceptional savvy in dealing with legislators: She acquainted herself with the legislators and their records and displayed the "spirit of a crusader." For her contributions, she is considered one of the pioneers of the reform movement in the United States, and her efforts are felt worldwide to the present day (Dietz & Lehozky, 1963).

Dix was also known for her work in the Civil War, having been appointed superintendent of the female nurses of the Army by the secretary of war in 1861. Her tireless efforts led to the recruitment of more than 2,000 women to serve in the Army during the Civil War. Officials had consulted Florence Nightingale concerning conditions in military hospitals and were determined not to make the same mistakes. Dix enjoyed far more sweeping powers than Nightingale, in that she had the authority to organize hospitals, to appoint nurses, and to manage supplies for the wounded (Brockett & Vaughan, 1867). Among her most well-known nurses during the Civil War were the poet Walt Whitman and the author Louisa May Alcott (Donahue, 1985).

Clara Barton

The idea for the International Red Cross was the brainchild of a Swiss banker, J. Henri Dunant, who proposed the formation of a neutral international relief society that could be activated in time of war. The International Red Cross was ratified by the Geneva Convention on August 22, 1864.

Clara Barton, through her work in the Civil War, had come to believe that such an organization was desperately needed in the United States. However, it was not until 1882 that Barton was able to convince Congress to ratify the Treaty of Geneva, thus becoming the founder of the American Red Cross (Kalisch & Kalisch, 1986). Barton also played a leadership role in the Spanish–American War in Cuba, where she led a group of nurses to provide care for both U.S. and Cuban soldiers and Cuban civilians. At the age of 76, Barton went to President McKinley and offered the help of the Red Cross in Cuba. McKinley agreed to allow Barton to go with Red Cross nurses, but only to care for the Cuban citizens. Once in Cuba, the U.S. military saw what Barton and her nurses were able to accomplish with the Cuban military, and American soldiers pressured military officials to allow Barton's help. Along with battling yellow fever, Barton was able to provide care to both Cuban and U.S. military personnel and eventually expanded that care to Cuban citizens in Santiago. One of Barton's most famous patients was young Colonel Teddy Roosevelt, who later became the president of the United States.

Barton became an instant heroine both in Cuba and in the United States for her bravery, tenaciousness, and organized services for the military and civilians torn apart by war. On August 13, 1898, the Spanish–American War came to an end. The grateful people of Santiago, Cuba, built a statue to honor Clara Barton in the town square, where it stands to this day. Tales of the work of Barton and her Red Cross nurses were spread through the newspapers of the United States and in the schools of nursing. A congressional committee investigating the work of Barton's Red Cross staff applauded the work of these nurses and recommended that the U.S. Medical Department create a permanent reserve corps of trained nurses. These reserve nurses became the Army Nurse Corps in 1901.

Barton also led the disaster recovery of the deadliest natural disaster in U.S. history, which surpassed even the recent Hurricane Katrina in its devastating death toll. On September 8, 1900, before hurricanes were even named, a vast storm with wind speeds exceeding 140 miles per hour blew into Galveston Bay. In 24 hours, wind and water had killed an estimated 6,000 people and destroyed an estimated 6,000 buildings. There was no federal help or resources, and the grieving survivors were faced with a federal government that "didn't do" relief for disasters. The only resources came from outside private donors, churches, and philanthropic organizations—and Clara Barton and her Red Cross nurses. One-sixth of the city's population was dead, and the sandbar of Galveston had no place to bury them. Clara Barton arrived on the scene quickly, and she organized efforts to comfort the survivors and provide healthcare services and community-based relief (Baker, 2006).

Clara Barton will always be remembered both as the founder of the American Red Cross and the driving force behind the creation of the Army Nurse Corps.

Birth of the Midwife in the United States

Women have always assisted other women in the birth of babies. These "lay midwives" were considered by communities to possess special skills and somewhat of a "calling." With the advent of professional nursing in England, registered nurses became associated with safer and more predictable childbirth practices. In England and in other countries where Nightingale-system nurses were prevalent, most registered nurses were also trained as midwives with a 6-month specialized training period. In the United States, the training of registered nurses in the practice of midwifery was prevented primarily by physicians. U.S. physicians saw midwives as a threat and an intrusion into medical practice. Such resistance indirectly led to the proliferation of "granny wives" who were ignorant of modern practices, were untrained, and were associated with high maternal morbidity (Donahue, 1985).

The first organized midwifery service in the United States was the **Frontier Nursing Service** founded in 1925 by **Mary Breckenridge.** Breckenridge graduated from St. Luke's Hospital Training School in New York in 1910 and received her midwifery certificate from the British Hospital for Mothers and Babies in London in 1925. She had extensive experience in the delivery of babies and midwifery systems in New Zealand and Australia. In rural Appalachia, babies had been delivered for decades by granny midwives, who relied mainly on tradition, myths, and superstition as the bases of their practice. For example, they might use ashes for medication and place a sharp axe, blade up, under the bed of a laboring woman to "cut" the pain. The people of Appalachia were isolated because of the terrain of the hollows and mountains, and roads were limited to most families. They also had one of the highest birth rates in the United States. Breckenridge believed that if a midwifery service could work under these conditions, it could work anywhere (Donahue, 1985).

Breckenridge had to use English midwives for many years and only began training her own midwives in 1939, when she started the Frontier Graduate School of Nurse Midwifery in Hyden, Kentucky, with the advent of World War II. The nurse midwives accessed many of their families on horseback. In 1935, a small 12-bed hospital was built at Hyden and provided delivery services. The nurse midwives under the direction of Breckenridge were successful in lowering the highest maternal mortality rate in the United States (in Leslie County, Kentucky) to substantially below the national average. These nurses, as at the Henry Street Settlement, provided health care for everyone in the district for a small annual fee. A delivery was assessed an additional small fee. Nurse midwives provided primary care, prenatal care, and postnatal care, with an emphasis on prevention (Wertz & Wertz, 1977).

The "Roaring Twenties" ushered American women—newly armed with the right to vote—into the new freedom of the "flapper era"—shrinking dress hemlines, shortened hairstyles, and the increased use of cosmetics. Hospitals were used by greater numbers of people, and the scientific basis of medicine became well established as most surgical procedures were done in hospitals. Penicillin was discovered in 1928, creating a revolution in the prevention of infectious disease deaths (Donahue, 1985; Kalisch & Kalisch, 1986). The previously mentioned Goldmark Report recommended the establishment of college- and university-based nursing programs.

Mary D. Osborne, who functioned as supervisor of public health nursing for the state of Mississippi from 1921 to 1946, had a vision for a collaboration with community nurses and granny midwives, who delivered 80% of the African American babies in Mississippi. The infant and maternal mortality rates were exceptionally high among African American families, and these granny midwives, who were also African American, were untrained and had little education.

Osborne took a creative approach to improving maternal and infant health among African American women. She developed a collaborative network of public health nurses and granny midwives in which the nurses implemented training programs for the midwives, and the midwives in turn assisted the nurses in providing a higher standard of safe maternal and infant health care. The public health nurses used Osborne's book, *Manual for Midwives*, which contained guidelines for care and was used in the state until the 1970s. They taught good hygiene, infection prevention, and compliance with state regulations. Osborne's innovative program is credited with reducing the maternal and infant mortality rates in Mississippi and in other states where her program structure was adopted (Sabin, 1998).

The Nursing Profession Responds to the Great Depression and World War II

With the stock market crash of 1929 came the Great Depression, which resulted in widespread unemployment of private-duty nurses and the closing of nursing schools, while simultaneously creating an increasing need for charity health services for the population. Nursing students, who had previously been the primary source of staff for hospitals, became scarcer. Unemployed graduate nurses were hired to replace them for minimal wages, a trend that was to influence the profession for years to come (MacEachern, 1932).

Other nurses found themselves accompanying troops to Europe as the United States entered World War II. Military nurses were a critical presence at the invasion of Normandy in 1938, as well as in North Africa, Italy, France, and the Philippines, where Navy nurses provided care aboard hospital ships. More than 100,000 nurses volunteered and were certified for military service in the Army and Navy Nurse Corps.

The resulting severe shortage of nurses on the home front resulted in the development of the **Cadet Nurse Corps. Frances Payne Bolton,** a Congresswoman from Ohio, is credited with the founding of the Cadet Nurse Corps through the Bolton Act of 1945. By the end of the war, more than 180,000 nursing students had been trained through this Act, while advanced practice graduate nurses in psychiatry and public health nursing had received graduate education to increase the numbers of nurse educators (Donahue, 1985; Kalisch & Kalisch, 1986).

Ernie Pyle, a famous correspondent in World War II, offered Americans a "front-seat view" of the war through his detailed journalistic accounts of daily life on the front. Pyle was the first journalist who put his own life in danger by reporting from the battlefront; he spent a great deal of time with soldiers during active combat and was killed during a sniper attack in Ie Shima, Japan, in 1942. Chaplin Nathan Baxter Saucier was assigned to retrieve his body, conduct his service, and assist the soldiers with building his coffin. The funeral service lasted only about 10 minutes. Pyle was buried with his helmet on, at Saucier's request. The Navy, Marine Corps, and Army were all represented at the service. Pyle was a highly regarded and humanistic voice for those serving America during World War II. Here is an example of his accounts of life for nurses in a field hospital in Europe:

> The officers and nurses live two in a tent on two sides of a company street—nurses on one side, officers on the other. . . . The nurses wear khaki overalls because of the mud and dust. Pink female panties fly from a line among the brown warlike tents. On the flagpole is a Red Cross flag made from a bed sheet and a French soldier's red sash. The American nurses—and there were lots of them—turned out just as you would expect: wonderfully. Army doctors and patients too were unanimous in their praise of them. . . . Doctors told me that in the first rush of casualties they were calmer than the men. For the first ten days they had to live like animals, even using open ditches for toilets but they never complained. One nurse was always on duty in each tentful of 20 men. She had medical orderlies to help her. The touch of femininity, the knowledge that a woman was around, gave the wounded man courage and confidence and a feeling of security. (Pyle, 1944)

During the midst of the Depression, many nurses found that the expansion and advances in aviation opened up a new field for nurses. In an effort to increase the public's confidence in the safety of transcontinental air travel, nurses were hired in the promising new role of "nurse-stewardess" (Kalisch & Kalisch, 1986). Congress created an additional relief program, the Civil Works Administration (CWA), in 1933 that provided jobs to the unemployed, including placing nurses in schools, public hospitals and clinics, public health departments, and public health education community surveys and campaigns.

The Social Security Act of 1935 was also passed by Congress to provide old-age benefits, rehabilitation services, unemployment compensation administration, aid to dependent and/or disabled children and adults, and monies to state and local health services. The Social Security Act included Title VI, which authorized the use of federal funds for the training of public health personnel. This led to the placement of public health nurses in state health departments and the expansion of public health nursing as a viable career path.

While nurses were forging new paths for themselves in various fields, Hollywood began featuring nurses in films during the 1930s. The only feature-length films to ever focus entirely on the nursing profession were released during this decade. *War Nurse* (1930), *Night Nurse* (1931), *Once to Every Woman* (1934), *The White Parade* (1934, Academy Award nominee for Best Picture), *Four Girls in White* (1939), *The White Angel* (1936), and *Doctor and Nurse* (1937) all used nurses as major characters. During the bleak years of the economic depression, young women found these nurse heroines who promoted idealism, self-sacrifice, and the profession of nursing over personal desires particularly appealing. No longer were nurses depicted as subservient handmaidens who worked as nurses only as a temporary pastime before marriage (Kalisch & Kalisch, 1986).

Early Education and Standardization of Practice of Public Health Nursing

After the turn of the century in the United States, infectious diseases such as smallpox, TB, malaria, cholera, and typhoid were practice priorities for public health nurses. The public health nurse often initially detected an infectious disease, then referred those patients to physicians for treatment, provided follow-up care to patients when indicated, and tried through education and demonstrations to family and caregivers to prevent the spread of disease. Progress for early education efforts was largely gained through experience. A 3-month orientation and observation process was established in the early 1920s for nurses new to the concepts and policies of public health nursing. The philosophy was simple: Public health nursing was about prevention of disease, the promotion of health, care of the sick, and rehabilitation to productive life (Erickson, 1996).

By 1927, the Rockefeller Foundation provided private funding for a training station for health workers in conjunction with several local county health departments. Nurses, physicians, and sanitarians from many states and foreign countries received public health orientation and training through this initiative before it was discontinued in 1932. In 1929, the Rockefeller Foundation provided grants through the Rosenwald Fund designated for programs to improve the health and lower the death rates of the African American population in the South. These funds, used to establish permanent public health nursing positions for African American nurses, targeted children in areas where nursing and sanitation would make a profound impact on health and health practices (Forbes, 1946).

Challenges of the 1930s

In 1933, President Roosevelt initiated the New Deal to relieve the economic hardship of the country. The Social Security Act in 1935 (Public Law No. 99-271) provided funding to increase public health programs, particularly to extend services and improve health care for mothers and children in rural areas suffering from economic stress. State boards of health secured funds in 1934 through the Children's Bureau of the U.S. Department of Labor for state supervisory nurses, regional supervisory nurses, and local county nurses. The goal of this special project was to place at least one public health nurse in each county in every state. The efforts to reach this goal were remarkable, but qualified public health nurses continued to be few in number (Association of State and Territorial Directors of Nursing [ASTDN], 1993).

The U.S. Public Health Service (USPHS), under the nursing consultation of Pearl Melver, provided leadership in the development of public health nursing services to the states. This effort was encouraged by the National Organization of Public Health Nursing and the Nursing Section of the American Public Health Association. Joint efforts of the federal public health nurses and those who were becoming organized in the states became the impetus for the growth of the specialty of public health nursing (ASTDN, 1993).

Another provision of the Social Security Act of 1935 was the establishment of Crippled Children's Services. Through this initiative, public health nurses were trained in rehabilitation nursing, primarily in orthopedics. These nurses visited crippled children in their homes, held conferences with parents, and assisted in field clinics (Roberts, 1985a).

Syphilis had also been recognized as a major source of morbidity and mortality for many years. In 1938, the USPHS and state boards of health cooperated in a major project to attempt to conquer the disease through case finding, treatment, follow-up contact, and education. Public health nursing was in the vanguard of this effort. Educational conferences were planned so that all public health nurses would have an opportunity to attend. Prenatal screening of patients for syphilis was being introduced as a standard nursing intervention at this time. These efforts were particularly successful in the South (Erickson, 1940; **Box 3**).

The country was gradually recovering from the Great Depression, and economic progress was accelerating. Farm production had broadened through diversification. New industries expanded the economy. The southern states, along with some of the eastern states, began to recognize the importance of nursing service in industrial hygiene programs. The U.S. Division of Industrial Hygiene asked for a public health nurse to plan and help institute nursing services. The prevention of disease, improvement of hazardous work conditions, promotion of health practices including nutrition, and first aid were the interventions to be provided through industrial nursing. As these nurses were employed, short-term educational and direct experience opportunities in areas with industrial nurses were

BOX 3 Public Health Milestones of the 1920s and 1930s

1920s	Frost established epidemiology as science basic to community health
1920s	National Organization for Public Health Nursing formed
1920s	Public Health Nursing Section of American Public Health Association formed
1921	First federal monies allocated for health and social welfare
1923	Health Organization of League of Nations founded
1925	Frontier Nursing founded
1930s	Association of State and Territorial Directors of Nursing formed
1930	Crippled Children's Programs established
1930	National Institutes of Health established
1935	Social Security Act passed
1938	American Public Health Association set standards for school health

Source: Data from Public Health Milestones in the 1920s and 1930s. APHA, 2006.

planned so that the nurses could receive the best preparation possible for the role (Morton, Roberts, & Bender, 1993; Roberts, 1985a, 1985b; Smith, 1934).

Progressive Initiatives After the War Years

By 1942, state boards of health and education began to enter operative agreements to strengthen public health nursing service to the school-age population. The role of the public health nurse in the school was generalized, but much emphasis was placed on health promotion, immunizations, nutrition, and correction of physical defects. Landmark legislation was passed by the U.S. Congress in March 1943, establishing the Emergency Maternity and Infant Care (EMIC) program for the care of the dependents of enlisted men of the U.S. armed services. The program was designed to provide for maternity care and acute illness care of the infants and was administered through the U.S. Children's Bureau. In less than a month, the program was initiated in almost all states. Training for public health nurses was once again funded by the federal government, and the role of the public health nurse expanded to include mothers and babies in a more formal way (ASTDN, 1935–1993).

The USPHS Division of Public Health Nursing conducted research during the mid-1940s to study public health nursing. The most significant recommendations included the designation of public health nursing in states as a major division of nursing, the recognition of public health nursing as a service delivery system to all public health divisions and programs, and the importance of educational and practice issues related to professional nursing. The studies cited a low educational level for public health nurses and strongly recommended upgrading educational qualifications. The studies critiqued the established expenditure of nursing time and activities, determining that many duties carried out by public health nurses could be delegated to clerical staff and health aides. Health aides were introduced to the public health team with high school graduates employed to support public health nursing. These individuals quickly became a valuable resource and support to public health nursing, performing both clerical and clinical support activities (ASTDN, 1935–1993).

In December 1947, senior cadet nurses had a 6-month general training in public health and polio care through the training center of the state boards of health. The purpose of the Cadet Nurse Corps Program, funded through the USPHS, was to encourage young women to study nursing and to augment the supply of nurses in all health services.

Nurses were returning to work following the close of World War II, although the overall demand for nurses continued to exceed the supply. Newly constructed hospitals, industry, and public health agencies were all clamoring and vying for the short supply of nurses. While more active professional nurses and more students in schools existed by the early 1950s than at any previous time, the increase in numbers and caliber of nurses had not kept pace with the need for service (ASTDN, 1935–1993).

Throughout the 1950s, the nursing home industry began to emerge, with licensure requirements for standards of operation developed to ensure quality of services and care. Communities were accommodating an increase in the number of elderly persons living with chronic and degenerative diseases. Public health nurses provided training courses for nurses' aides employed in nursing homes. Country public health nurses regularly visited the nursing homes within their communities, providing TB skin testing, administering flu vaccines, and providing technical assistance in nursing care. Nutritionists and physical therapists provided additional expertise to improve care processes and support public health nurses in the areas of rehabilitation and nutrition (Hanlon & Pickett, 1974a, 1974b; Morton et al., 1993).

A national trend began in the 1960s to release psychiatric patients from institutional care as improved psychotropic drugs and treatment modalities were available. Inadequate staffing at the state mental health institutions as a result of the nursing shortage was a complicating factor. The National Institute of Mental Health funded projects to study the impact that public health nurses might have on mental health care. A mental health nurse consultant was employed by many states to spearhead the research efforts of these projects. The projects' public health nursing activity was defined as "aftercare" and was designed to determine the effectiveness of integrating follow-up services to mental health patients and their families into general public health nursing service. Public health nursing services included case finding and referral, hospital discharge planning, home and family assessments before and after discharge to the home, and medication monitoring (Amendt & White, 1965; Cottrell, 1948). Mental health services remained an integral part of public health service delivery throughout this decade, with new activities enhancing the communities' focus (**Box 4**).

Great emphasis was placed on child health, growth, and development in the early 1960s. Communicable disease, intestinal parasites, and physical defects that had been so prevalent in the school-age population were greatly diminished. Evaluations of this population found the new concerns to be dental and oral defects, vision and hearing defects, mental and emotional disturbances, accidents,

BOX 4 Public Health Milestones of the 1940s and 1950s

1940s	Public health programs focused on health needs of the war period
1946	Centers for Disease Control and Prevention established by Congress
1946	Mahoney introduced use of penicillin for treatment of syphilis
1948	National Heart, Lung, and Blood Institute established
1948	World Health Organization established
1950s	Policy emphases on health and federal funds for states, environmental health issues, housing, behavior, medical care, and children's health
1950	Tuberculosis outpatient treatment becomes acceptable
1950	Introduction of the Salk vaccine
1950	White House Conference on Children and Youth

Source: Data from Public Health Milestones in the 1940s and 1950s. APHA, 2006.

and serious nutritional deficiencies. Continuing education was provided to enhance public health nurses' skills in observation, assessment, and nursing interventions in the care of children. Public health nurses began to be trained to assess developmental progress of children. Child health services provided by public health nurses included screening for physical defects, administration of immunizations, follow up to correct physical defects, referral for mental health evaluations, consultation with teachers, and health promotion in nutrition, accident prevention, and mental health (Roberts, 1985a).

An evaluation of the school health programs in the mid-1960s identified the need for additional nursing personnel to provide more direct preventive health services. Specialized federal funding through Title V grants was provided through the state departments of education to promote public health initiatives. Many schools recruited their nursing staff from the public health nursing workforce. Those public health nurses who went to schools took a broad view of child health and served as emissaries to school administrators and local boards' members. County public health nurses continued to serve as consultants to the schools in the areas of immunizations and communicable disease and as a referral source for Crippled Children's Services (Roberts, 1985a).

Immunizations administered by public health nurses were proving effective, yet surveys showed that many preschool and school-age children were not completely immunized. Boards of health, continuing their vigilance regarding children's health status, received federal grants under the Vaccination Assistance Act. In 1965, public health nurses administered an increased number of immunizations. The oral polio vaccine, known as the Sabin vaccine, became available in a sugar cube administration form. A measles vaccine became available in 1966 and rubella in 1969. Following mass initial immunization campaigns for both measles and rubella, the new vaccines were incorporated into routine immunization schedules for children (ASTDN, 1935–1993).

By the mid-1960s, federal funding for maternal/child health services required the incorporation of contraceptive information and general reproductive health into public health services. The objective was to reduce maternal and infant mortality and to generally improve the health and wellbeing of mothers and children. Some states had already identified the health problems associated with multiple unplanned and unwanted pregnancies and had been early leaders in efforts to repeal federal and state laws restricting birth control services. By 1944, these efforts had resulted in integrated family planning counseling and issuing of select supplies with maternity and postpartum services into many of the county health departments. Contraceptive supplies at that time included condoms and diaphragms. However, because of the wide divergence of public opinion, the development of the program was slow and unpublicized (ASTDN, 1935–1993: Morton et al., 1993).

Social and Political Influence of the 1960s and 1970s

By 1965, county health departments routinely provided contraceptive counseling and supplies. Oral contraceptives were also available by this time and gave women more convenient and accepted choices. Public health nurses promoted family planning and were key in identifying women at highest risk and need for such services. Family planning nursing visits increased across the country. Eventually, the federal government appropriated monies for additional education of public health nurses to function as family planning nurse practitioners (NPs).

Landmark legislation in 1965 amended the Social Security Act of 1935 by establishing Medicare, a health insurance plan for people 65 years of age and older and for those with long-term disabilities. The insurance plan included reimbursement for intermittent skilled nursing services provided to homebound persons. The purpose of home health services was twofold. Healthcare costs were beginning to skyrocket; home care would reduce costly hospitalization stays with the added benefit of patients being in familiar home settings, enhancing quality of life. The goal of the program was to rehabilitate patients to their maximum potential and to teach families to care for the physical and emotional needs of patients.

Public health nurses had been providing home nursing services on a limited basis since the inception of public health nursing, but this would be the first reimbursement established for direct nursing services. In addition, the reimbursable home health nursing services to be provided would require public health nurses to learn new assessment and rehabilitative technical skills. Federal regulations established for certification were monumental, however. Continuing education for the nurses and nurses' aides who were directly providing care was just one of the regulations that in itself would be an immense task once service delivery was fully implemented (Buhler-Wilkerson, 1993; Erickson, 1996; Institute of Medicine [IOM], 1988).

Federal grants through the USPHS were made available to support the implementation of home health. Nurse consultants, supervising nurses, and staff nurses attended university-supported educational offerings in rehabilitation care and techniques. Educational workshops were designed to upgrade nursing skills and techniques in rehabilitative care and on the conditions of participation of home health services. Additional workshop topics included documentation of skilled care and nursing care plans, medication administration and side effects, and the disease processes of many chronic health conditions.

Public health nurses implemented the Salk vaccine beginning in 1955 in efforts to eradicate polio.

After federal costs studies were implemented by the public health nurses in home health care, it was demonstrated that additional auxiliary staff, including health aides and clerks, would allow public health nurses more time for nursing activities. Action was taken to create additional clerical and aide positions to support the nursing staff.

More liberal social values emerged, and the 1960s became known for having spawned a sexual revolution. These effects were recognized by the early 1970s. Communities were faced with tremendous increases in sexually transmitted diseases and teen pregnancy rates. Social programs in response to these increases were initiated in the 1960s and were formalized in public and community health efforts in all states. The establishment of Medicaid through the amendment to the Social Security Act, Title XIX, enhanced the delivery of healthcare services to a wider range of recipients. The quantity and variance of activities in public health nursing continued to increase.

All the while, the traditional programs of health protection and disease control moved forward, many with an accelerated pace. Collaboration with other agencies, institutions, and groups continued at a high level in an effort to coordinate resources to achieve the best possible public health service delivery. Medicaid programs enhanced the expansion of Crippled Children's Services as a payment mechanism for many previously uncovered services. Additional screening and specialty treatment clinics for neurology, heart, and orthopedics were established throughout the United States. Other initiatives also centered the delivery of child health services. Particularly in states with high infant mortality rates, state boards of health entered cooperative agreements in the 1970s to establish public health nursing positions in newborn intensive care units. The goal was to improve the communication, referral, and follow-up mechanisms for these high-risk infants after discharge from the hospital.

Title XIX of the Social Security Act (Medicaid) established Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) in 1969 to improve the access to preventive and primary health care for low-income children. State boards of health used this opportunity to strengthen the delivery of well-child services. These physical screenings were made available primarily by public health nurses and were reimbursable nursing services, another recognition of the value of public health nursing service. The Denver Developmental Screening Test (DDST) was incorporated into the physical assessment, giving public health nurses a new tool to help find potential developmental delays and provide early intervention in the newborn to 6-year age groups. Workshops and in-service programs were conducted to teach the DDST standardized procedures.

BOX 5 Public Health Milestones of the 1960s and 1970s

1960s	Public health policy issues focused on inequality, integration, poverty, "the pill," housing environmental health, consumer protection, human rights, and peace
1960	Tuberculosis sanatoriums phased out and mainstream treatment begun
1961	First White House Conference on Aging
1961–1962	Sabin vaccine introduced
1962	National Institute of Child Health established
1964	*Surgeon General's Report on Smoking and Health* published
1965	Medicaid and Medicare programs enacted
1970	*Roe v. Wade*
1970	Occupational Safety and Health Administration established
1973	HMO Act passed
1976	National immunization program for "swine flu"
1978	Association of Community Health Nursing Educators formed
1979	Last outbreak of poliomyelitis in the United States
1979	First *Healthy People* report

Source: Data from Public Health Milestones in the 1960s and 1970s. APHA, 2006.

Medical technology continued to advance rapidly, including advances in genetic diagnostics and treatment. Routine screening for sickle-cell anemia was introduced and was integrated with EPSDT services. Other genetic technological advances determined that a contributing factor to the high incidence of mental retardation resulted from genetic disorders such as hypothyroidism and phenylketonuria (PKU). Medication and dietary treatments were developed for these genetic disorders that would improve the quality of life and life expectancy. Nursing interventions included a home assessment, treatment modalities ordered by the attending physician, provision of dietary supplements, and teaching basic child health care and special health care based on the genetic diagnosis derived from the screening (ASTDN, 1935–1993; Hanlon & Pickett, 1974b). Please refer to **Box 5** for milestones of the 1960s and 1970s.

A dramatic increase in home health nursing visits began at the close of the 1970s as a result of Medicare's implementation of diagnosis-related groups (DRGs), which were designed to lower costs through reduced institutionalization. Medicaid also reimbursed for home health services to eligible individuals not on Medicare and for some children with special healthcare needs. Private medical insurance plans and the Veteran's Administration were beginning to reimburse for home health services as well. Additional nursing positions were essential to meet the demand and to balance the quantity relationship with quality nursing care. As more acutely ill patients were cared for in the home and more advanced technological care was introduced into home health care, this specialty increased (ASTDN, 1935–1993).

Public Health Nursing Services in the 1980s and 1990s

As the 1980s began, the United States was experiencing an economic recession with skyrocketing interest rates and rising unemployment rates. National leadership was reducing funding for many of the social programs begun in the 1960s; the philosophy was that less governmental spending would enhance the national economy. The increased number of homeless persons became a national concern. Continuing concerns included illicit drug use, rising teen pregnancy rates, and alterations in family unit structures. Inadequate healthcare resources were also a continuing concern requiring cost containment, management of resources, and careful evaluation and incorporation of advancing technology. During this era, public health nursing services became varied throughout the country. In some states, basic services included both traditional preventive health services and family health services directed at high-risk mothers and babies and a reduction of unplanned pregnancies (ASTDN, 1935–1993).

Fortunately, public health nursing continued to grow and was a strong workforce in the country by the 1980s. Infant death rates declined significantly. Public health nurses participated in many research studies on public health problems such as congenital syphilis and TB preventive studies. Federal funding requirements changed from categorical grants to block grants. Categorical funding of the 1960s and 1970s had required that resources be restricted to the program that funded the resource; a nursing position funded by family planning, for example, was limited to family planning activities. Block funding allowed agencies more discretion on the use of these funds; therefore, services could be offered more efficiently to the public. Integrated public health nursing delivery systems were born. The integration of services allowed public health nurses to return to the more patient-oriented or family-oriented care that had been the traditional philosophy of public health nursing (ASTDN, 1993; Buhler-Wilkerson, 1993).

Genetics screening programs expanded as a result of advanced technology in the early 1980s. The first initiative was newborn screening for sickle-cell anemia. The goal was early detection of disease because early intervention could prevent common infections or premature deaths. State legislatures mandated hospitals to collect newborn screening specimens before infant discharge from the hospital. Screening included at least three genetic disorders: sickle-cell anemia, PKU, and hypothyroidism. Public health nurses were given the responsibility for following up with the newborns with a questionable or positive screen. Questionable screens for PKU and hypothyroidism require prompt attention because early treatment with diet and/or medication will prevent irreversible mental retardation and growth delay. The availability of public health nurses provided an effective means for timely follow up of screenings and for the implementation of medical and nursing care plans when indicated (ASTDN, 1993).

A crucial indicator of any state's quality of life is infant mortality. Public health nursing became a viable resource during the 1980s for delivering services (either personal or preventive) aimed at reducing infant mortality. The major cause of infant mortality was prematurity. Contributing factors included poor nutrition, smoking, teen pregnancy, and inadequate prenatal care. Socioeconomic factors such as inadequate housing, drug abuse, and lack of education were also contributing factors. Maternal risk scoring and documentation to ensure referrals to appropriate levels of care were standards of care. Tracking systems were intensified to ensure adequate levels of care.

Family planning services during the 1980s were also identified as a priority to reduce infant mortality. Risk factors included age and/or inadequate income to purchase contraceptive supplies. Public health nurses continued to promote family planning services, provide health promotion and education in their communities, and intensify tracking systems of teens and others at risk. The Special Supplemental Food Program for Women, Infants, and Children (WIC) continued to address infant mortality. WIC certification and nutrition education were integrated into maternal and child health nursing services' standards of care.

Congressional authorization gave states the option to expand their Medicaid programs in 1987. The services' expansion included case management of high-risk mothers and infants to ensure comprehensive care as a reimbursable service. Nutritionists, social workers, and public health nurses formed teams to establish care plans and assume case manager roles based on the patient's risk factors. Public health nursing activities included nursing assessments, home visits, health education, and communication with medical providers in an effort to improve the overall status of this high-risk population. Documentation of the care process was essential for continuity of care from the initial assessment and plan of care through implementation of services and ongoing evaluation.

Case management emerged during this decade as a new term, but the concept and the related activities of case management were the principles and foundations upon which public health nursing practice had been built. **Case management** is a program for intensive individual supervision, follow up, and referrals to appropriate levels of care. Public health nurses had been providing a form of case management through the years to many patients, such as those receiving TB treatment, those receiving home health services, and children with special healthcare needs.

School health nurses also became stronger in this era. School nurses strengthened the educational process of students by assisting them in improving or adapting to their health status. School nurses were available during school hours to serve as counselors and to provide case finding and referral to physicians, health departments, and other agencies as appropriate to meet the needs of school-age children. Activities included general health screening and referral, hearing and vision screening, identification of suspected abuse and neglect, substance abuse counseling, and appropriate decision making and support. In addition, school nurses provided classroom presentations on health issues and provided emergency care for injuries and illnesses at school.

Communicable disease had renewed public health interest in the nation throughout the 1980s. TB case rates were increasing. Measles cases were being reported among college-age students. New communicable disease concerns emerged in the 1980s, including increased incidence of hepatitis B, human immunodeficiency virus (HIV) infection, and acquired immune deficiency syndrome (AIDS). Case conferences with private medical consultants were established on a district level for initiation and ongoing review of treatment plans carried out by public health nurses. Drug resistance and failure to take medication were identified as major hindrances to individual cure and subsequent eradication of TB. In 1986, public health nurses initiated directly observed therapy (DOT) for TB cases. Rather than self-administration, patients would present to the health department or the public health nurse would visit the home for administration of medications. Later in the decade, public health officials recognized that the increase in TB cases was, in part, associated with the emerging HIV and AIDS cases. HIV screening became a standard of nursing care for all active TB cases.

Many states took an early stance to address measles among the college-age population in the mid-1980s as a result of the increased incidence of disease reported throughout the nation. The college-age population was at greatest risk for disease because they had been immunized with less-than-effective immunizations in the late 1960s or had not received the immunization. Collaboration with state college boards resulted in requirement of measles and rubella immunity for college admission. Public health nurses reviewed immunization records, provided screening tests when indicated, and administered immunizations to assist in the control of measles.

The first cases of AIDS were diagnosed in the early 1980s. Research soon unraveled part of the mystery of the disease. Risk factors for transmission of disease were identified, and a screening test for HIV, the virus that leads to AIDS, became available. Screening provided a means to detect HIV infection earlier and to provide appropriate counseling and education to alter risk behaviors and reduce transmission. Education of the public and high-risk individuals was the only effective weapon that public health had to address this disease. Public health nurses attended educational workshops to gain knowledge and skills for testing and counseling patients who requested testing. Health education materials were developed to support counseling and educational strategies. In addition, public health nurses implemented standards of care by integrating assessment of risk factors for patients receiving other public health services and by disseminating information through public presentations in schools and community organizations.

Progress continued for public health nurses during this era, yet dilemmas remain. A national nursing shortage was recognized, with all states feeling the effects. Public health felt the effects of the nursing shortage greatly, with the vacancy rates reaching 20% at times. A commission on nursing was organized by the Secretary of the U.S. Department of Health and Human Services (HHS) to examine and make recommendations regarding the nursing shortage. The commission's report, completed in 1989, cited the reality of the shortage and the impact on healthcare delivery. The shortage was determined to be the result of the increasing demand for nurses, and the report urged agencies to be attentive to using measures aimed at reducing the barriers to effective recruitment and retention (HHS, 1988).

One of the commission's recommendations was that nursing should have greater representation in the policy and decision-making activities of healthcare institutions. Acting on this recommendation, both public health nurses and their administrations developed mechanisms whereby public health nurses moved into broader policy-making roles. At the close of the decade, public health nursing continued as a strong force in the delivery of health care in many states and in health promotion and disease prevention in others. Public health nurses were instrumental in establishing and integrating new initiatives in public health to combat old public health problems and to address new public health concerns. The value of public health nursing activities continued to be recognized as reimbursement for selected activities and NP services were expanded.

The federal government's staggering budget deficits were the major national focus as the 1990s began. Healthcare costs were escalating, and governmental measures attempting to control increasing costs were not proving effective. The gloomy financial picture was exacerbated by Desert Storm, the U.S. military troops' assignment by President George H. W. Bush to protect Saudi Arabia and to retaliate for Iraq's invasion of Kuwait.

Current and emerging healthcare issues of the 1990s lay close to the heart of public health. The percentage of the population older than 65 continued to rise. Life expectancy in the United States had risen from 47 years in 1900 to 75 years in 1990. Infant mortality, although significantly declining through the years, required continued vigilance. The increased incidence of syphilis and other sexually transmitted diseases was of chief concern to public health. The number of persons infected with HIV and/or diagnosed with AIDS was increasing at alarming rates. Substance abuse continued to be a major problem, with studies identifying it as a contributing factor in 50% of all traffic accidents, in the transmission of HIV infection, and in infant morbidity and mortality.

Yet federal funding reductions were inevitable for public health as a result of the sluggish national economy as the United States entered the 1990s. Without significant infusions of money for additional staff, medications, vaccines, and health promotion/disease prevention activities, states faced increases in preventable diseases and deaths and a reversal of the recent favorable trends in lowering infant mortality and teen pregnancy. Difficult economic times resulted in the careful reviews of resources and the utilization of those resources. Focus was again directed toward enhancing nursing education and staff development, strengthening relationships with schools of nursing, and developing a quality assurance process for the integration of public health nursing services. Because of the large number of nurses employed, public health nurses were afforded greater access to approved continuing education opportunities specific to their area of practice. Select continuing education offerings, including TB updates, HIV testing and counseling courses, and community assessment, became required orientation for newly employed public health nurses (Gebbie, 1996).

The nation experienced a significant increase in the incidence of syphilis. Case rates were climbing and were

BOX 6 Public Health Milestones of the 1980s and 1990s

1980s	Public policy centered around AIDS, Medicare, Medicaid, tobacco control, international health, minority health, national healthcare reform, and national health objectives
1982	Warning labels on aspirin for Reye's syndrome prevention
1986	First anti-tobacco initiative by public health community
1988	*The Future of Public Health* published by the Institute of Medicine
1989	*Year 2000 Health Objectives* published
1990	*Healthy People 2000* report published
1991	*Healthy Communities 2000: Model Standards* published
1993	AZT sanctioned as able to reduce perinatal HIV
1996	*War and Public Health* published
1997	Plans underway for modern microbiological/biomedical laboratory capabilities
2000	*Healthy People 2010* published

Source: Data from Public Health Milestones in the 1980s and 1990s. APHA, 2000.

higher than they had been since the late 1940s. Much of the increased incidence was associated with drug abuse—the exchange of sex for drugs. Congenital syphilis was again an issue of public health concern for infant morbidity and mortality. Public health nursing protocols included standards of care for infected maternity patients and follow up for their newborn infants. Public health nurses increased their assessment for signs and symptoms of disease and for risk status of patients in their care, assisted disease intervention specialists with follow up of patients with positive laboratory results, and assisted with accessing medical treatment.

The incidence of another communicable disease, hepatitis B, was also increasing. With the advent of the hepatitis B vaccination, public health nurses implemented new protocols to screen maternity patients for hepatitis B and to provide follow up and immunization administration to the infants of infected mothers. Standing orders were written to effectively carry out the immunization and follow up of these infants. This was a major new public health initiative. See **Box 6** for a summary of activities during the 1980s and 1990s.

Federal monies increased for public health to address preventive intervention strategies for persons infected with HIV during the 1990s. States initiated programs to make select drugs available to patients. These programs required private physicians to submit medication orders for the patient. Public health nurses assisted patients with completing application forms, consulting private physicians regarding program guidelines, and adding medication.

Immunization administration had been a priority health effort for public health nurses since the early part of the century. A national emphasis reemerged in the early 1990s to meet a national objective to complete the immunization of 90% of all children by 2 years of age. The Centers for Disease Control and Prevention (CDC) identified barriers to children receiving their basic immunization series. The national discussion provided public health nurses with current knowledge on their assessment of simultaneous administration of several vaccines when indicated and on contraindications for immunization administration (HHS, 1992).

Science and Health Care, 1945–1960: Decades of Change

Dramatic technological and scientific changes characterized the decades following World War II, including the discovery of sulfa drugs, new cardiac drugs, surgeries, and treatment for ventricular fibrillation. The Hill–Burton Act, passed in 1946, provided funds to increase the construction of new hospitals. A significant change in the healthcare system was the expansion of private health insurance coverage and the dramatic increase in the birth rate, coined the "baby boom" generation. Clinical research, both in medicine and in nursing, became an expectation of health providers, and more nurses sought advanced degrees. The *Journal of Nursing Research* was first published, heralding the arrival of nursing scholarship in the United States.

Owing to increased numbers of hospital beds, additional financial resources for health care, and the post–World War II economic resurgence, an acute shortage of nurses occurred, and the existing staff faced increasingly stressful working conditions. Nurses began showing signs of the strain, engaging in debates about strikes and collective bargaining demands.

The composition of the nursing profession also changed. The ANA accepted African American nurses for membership, consequently ending racial discrimination in the dominant nursing organizations. The National Association of Colored Graduate Nurses was disbanded in 1951. Males entered nursing schools in record number, often as a result of previous military experience as medics. Prior to the 1950s and 1960s, male nurses had suffered minority status and were discouraged from nursing as a career. Seemingly forgotten by modern society, including Florence Nightingale and early U.S. nursing leaders, males made up more than one-half of the nursing care during medieval times. The Knights Hospitalers, Teutonic Knights, Franciscans, and many other male nursing orders had provided excellent nursing care for their societies. In fact, St. Vincent de Paul had first conceived of the idea of social service. Pastor Theodor Fliedner, teacher and mentor of Florence Nightingale at Kaiserwerth in Germany; Ben Franklin; and Walt Whitman (during the Civil War) all either served as nurses or were strong advocates for male nurses (Kalisch & Kalisch, 1986).

Years of Revolution, Protest, and the New Order, 1961–2000

During the social upheaval of the 1960s, nursing was influenced by many changes in society, such as the women's movement, the organized protest against the Vietnam War, the civil rights movement, President Lyndon Johnson's "Great Society" social reforms, and increased consumer involvement in health care. Specialization in nursing, such as cardiac intensive care unit (ICU), nurse anesthetist training, and the clinical specialist role for nursing emerged as a trend that affected both education and practice in the healthcare system. Medicare and Medicaid, enacted in 1965 under Title XVIII of the Social Security Act, provided access to health care for the elderly, the poor, and the disabled. The ANA took a courageous and controversial stand in that same year (1965) by approving its first position paper on nursing education, advocating for all nursing education for professional practice to take place in colleges and universities. Nurses returning from Vietnam faced emotional challenges through the recognition of post-traumatic stress disorder (PTSD), which affected some nurses' postwar lives.

With the increased specialization in medicine, the demand for primary care healthcare providers exceeded the supply. As a response to this need for general practitioners, Dr. Henry Silver (MD) and Dr. Loretta Ford (RN) collaborated to develop the first NP program in the United States at the University of Colorado (Silver, Ford, & Steady, 1967). NPs were initially prepared in pediatrics with advanced role preparation in common childhood illness management and well-child care. Silver and colleagues(1967) found that NPs could manage as much as 75% of the pediatric patients in community clinics, leading to the widespread use of NPs and growth of educational programs for NPs. The first state in 1971 to recognize diagnosis and treatment as part of the legal scope of practice for NPs was Idaho. Alaska and North Carolina were among the first states to expand the NP role to include prescriptive authority. By the new century, NP programs were offered at the MSN level in family nursing, gerontology, adult, neonatal, mental health, and maternal–child care; they have since expanded to include the acute care practitioner as well. Certification of NPs now occurs at the national level through the ANA and many specialty organizations, and NPs are licensed throughout the United States by state boards of nursing (Hagedorn & Quinn, 2004). The doctorate of nursing practice (DNP) has emerged in the past decade as the preferred educational preparation for all advanced practice nurses.

Managed Care and Healthcare Reform: First Decades of the 21st Century

Escalating healthcare costs resulting from the explosion of advanced technology and the increased lifespan of Americans led to the demand for healthcare reform in the late 1980s. The nursing profession heralded the way in healthcare reform when an unprecedented collaboration of more than 75 nursing associations, led by the ANA and NLN, published ***Nursing's Agenda for Health Care Reform***. This document addressed the challenge of managed care in the context of cost containment and quality assurance of healthcare service for the nursing profession (ANA, 1991). **Managed care** is a market approach based on managed competition as a major strategy to contain healthcare costs; it remains a major system of care today, with expanded considerations as the ACA continues to influence the quality and costs of health care.

The IOM's (2008a) report *Assuring the Health of the Public in the 21st Century* builds upon its 1988 report and has major implications for public health policy development. The report contains several specific recommendations for strengthening the relationship between the vital sectors charged with protecting the public's health. The report proposes an ecological model upon which to base health professional education (including nursing education), clinical activities, and research with a population focus. Multiple determinants of health form the basis for an ecological model, which operates on the assumption that health is affected on several levels by these factors. Given that nurses make up the largest single workforce within the health system, the report's recommendations and the potential use of an ecological model as part of a population-focused practice have significant potential for creating new paths in nursing practice, education, and research.

A companion study by the IOM (2008b), *Who Will Keep the Public Healthy?*, builds on the ecological model and considers factors likely to affect public health in the 21st century, such as globalization, technological and scientific advances, and demographic shifts in the U.S. population. It defines a public health professional as a person educated in public health or a related discipline who is employed to improve health through a population focus. Eight new content areas for public health professionals to master are identified in this study: informatics, genomics, communication, cultural competence, community-based participatory research, policy and law, global health, and ethics.

Even as these studies were being conducted, public health history was being changed. Seasoned public health professionals, experiencing the erosion of the basic public health infrastructure created by state and local budget cuts, had predicted that the United States would be challenged significantly should any of the dilemmas of the past return. None of those predictions, however, accurately portrayed the impact that the events of September 11, 2001, and the subsequent anthrax threats would have on public health. Almost overnight, public health agencies and their partners became immersed in emergency preparedness activities that have now become routine. Public health professionals were challenged to place a high priority on such activities as syndromic surveillance, mass-casualty planning, handling of biological and chemical agents that would also be considered evidentiary material, and other similar work. New partners such as postal workers, law enforcement, and communication experts emerged. Public health nurses were also called upon to administer smallpox vaccine, something that had not been done in almost 2 decades. The beginning of the 21st century dawned with improved health status and a new public health threat: terrorism. Since September 11, 2001, terrorism has been a constant threat to the United States and to the global community.

ART CONNECTION

Research the web for early artwork where a nurse is featured from the 19th and 20th centuries. Describe how different these portrayals are from today's nurse.

The U.S. healthcare system continued to focus on federal coverage and spiraling costs during the first decade of the 21st century. The public and private sectors demonstrated increased dissatisfaction with healthcare access, quality, accessibility, and affordability. Healthcare organizations emerged in a managed care environment, involving public and private sectors of the healthcare industry. The economic and quality outcome benefits of caring for patients and managing their care over a continuum of possible settings and needs were seen as positive for many. Continuing into the second decade of the new century, patients are followed more closely within the system, during both illness and wellness. Hospital stays continue to be shorter, and more healthcare services are being provided in outpatient facilities and through community-based settings such as home health, occupational health, and school health. War, bioterrorism, an aging population, and emerging epidemics are just some of the challenges for today's nurses. Consensus regarding basic education and the entry level of registered nurses has not occurred. Relating to the global community as well as our own diverse population demands that nurses remain committed to cultural sensitivity in care delivery.

Because of professional nurses' engagement in healthcare reform—beginning with *Nursing's Agenda for Health Care Reform* (ANA, 1991) and in the years following—the profession was poised to take a leadership role in the passage of the **Patient Protection and Affordable Care Act (ACA) of 2010**. The purpose of the ACA is to provide affordable, quality health care to all Americans. The ACA was signed into law March 23, 2010 and upheld by the U.S. Supreme Court, which ruled it constitutional on June 28, 2012. The bill includes unprecedented preventive care and protections, including insurance companies no longer being able to deny individuals for preexisting conditions or to drop them from coverage when they get sick.

The history of health care and nursing provides us with ample examples of the wisdom of our forebears in the advocacy of nursing in these challenging settings and the unknown future. Nurses today, by considering the lessons of the past, become part of a profession that is well prepared to provide the full range of quality, cost-effective services needed in the promotion of health throughout the new century. See **Box** 7.

AFFORDABLE CARE ACT (ACA)

Nursing has been at the forefront of healthcare reform for many decades. The profession of nursing was the first of the health professions to support the creation of the Medicare program in 1958, in spite of critical opposition from the medical and hospital industries.

LEVELS OF PREVENTION

Primary: Identify the primary healthcare interventions used by Florence Nightingale.

Secondary: What secondary interventions did Lillian Wald use?

Tertiary: How do tertiary interventions today differ from those in the past?

BOX 7 Public Health Milestones 2000–2013

2001 9/11 terrorist attacks (New York City and Washington, DC) and bioterrorist attacks lead to new initiatives in state and federal public health policies, organizational responses, and initiatives

CDC investigates first anthrax case; the victim was a 63-year-old Florida man; patient first in a series of domestic terrorism victims of infection by anthrax sent through the mail

2003 Severe acute respiratory syndrome (SARS) coronavirus identified

2004 First state laws restricting access to over-the-counter medications used in methamphetamine production in Georgia

2005 Hurricane Katrina hits New Orleans and Mississippi Gulf Coast resulting in unprecedented public heath disaster and response at state and federal levels

Rubella eliminated in the United States

2006 CDC recommends 15th and 16th routine immunizations for children and adolescents (rotavirus and human papillomavirus, respectively)

CDC celebrates 60th anniversary.

2007 CDC issues federal order of isolation, the last such order being issued in 1963

2008 Large, multi-state foodborne illness outbreaks are detected and investigated, revealing gaps in food safety and the need to improve prevention efforts

2009 CDC identifies the novel H1N1 influenza virus

H1N1 flu pandemic dominates CDC activities

2010 The Patient Protection and Affordable Care Act of 2010 (ACA) was signed into law, putting in place comprehensive U.S. health reform as the most significant federal mandate since the New Deal in the 1930s

7.0 magnitude earthquake in Haiti; CDC response efforts help prevent 7,000 deaths from cholera

2011 Implementation of ACA: providing free preventive care for Medicare recipients; Community First Choice Option offers home- and community-based services to disabled individuals through Medicaid

"Treatment as Prevention" as a means to reduce HIV transmission, after a research study showed that individuals who had started antiretroviral therapy immediately after diagnosis lowered the risk of HIV transmission to their uninfected sexual partners by as much as 96%

Community resource programs enhanced to implement "test and treat" strategies for individuals and couples

Increased treatment for HIV-positive mothers to prevent mother-to-child transmission

2012 Implementation of ACA: electronic health records, encouraging integrated health systems by providing incentives for healthcare providers to form Accountable Care Organizations (ACOs)

U.S. Supreme Court decision upholds ACA against legal Constitutional challenges, with the exception of mandatory State expansion of Medicaid

Greater investment in health information technology: privacy, accessibility and security of patient data, and social media educational efforts

2013-14 Implementation of ACA: Improved and expanded preventive health coverage for Medicaid recipients by providing new funding to state Medicaid programs and providers that chose to cover preventive services for patients at little or no cost

Critical Thinking Activities

1. Take a walk through your neighborhood and college campus. Identify public health measures that exist that can be traced to the Greek and Roman eras.
2. How do you think Lillian Wald would react to present-day public health departments?
3. How does the current interest in alternative and complementary health care relate to the Greeks' ideas about health?
4. How would you explain healthcare reforms of the 20th and 21st centuries in the United States to those from other comparable societies and countries?

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CHAPTER FOCUS

Communities and Populations
The Health of Communities and Populations
Differences and Similarities Among Communities and Populations

Community Assessment Frameworks
Community Empowerment
Community Assessment Frameworks/Models

Using the Nursing Process for the Community
Conducting a Community Assessment
Community Diagnosis
Planning and Prioritization Phase
Implementation Phase
Evaluation Phase

QUESTIONS TO CONSIDER

After reading this chapter, you will know the answers to the following questions:

1. What is a population-focused approach to health care and how will the Affordable Care Act (ACA) promote population health?
2. What is a community or population assessment?
3. How does the baccalaureate-prepared nurse use population assessment in healthcare and non-healthcare settings?
4. What is the "community as patient"?
5. What is the difference between a community and a population?
6. What do the terms *status, structure,* and *process* refer to?
7. What is the *Healthy Cities* initiative?
8. How are community assessment frameworks or models used in the assessment process?
9. What are examples of community assessment frameworks or models?
10. How does a community health nurse gain entry into the community?
11. What are the five methods of collecting community data?
12. What is a community diagnosis, and what is an example of one?
13. What occurs in the planning and prioritization phase of the community assessment process?
14. What occurs in the implementation phase of the community assessment process?
15. What are examples of strategies that the community health nurse can use to assist communities in healthy change?
16. What is media advocacy?

Community and Population Health: Assessment and Intervention

Karen Saucier Lundy and
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KEY TERMS

- collaborative arrangement
- community
- community- and population-focused care
- community as patient
- community assessment
- community assessment frameworks and models
- community competency
- community empowerment
- community-focused intervention
- community forums
- community health diagnoses
- constructed surveys
- focus groups
- healthy change
- healthy communities
- informant interviews
- key informant
- media advocacy
- observation
- planning phase
- population
- population assessment
- population health
- population-level interventions
- primary informant
- process
- secondary analysis of existing data
- secondary data
- status
- structure
- windshield surveys

REFLECTIONS

Think about what living in a community means to you. How has it shaped your beliefs about health and what you do when you are sick? Did you spend your childhood and teen years in a small town, an urban area, or a suburb, or did you move around and spend time in many different types of communities? As a nursing student, think about the different communities where you feel most "at home" now. Describe these communities and indicate how they differ from those where you grew up in terms of health values.

COMMUNITY NURSES HAVE TRADITIONALLY conducted assessments of entire geopolitical communities and of vulnerable and diverse populations within communities, now commonly referred to as **population health**. The focus of the nursing assessment is on the community or population's health rather than on the individual's health status, and consequently the assessment takes on a different form and process (Nash, Reifsnyder, Fabius, & Pracillio, 2011). Perhaps the best and most dramatic example was the post–Hurricane Katrina public health disaster that occurred in New Orleans as a result of a lack of attention to planning for vulnerable population's health needs. Public health nurses, along with other disciplines, are challenged to balance these short-term crises with progress toward longer term goals, as we seek newer and better ways of solving health problems in our communities (Carney, 2006; Zandee, Bossenbroek, Slager, & Gordon, 2013).

Today more than ever, the community health nurse has the unique responsibility of defining problems and proposing solutions at the community/population level (Baldwin, Conger, Abegglen, & Hill, 1998; Gebbie, 1996; Keck, 1994; Williams & Highriter, 1978). Furthermore, baccalaureate-prepared nurses will be expected to practice population-based nursing in all settings as managed care of populations becomes the basis of organizational survival. In other words, community and population assessments are no longer confined to traditional community settings, but in all settings where health is the focus of research-based health interventions, including acute care, clinics, schools, the workplace, and hospitals.

The U.S. healthcare system is trending toward community- and population-focused care. The shift from location-based care (e.g., hospital, outpatient clinic care) to community-based care will demand a greater emphasis on nursing assessments of geopolitical communities and high-risk populations. In other words, to plan care, carry out interventions, and evaluate care outcomes when the patient is either a geopolitical community or a population, there is a need for all bachelor of science in nursing (BSN)–prepared nurses to have skills in community and population assessment. Although community and population assessment, planning, intervention, and evaluation are receiving greater attention in today's healthcare system, these skills have always been associated with community health nursing role expectations (Hegyvary, 1990). With the passage of the Patient Protection and Affordable Care Act (ACA) of 2010, community and population assessments will be required in several new provisions of the law, including hospitals, community organizations, and other health-related facilities in order to determine the community's health status and evaluation of unmet population health needs.

Historically, community/population assessment, the initial step in community-/population-focused care, was first seen as a nursing practice role by Florence Nightingale. Nightingale was concerned with assessing the physical and social environment as a possible cause of illness. Nightingale's own community assessments included an analysis of the 1861 census data of England, which served as the foundation of England's sanitary reform acts (Kopf, 1986). She also included community assessment as a nursing role for district nurses. These nurses were to assess both the physical and social environments of the community to determine which health teaching and social reform programs were needed by the community (Montero, 1985). From its earliest history, the nursing profession has viewed community and population assessment as an important role directed toward improving the health of entire communities.

Today, recommitment toward community and population assessment is a vital nursing practice role, as identified by all organizations that set standards for community health nursing (American Association of Colleges of Nursing [AACN], 2008; American Nurses Association, 2010; Association of Community Health Nursing Educators [ACHNE], 2009). This recommitment to seeing the community as patient has emerged as a critical function of the community health nurse as more and more research connects the important role that physical and social environments play in health and disease (Cassel, 1976; Gordon, 1990, 1993; Lalonde, 1974; Rodgers, 1984). Such findings also influence health policy formation, the establishment of priorities when financing health care, and the potential of the nursing community to establish itself as a leader in healthcare reform. Knowledge of community and population assessment is now considered essential for the baccalaureate nurse (Eide, Hahn, Bayne, Allen, & Swain, 2006; Ruth, Eliason, & Schultz, 1992). The diagnoses and interventions that result

BOX 1 Core Competencies for Public Health

Public health professionals should be able to do the following:

- Define a problem.
- Determine appropriate uses and limitations of quantitative and qualitative data.
- Select and define variables relevant to the defined public health problems.
- Identify relevant and appropriate data and information sources.
- Evaluate the integrity and comparability of data and identify gaps in data sources.
- Apply ethical principles to the collection, maintenance, use, and dissemination of data and information.
- Partner with communities to attach meaning to collected quantitative and qualitative data.
- Make relevant inferences from quantitative and qualitative data.
- Apply data-collection processes, information technology applications, and computer systems storage and retrieval strategies.
- Recognize how the data illuminate ethical, political, scientific, economic, and overall public health issues.

Source: Council on Linkages Between Academia and Public Health Practice: Core competencies for public health professionals, Washington, DC, 2010, USDHHS and Public Health Foundation. Available at http://www.phf.org/resourcestools/Documents/Core_Competencies_for_Public_Health_Professionals_2010May.pdf Accessed December 16 2013.

from the community and population assessment process are population-based, community-focused interventions (Pavlish & Pharris, 2012). Such interventions are directed at groups of persons within a community; activities are geared toward changes in community norms, greater consciousness about health issues and solutions, and healthy practices and behaviors, to name a few (Keller, Strohschein, Lia-Hoagberg, & Schaffer, 1998).

The core functions of public health nursing include assessment, policy development, and assurance. The basis for policy and assurance is the assessment of the community and population of interest for healthcare promotion. (See **Box 1** for specifics on the competencies for nurses and health professionals related to community and population assessment.)

This chapter introduces the concept of **community as patient**, explains how to get to know the community patient, and describes how to practice skills of community and population assessment in actual community assessment examples. The future of nursing depends to a large degree on our understanding of the "big picture" of healthcare delivery (Aiken & Salmon, 1994). We are becoming more and more dependent on outcomes and evidence-based measures, such as evaluation of morbidity and mortality statistics. In response, this chapter will help the beginning nurse use the community/population assessment process in all practice settings (Pavlish & Pharris, 2012; Reinhart, 1984; see **Box 2**).

BOX 2 Ways in Which the Community Assessment/Population Assessment Can Be Used in the "Everyday Life" of a Practicing Nurse

- Applying for grants to provide health care for specific populations, such as pregnant adolescents
- Conducting a "mini" assessment during orientation to a new position in any setting to be better prepared for serving the agency's target population
- Avoiding burnout by going beyond personal care of patients, identifying better ways of delivering care, and using staff and material resources
- Justifying new projects by establishing the needs of a selected population
- Joining a community group such as the Parent Teacher Organization or American Cancer Society, volunteering to do an assessment and follow-through program planning
- Conducting an assessment of unfamiliar locales, both national and international, to determine possible relocation possibilities

This chapter also discusses how to interpret community- and population-level data and to plan interventions more appropriately and efficiently as we work within the limited resources of the present healthcare environment. Our healthcare system can no longer rely on quick fixes. For example, in developed countries the nature of fatal diseases has changed. In the course of recent human history, when people were fighting diseases such as smallpox, diphtheria, or polio, immunizations were an easy, quick, and sure prevention. As we have learned more about infectious disease and the contribution of human factors, such as lifestyle, heredity, and behavior, solutions have become more complex. Chronic disease and disabling conditions are continuing to grow as we extend the lifespan through technology and advancement of diagnosis and treatment. Today, many diseases and conditions require that we are much more attentive to the totality of variables that influence health and illness (Gebbie, 1996). Achieving prevention and control requires much more effort on the part of communities and changes in thinking about the impact of the structure of society (e.g., economics, culture, and politics) on the health of community (Community Health Advisor Network, 1999).

Communities and Populations

The significance of the community/population nursing process becomes evident only when community health nurses define the community as patient. A nurse would not even consider omitting individual patient assessment and basing interventions only on intuition or a standard formula, but this is what happens when community health nurses fail to do a focused community/population assessment when planning and implementing health care for patients. For example, we would not examine just the arm of a patient and totally ignore the other systems of the body when we plan our nursing care. And yet by looking at only a few aspects of a selected community or population, such as the number and availability of hospitals, we are examining just the "arm" and ignoring the rest of the "body" of the community or population.

The first step in delivering **community- and population-focused care** is to define the boundaries of the group to be assessed. We often use the term **community** in various ways, so defining the boundaries of a community or population becomes critical in the early stages of **community-focused intervention**. Community is defined in this text as a group of people who share something in common, who interact with one another, and who may exhibit a commitment to one another. A **population** is defined as a group of people who have at least one thing in common and who may or may not interact with each other. From these definitions one can see that *interaction* is essential in a *community*, whereas members of a *population* may or may not interact with one another. To put it another way, community members are usually aware that they are part of a community and most often have an identified name. Populations may or may not have such self-awareness (**Box 3**). Some populations do evolve into communities. For example, adults who have disabilities and attend a day program in a certain community may develop into a cohesive, interactive group over time. Whether the population being assessed has self-awareness, the environment (e.g., the social, cultural, ecological environment of a particular community or the greater society) of the target population must be considered for effective health interventions to occur (Baldwin et al., 1998).

BOX 3 Examples of Communities and Populations

Examples of Communities

Retirement apartment community
Corvette Club of San Francisco
Town of Blackhawk, Colorado

Examples of Populations

Cross-country truck drivers
Elders with chronic asthma
College soccer players
Street musicians
Ice skaters

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Nurse providing individual care.

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This college tennis team has formed a community after one year of common and meaningful interactions.

The Health of Communities and Populations

Public health professionals often describe **healthy communities** and populations in three different ways: status, structure, and process. See **Box 4** for a summary of these components.

Status is what we most commonly use to describe communities and populations and is the component you are most familiar with. When we talk about life expectancy rates and the morbidity (or illness) rates of a community or population, these are the "outcome" measures of *physical* or *biological* determinants of health. The *emotional aspects* of a community's or population's health status are often measured by such indices as specific mental health rates (e.g., suicide or drug addiction). The *social* determinants are reflected by such indices as crime rates and juvenile delinquency. As we have learned more about the health and the "ills" of modern society, we have discovered that most status outcome measures reflect the influences of all three

BOX 4 Basic Components of Community and Population Health with Example Indicators

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status components. For example, teen drug use is associated with risky behavior such as unprotected sex, which may result in high rates of teen pregnancy, sexually transmitted diseases, and associated higher infant mortality rates.

Structure refers to aspects of a community's or population's health such as health organizations, health professionals, utilization rates of health services and facilities, and characteristics of the community structure itself. How the community or population is structured is reflected in such measures as socioeconomic and educational levels; demographics of race, age, and gender; and the ways in which the members of a community access and use resources related to health. Research has linked education, socioeconomic status, and health outcomes, so these components are aspects that reflect the health status of a group to that end (Schuster & Goeppinger, 1996).

Process is a measure of community or population health that reflects how well a community/population functions to keep healthy. Just as the care of the individual patient commonly includes an assessment of personal competence to maintain health, so a community or population can be described in relation to **community competency**. This notion of community competency has been around for some time. George Herbert Mead (1934), the noted sociologist, linked our individual behaviors to what eventually emerges as collective behavior. These collective behaviors ultimately take the form of social institutions, such as a church, the Microsoft Corporation, or the American Red Cross. Mead contends that it is only this "organized self" and the resulting group response that makes communities possible and survival likely. For example, people exhibit varying degrees of competency at meeting social needs. Each individual who is intrinsically tied to the group through social interaction is changed by the interaction—each participant then not only becomes a part of the "other," but also learns his or her part as well as the part of the other (Mead, 1934). Cottrell (1976) defines community competence as a process in which the components of a community—families, organizations, and populations—"are able to collaborate effectively in identifying the problems and needs of the community; can achieve a working consensus on goals and priorities, can agree on ways and means to implement the agreed-on goals; and can collaborate effectively in the required action" (p. 197).

An important distinction must be made between individual competence and community competence: Although we often assume that a community made up of competent citizens and health professionals results in a competent community, these are not sufficient conditions. The complexity of community requires that we look not only beyond the individual parts of a community but also to the "whole" and the interactions between and among community constituents (Goeppinger, Lassiter, & Wilcox, 1982). Goeppinger, Lassiter, and Wilcox (1982) developed a nursing process–related model for community assessment designed to address the importance of community processes and community competence. To assess community competencies, the nurse examines the health capabilities and potential health actions of the community. The basic assumption of the community competency model is that health assessments need to include the community's strengths and abilities to improve their own health status. The model is based on research conducted by Goeppinger and Baglioni (1986) that was designed to discover indices of community competence. These competencies are not considered mutually exclusive, but are interrelated. **Table 1** summarizes essentials for community competency and includes examples from Goeppinger and Baglioni's research on indices of community competency.

TABLE 1 Essential Conditions for Community Competence

Commitment	Evidence that community members are attached to their community—people within the community demonstrate loyalty and pride
Self–other awareness	Evidence that community members are aware of how they fit into their community—as outsiders or insiders, as having power or not having power
Articulateness	Evidence that the community is able to clearly express its own issues, needs, and strengths as compared with other similar communities so as to effectively secure resources to meet needs
Effective communication	Evidence of good communication within a community—the people say that they feel they are always well informed about issues ahead of time so that good decisions can be made
Conflict containment and accommodation	Evidence that the community has been able to deal effectively with conflicts within the community such as growth policies or taxes for local school districts
Participation	Evidence that all populations (e.g., different age groups, ethnic groups) participate in community organizations and governmental decisions
Management of relations with larger society	Evidence that the community is able to secure resources from county, state, or federal governments as needed
Machinery for facilitating participant interaction and decision making	Evidence that a community's governmental structure has built-in processes that encourage participation by the members of the community for good decision making

Source: Adapted from Goeppinger, J., Lassiter, P. G., & Wilsoc, B. (1982). Community health is community competence. *Nursing Outlook*, 30(8), 464–467.


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An example of a noninteracting population of young concertgoers.

Healthy Cities

The World Health Organization (WHO) developed the Healthy Cities initiative as a global approach to community-focused health promotion and preventive health. The Healthy Cities movement began in 1984 in Canada; in 1986, WHO initiated the project in Europe. The largest Healthy City in Europe in the WHO project is St. Petersburg, Russia, while Indiana and California have the longest history with Healthy Cities in the United States. Approximately half the world's population lives in urban areas, where health problems are the most complex. As an international movement, Healthy Cities (**Box 5**) now involves more than 1,000 cities throughout the world where public, private, and not-for-profit partnerships work together to address the complex health and environmental problems in urban areas (Flynn, Ray, & Rider, 1994). Based on the belief that the health of a community is largely influenced by the social and physical environments in which people live and work, Healthy Cities projects promote change in the complex web of city life (Flynn & Dennis, 1996). Community assessment is a critical and early step in the process of identifying the health needs of cities and working

BOX 5 What Does a Healthy City Look Like?

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with residents to develop realistic and community-identified solutions (Hancock, 1993). The underlying philosophy of such an approach is based on the belief that when residents work out their own locally defined health issues, they will find sustainable solutions to those problems (Flynn, 1994; Lia-Hoagberg, Schaffer, & Strohschein, 1999).

Differences and Similarities Among Communities and Populations

Baccalaureate nurses are prepared to deliver population-focused care. The ACHNE has identified in its *Essentials of Baccalaureate Nursing Education for Entry Level Community/Public Health Nursing* (2009) community assessment, diagnosis, and community planning as essential skills for the BSN nurse.

For advanced-degree nurses specializing in community-based public health nursing, population-focused care becomes the primary focus of the role. For baccalaureate-prepared nurses not specializing in public health nursing, such care may be a secondary focus. However, baccalaureate-prepared nurses practicing in all settings (hospital settings and community settings) will need to have skills in population-focused care. Baccalaureate-prepared nurses will be expected to move beyond being able to just provide care for individual patients. They will be expected to move beyond incorporating only pathophysiological, psychological, pharmacological, and family factor knowledge into their nursing assessments of individual patients. They will need to incorporate population knowledge, including an understanding of the common needs of all patients who share one or more characteristics (Salmon, 1993).

These characteristics may include, for example, a common disease, gender, occupation, or age range. For example, an emergency department nurse noted that most of the patients she was caring for had some condition related to substance abuse. Perhaps they had been involved in an automobile accident caused by drunk driving, or perhaps they suffered a gunshot wound that occurred during a drug deal. Conducting a **population assessment** to better understand the demographic, political, economic, and health system factors affecting this population will eventually lead to **population-level interventions** such as an initiative to coordinate care of substance-abusing patients with mental health professionals. Such efforts may improve not only the health of the individuals within this population, but also the efficiency of the healthcare system (Keller, Strohschein, Lia-Hoagberg, & Schaffer, 2004; Keller, Strohschein, Schaffer, & Lia-Hoagberg, 2004).

Nurses also participate as team members in communitywide health assessments. **Community assessments** differ from population assessments only in that they are not focused on a specific group of individuals who share one or more common characteristics. City municipalities are an example of a community. The individuals in a city municipality interact to achieve goals of employment, the exchange of goods and services, law and order, and so on. A hospital is an example of a community. The individuals within the hospital environment interact to achieve the goals of the organization. You could think of community assessment as more expansive, more complex than a population assessment. In addition, the process of community assessment usually requires a team of researchers to complete a comprehensive analysis of the health of a community.

In the following section, four models for community assessment are presented. Please note that although these models use the language of community assessment and were developed for community assessment, they can be and are adapted for use in population assessments.

Community Assessment Frameworks

Just as there are models, theories, and organizing frameworks that guide nursing practice for individual and family care, there are theoretical perspectives for understanding community dynamics and assessing the needs and strengths or assets of communities. In addition to providing guidance on the criteria or systems to be assessed when the patient is a community, these theoretical perspectives provide guidance for the development of community diagnoses, program planning, and the process for data collection, analysis, and dissemination of the findings. All **community assessment frameworks and models** presented in this chapter are based on the underlying assumption that successful health programs are those that emerge from empowered communities that participate in all phases of program planning, implementation, and evaluation, with community assessment being the first phase of the empowerment process (Eisen, 1994).

EPIDEMIOLOGY AND THE COMMUNITY ASSESSMENT PROCESS

During the community assessment process, data can be organized by the epidemiological triad of host, agent, and environment. The interaction of these factors determines the health status of the community and can be used with any of the models described in this chapter. For example, the host is made up of the members of the community or population; the agent takes many forms, including influences such as stress, diet, racism, physical fitness, and access to health services; and the environment includes pollution, water quality, and weather conditions.

Community Empowerment

The WHO has provided leadership in the use of **community empowerment** as a means toward health for all. WHO's International Conference on Primary Health Care, held in 1978 at Alma-Ata, U.S.S.R., concluded that people throughout the world have little control over their own health care and that more positive health outcomes would occur if people had a greater sense of power over programs that address their needs (Glick, Hale, Kulbok, & Shettig, 1996). The term *community empowerment* means "a social-action process in which individuals and groups act to gain mastery over their lives in the context of changing their social and political environment" (Wallerstein & Bernstein, 1994). Based on the work of Brazilian educator Paulo Freire, community empowerment involves a participatory educational process in which people are not just the recipients of political, educational, or healthcare projects, but become active participants in naming their problems and proposing solutions. For example, empowerment projects should not begin with a nurse-conducted assessment of an at-risk population. Instead, participants from the identified population at risk are recruited by nurses to co-conduct the assessment. Of course, this recruitment process involves a level of trust that has developed between the nurses and the identified population at risk. For more information on building trust when the patient is a community, see "Gaining Entry into the Community" later in this chapter.

Community empowerment is also considered the prerequisite to health promotion. Indeed, the World Health Assembly observed, "the effective participation of the community is indispensable to guarantee the development of health activities and the prevention and control of disease" (WHO, 1985, p. 75). Just as individual patients cannot participate in health promotion until their basic needs are met and they feel some control over their lives, populations and communities must also feel empowered to participate in prevention and health-promoting projects.

Community assessment, viewed within the context of community empowerment, is just one part of the methodology that hopefully will lead to health for all. Community assessment is an essential component leading to effective, acceptable, affordable health care for our society and all other societies. It is one of the core competencies for nursing practice directed toward communities.

Keck (1994) believes that for community health to become a reality, all healthcare professionals will need to learn how to empower citizens to take responsibility for decision making related to the community's health, as well as their own. Empowering patients requires that health professionals give up some of their power and rely on true partnership and collaboration for the community good (Pavlish & Pharris, 2012). Such thinking brings resistance because to promote "power sharing" means to rely on community involvement, not just "lip service," for the advancement of a community's health status. An example of giving up power to the community is when the nurse facilitates the establishment of a board of directors for a community health center made up entirely of community members as the voting members with healthcare professionals as ad hoc members. Keck (1994) contends, "our common challenge [in community health] is the facilitation of that [empowering] process" (p. 8).

Community Assessment Frameworks/Models

Many community assessment frameworks and models have been designed to guide the process of community assessment. Two theoretical perspectives described here have either been developed by public health nurses or are often used by public health nurses when conducting a community assessment. Other important approaches to community assessment not included in this chapter are *Community Competence: A Positive Approach to Needs Assessment* by Goeppinger and Baglioni (1986) and *The Sunrise Model* by Leininger (1988).

Use of a framework or model to help guide a community assessment project is an essential step in the process. A framework/model provides a frame of reference for data collection. Concepts or elements within a theoretical framework or model can be transposed into categories for data collection, diagnosis, and planning. Examples of concepts or elements that can be transposed into categories for data collection include safety, community boundaries, lines of resistance, and government systems. The following sections of this chapter give examples of how theoretical concepts can be used as criteria for assessment, community diagnoses, and planning.

Chapter author Dr. Judith Barton conducting an interview, using the Lundy–Barton Systems Model as a theoretical guide to conduct a community health assessment with a community member who is homeless.

The *core* of any community is its people. Included in the core are the demographics of the population and their values, beliefs, and history. The core, in turn, affects and is affected by eight interacting subsystems. Those subsystems are physical environment, education, safety and transportation, politics

TABLE 2 Community-as-Partner Model: Concepts for Assessment

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and government, health and social services, communication, economics, and recreation. In addition to assessing the core people within a community and the eight interacting subsystems, the community-as-partner model directs the nurse to assess current stressors that are producing tension within the community, the normal level of defense or current level of health within the community, the flexible line of defense representing current temporary responses to stressors or threats to health within the community, and lines of resistance or established community strengths that weave through all the interacting subsystems. **Table 2** is a summary of all concepts or elements included in the community-as-partner model and their definitions.

After assessing *all* elements in the model, the researchers are directed to develop community diagnoses that include community responses to stressors (i.e., problem identification), causative factors leading to each problem, and a list of supporting data to validate each community diagnosis. In other words, the outcome of the community assessment using the community-as-partner model is a set of community diagnoses developed in the same format as nursing diagnoses. In turn, these community diagnoses lay the groundwork for health planning. For an example of a community diagnosis and plan see **Table 3**.

Although the community-as-partner model does not specifically direct the nurses to develop an interview guide based on the model's elements, an interview guide using an ethnographic, open-ended approach has been developed and can be found in **Box 6**.

RESEARCH ALERT

Teams of Community Health Workers and Nursing Students Effect Health Promotion of Underserved Urban Neighborhoods.

The purpose of this study was to explore the effectiveness of community health worker (CHW)/nursing student teams in promoting secondary protection and improving access to care for residents of three urban underserved neighborhoods. The research study also examined and measured CHW and resident satisfaction with such a program.

Quasi-experimental and nonexperimental designs were used with convenience samples consisting of residents who participated in the CHW program during 2005–2006, CHWs and residents who participated in the CHW program during 2005–2007, and a systematic random sample of residents across the three neighborhoods.

Continues

TABLE 3 Community Diagnosis for Health Planning Using the Community-as-Partner Model

Response (Problem)	Related to (Causes)	As Manifested by (Data)
Community disorganization and health/social services economic crisis	Increase in illegal immigrant workers from Mexico not eligible for government benefits Noncoordinated efforts between agencies within one community and among neighboring communities	Increase in nonreimbursed emergency department care at community hospital Increase in free school lunches at local school Increase in delayed prenatal care and lower birth weight infants
Goal	**Objective(s)**	**Evaluative Indicators**
Regional coordination of efforts to meet the needs of medical and social underserved population	Establish a task force made up of service providers and community leaders representing the medically and socially underserved populations to design appropriate and feasible solutions/programs to deal with current community disorganization and health/social services economic crises	Reduced nonreimbursed emergency department costs, free school lunches, and low birth weight rates Increase in first trimester prenatal care

Continued

Three quantitative measures were used in the study: a pre-/post-test with residents who participated in the program, a satisfaction survey of CHWs and participants, and a community assessment survey of the neighborhoods in which the program occurred.

CHW/nursing student teams were shown to increase awareness of community resources, increase access to dental care, decrease use of the ER, promote use of a medical home/regular source of care, and increase the percentage of people having their blood pressure screened in the last 2 years. Based on the results of this study, CHW/nursing student teams can positively impact the health of underserved populations.

Source: Zandee, G. L., Bossenbroek, D., Slager, D., & Gordon, B. (2013). Teams of community health workers and nursing students effect health promotion of underserved urban neighborhoods. *Public Health Nursing, 30*(5), 439–447.

Community-as-Partner Model

The *community-as-partner model* includes community assessment as the first phase of the nursing process to be used when the patient is a community. The model is based on nursing theorist Betty Neuman's (1989) total-person model for viewing individual patient problems. Nurse-authors Anderson and McFarlane (2003) developed the model to help guide public health nurses in their practice with communities. The authors explain that the title of the model is purposeful in that the underlying philosophy of the model is primary health care with an emphasis on community empowerment. The model is also intended to be a synthesis of public health and nursing.

The community-as-partner model is a systems perspective that gives direction to types of community systems (e.g., educational system and transportation system) that need to be assessed when conducting a community assessment. It also provides direction for the analysis of the data collected to illuminate community dynamics related to health. Concepts in the model include the *community core*, eight interacting community *subsystems*, community *stressors*, and boundaries titled *normal level of defense*, *flexible line of defense*, and *lines of resistance*.

ENVIRONMENTAL CONNECTION

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General Systems Model for Community Assessment

Lundy and Barton's (1995) *General Systems Model for Community and Population Assessment and Intervention*

BOX 6 Example of Key Informant Ethnographic Interview Guide Based on Community-as-Partner Model

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is based on general systems theory as originally conceived by Von Bertalanffy (1968). A general systems approach is the basis for many nursing theories and has widespread usage in most all scientific disciplines. This approach to community assessment directs the research team to focus on the whole community, not on the parts of a community. Two broad concepts for assessment using this model include community structure and process.

The structure of any system can be defined as an arrangement of *interacting subsystems* or parts at a given point in time. The system as a whole has specified boundaries that determine what is inside the system and what is outside the system. In turn, each subsystem has boundaries that specify what is inside the subsystem and what is outside. Similar to the community-as-partner assessment model, subsystems within the community system include schools, churches, self-help groups, health systems, and so on. Systems also have a *suprasystem*, the larger construct of which the system is a part. For example, if the community system is identified as a municipality or a city, the county and state where the municipality is situated become suprasystems to the community system and have great relevance to the community system and the community assessment process.

Community health nurses using the general systems assessment approach to community assessment begin by identifying the target system and its boundaries. For example, if the assessment is to be carried out on a geopolitical community named Jonestown, the researchers must ask the following questions:

1. Do the boundaries for Jonestown stop at the city's geopolitical limits or does the community consider a neighboring smaller crossroads community as within its boundaries?
2. What are the critical subsystems within the target community system?
3. What are the critical suprasystems impacting the community?
4. What types of relationships exist among the subsystems and between the target community and its suprasystems?
5. Are the boundaries between subsystems, the system, and its suprasystems open and cooperative, or is there a lack of cooperation and support between these systems?
6. Does the target community system and its subsystems have a sense of integrity or are the boundaries too open?

In assessing *community process*, nurses need to determine how the community system works to meet its needs or goals. Questions to be asked include the following: How is the community system responding (termed *throughput*) to internal and external stimuli or *inputs*? What are the results or *outputs* of the community system's response?

(An example of a result or output to a stressor such as air pollution might be stricter auto emission policies.) Is the output successful (negative feedback) or does the Environmental Protection Agency fine the community for having too many poor air quality days per year (positive feedback). In other words, does the community return to a *steady state* or does it continue to experience *disequilibrium*? How can the community continue to grow from the ongoing processes of *input*, *response*, *output*, and *feedback*?

The Lundy–Barton Model also includes a process for the nurse to use as a follow-through to the community assessment. This process is a familiar one to both nursing and medicine. One assesses the patient (i.e., the community), arrives at several diagnoses, develops a plan of action, evaluates the outcomes, and revises the plan as needed. **Table 4** is a summary of all concepts found in the Lundy–Barton Model, their definitions, and examples of types of data to collect. A community assessment guide based on the Lundy–Barton Model can be found in the Appendix at the end of this chapter.

Using the Nursing Process for the Community

Conducting a Community Assessment

More often than not, a community assessment project will be guided by a blend of two or more theoretical perspectives. In addition, a community assessment model or blended model can be used to conduct a population assessment *in any practice setting*. For example, a nurse in a postpartum unit of a regional medical center noted that there had been an influx of Mexican immigrants. These immigrants were Spanish-speaking only, and no staff spoke Spanish, nor was patient education literature available in Spanish. The nurse in this case realized that she needed to provide the leadership role in conducting a population assessment. Her population assessment included an examination of population demographics in both the hospital and the general community. She then examined the hospital's human resources for language translation and available Spanish-language educational materials. She also interviewed personnel (key informants familiar with the population) on the unit and some of the inpatients as well (**primary informants**). The nurse, with the support of the nurse manager of the unit, raised the consciousness of the hospital administration that patient educational materials and translators should be available for Spanish-speaking patients. The nurse then developed a culturally sensitive child education program including written materials in Spanish. The program was implemented by nurses on the postpartum unit and was well accepted by the immigrant patients and nurses on the unit. Recommendations were made to the administration for the program's continuation with support from the Hispanic community. The nurse conducted key and primary informant interviews, gathered secondary data (e.g., community resources for the population and some census data on the population), and analyzed both sources of data to define the strengths and limitations of the population and recommendations for interventions at the population level. Clearly this nurse used her understanding of the connection between population health and individual care regardless of setting (Baldwin et al., 1998).

ETHICAL CONNECTION

What about a population that chooses to ignore a critical health problem, as identified by the assessment? Considering the principle of autonomy, how would the community health nurse approach this challenge?

Once a theoretical perspective or a combination of theoretical perspectives has been chosen to guide the community assessment process, general tenets from the nursing process (i.e., assessment techniques, planning based on the assessment, interventions implemented at the community or population level, and evaluation) will apply. **Box 7** summarizes steps in the process of a community health assessment.

Gaining Entry into the Community

The collection of meaningful data about a community depends on the nurse's successfully gaining entry into the community. According to Goeppinger and Schuster, "gaining entry or acceptance into the community is perhaps the biggest challenge in assessment" (1988, p. 202).

Just as you would never just enter a patient's room in a hospital or knock on the door of a home health patient and say, "Turn over in bed, I am here to give you a 'shot,'" the population-focused nurse should not expect to just walk into a community and plan to conduct a community-focused intervention without going through some stages of getting to know the community as patient. As Kauffman (1994) explains in her study of the experience of white nurse researchers who conducted an ethnography of a senior citizen center in a poor, inner-city black ghetto, "getting in" a community is "a process of gaining, building, and maintaining trust with the group under study" (p. 179). Differences in characteristics such as social status, ethnicity, age, and class between the researchers, who are the *outsiders*, and the community being studied, the *insiders*, may create an environment of prejudicial and discriminatory responses that impede *getting in*. In other words, would the community be willing to share their issues with a community assessment team that just barged in and said they were here to study their health and healthcare needs? Would the results of an assessment set up in this manner produce valid results? Is it not possible that the outsiders could commit flagrant errors in their interpretations that might even promote prejudice and discrimination toward the very community that they intended to assist?

TABLE 4 Lundy–Barton Model: Concepts for Assessment with Example Questions

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BOX 7 Steps in Community-Focused Intervention

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Another strategy found to be helpful is to use a variety of communication channels to "reach" the target population. Using existing personal networks (e.g., clubs, social groups) and social institutions (e.g., voluntary health organizations, churches, schools) that the target population depends on for support and information can yield positive access results. If the target group has an established health network (e.g., a group of diabetic older adults), contacting those medical/health societies to seek support and approval can provide valuable entry. The nurse must be aware, however, that all members of a subgroup may not be reached through any one organization, thus necessitating the use of diverse means in attempts to initially establish contact with the target population (Keller, Strohschein, Lia-Hoagberg, & Schaffer, 2004). With the Internet, many new opportunities for developing contact and securing information about target groups are possible and hold great promise in this stage of community assessment. Another way to demonstrate the community team's commitment to reach the community is to participate in community activities. Community team members may stay in local motels, rather than chains, and patronize local eateries.

If the community assessment team is very different in social characteristics from the community under study, it would be easy for the outsiders to err by underestimating the effects of ethnicity, age, and class on insiders' responses (Richards et al., 2002). They may use inappropriate data-collection tools, or they may assume the insiders are just not knowledgeable enough or educated enough to be able to articulate their health beliefs and health issues. If the assessment team believes the community is not knowledgeable, they may patronize the group (i.e., treat the community with unseemly deference rather than as equals). Locals and important leaders in communities and target populations can function as valuable "cultural brokers," controlling entry into the group, especially to underserved populations. These brokers are often laypersons who might be called "natural helpers," people to whom the community turns for help in times of health concerns and other crises. Identifying these significant persons takes time because they may not be the formal leaders of a group. These brokers can impede "outside" projects or provide invaluable assistance in accessing the group. By serving as local "interpreters," these brokers can translate culture for both the health team and residents and promote collaboration for assessment activities.

Note that it is not detrimental to be an outsider when studying a community. The sociological concept of the "professional stranger" has taught us that being an outsider studying the group allows the researcher to avoid being caught up in the commitments of the group and therefore to be able to raise questions unlikely to be raised by insiders.

Kauffman (1994) proposes five phases of "getting in" to a community to build trust that will lead to a valid study of the community. These five phases are impressing, behaving, swapping, belonging, and "chillin' out." Kauffman points out that several phases may sometimes occur simultaneously. However, at all times the processes are mutual, interactive, and context specific.

CULTURAL CONNECTION

We know very little about many communities in the United States because of their "marginal" relationship to the larger society. Sometimes these communities experience self-imposed isolation through their religion, such as the Amish, or by their lifestyle, such as the homeless. Using Kauffman's (1994) five phases of "getting in" to a community, how would a community health nurse go about conducting an assessment with these challenging groups?

Impressing is the initial and sometimes lengthy process of outsiders and insiders evaluating one another. Social myths are explored; stereotypes and traits of the other (e.g., skin color, clothes, social courtesies) are observed. Rejection is possible by either side. Strategies for the community assessment team to maintain include (1) maintaining political, institutional, and personal neutrality; (2) avoiding obligations to any sponsor or patron of the assessment project; (3) following the rules or customs of all the insiders, not just the leaders; (4) continuing to return to the community and clarifying the assessment process; (5) keeping abreast of local events; and (6) identifying key informants who represent all different groups within the community. An important aspect of a cultural system is its members' valued ideas—those notions about how things should be done. As is so often the case, community members and the community assessment team have different "valued ideas," and cultural clashes occur.

Behaving occurs when actions and interactions between outsiders and insiders begin to erode myths about each other, and each sees the other as fellow human beings, although each side may still guard against rejection. Strategies for continuing the trust-building process in this phase include (1) demonstrating nonjudgmental and unconditional regard, (2) being genuine and avoiding trying too hard to be accepted, (3) learning the language of the group (e.g., the meaning of cultural slang words, perhaps phrases of a foreign language), and (4) placing the insider as the esteemed teacher of community life and health. The gender and age of team members and community members can also play an important part in this phase. For example, using a very young community interviewer in an elderly population may be less effective than using a middle-aged person. Wax (1986) found that middle-aged or older women are more able than any other age or gender to collect data across ages and gender categories. Of course, generalizations must be avoided in any context; however, ignoring age and gender influences can often impede or distort data collection (Zandee et al., 2013).

Swapping involves reciprocal giving and sharing between the outsiders and insiders. Giving and sharing help break down the remaining barriers to mutual acceptance and trust between the outsiders and insiders. Strategies used in the swapping process include telling insiders more about the roles of the outsiders (e.g., health programs involved in, outcomes of previous community assessments). Going to community events is an important swapping activity that often allows for informal interviews.

Belonging is the culmination of the process. During this phase, outsiders and insiders are able to talk about issues that heretofore provoked discomfort. Issues such as racism, prejudice, and discrimination are open to discussion. Insider language no longer seems foreign to the outsider, who understands the meaning of the language. Greetings and good-byes include physical displays of affection such as hugging. Socially deviant acts such as drug use may no longer be hidden from the outsider.

Chillin' out begins as the outsiders near the end of their community assessment phase and begin (hopefully) a long-term partnership with the community for the improvement and maintenance of community health. Outsiders should give insiders an idea of what to expect in the future, such as the amount of help that will always be available from healthcare experts.

GLOBAL CONNECTION

International travel nursing is rapidly becoming a growing field. How would knowing the community assessment process benefit a nurse who is traveling to a new city or country for the first time?

Collecting Data

What kinds of data do nurses look for when conducting a community assessment, and where do they find it?

The primary goal of data collection is to acquire meaningful and useful information about the community and its health. A systematic and informed nursing assessment in partnership with the community involves a variety of techniques and resources. The scope of a community or population assessment is determined by the purpose of the assessment and the complexity and nature of the identified community or population. For community assessments of large geopolitical communities, the process may take several months to a year or more and may require an interdisciplinary team.

Confidentiality regarding sensitive or controversial data is a critical issue for nurses conducting a community assessment (Goeppinger & Schuster, 1988). Just as a nurse must safeguard information obtained from the individual patient as an ethical and legal responsibility, the information derived from the community may involve a more concerted effort. Because there are often many team members collecting information from a variety of sources, it may be necessary to assign anonymous names to community members and even to other organizations within the community.

There are seven methods of collecting community data: **informant interviews, observation, secondary analysis of existing data, constructed surveys, focus groups, community forums,** and **windshield surveys.** The community health nurse should attempt to collect data using several different methods because no method is without bias. The process of using multiple complementary methods is termed *triangulation*.

Informant interviews involve directly questioning community residents. **Key informants** should be identified and interviewed early in the assessment process. These key informants are formal and informal leaders in the community who represent a cross section of age groups and ethnic groups. They include town officials, elected members, student and group leaders, and informal "spokespersons" such as barbers or postal carriers. The nurse uses appropriate communication techniques in directed conversations with selected members of a community. These interviews can be structured, with planned questions, or unstructured, in which the informants guide the interviews. Data gathered through informant interviews are considered subjective and can yield valuable information about the residents' perspectives on health values and health care; for example, how do the residents perceive their community healthcare services? Such data are recorded in the residents' own words and noted as direct quotations in the interaction column of the assessment tool. Both formal and informal leaders of groups and communities will yield important information about the community.

The nurse uses observation by purposefully looking and listening for significant events that are taking place in the community. Examples include city council meetings, high school basketball games, county fairs, barbershop conversations, and other similar social events. The nurse systematically records these observations. Relevant conversations of community residents are recorded in the interaction column of the assessment tool.

Secondary analysis is analysis of records, documents, and other previously collected data. The nurse may not have to collect new data when conducting the community assessment. Such data may already exist in the form of census data, historical accounts, diaries, previous studies of the community or aggregate, court records, minutes from community meetings, and research studies on population risks. The following Research Alert describes risks for cross-country truck drivers. The results of this research can be incorporated into a population assessment of cross-country truck drivers and is an example of the use of **secondary data** in a population health assessment. These are invaluable sources of information that can reveal the characteristics of the community as well as the attitudes of people in the community and how they cope with their lives on a daily basis.

Voluntary agencies, such as the American Heart Association, can provide aggregated data on specific health issues. These data are often organized in a more useful and focused format than official agencies. *Healthy People 2020* can be an excellent resource for specific health issues, including baselines and progress in preventive health. State health departments, the U.S. Public Health Service, the National Center for Health Statistics, and the U.S. Census Bureau provide a wide array of mortality and morbidity statistics and demographic profiles of populations. The CDC is an excellent source for information about national illness and health patterns as well as aggregated state health information.

RESEARCH ALERT

Long-haul truck drivers spend long hours on the road separated from family and other support systems, drive in hazardous conditions, and are often sleep deprived. Due to the demands of truck driving as an occupation, long-distance truck drivers are considered a population at risk for increased rates of drug use. Researchers and policymakers are especially interested in truck drivers' rates of drug use, the influence of drugs on truck accidents, and the link between drug use and fatigue. Studies have focused on identifying truck drivers at risk for abusing alcohol and drugs and investigating the drug use patterns of long-distance truck drivers.

Researchers interviewed 35 long-haul truck drivers at truck stops and loading facilities in cities and towns across Queensland, Australia. The majority of truck drivers interviewed reported high rates of over-the-counter, prescription, and illicit drug use. Reported use of amphetamines was particularly high.

In contrast to earlier studies that focused on fatigue as the motivating factor in drug use, the researchers found overlapping and changing motivations for drug use among the individual drivers. Using Becker's model of a drug use "career," they found that some of the drivers began using illicit drugs before they joined the truck driving occupation. They were motivated to use drugs by peer pressure, socialization, relaxation, wanting to fit their image of a truck driver, and addiction.

The results of this study indicate that social factors in addition to fatigue should be considered when developing drug prevention and treatment programs and policies for truck drivers.

Sources: Davey, J. J., Richards, N., & Freeman, J. (2007). Fatigue and beyond: Patterns of and motivations for illicit drug use among long-haul truck drivers. *Traffic Injury and Prevention, 8*(3), 7–18; Gay Anderson, D., & Riley, P. (2008). Determining standards of care for substance abuse and alcohol use in long-haul truck drivers. *Nursing Clinics of North America, 43*(3), 357–365.

In constructed surveys, community or aggregate members in a random sample of the population provide answers to written or oral questions. This technique is costly and time-consuming and is used only when other resources have been exhausted. Survey tools are available at the CDC website (http://www.cdc.gov) for a variety of attitude and opinion surveys with established reliability and validity for community data collection. For example, if a nurse is interested in abortion attitudes and if very little information is available through other techniques, a survey of community members may provide useful information about this issue.

A focus group can be used very effectively to derive information about health needs of specific groups in the community or population. The focus group is a qualitative approach to learning about subgroups within the population regarding sociocultural and other specific characteristics (Clark et al., 2003). Members of a focus group differ from other small groups in that the members are usually chosen to be fairly homogeneous in regard to specific characteristics, such as gender, age, or other social variables. By being highly selective about the membership of a focus group, the nurse can learn a great deal about that particular subpopulation's needs and perceptions about viable, acceptable solutions to health problems. The average group meeting lasts 2 to 3 hours and can be a very efficient way to determine group perceptions (Basch, 1987).

A community forum, which involves having an open meeting for all members of a community or population, can also be used to obtain information concerning the needs and perceptions of community members. In contrast to the focus group, a community forum is open to all; no attempt is made to structure a homogeneous group. A town hall meeting is a variation of the community forum that has gained popularity in recent decades; it was used by President Bill Clinton in 1994 and again, more than 2 decades later, by President Barack Obama in 2009 to bring their respective healthcare reform packages to the grassroots level. Even though community forums are not necessarily representative of the entire target population, they can be used effectively in a short period of time, with little cost, as one strategy for community members to voice their views.

The nurse can conduct a windshield survey of the geopolitical community as a technique for data collection. These observations through the window of an automobile are a way of collecting information about a community's environment. As an initial data-collection technique, a windshield survey often reveals common characteristics about how people live (e.g., transportation primarily by automobile, little pedestrian traffic), where they live, and the type of housing they live in.

Community Diagnosis

Conclusions about data collected on the community patient are a natural outcome of the assessment process. Eventually, these stated analyzed conclusions identify "labels" or names for the health problems in the community; these are called **community health diagnoses** (Higgs & Gustafson, 1985). The gathered data and generated data form a composite database. At this phase of the nursing process, as raw data are analyzed, themes begin to emerge and needs are noted, as are problems, strengths, and community resources. Community members continue to be involved in this process as both subjective and objective data are compiled (Keller, Strohschein, Lia-Hoagberg, & Schaffer, 2004; Keller, Strohschein, Schaffer, & Lia-Hoagberg, 2004).

Written community health diagnoses differ significantly from those written for the individual patient. Most systems of classification developed for nursing diagnoses have focused on the individual. Hamilton (1983) analyzed various theories and diagnostic classification schemata and concluded that research is needed in both the application of individual models of diagnoses and the clarification of the *target* of care, whether that be the community, individuals in the community, or individuals influenced by the community. Viewing the community as a patient who has varying degrees of ability to meet its own needs extends the focus to include response to illness and change, social problems, or any areas in which the community patient needs assistance in order to function optimally (Higgs & Gustafson, 1985). Data from the target community or population are compared with similar populations in other settings. Comparing data such as infant mortality rates or accident rates can reveal significant differences and point to specific disparate health risks in the target population. During this phase, the community health nurse compares conclusions about the community's health status with accepted standards of health, and judgments are made as to strengths and concerns of a community's functioning (Lundy & Barton, 1995).

Identified problems are now stated in the form of a community health diagnosis. Each diagnosis is documented, the recipient of care is identified (the community as opposed to the individual), and factors contributing to the problem are explicated.

A common nursing diagnosis format that has been modified for community use has been developed by Schuster and Goeppinger (1996) and Muecke (1984). Here the diagnosis takes the following form:

1. Risk of (a specific problem or health risk in the community)
2. Among (the specific group or population that is affected by the problem/risk)
3. Related to (strengths and weaknesses in the community that influence the specific problem or health risk in the community)

The following are some sample community/population diagnoses using the aforementioned format:

- Risk of lung infections among disaster workers related to debris from Hurricane Katrina recovery
- Risk of hearing loss among studio musicians related to constancy of loud music in occupational settings and nonuse of hearing protection
- Risk for increased incidence of pregnancy among teens at Rydell High School related to increased sexual activity and nonuse of contraceptive services or methods
- Risk for lung damage among migrant farm workers in the Louisiana delta related to presence of pesticide pulmonary irritants in the occupational environment
- Risk of eating disorders among professional ballet dancers related to occupational pressure to stay underweight for professional advancement
- Risk of sleep deprivation among nurses who are permanent night shift workers at Bayview Medical Center related to erratic and interrupted day sleep

MEDIA MOMENT

The Healing Heart: Communities Storytelling to Encourage Caring and Healthy Families (2003)

By A. Cox and D. Alperts, British Columbia, Canada: New Society Publishers

This book is a "basket of memories" that is meant to trigger memories for storytelling for use in personal and professional communities. The stories are for sharing among people of all ages, and many of the contributors preface their stories with work-related discussions about programs, projects, agencies, and the use of storytelling with their patients and its impact upon them. Communities include battered women, substance abuse and recovery patients, sex offenders, refugees, immigrants, and an adult prison group. The editors of the book maintain that the book is for people who work with communities so that they may learn to use storytelling in their work.

Planning and Prioritization Phase

During the **planning phase**, priorities are established, goals and objectives are identified based on those priorities, and community-focused interventions are developed. Unlike a clinical individual diagnosis, a community diagnosis requires more than simple establishment of the presence of a health problem. More than one health problem is always present in a community or population; consequently, diagnoses require prioritizing problems for community action. Criteria must be established to determine how resources and energies will be allocated toward addressing the identified needs (Watson, 1984).

The WHO has published criteria that may be used to prioritize health problems identified in communities. These criteria are listed in **Box 8**.

Goeppinger (1984) has also developed a set of criteria to guide the prioritization of community health problems. Those criteria are as follows:

- Community awareness of the problem
- Community motivation
- Nurse's or team's ability to influence problem solution
- Availability of expertise
- Severity of consequences to society if problems left unresolved
- Quickness with which the problem can be resolved

Reviewing the identified health problems using a set of criteria is a critical step in the process to address complex community health problems. In addition, community members representing multiple subpopulations within the community (e.g., different age groups, ethnic groups), community leaders, and assessment team members should be involved at this stage (Duiveman & Bonner, 2012).

Once the prioritized problem list emerges, goals, objectives, strategies, and plans are developed. *Goals* are broad and general statements of concern that are usually considered long range. *Objectives* are specific, measurable statements of desired outcomes and are often viewed as short term.

All planning group members, community representatives, and other experts within the appropriate areas are

BOX 8 Criteria for Selecting a Health Problem for Community Intervention

- Significance of the problem (in terms of numbers affected or consequences)
- Level of community awareness and priority
- Ability to reduce risk
- Cost of reducing risk (economic, social, ethical)
- Ability to identify the target population
- Availability of resources to intervene in the reduction of risk

Source: Adapted from World Health Organization (WHO). (1976, October 11–15). Criteria to be considered in selecting a preventive health action. In *Report of the first interdisciplinary workshop on psychosocial factors and health*. Stockholm, Sweden: Author.

involved in this process, especially those who will be most affected and who are in a position to influence the implementation of solutions. The importance of this involvement cannot be overemphasized. Many community interventions have failed and undermined future professional assistance because community teams excluded community members from participating in this process (Goodman et al., 1998). We know from research that when communities and populations develop a vested interest in the identification of health needs and proposed solutions, there is a greater likelihood of sustaining these intervention strategies over time. In other words, the community must be willing to "pay the price" of whatever objectives and goals are proposed (Watson, 1984).

Community health nurses are often members of teams who are conducting community- or population-level assessments, and as such the identified health problems and concerns are rarely limited to the use of nursing interventions (Robinson, 2005). The complexity of group-identified health concerns requires an interdisciplinary approach, and planning and intervention strategies usually reflect the involvement of other professionals (e.g., social workers, audiologists, physicians, and psychologists) and community resources' utilization (Duiveman & Bonner, 2012; Smith & Barton, 1992).

RESEARCH ALERT

Catholic Healthcare West (CHW) of San Francisco has developed a national Community Need Index (CNI) to identify and address barriers to healthcare access in communities. The CNI aggregates five socioeconomic indicators known to contribute to health disparity—income, culture/language, education, housing status, and insurance coverage—and applies them to every ZIP code in the United States. Each ZIP code is then given a score ranging from 1.0 (low need) to 5.0 (high need). Residents of communities with the highest CNI scores have been shown to be twice as likely to experience preventable hospitalization for manageable conditions—such as ear infections, pneumonia, or congestive heart failure—as residents of communities with the lowest CNI scores.

The CNI provides evidence for addressing socioeconomic barriers when considering health policy and local health planning. This tool links healthcare disparities between geographic regions and illustrates the acute needs of inner-city and rural areas. It may enable healthcare providers, policymakers, and others to allocate resources where they are most needed, using a standardized, quantitative tool.

Source: Roth, R. (2005). The "Community Need Index": A new tool pinpoints health care disparities in communities throughout the nation. *Health Progress, 86*(4), 32–38.

Implementation Phase

The implementation phase is the action phase. It translates the objectives and strategies into reality. Strategies should be selected based on not only currently available resources in the community but also the likelihood that the means will have some long-term availability. During implementation, lay leaders in the communities, professionals, and organizations must be included and their support acquired. In the long run, it is always better to educate others on how to implement these strategies than for the nurse and other team members to control the implementation (Barton, Smith, Brown, & Supples, 1993). The tendency toward paternalism is strong among health professionals and for many has been reinforced through acute care organizational structures and roles; one must safeguard against the problems of paternalism. In the implementation phase, those community leaders who have greatest probability of achieving success—those whom the community respects and looks to for guidance—are identified. In general, a pilot test should be planned if possible as a trial run of the implementation. In this way, using a few individuals from target groups for feedback, delivery, and design issues may be discovered before the major investments of time, energy, and resources (Clark, 1996). Pilot studies often reveal that more training is needed, along with more or different types of resources and more time. Minor flaws can be corrected; feedback can be collected from the pilot participants with ideas about how the implementation might be changed or improved; and fine-tuning can increase likelihood for success in the implementation (Schuster & Goeppinger, 1996). Box 8 and the following two Note This! boxes all provide examples of community-focused interventions implemented through a **collaborative arrangement** between health professionals and community leaders.

Role of the Community Health Nurse

The roles of the community health nurse (CHN) and other professionals depend on the nature of the health problem, the community's ability to make decisions, and professional and personal values and preferences. Also important is the history of the community's ability to solve its own problems. The nurse will play a different role in an established population where there is a history of successful health problem management, as opposed to one that is poorly organized and loosely connected to each other or that has vague community identity. In one case the nurse may serve only as advisor, whereas in another, the nurse must work with the community first to teach the community how to solve problems (Richards et al., 2002).

NOTE THIS!

Alaskans Race to Vaccinate: Children as a Population at Risk—A Community-Focused Intervention Implemented Through Collaboration Between Health Professionals and Target Population

A population assessment revealed that only 52.7% of the young children in Alaska were fully immunized. Through collaboration with several groups, including the University of Alaska Anchorage School of Nursing, the Iditarod Trail Committee, and the Indian Health Service, the Alaska Nurses Association established the I Did It By Two! Race to Vaccinate as a health project analogous to the Iditarod Sled Dog Race. The original Iditarod, in 1925, was an appropriate focus event because that relay, in which mushers and dogs carried antitoxin across 700 miles of Alaskan wilderness, halted a diphtheria epidemic. Alaska's "checkpoints" are 2, 4, and 6 months of age. The best possible "finishing time" is 12 to 15 months. Any child who reaches the long-distance goal by age 2 years wins an Iditarod certificate autographed by a musher. The Iditarod is the most famous sled dog race in the world, and the mushers who drive the sleds are influential spokespersons. The geographic outreach to connect with the target population was extensive, because the Iditarod Race runs from Anchorage to Nome, covering more than 1,049 miles. The immunization project has become the largest in the nation in conjunction with a sporting event. Outcome evaluation revealed first and second year immunization rates improved to more than 80% in targeted areas.

The Vaccinate Alaska Coalition (VAC), which cosponsors the Race to Vaccinate campaign, along with the Alaska State Health Department, received national recognition for their efforts to promote and provide immunization to people of all ages. Vaccinate Alaska Coalition (VAC) was a recipient of a 2003 Excellence in Immunization Award from the National Partnership for Immunization (NPI) in recognition of its sponsorship of the I Did It By Two! campaign and the Race to Vaccinate Campaign with the Iditarod Trail Sled Dog Race, which heightens public awareness of the critical need for timely immunization of children from birth through 2 years of age. For the campaign, children pass immunization "checkpoints" in order to cross the finish line and are declared "Winners in the Race to Vaccinate," just as mushers must pass checkpoints in the actual race. Since its inception, the Race to Vaccinate and the I Did It By Two! campaign participate in the Iditarod race by providing sled dogs and their mushers with race bibs, which display the Race to Vaccinate slogan. Four-time Iditarod champion Martin Buser and mushers Jon Little and Paul Gebhardt speak throughout Alaska about the crucial role of immunizations in lifelong good health.

Carolyn Keil, PhD, RN
Associate Professor, University of Alaska Anchorage
Project Director, Race to Vaccinate, 1992–1996

Sources: Adapted from Alaskans Race to Vaccinate. (1996). *Reflections* (4th Quarter); Roberts, K. (2003). Going the Distance: An itinerant nurse takes health care to the corners of Alaska. *American Journal of Nursing, 103*(12), 102–103; Alaska Department of Health and Social Services. (2005). *Strategic plan 2005–2007.* Juneau, AK: Division of Public Health.

NOTE THIS!

Carter Center's Interfaith Health Program: Faith Population as Target Community, a Community-Focused Intervention Implemented Through a Collaborative Arrangement Between Health Professionals and Community Leaders

President Jimmy Carter and the Carter Center in Atlanta, Georgia, along with leaders from the Atlanta Interfaith Health Program, have developed a highly successful collaborative project to help faith communities nationwide prevent disease and promote wellness in their congregations. Through this program, Starting Point, religious groups and health professionals work together to identify risk factors, such as economics or age, and link resources to the church congregations. Dr. Fran Wenger of the Emory School of Nursing in Atlanta is one of the original organizers of this program and is responsible for training lay church leaders in identification of risk and the development of interventions. Religious groups across the country are building an impressive network of leaders, scholars, and community activists who share a common goal: to help people through their churches and religious groups lead more healthful lives. This effort uses a step-by-step training program in which lay volunteers in the church are prepared to be "health promoters." These volunteers then help identify group needs and then work to find appropriate resources, such as the American Cancer Society or the local Red Cross, to meet them. Jimmy Carter sums up the program in this way: "The key to empowering any community, be it religious or otherwise, is team work and a strong spirit of collaboration."

Source: Starting Point: Empowering Communities to Improve Health. A Manual for Training Health Promoters in Congregational Coalitions. Interfaith Health Program. (1997). Atlanta: The Carter Center.

A community assessment report should be shared with target community. Dr. Judith Barton shares County Health Assessment with residents in rural Colorado.

Social Change and Community Action

The age-old question of how to "teach an old dog new tricks" leads us inevitably to the process of change. There are two types of change: unplanned or spontaneous change and planned change. There is considerable debate about the ultimate benefits of unplanned change, but the CHN is most interested in planned and directed change. Such community changes imply that the activities of the CHN are directed toward some goal or goals set in the planning stage of the nursing process (Richards et al., 2002). Intervention activities based on the concepts of planned change center on conscious, deliberate, and intentional actions directed toward **healthy change** in the community (Chin & Benne, 1989). Several forces influence the process of creating meaningful change.

The CHN intervenes in changing attitudes, values, knowledge, and skills of the community or population. Kurt Lewin (1951), in his force field theory, postulated that there are always two types of forces that affect the likelihood of change in any situation: driving forces and restraining forces. These two types of forces work in opposition to each other, and Lewin theorized that it is the relative strength of each force that determines whether change will occur. Force field theory postulates that when driving forces are stronger than restraining forces, change occurs.

Driving forces are those influences that favor change. Restraining forces, by contrast, impede change. For example, a group of restless teens, frustrated with the lack of unorganized recreational settings, may be a driving force that motivates a community to establish safe socialization sites for teens to gather. However, the same teen population might feel threatened by adults making the decisions about how these safe socialization sites operate and would, therefore, serve as a restraining force operating against change.

The role of the CHN in promoting healthy change involves manipulating the driving and restraining forces in ways that increase the likelihood of positive changes in the population. This occurs by increasing the driving forces while minimizing the restraining forces. The nurse in the change agent role can promote these changes through an understanding of the process. An underlying assumption of this process is that the community or population must participate in the planning of change (Tembreull & Schaffer, 2005). Some resistance to change can be assumed in most situations. To counter this resistance, the nurse engages the population members in planning the change. Such participation can result in decreased resistance to that change (Lippitt, Langseth, & Mossop, 1985).

Lay Advisors

Community members who hold more status and prestige in the community and are looked to by community members as the "movers and shakers" are the lay advisors who can make or break community intervention. By promoting new ideas and representing positive change, lay advisors provide the connection to the community while often displaying natural leadership abilities that can be encouraged and reinforced by the community health nurse (McKinley, 1973).

THINK ABOUT THIS

The virtual community assessment . . . try a community assessment board game!

Dr. Kathleen Masters has developed a board game based on the Lundy–Barton General Systems Tool for Community Assessment; it enables students to apply knowledge and practice skills necessary for performing a community assessment. Students are divided into teams who answer questions about their community by moving along spaces in "cars" through drawing "data" cards. Data include observations related to environment, demographic data, interviews with community residents, and observations of resident behavior. To advance, team members must answer correctly, move to interventions, and eventually reach the evaluation spaces on the board. Teams vote on correct diagnoses based on subjective and objective data presented.

This game helps students learn how to use the community assessment process in a fun way for a trial run before getting out in the real world!

Source: Masters, K. (2005). Development and use of an educator-developed community assessment board game. *Nurse Educator, 30*(5), 189–190.

Focus Groups

Small groups in the community are often the selected mechanism by which change is introduced and sustained. Existing community groups or new groups formed specifically around the community objectives are often successful in implementing healthy change. These groups link the individual to the community. Through formal groups such as church-related organizations or special interest groups, such as the Parent–Teacher Organization, nurses can provide the leadership both in initiating healthy change and promoting the group's efforts toward autonomy and self-care.

Policy and Legislation

To effect change at the governmental level, collective needs must be translated into a grassroots power base of influence. Nurses are often unfamiliar with this level of intervention and often need to build coalitions with other influential professional and organizational constituents to effect change. *Policy* refers to the principles and values that govern actions directed toward given ends; policy statements set forth a plan, direction, or goal for action. Because politics is often about scarce resources, the CHN involved in policy changes—whether at the local, state, national, or global level—effects healthy change in communities by influencing the distribution of resources, the amount of resources allocated, and the recipients of the allocated resources, that is, the target community (Chitty, 1997). Although different from politics, policy is shaped by politics (Mason, Talbott, & Leavitt, 1993).

Through the assessment process, the CHN identifies, along with the community or population, health needs or problems. Depending on the nature of the problem, the CHN can use his or her knowledge of the political process to influence the policy process, such as by drafting legislation, providing formal testimony as an advocate for the community, or lobbying governmental officials to make certain that those health issues are a priority for action. All activities are done with the community, by serving as both advocate and educator for the population in efforts to meet those identified goals (Chitty, 1997; Wallerstein, Duran, Minkler, & Foley, 2005).

Mass Media

The most common use of the mass media to promote healthy change in communities has been to communicate specific health information to larger audiences. Using a combination of media forms (e.g., television; radio; newspapers; newsletters; social networks, such as Twitter, Facebook, and LinkedIn; and magazines) provides a greater possibility for exposure and contact with the population. Some community members prefer oral delivery, contact, and consumption, whereas others are more visual, preferring to read (e.g., newsletters), watch television, or simply notice posters in selected community sites. Many population members might be more easily reached through the Internet. Internet and web-based instant communication, such as Facebook, Twitter, and other social networks/media, continue to be most successful in disseminating information to the public.

Media coverage of health issues and events can be a successful strategy for informing and motivating large numbers of the population (**Box 9**). A well-constructed, focused media campaign can be an excellent means for disseminating and modifying values about health. Such activities can be as simple as a well-timed letter to the editor, which can provide an excellent forum for airing of health concerns and eliciting feedback from the community. Securing the local newspaper's editorial support can be a major factor in soliciting legislators' and other policymakers' attention, particularly with controversial community issues. Press releases should also be considered standard fare for most community projects that serve a targeted population (**Box 10**). In addition, feature writers for local and state newspapers are always looking for stories of interest. Novel approaches to community programs, even the community or population assessment itself, should be

BOX 9 Steps in Using the Media for a Health Policy Intervention

1. Designate one member of the community team who has experience with media relations as spokesperson.
2. Identify health issues from goals that would be appropriately advanced in the media.
3. Work in conjunction with professional organizations and specialty groups to develop a media strategy.
4. Build coalitions with consumer groups and lay leaders in the community.
5. Go public through newspapers, television, radio spots, online social networks, and websites.
6. Evaluate effectiveness through community response: letters to the editor, phone calls, chat groups on the Internet, and online social networks, such as Facebook.

of interest to readers, particularly when the newspaper has a large readership. Other media tools include television and radio talk programs, beginning with local television stations and expanding to the networks. The coverage of community health issues not only helps inform the population about health issues but also is an excellent way of promoting positive, accurate public images of nursing in a health promotion role. Publicizing these nursing roles, goals, concerns, and accomplishments in the policy arena will serve to increase the likelihood of public support for nurse-initiated policy recommendations (Hanley, 1984).

BOX 10 Sample Press Release

For immediate release. October is Breast Cancer Awareness month. The focus on breast cancer targets all age groups of women and their partners in an effort to educate the public about the importance of early detection and treatment of breast cancer. The American Cancer Society sponsors the national campaign, and local health organizations, schools of nursing, and voluntary health groups working with the American Cancer Society provide speakers, materials, promotional media messages, and community-focused events. The Breast Cancer Awareness Committee of the greater Hattiesburg, Mississippi, area is a group of representatives from healthcare agencies, voluntary agencies, schools of nursing, and healthcare consumers who develop various projects in the community to enhance the public's awareness about breast cancer survival in the Pine Belt. BSN and RN students from the University of Southern Mississippi College of Nursing are involved in this collaborative effort as part of their community health educational experiences in their senior course, community health nursing. They have developed activities and projects that raise awareness on the college campus about the importance of breast self-examination (BSE). The students learn about the use of the media in community health education. Activities include sorority and fraternity presentations, newspaper press releases, television interviews, a website development focusing on men and breast cancer, and information booths at the student center and post office throughout the month of October.

Contact Persons:

Breast Cancer Awareness Team, Chairperson, Karen S. Lundy

Media Advocacy

Media advocacy is the strategic use of the mass media to advance healthy public policy by applying pressure to legislators and other policymakers (Wallack, Dorfman, & Woodruff, 1997). By focusing the attention of those who have the power to change policy, the media become a powerful tool for drawing attention to the actions of a specific group (e.g., the town council, a governing body, or a planning commission). This can also occur when the news story alerts people in the target population to an issue or an action and mobilizes community and population support. The goal in media advocacy is to have the news story told from a public health perspective. This means emphasizing the public policy dimensions of prevention and shifting the focus away from the individual health behavior to the cultural, social, economic, and political context of health issues. When the health issue is visible to large numbers of people, the issue becomes part of the public agenda. Thus, once a health issue is on the public agenda, media advocacy helps advance the goals of community policy by directing public attention to the actions of those responsible for enacting or opposing the policy. For example, one of the problems in the lack of initiatives concerning the acquired immune deficiency syndrome (AIDS) epidemic was the lack of media attention. The issue did not immediately make it to the national policy agenda as a result of complicated influences, primarily because the population initially at perceived risk was the male homosexual community, which had little success accessing the media. Without public attention on an issue or an event, the broader community remains in the dark, along with those who have the power to make the desired change (Wallack et al., 1997). According to Daniel Schorr, National Public Radio (now simply NPR) commentator, "If you don't exist in the media, for all practical purposes, you don't exist" (Communications Consortium Media Center, 1991, p. 7). By using the media to promote healthy change, Flynn (1998) advocates that nurses continue to think "upstream" and focus on fairness and equity in targeting those populations at risk.

Education

Educational strategies are perhaps the most common strategies used by CHNs in promoting health and preventing illness in individuals and communities. Educating the target population about available knowledge and community resources is common (Syme, 2004). The purpose of educating the target population about health issues and possible solutions is ultimately to create greater self-sufficiency and a community that is better prepared to make appropriate health-related decisions in the future (Magee, 2005). These include decisions about personal health behaviors, decisions about the use of available health resources, and decisions about societal health issues (Clark, 1996). Education strategies take many forms, including formal presentations, printed materials, community billboards, and other forms throughout the media and via the Internet. When current information and research are provided about health issues, people can become more involved in their own self-care and make informed decisions regarding personal behaviors that promote health; for example, should ear protection be used by persons in a rifle club, or should teens be held to a higher standard regarding alcohol use and driving automobiles? Health education can be viewed as a means of freeing people in populations from influences that lead them to unhealthy behaviors. Education is much more than merely imparting knowledge and skills; it includes helping people change their attitudes to those more conducive to healthful behavior. Teaching people to use resources—so that they learn not only what is available in the community but how to apply that knowledge in promoting healthy change—is an even more empowering strategy (Greenberg, 1989).

On a more global level, populations can be educated about decisions related to social health issues, such as AIDS or teen suicide risks. For example, educating the target population can assist people in determining whether they support legislation that requires motorcyclists to wear helmets or that bans smoking in public buildings. An informed population is better able to make decisions about major health issues that affect their lives (Clark, 1996).

ART CONNECTION

Explore the early paintings of Florence Nightingale, especially of those where she is working in the Crimean War. Do an environmental assessment of the painting, citing safety issues and health needs.

Evaluation Phase

To evaluate the effectiveness of implementations, the nurse evaluates the responses of the community to the interventions, the progress that has been made in affecting outcome measures (e.g., statistical changes), and how well the efforts have fared in comparison to the goals and objectives. Evaluation data are collected in various formats and should come from diverse viewpoints, both from the target population and from the team members (Anderson & McFarlane, 2003). Because the nursing process is cyclical instead of linear, evaluation as the final step in the process ultimately affects the next assessment. In community health interventions, there rarely is a true end point, but rather there is a dynamic interplay of the steps in a process. The effectiveness of community nursing interventions depends on continuous reassessment of the community's health and on appropriate revisions in the planning interventions. Essentially, evaluation boils down to this: What has been the intervention's impact on the health of the target population or community? Because the community is so complex and so many variables affect the outcome of health measures, it is often difficult to measure all the variables, including the interventions, that shaped the outcomes (Duiveman & Bonner, 2012). The nurse must be cautious about attributing changes to the interventions, or denying influence because of lack of concrete evidence that changes occurred. Was it worth the time and effort and resources? What would or could be done differently in the future? Equally important, the community must have an opportunity to shape the evaluation conclusions. Before a final analysis and evaluation report is finished, the team should seek input from the community and population members. Does the community deem the process a success? After all, the perceived results are most important in the final analysis and should be reported in the formal conclusions (Pavlish & Pharris, 2012).

The evaluation process entails both formative evaluation and summative evaluation. *Formative evaluation* measures focus on the process *during* the community interventions (Clark, 1996). For example, perhaps a strategy had been devised in which parents of young children would be offered a safety class on accident prevention at home. This class was initially offered on Saturday mornings. In the first two classes, only a few parents attended. It was discovered that Saturday mornings were often taken up with Little League sports and dancing lessons. The class was rescheduled for a weekday after work and attendance doubled within a week. In contrast, *summative evaluation* refers to the outcomes of the interventions, those measures that include end-of-intervention evaluations. Such measurements as satisfaction surveys, self-reports from parents of changes in their use of safety information in the home, or changes in the number of home accidents reported by the local hospital are all summative evaluation strategies (Benner & Meleis, 1978).

Putting the evaluation into lay terms in the final report to the community is expected of all community assessment team projects. The media (e.g., newsletters, local newspapers, television stations, and the Internet) and churches are appropriate resources for distributing the final report to the community. Whatever the outcome, because of the community assessment process, both the team members and the target population are changed (Magee, 2005). Closure in the form of a final report can have a critical impact on the future of the population's or community's response to health challenges and interventions.

Conclusion

Assessment of communities or populations is a critical nursing skill in the rapidly evolving U.S. healthcare system. The need for nurses to be able to assess communities and populations as the focus of nursing care has always been an integral skill for public health nurses working in official public health agencies. With an increasing focus on keeping participants of healthcare plans healthy, an emphasis on health promotion and prevention brings evidence-based, community-focused interventions to the forefront for professional nursing. In addition, healthcare agencies receiving federal funding to offset expenses incurred for treating the underinsured or noninsured are now required to assess the communities and populations they serve. In other words, there is a new emphasis on prevention rather than illness care pervading the U.S. healthcare system as outcome measures form the basis of reimbursement and service continuations. Preparation in community/population assessment is essential for nurses at the BSN level in all settings to promote the health of their patients.

AFFORDABLE CARE ACT (ACA)

Community and population assessments will become more essential as the ACA extends to the community with greater emphasis on prevention and nonacute care settings.

LEVELS OF PREVENTION

Primary: Conducting a population assessment for a group of healthy middle-aged adults in a church

Secondary: Assisting persons with hypertension with planning their diet and exercise to reduce the risks of their condition

Tertiary: Providing education for persons post-stroke to assist in safe mobility and self-care

Critical Thinking Activities

Population Assessment Guide for Community Health Nursing Students: An Introductory Field Experience for a Local Geopolitical Community

1. Before beginning your community assessment, identify the conceptual framework you would like to use in organizing your community assessment. Remember, a conceptual framework for community assessment will help you in knowing what data to collect, how you should collect the data, and how to interpret the analysis of data for community planning.
2. Go to the local library or to the Internet and access census data for your community before going out to the community so that you have a feel for the social status of your community. Necessary demographic data to collect include the following:
   - Total population for catchment area
   - Racial composition (%) for catchment area
   - Ethnic composition (%) for catchment area
   - Age distribution (% by category) for catchment area
   - Educational attainment (% by category) in catchment area
   - Percentage of all persons living below poverty level
   - Percentage of children younger than age of 5 years living below poverty level
   - Percentage of persons 65 years and older living below poverty level
   - Percentage of females 16 years and older who have children younger than 6 years of age and who work outside the home

Use census data to compare to your catchment area.

3. Meet with a key informant at the designated time. Ask the key informant to tell you what he or she knows about the immediate community in which the health center is located. What kind of people live in the community? What are some of the community's health issues (views of health are broad, including economic, political, cultural, education issues)? What does the key informant see as a primary strength of the community?

Ask your key informant about specific gathering places within the community where you might talk to community members, such as fire stations, housing offices, recreation centers, and so on.

Ask your key informant if it would be okay if you talked to a few of the patients waiting in the clinic area. Explain that you will introduce yourself as a student nurse who is conducting a community health needs assessment and you will then ask the waiting patients to just describe what it is like to live in this community.

4. Spend a little time in the clinic setting meeting some of the patients in the waiting rooms. Many of the clerks working in these clinics live in the neighborhood, and they may also be willing to talk to you. Be brave! Find out all you can about what it is like to live in the community. What is a strength of the community? What is a need? How has the community changed across time (history)? What is currently happening in the community? These are general "round the world" questions that can open up a full discussion. Write down the questions mentioned in this guide on an index card. When in doubt as to what to say next, just ask the person to more fully describe what they are talking about. For example, if the person is talking about gang crimes in the neighborhood, you can ask, "Can you tell me some more about this problem with gangs?"
5. Gather outside the clinic and take a windshield survey of your community (census tract boundaries). Pay attention to environmental characteristics such as range of housing, industry, recreation facilities, and so on.
6. Spend some time talking to members of the community who are located outside the clinic area. For example, you may venture into the recreation center and talk to a few people. Venture into a daycare center and ask to talk to the workers, children, and parents. Ask again about what it is like to live in the neighborhood.
7. Review any secondary data (e.g., health status reports) you were able to obtain from your key informant or others in the community.
8. Meet for lunch or an afternoon snack to analyze the findings from the secondary and primary sources. As a group, brainstorm about strengths and needs of the community assembled from observations, interviews, census data, and any previous reports you have been able to obtain. Develop two to three community diagnoses. Decide on an outline for a written report on your community assessment, and write a report on your community assessment as a group or divide up the outline for section writing.
9. Do an oral presentation of your community assessment. Share your findings with the "target" community and with your classmates.

Source: Adapted from Barton, J. (1997). "Undergraduate Mini Community Health Assessment." University of Colorado School of Nursing Health Sciences Center.

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Appendix: The Lundy–Barton General Systems Model for Community and Population Assessment and Intervention

The unique responsibility of community health nursing practice is defining problems and proposing solutions at the population level. The process of making this connection from the individual to the community has proven to be an especially difficult task for the nurse conducting a community or population assessment. The community/population health assessment process is based on the understanding of the community as patient. This also includes populations within communities and society. Although nurses wouldn't consider the omission of individual patient assessment and base intervention on intuition, this is almost precisely what happens when we fail to do a thorough assessment when planning and delivering healthcare services to community populations. For example, we would not ever consider just examining the arm of a patient and totally ignoring the rest of the body when we plan nursing interventions. And yet by looking at only one aspect of the community/population, such as the physical parameters, we are just examining the "arm" and ignoring the "body" and "mind" of the community/population. One of the major difficulties in conducting a community/population assessment is that students and practicing nurses alike have often been limited to individualistic patient care. This focus on personal care sometimes presents difficulty in the transference of those skills to assessment and problem solving at the community and population levels.

The Lundy–Barton Model uses familiar systems theory and the nursing process to guide the collection and interpretation of data, development of problems and areas of need, and evaluation of nursing strategies to promote community health. The model includes a database, a needs list, assessment, and a plan to address each need with progress notes delineated for selected problems. Each of these components will be discussed in relation to community/population assessment with concurrent identification of the nursing process components.

Database (Assessment Phase: Nursing Process)

The collection of data corresponds to the assessment phase of the nursing process. The collection of data has one primary goal—to learn about the patient. The exploration of available data about the community can be general or quite specific, depending on the definition of the community or population and on the purpose of the project. An example of how the definition of community can affect the assessment of a community/population can be illustrated by the distinction of the community as a *place* or *nonplace*. A *place* community/population, according to Anderson and Carter (1974), refers to a specific geographic locality, one that can be defined by physical boundaries. This definition is the one most often used in health planning projects for specific urban or rural locales. A *nonplace* community/population is defined as one based on cooperation and commitment by its members to common goals and ideologies. A nonplace community/population is in a sense a "mind" community, such as the academic community, the virtual community of an Internet-based group within social networks (e.g., Facebook groups), or the nursing community. The distinction can also be made on the degree of attachment to a specific locale and the scope of activities, interest, and needs. Place communities have the greatest attachment to a specific locality, whereas nonplace communities usually have limited geographic ties. Nonplace communities generally are narrow in their scope of activities, interests, characteristics, and/or needs, whereas place communities have a wider scope of activities, interests, and needs. Defining the community/population as a place or nonplace will thus affect the direction and method of assessment (Anderson & Carter, 1974).

There are eight categories of data, which are presented in the following section and are considered necessary for the database of a community or population assessment.

Community/Population Profile

What makes the identified community different from any other community/population? The "community patient" is somewhat harder to get to know than the individual patient. Instead of using temperature, pulse, respiration, blood pressure, and so on, the indices of a community/population will take the form of *demographics* and *vital statistics*, such as morbidity/mortality rates, sex, age, ethnic and racial distributions, educational levels, occupation/employment patterns, and socioeconomic patterns. *Mortality rates* are important indices because they provide a picture of the health and living conditions of a community. The *infant mortality rate* is considered perhaps the most sensitive indicator of a community's health status; "such indices require a basic readjustment in thinking. A woman is either pregnant or not pregnant; a community is about 3% pregnant. A patient has or does not have heart disease; the community always has heart disease though the rate may go up or down" (Mattison, 1968).

Demographic data can be found in local and state health departments and on the Internet. U.S. census data are an excellent source for demographic data concerned with population density, population age distribution, occupational distribution, socioeconomic characteristics (income, education, employment), and marital status. Data concerning the kinds of family forms that are prevalent—young families with small children, percentage of women working, and so on—are also available from the U.S. Census Bureau and can provide useful information for the identification of family needs.

Information about how the population is distributed spatially is extremely important in considering the location, distribution, and delivery of health services. Whether a population is densely or sparsely populated has been shown to affect other aspects of people's lives such as norms, values, and types of health problems. Population density can also affect behavior and the emotional health of residents.

Information about the percentage of persons in each age category contributes to the assessment of health needs. Many times, when the age distribution is examined in a historical context, it becomes evident that there has been a population shift over time.

Morbidity and mortality statistics can help provide a statistical picture of the community or population in terms of the incidence and prevalence of specific diseases, health status, and deaths within a community. These statistics can be obtained through local and state health departments and the Centers for Disease Control and Prevention (for specific population groups such as teenagers); from special-interest groups, such as the American Cancer Society or the American Heart Association; or from the various population interest groups, such as women with HIV/AIDS. These data are most often obtained via the Internet.

Comparison of the Profile

Demographics and other statistics *should be compared* with adjoining communities or similar populations, the state, and/or the nation to ascertain the relative significance of the statistics. Not only can these comparisons provide clues as to what kinds of health problems and needs exist in a particular community, but they can also provide an evaluation of the effectiveness of existing health services and programs.

Psychological Climate

Just as an evaluation of an individual patient includes an examination of his or her psychological status, an assessment of the community/population is incomplete without evaluating the psychological aspects. There are three areas: (1) self-concept, (2) attitude toward health, and (3) history and changes over time. How the community/population views itself is usually based on history and traditions from the past. How does one find out what kind of *self-concept* the community or population has? Ask the members! Each community often thinks of itself in terms of descriptors such as "we are a friendly place," or "we just leave each other well enough alone," which can reflect whether the inhabitants see themselves as being connected to adjoining communities or separate from them. Listen to the people talking with one another—are the inhabitants proud of their community/population or are they somewhat distanced and seemingly apathetic? Does the population express powerlessness or worthlessness, such as women who have been abused by parents? Focus groups are an excellent means of listening to the voices of the often "hidden" community/population members: elderly, mothers of small children, people with disabilities, and so on (Clark et al., 2003).

In addition to evaluating the community/population's self-image as an indicator of the psychological climate, it is useful to determine the *community's attitude toward health in general.* Is health care a priority in the community/population? Indicators such as safety and public service media messages (e.g., radio, television, billboards) are evidence of the degree of voluntary efforts for the development of health programs and should aid in the assessment of where health fits into the community/population priority structure. What is the website of the community/population or group like? Is it current? Do members of the community interact with each other—either online on "blogs" or in person? Populations have a wide variety of attitudes and values about health. Teens may have very little interest in health because of their developmental level of self-awareness.

A third area to assess in terms of the psychological database is information concerning the *historical changes that a community/population has experienced* and its response to those changes. Understanding the history of the community or population—how and when it came to be, how it has responded to change (e.g., industrial growth, highway construction, rapid population growth or decline), and how it has dealt with health problems in the past—would all be helpful in planning realistically for health services. A community/population's experiences, its ability to mobilize resources, and dominant patterns of solutions to health problems all significantly affect how that community will respond to intervention. For example, the population of homosexual men has a long history of discrimination in the United States and may exhibit a distrust of the traditional healthcare system as a result. Knowledge about the community/population's past can give perspectives on its present and future. A community/population recovering from a catastrophic natural disaster, such as a major flood, may take years to recover. How a community has responded in the past to a disaster, such as Hurricane Katrina, can provide valuable information about the preparation of the community for any sudden changes or catastrophes.

Nutritional Evaluation

A history and evaluation of the community's nutritional status, as a part of the community/population assessment process, include identification of sources of food (e.g., homegrown, imported into community, processed foods, fast foods), ethnic or regional food prevalence, and food preparation customs (e.g., vegetarian, seafood availability, wild game). Morbidity/mortality statistics related to nutritional status and resources (e.g., goiter, cardiac disease, cancer) are also vital information to include in the nutritional assessment. A population of truck drivers, for example, may have nutritional patterns of consumption related to their erratic pattern of eating on the run.

Physical Fitness

In examining the community/population's "fitness," the presence or absence of exercise/fitness facilities available and/or used by the public, such as jogging and bicycling trails, are most certainly a reflection of its inhabitants' interest in physical fitness. Although most communities do not fall into a clear-cut category of either sedentary or active, one pattern usually tends to dominate and can provide important health status information. As a population, elders tend to be more sedentary than their younger counterparts.

Physical Examination

A physical examination of the community patient involves a hands-on type of approach. This obviously applies only to a geographic community. Shumway and Wisehart (1969) suggest using a walking tour to know a community at the resident level. They advise that getting "a feel for a community" involves a *systematic approach of observations* that can ultimately increase one's sensitivity to the surrounding ecological elements. If the community can be defined as a place community, the *geographic boundaries should be defined* and described as clearly as possible. Parameters can be defined in several ways: census tracts, natural boundaries (e.g., mountains, rivers), or roads and streets, specifically noting terrain, proximity to needed resources, and *isolation/proximity* to other communities. The *climate* has been demonstrated to have a significant effect on the health risks of a population. Whether the climate is desert or mountainous can affect the lives of the inhabitants in dramatic ways. Such factors as road conditions, animal vectors, housing conditions, and general appearances of the community should be noted in the physical assessment of the community.

Review of Systems

Once the "physical examination" has been done, it is important to conduct a review of systems within the community or population. This review should include an assessment of the services and facilities, human power, government (federal, state, county), and leadership (formal and informal) of health and nonhealth systems that affect the population or community.

The *health system* should include all organizations and services that provide health care. The private health services and public health services should be examined not only for availability and quality, but also for the degree of coordination between the services. The availability of homes for the elderly, services for the disabled (including accommodation in the community/population, such as access ramps), mental health services, and disaster preparedness for the community/population are examples of such services to be assessed. As community workers know all too well, it is often not a case of availability of needed services, but rather a lack of coordination within agencies, a lack of awareness of the services by the community members, an unwillingness by the members to use the facilities, or unacceptability of resources or services as a result of cultural differences. The source of health care is another important aspect of this assessment of healthcare systems specific to the community/population. Particularly in rural communities, the local pharmacist may be the primary source for health information and should be included in the assessment. Most members of a population seek health care and advisement on health issues from nonprofessionals daily. These sources should be identified in the assessment.

Nonhealth systems, such as the political system, the economic system, the educational system, and the religious system, should be assessed as critical influences on the health of a community/population. Health care does not exist in a vacuum apart from the other social structures within a community/population; it is influenced by and influences other systems within the community.

The *political system/atmosphere* of a community/population can be assessed through various sources: the local newspaper, community action groups, and/or previous history and political activities. The community/population should be assessed as liberal or conservative.

Klein (1965) identifies three important components of the political system that reflect interaction patterns of a community. This can also be applied to a population. *Authority* within a community often can be identified by the political leaders of a community—both elected, official leaders and nonofficial leaders (e.g., religious leaders). *Power* is often associated with authority but is not by any means limited to it. Power patterns in a community can often be identified by examining how formal decisions are made and who makes or vetoes them. *Prestige* is often based on social status, family class designation, and wealth. These three concepts—authority, power, and prestige—are closely linked.

The *social system* includes the prevalent norms and values as well as the dominant ethnic makeup of the community or population. Values influence norms and are often difficult to determine. Norms and values are intangible, so the community worker has to get a real feel for the group through direct involvement before they become apparent. Customs, specific town laws, and cultural patterns are reflective of that community/population's value system.

Communication patterns, both formal and informal, are an integral component of the social system. Communication as a necessary process by which people exchange information and interact with each other is basic to community living. *Informal* communication tends to occur wherever people collect—post offices, local cafes, recreation centers, barbershops, and so on. These informal relationships may occur online via social media, blogging, or other forms of virtual communication. How information is disseminated can be reflected in community bulletin boards, supermarket notice boards, Internet sources, and the like. Often, asking community/population residents where information is obtained will yield the most accurate information. The beauty shop or local bar might serve as the center for information dissemination. Without an understanding of who the key people and places are in terms of informal communication, meaningful, realistic programs can seldom be created.

Formal communication channels include all forms of media, including newspapers, television, and radio; the Internet via social networks such as Twitter, Facebook, and LinkedIn; and the postal system. These channels of communication can be used very effectively in the dissemination of health information, as well as in the identification of community/population ideas, attitudes, and health knowledge.

Information about *educational systems* includes public and private educational facilities, libraries, special educational services (pregnant teens, handicapped, adult education), and available resources. The *economic system* includes major businesses and industries as well as the census information previously mentioned—median family income, unemployment rates, major occupations, and percentage of families living below the poverty level.

The *religious system* is an important part of the community/population and can have a major influence on the political ideology and social norms and values of a community/population. Major denominations should be identified along with the major religious leaders of a community/population.

Services and community health programs sponsored by religious groups are an integral part of the community's healthcare delivery system.

Problem List (Nursing Diagnosis: Nursing Process)

The problem list corresponds to the nursing diagnosis component of the nursing process. As with individual nursing diagnoses, community/population diagnoses should specifically indicate that (1) *no* problems exist that demand intervention by the nursing discipline or by any other members of the health team or (2) needs exist as stated in terms of community problems that have evolved when basic human needs are either not being met or are being met inadequately.

Nursing diagnoses on the community/population level (as with the individual) use a humanitarian approach when specifying basic human needs. Examples of nursing diagnoses at the community level are as follows:

- Increased number of respiratory diseases related to air pollution
- Increased infant mortality rate related to increased teenage pregnancies
- Lack of neighborhood participation related to apathy

Problem Assessment and Plan Formulation (Planning: Nursing Process)

The integration of the two problem-solving methods of Problem-Oriented Medical Recording (POMR) and the nursing process requires that the nurse reassess each community diagnosis using the SOAP format. During this phase, each problem is individually described and evaluated with an intervention plan formulated for each problem. The specific components of the SOAP format follow:

- **Subjective data:** the community's point of view; how do persons in the community express the problem?
- **Objective data:** a summarization of vital statistics, health statistics, review of systems, environmental realities, and so on related to identified problem
- **Assessment:** an analysis of the identified needs or problem in terms of origination of the problem, overall impact, possible intervention points, and community/population parties that may have an interest in the problem and its solutions
- **Plan:** further diagnostic plans or an initial intervention plan developed for the identified problem in terms of short- and long-term goals/objectives with specific actions to be taken to accomplish each objective; health team members, community/population members, or organizations are designated to carry out specific actions

After each problem has been reassessed using the SOAP format, the problems are then prioritized. A committee of community/population members, experts, and community leaders should be involved in problem prioritization.

Progress Notes (Evaluation: Nursing Diagnosis)

The evaluation of the community/population assessment process should be documented in the form of progress notes. Progress notes are simply an appraisal of the effects of some predetermined plan to accomplish some measurable objective. During this phase of the POMR, new objectives and plans for each problem may be determined.

The Lundy–Barton General Systems Model for Community and Population Assessment and Intervention

- I. Database (Assessment Phase)
  - A. Definition of community or population
  - B. Profile
    - 1. Demographics (census data)
    - 2. Morbidity (illness patterns)
    - 3. Birth rate
    - 4. Death rates by age
    - 5. Mortality rate (death rate)
    - 6. Socioeconomic characteristics
      - a. Occupation/employment patterns
      - b. Median income
      - c. Percentage of families below poverty-level income
  - C. Psychological climate
    - 1. Self-concept
    - 2. Attitude toward health
    - 3. Historical changes of community/population over time
  - D. Nutritional evaluations
    - 1. Sources of food
    - 2. Statistics related to nutritional status
  - E. Physical fitness
    - 1. Facilities
    - 2. Attitudes of residents
  - F. Physical examination (for geographic communities)
    - 1. Systematic observation of community
    - 2. Defined parameters/boundaries
    - 3. Climate
    - 4. Location, topography, rural/urban
    - 5. Area in miles
    - 6. Environmental conditions
      - a. General description
      - b. Housing, quality and condition
      - c. Sanitation, water supply, sewage, and trash disposal
      - d. Degree of pollution (air, water)
      - e. Presence of vectors
      - f. Safety/protection
        - (1) Police
        - (2) Fire
        - (3) Other
      - g. Transportation
  - G. Review of systems
    - 1. Health system
      - a. Private, public services
        - (1) Hospitals
        - (2) Long-term care
        - (3) Ambulatory service
          - (a) Primary care
          - (b) Mental health/substance abuse
          - (c) Home health
          - (d) Public health
      - b. Resources for specific health needs (e.g., elderly, teen parents)
      - c. Human power—need versus availability, type (health workers)
      - d. Other healthcare or related resources
        - (1) Occupational health service
        - (2) School health
        - (3) Voluntary agencies
        - (4) Welfare agencies
        - (5) Disaster preparedness services, usage and access
        - (6) Other
    - 2. Nonhealth systems
      - a. Political system/atmosphere
        - (1) Dominant values
        - (2) Authority; formal, nonformal leadership
        - (3) Current political issues in community/population
      - b. Social system
        - (1) Prevalent norms
        - (2) Cultural patterns/variables
        - (3) Dominant values
        - (4) Customs
        - (5) Recreational/social facilities/activities
      - c. Communication patterns
        - (1) Informal and formal communication sources (e.g., newspapers, bulletin boards, Internet)
      - d. Educational system
        - (1) Public, private schools (number, type, student population, availability)
        - (2) Values
        - (3) Special educational services (e.g., pregnant teens, disabled, adult learners)
        - (4) Libraries
      - e. Economic system
        - (1) Major businesses/industries
        - (2) Marketing and shopping facilities
        - (3) Leading occupations
        - (4) Employment patterns
      - f. Religious and belief systems
        - (1) Major denominations and faith-based organizations
        - (2) Religious and spiritual leadership

II. Problem List (Nursing Diagnosis)
  A. Identification of needs and assets from the assessment
III. Problem Assessment and Plan Formulation (Plan)
  A. Subjective data: community/population's point of view
  B. Objective data: nurse's point of view
  C. Assessment: interpretation of data
  D. Plan
    1. Short-term goals/objectives
    2. Long-term goals/objectives
    3. Specific actions for each objective/goal
  E. Prioritization of nursing diagnoses
IV. Progress Notes (Evaluation)
  A. Specification of any intervention implemented and evaluation of effectiveness
  B. Formulation of new objectives and plan

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CHAPTER FOCUS

Globalization and International Health

Role of International Agencies
- United Nations
- United Nations Children's Fund
- World Health Organization
- World Bank
- Carter Center
- Bill and Melinda Gates Foundation

Global Health Issues
- Disease Burden
- Violence and War
- Poverty
- Women's Rights

Global Initiatives
- Declaration of Alma Ata
- Millennium Developmental Goals

Global Nursing
- Nursing Shortages
- International Council of Nurses
- Nursing and Human Rights

Appendix

QUESTIONS TO CONSIDER

After reading this chapter, you will know the answers to the following questions:

1. How has globalization affected international health?
2. What roles do violence and war play in international health efforts?
3. How is world health influenced by women's rights issues?
4. What roles do nurses play in international health?
5. How do nongovernmental agencies contribute to global health efforts?
6. How does the International Council of Nurses (ICN) collaborate with other organizations to improve health care and nursing worldwide?

The modern world changes very rapidly, and nurses need to be alert to developments in this ever-changing world. Nurses need to continually update and modify their nursing practices in accordance with changing global political, social, economic, and cultural realities.

Global Health

Sharyn Janes

KEY TERMS

Bill and Melinda Gates Foundation
Carter Center
Declaration of Alma Ata
global health
"Health for All by the Year 2000"
Millennium Developmental Goals
nongovernmental organizations (NGOs)
poverty
primary health care
United Nations (UN)
United Nations International Children's Emergency Fund (UNICEF)
violence
war
World Bank
World Health Organization (WHO)

REFLECTIONS

As community health nurses, we are often overwhelmed with the problems facing the communities around us. How can we extend our care to the international community while still keeping our focus on the community in which we live and work? Is it possible to "think globally" and "act locally" without ever leaving our home communities? As one of the largest and most advanced countries in the world, what role should the United States play in helping global at-risk populations lead healthier lives?

AT THE BEGINNING of the 21st century, we are living in a global society. The Internet provides instant contact with people from many parts of the world. Through email and the Internet, there is immediate access to a wide variety of information in many different languages. Not only are we exposed to many cultures and ideologies, but, through rapid global transit, we are also exposed to many diseases and conditions only heard or read about in the past. Travel time has been reduced to hours to get to the other side of the world.

ART CONNECTION

Locate an art example from a culture different from your own. Research the interpretation of the painting and the artist. How does art help broaden our understanding of diversity in a global community?

Globalization is not a new concept for nurses. "Travel nursing" dates back to the days of Florence Nightingale in the Crimea. Her influence was not only felt in her native England, but also throughout Europe, the Middle East, Australia, North America, and parts of Asia and Africa. Many of the healthcare challenges she faced in the mid-19th century are similar to the healthcare challenges faced by nurses in the 21st century. Nightingale's systematic approach to nursing became the basis for modern nursing. In 1899, the nursing profession, realizing the importance of a global approach to nursing, established the ICN, which was the first international organization for healthcare professionals. Today the ICN is a federation of 130 national nurses' associations, representing millions of nurses worldwide (ICN, 2013).

> Go to the people. Live with them. Learn from them. . . . Start with what they know; build with what they have. But with the best leaders, when the work is done, the task is accomplished, the people will say, 'We have done this ourselves'!
>
> —*Lao Tzu (700 B.C.)*

Globalization and International Health

Health professionals, particularly nurses, have a duty to influence global health care from preventive and restorative perspectives. Every nurse should consciously be involved with the business of **global health**, because health care is the business of nurses. The world is constantly changing, with poverty, epidemics, war, famine, rapid technological advances, environmental and natural disasters, and social injustice greatly influencing the health of the world's people (Basford, 2003).

Population demographics are shifting as the world's population expands. In 2012, the world population reached 7 billion, up from 6 billion in 1999, and it is expected to exceed 8 billion by 2025 (United Nations Department of Economic and Social Affairs [UNDESA], 2013). Ninety-nine percent of that growth is expected to occur in resource-poor countries. An estimated 4.3 people are born every second around the world (Population Reference Bureau [PRB], 2006). In many parts of the world, the population is aging, but in the countries affected by the human immunodeficiency virus (HIV) epidemic, life expectancy has dropped to 30–40 years. The current populations of these countries consist mostly of children and elders. The disappearance of the working-age population has greatly increased the levels of poverty for these regions in a world already overburdened by poverty.

CULTURAL CONNECTION

Do you consider poverty to be a cultural issue or an economic issue, especially as it relates to impoverished and underdeveloped countries?

As long as high birth rates and poverty continue to put pressure on populations, many people will see advantages in moving to countries believed to have more resources and greater opportunities. Each year, nearly 3 million migrants move from poor countries to wealthier ones. Increasingly, however, more of the migration is occurring between developing countries as the wealthier nations tighten immigration laws to protect themselves economically.

The population of the United States continues to diversify, with the number of foreign-born residents reaching

BOX 1 The World's 10 Largest Countries by Population, 2013 and 2050 (Projected)

2013		Projected 2050	
Country	**Population (millions)**	**Country**	**Population (millions)**
China	1,357	India	1,659
India	1,276	China	1,357
United States	316	Nigeria	432
Indonesia	248	United States	410
Brazil	195	Indonesia	372
Pakistan	190	Pakistan	361
Nigeria	173	Brazil	230
Bangladesh	156	Bangladesh	202
Russia	143	Democratic Republic of the Congo	184
Japan	117	Ethiopia	178

Source: Data from Population Reference Bureau, 2013.

an all-time high, even though the percentage of foreign-born individuals in the population is lower than it was in 1910. Even with this large number of immigrants, 60% of the U.S. population increase is attributable to natural increases (births minus deaths) in the native-born population. The United States is currently the world's third most populous country and is expected to remain so through at least 2050 (see **Box 1**).

Most European nations and some industrialized Asian nations such as Japan are dealing with population declines that may have negative economic consequences for these countries in the future. These countries are challenged with raising their extremely low birth rates and/or developing immigration policies and social programs that benefit their own citizens while encouraging people from other countries to migrate (PRB, 2006).

Role of International Agencies

United Nations

The **United Nations (UN)** was founded in 1945 when 51 nations came together after World War II to establish a commitment to world peace and security through international cooperation. Today, with a membership of 192 nations, the UN represents the interests of almost all countries of the world. When nations become members of the UN, they agree to accept the obligations of the UN Charter, which outlines the basic principles of international relations. However, the UN is not a form of world government. It does not make laws, but merely provides the means to help resolve global conflicts and formulate policies that affect all nations. All member nations, regardless of their size, wealth, or political system, have an equal vote in the decision-making process. While the UN cannot force any member nation to act on any recommendations made, its decisions reflect world opinion and represent the moral authority of the community of nations (UN, 2008).

The UN worked to combat all intolerance in all forms throughout the second half of the 20th century and continues to do so in the 21st century. In 1948, the Universal Declaration of Human Rights was drafted by the General Assembly of the UN to outline the basic rights and freedoms to which all peoples of the world are entitled. Two International Covenants were developed, which most UN member nations consider to be legally binding. One addresses economic, social, and cultural rights; the other addresses civil and political rights. These two covenants, along with the Universal Declaration of Human Rights, constitute the International Bill of Human Rights (UN, 2008).

Through the years, the UN has established special organizations, such as the United Nations Children's Fund, to address various social and economic issues. Several independent intergovernmental organizations are also related to the UN through special agreements but are not under UN authority. They have their own memberships, charters, budgets, and staffs (see **Box 2**). Also working closely with the UN are many independent **nongovernmental organizations (NGOs)**. The Carter Center and the Bill and Melinda Gates Foundation are just two of the many NGOs serving the vulnerable populations of the world.

A DAY IN THE LIFE

Now I want to pass on five lessons I have learned during 10 years as Secretary-General of the United Nations, lessons I believe the community of nations needs to learn as it confronts the challenges of the twenty-first century.

Lesson One: In today's world, we are all responsible for each other's security. Against such threats as nuclear proliferation, climate change, global pandemics, or terrorists operating from safe havens in failed nations, no state can make itself secure by seeking supremacy over all others. Only by working to make each other secure can we hope to achieve lasting security for ourselves.

Lesson Two: We are responsible for each other's welfare. Without a measure of solidarity, no society can be truly stable. It is not realistic to think that some people can go on deriving great benefits from globalization while billions of others are left out or thrown into abject poverty. We have to give all our fellow human beings at least a chance to share in our prosperity.

Lesson Three: Both security and prosperity depend on respect for human rights and the rule of law. Throughout history, human life has been enriched by diversity, and different communities have learned from each other. But if our communities are to live in peace, we must stress what unites us: our common humanity and the need for our human dignity and rights to be protected by law.

Lesson Four: Governments must be accountable for their actions, in the international as well as the domestic arena. Every state owes some account to other states on which its actions have a decisive impact.

Lesson Five: How can states hold each other accountable? Only through multilateral institutions. Those institutions must be organized in a fair and democratic way, giving the poor and the weak some influences over the rich and the strong. Developing countries should have a stronger voice in international financial institutions, whose decisions can mean life or death for their people.

More than ever, Americans, like the rest of humanity, need a functioning global system. Experience has shown, time and again, that the system works poorly when the United States remains aloof but functions much better when there is far-sighted U.S. leadership. That gives American leaders of today and tomorrow a great responsibility. The American people must see that they live up to it.

—Koffi A. Annan, United Nations Secretary General, 1997–2006, and 2001 Nobel Peace Prize recipient, excerpt from a speech at the Truman Presidential Museum and Library, Independence, Missouri, December 11, 2006

Every day the UN and its family of organizations, collectively known as the UN system, work to promote respect for human rights, protect the environment, fight disease, and reduce poverty. In addition, the UN system leads international efforts to stop drug trafficking and terrorism, assist refugees, clear landmines, and increase food production and distribution (UN, 2008).

United Nations Children's Fund

The **United Nations International Children's Emergency Fund (UNICEF)** was created in 1946 to assist millions of sick and hungry children in war-torn Europe and China.

ENVIRONMENTAL CONNECTION

You have noticed that everything an Indian does is in a circle, and that is because the Power of the World always works in circles, and everything tries to be round . . . . The Sky is round, and I have heard that the earth is round like a ball, and so are all the stars. The wind, in its greatest power, whirls. Birds make their nest in circles, for theirs is the same religion as ours . . . . Even the seasons form a great circle in their changing, and always come back again to where they were. The life of a man is a circle from childhood, and so it is in everything where power moves.

—Black Elk, Oglala Sioux holy man (1863–1950)

It soon became apparent that children all over the world needed help, so in 1950 its mandate was broadened to address the long-term needs of children and women in developing countries around the world. UNICEF became a permanent part of the UN system in 1953, when its name was shortened to the United Nations Children's Fund, though it retained UNICEF as its acronym (UNICEF, 2007).

Today, UNICEF's primary objective is to provide economic and humanitarian relief for the world's most disadvantaged children without discrimination. The children in the countries with the greatest need receive the highest priority. Special protection is ensured to children who are victims of war, disasters, extreme poverty, and all forms of violence and exploitation, and to those with disabilities (UNICEF, 2007).

UNICEF works to improve the lives of children in more than 190 countries around the world. Its programs and services are aimed at ending hunger and malnutrition, helping refugees, promoting the education of girls, controlling disease (primarily through immunization and HIV/acquired immune deficiency syndrome (AIDS) programs), saving the environment, and securing human rights (UNICEF, 2007).

World Health Organization

Organized efforts at providing a global health network date back to the 1830s, when an international alliance was formed to combat the cholera epidemic that was

BOX 2 Global Agencies: Autonomous Organizations Linked to the United Nations Through Special Agreements

Food and Agriculture Organization (FAO)	Works to improve agricultural productivity and food security, and to better the living standards of rural populations
International Atomic Energy Agency (IAEA)	Works for the safe and peaceful uses of atomic energy
International Civil Aviation Organization (ICAO)	Sets international standards for safety, security, and efficiency of air transport, and serves as the coordinator for international cooperation in all areas of civil aviation
International Fund for Agricultural Development (IFAD)	Mobilizes financial resources to raise food production and nutrition levels among the poor in developing countries
International Labour Organization (ILO)	Formulates policy and programs to improve working conditions and employment opportunities, and sets labor standards used by countries around the world
International Maritime Organization (IMO)	Works to improve international shipping procedures, raise standards in marine safety, and reduce marine pollution by ships
International Monetary Fund (IMF)	Facilitates international monetary cooperation and financial stability and provides a permanent forum for consultation, advice, and assistance on financial issues
International Telecommunication Union (ITU)	Fosters international cooperation to improve telecommunications of all kinds, coordinates usage of radio and TV frequencies, promotes safety measures, and conducts research
United Nations Educational, Scientific, and Cultural Organization (UNESCO)	Promotes education for all, cultural development, protection of the world's natural and cultural heritage, international cooperation in science, press freedom, and communication
United Nations Industrial Development Organization (UNIDO)	Promotes the industrial advancement of developing countries through technical assistance, advisory services, and training
Universal Postal Union (UPO)	Establishes international regulations for postal services, provides technical assistance, and promotes cooperation in postal matters
World Bank Group (WBG)	Provides loans and technical assistance to developing countries to reduce poverty and advance sustainable economic growth
World Health Organization (WHO)	Coordinates programs aimed at solving health problems and the attainment by all people of the highest possible level of health Works in such areas as immunization, health education, and the provision of essential drugs
World Intellectual Property Organization (WIPO)	Promotes international protection of intellectual property and fosters cooperation on copyrights, trademarks, industrial designs, and patents
World Meteorological Organization (WMO)	Promotes scientific research on the Earth's atmosphere and on climate change, and facilitates the global exchange of meteorological data
World Tourism Organization (WTO)	Serves as a global forum for tourism policy issues and a practical source of tourism know-how

Source: United Nations. (2008). *The UN in brief.* Retrieved from http://un.org/Overview/uninbrief/

sweeping Europe. Sporadic efforts continued throughout the next hundred years until the **World Health Organization (WHO)** was founded in 1948 through a special agreement with the UN. Today WHO, as a partner in the UN system, is responsible for directing and coordinating international health. The focus of WHO's work is producing and disseminating global health standards and guidelines, helping countries to address public health issues, and supporting health research (WHO, 2007). Its primary objective is for all

BOX 3 Notable Achievements of the World Health Organization

1948	The World Health Organization's Constitution was founded on April 7—a date now celebrated every year as World Health Day. The first World Health Assembly established its top priorities as malaria, women's and children's health, tuberculosis, venereal disease, nutrition, and environmental sanitation.
1952	Dr. Jonas Salk (United States) developed the first successful polio vaccine.
1952–1964	The global yaws-control program used long-acting penicillin with one single injection to control yaws, a crippling, disfiguring disease. By 1965, the prevalence of yaws was reduced by more than 95%.
1967	Dr. Christian Bernard (South Africa) conducted the first heart transplant surgery.
1974	The World Health Assembly adopted a resolution to create the Expanded Program on Immunization to bring basic vaccines to all children in the world.
1977	The first Essential Medicines List was developed, 2 years after the World Health Assembly introduced the concepts of "essential drugs" and "national drug policy."
1978	The International Conference on Primary Health Care, in Alma-Ata, Kazakhstan (former Soviet Union), set the historic goal of "Health for All."
1979	Smallpox—a disease that had maimed and killed millions—was eradicated. It was the first (and so far only) time that a major infectious disease has been eradicated and ranks as one of WHO's greatest achievements.
1983	Scientists at Pasteur Institute (France) identified HIV.
1988	The Global Polio Eradication Initiative was established.
2003	The first global public health treaty was adopted at the World Framework Convention on Tobacco Control. The treaty was designed to reduce tobacco-related deaths and diseases around the world.
2004	The Global Strategy on Diet, Physical Activity, and Health was adopted.
2005	The World Health Assembly revised the International Health Regulations.
2008	WHO introduced the safe surgery checklist to reduce surgical errors.
2009	An H1N1 pandemic response was initiated based on several years of preparations; a 5-year plan for prevention and control of noncommunicable diseases was launched.
2012	World health statistics found a 74% drop in mortality from measles due to global vaccination efforts.
2013	The Malaria Vaccine Technology Roadmap was launched with the goal of having a vaccine against *Plasmodium falciparum* available in 2015.

Sources: WHO, 2014a; WHO, 2013a, WHO, 2012a.

people to attain the highest possible level of health (see **Box 3**). WHO defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

The WHO membership consists of 194 countries. Representatives from each of the member states meet every year at the World Health Assembly in Geneva, Switzerland, to set policy, approve the budget, and, every 5 years, to appoint a new Director-General. Their work is supported by the 34-member Executive Board, which is elected by the World Health Assembly (WHO, 2014a).

To better address the specific environmental, political, social, economic, and cultural needs associated with

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BOX 4 World Health Organization Regional Offices

African Region: Brazzaville, Congo
Eastern Mediterranean Region: Cairo, Egypt
European Region: Copenhagen, Denmark
Region of the Americas: Washington, DC, United States
South-East Asia Region: New Delhi, India
Western Pacific Region: Manila, Philippines

Source: Data from World Health Organization. (2014). *About WHO.* Retrieved from http://www.who.int/about/en/

global healthcare issues in various parts of the world, WHO is divided into six major regions, each with its own regional office (see **Box 4**). More than 7,000 public health experts work in nearly 150 countries within these regions, as well as at the WHO headquarters in Geneva, Switzerland. In addition to medical doctors, professional nurses and midwives, public health specialists, researchers, and epidemiologists, WHO staff include administrative, financial, and information systems specialists, as well as experts in the fields of health statistics, economics, and emergency relief (WHO, 2014a).

World Bank

Since its creation in 1944 as an international financial institution associated with the UN, the **World Bank** has attempted to meet the needs of a changing world economy. The World Bank, which was originally called the International Bank for Reconstruction and Development, began its operations in Washington, DC, in 1946. Its primary function was to aid in the reconstruction of Europe after World War II. Now, the World Bank's priorities have evolved from rebuilding war-damaged European nations to alleviating poverty in developing countries. Since the 1970s, this organization has increasingly become more involved in health-related initiatives as a way to promote sustainable economic growth in its patient countries (Ruger, 2005); it even produces a blog on the topic of "healthy development," defined as investing for promotion of improved health (World Bank, 2014c).

Today the World Bank operates like a cooperative owned by 185 shareholder nations. The countries are represented by a board of governors, primarily consisting of ministers of finance or ministers of development from member nations, which meets once a year. The day-to-day work of the World Bank is conducted by 24 executive directors, who work at the World Bank headquarters. The five largest shareholder countries—France, Germany, Japan, the United Kingdom, and the United States—appoint an executive director from each, while other member countries are represented by 19 other executive directors. By tradition, the bank president is a citizen of the largest shareholder, the United States (World Bank, 2014c); its current president, Dr. Jim Yong Kim, holds doctoral degrees in both medicine and anthropology (World Bank, 2014b).

Over the past few decades, the World Bank has become increasingly instrumental in reducing poverty and raising the standard of living in many developing countries. Newly developed theories and evidence regarding successful economic development strategies have gradually changed the focus of the bank's lending policies.

MEDIA MOMENT

The Kite Runner (2007, film)

Based on the award-winning book by Khaled Hosseini, *The Kite Runner* film adaptation tells the story of Amir, who is haunted by the guilt of betraying his childhood friend Hassan. The story is set against a backdrop of tumultuous events, from the fall of the monarchy in Afghanistan through the Soviet invasion, the mass exodus of refugees to Pakistan and the United States, and the rise of the Taliban regime. The movie is about redemption for past grievances and serves as a metaphor about the dismal past of a struggling country and its hopeful future.

For example, in the 1950s and 1960s, promoting economic growth was viewed as the key to development. At that time, the World Bank focused primarily on large investments in physical capital and government infrastructures. However, during the 1970s and 1980s, while still providing funding for economic growth and infrastructure support for governments, the World Bank began to focus some of its efforts on meeting basic human needs such as health care and education, recognizing them as important factors in development. Investment in government power sectors was reduced from 21% in 1980 to about 7% in 2007. By comparison, direct funding for health, nutrition, education, pensions, and other social services increased from 5% to 22%. **Table 1** lists some of the recent core sector results reported by the World Bank.

While these successes are noteworthy, critics of the World Bank contend that more rapid progress is desperately needed. Major criticisms address the undemocratic governance and decision-making structures of the World Bank, which favor the elite interests within the wealthy nations. For example, the United States alone commands 16.4% of the World Bank's voting power. In its influential 1993 report *Investing in Health*, the World Bank stressed the importance of health to development while advocating for privatization of health services. In some situations, this approach has contributed to poor health outcomes

TABLE 1 World Bank Development Projects

Education

- ☐ More than 1 million additional teachers became qualified to teach at the primary level.
- ☐ More than 600,000 additional classrooms were constructed or rehabilitated.

Health

- ☐ More than 11 million people gained access to a basic package of health, nutrition, or population services.
- ☐ About 450,000 health personnel received training.
- ☐ More than 2,500 health facilities were constructed, renovated, and/or equipped.
- ☐ Almost 13 million children have been immunized, and close to 8 million received a dose of Vitamin A.
- ☐ About 28 million insecticide-treated malaria nets were purchased and/or distributed.
- ☐ More than 28,500 adults and children with HIV received antiretroviral combination therapy.

Road Transport

- ☐ About 3,790 km of rural roads and 1,900 km of nonrural roads were constructed or rehabilitated.

Water Supply

- ☐ Almost 6.8 million people in project areas were provided with access to Improved Water Sources.
- ☐ About 11,600 community water points were constructed or rehabilitated.
- ☐ About 334,000 new piped household water connections were established, and another 157,000 were rehabilitated.
- ☐ Close to 1,280 water utilities and water service providers are being supported.

Source: Data from World Bank, 2014c

by reducing access to health services for those who were unable to pay for such services. Many programs aimed at the poorest populations ignore structural deficiencies in social services (Birn & Dmitienko, 2005).

In 2003, the major international organizations representing nurses, teachers, and public-sector workers published serious criticisms of the World Bank's annual World Development Report (WDR). The ICN is the international federation for nurses' associations and unions, representing more than 12 million nurses in 129 countries; Education International (EI) is the global union federation for education unions, representing more than 26 million teachers in 155 countries; and Public Services International (PSI) is the global union federation for public-sector trade unions, representing more than 20 million workers in 149 countries (Communique, 2003). In a joint WHO communiqué, ICN, EI, and PSI expressed concerns that the latest WDR inaccurately placed the blame for the failure of health, education, water, and other utility services in developing countries on the poor performance of providers—nurses, teachers, utility workers, and other public employees. They argued that the World Bank has failed to recognize that nurses, teachers, and utility workers in developing countries are poor themselves. The ICN Executive Officer, Judith Outon, stated that there were many cases where nurses and other healthcare workers produced positive outcomes by working together with the people. She also pointed out that the current state of public services in developing countries was largely a result of reforms initiated by the World Bank (Communique, 2003). In the decade since then, the World Bank's leadership (and many of its priorities) have changed significantly; its eight millennium development goals include efforts to reduce child mortality, improve maternal health, and combat HIV/AIDS, malaria, and other diseases (World Bank, 2014b).

> We believe good health is a basic human right, especially among poor people afflicted with disease who are isolated, forgotten, ignored, and often without hope.
>
> —*Former U.S. President Jimmy Carter, founder and director of the Carter Center, Atlanta, Georgia*

Carter Center

The **Carter Center**, a nonprofit, NGO located in Atlanta, was founded by Jimmy and Rosalynn Carter in 1982. This private, nonpartisan organization is associated with Emory University and governed by an independent board of trustees, which is chaired by former U.S. President Carter. Its many projects are supported by donations from individuals, foundations, corporations, and countries. Activities directed by resident experts and scholars are designed and implemented in cooperation with Jimmy and Rosalynn Carter, networks of world

Muslim men and women vary considerably in their religious and cultural values. Community health nurses should avoid generalizations about this population regarding their health and religious practices.

leaders, other NGOs, and partners in the United States and the rest of the world (Carter Center, 2014).

The Carter Center has been instrumental in alleviating global health problems through its commitment to promoting peace and fighting disease. Its work is guided by a fundamental commitment to human rights and the alleviation of human suffering. The Carter Center has three main objectives: (1) prevent and resolve conflicts, (2) enhance freedom and democracy, and (3) improve health. The belief that all three of these objectives work together to affect the prosperity and stability of entire nations is central to the work of the Carter Center in serving the needs of millions of forgotten people around the world (Carter Center, 2014).

Bill and Melinda Gates Foundation

The **Bill and Melinda Gates Foundation** is a nonprofit NGO that was founded in 2000 by Bill Gates, cofounder and CEO of Microsoft, and his wife Melinda French Gates. In 2014, Bill Gates is the richest person in the world, with a net worth of more than $77 billion. Based in Seattle, Washington, the Gates Foundation is led by Chief Executive Officer Susan Desmond Hellman and co-chairs William H. Gates, Sr., Bill Gates, and Melinda French Gates. In developing countries, the foundation finances projects through its Global Development Programs and Global Health Programs that focus on reducing extreme poverty, improving health, and increasing access to public libraries. In the United States, programs are funded to ensure that all people have access to a good education and to technology in the public libraries. In its local region around Seattle, the foundation funds projects that focus on improving the lives of low-income families (Bill and Melinda Gates Foundation, 1999–2014).

A DAY IN THE LIFE

It is with a deep sense of gratitude that I accept this prize. I am grateful to my wife Rosalynn, to my colleagues at the Carter Center, and to many others who continue to seek an end to violence and suffering throughout the world. The scope and character of our Center's activities are perhaps unique, but in many other ways they are typical of the work being done by many hundreds of non-governmental organizations that strive for human rights and peace . . . .

I am not here as a public official, but as a citizen of a troubled world who finds hope in a growing consensus that the generally accepted goals of society are peace, freedom, human rights, environmental quality, the alleviation of suffering, and the rule of law . . . .

At the beginning of this millennium, I was asked to discuss, here in Oslo, the greatest challenge that the world faces. Among all the possible choices, I decided that the most serious and universal problem is the growing chasm between the richest and poorest people on earth … and the separation is increasing every year, not only between nations but also within them. The results of this disparity are root causes of the world's unresolved problems, including starvation, illiteracy, environmental degradation, violent conflict, and unnecessary illnesses that range from Guinea worm to HIV/AIDS.

Most of the work of the Carter Center is in remote villages in the poorest nations of Africa, and there I have witnessed the capacity of destitute people to persevere under heartbreaking conditions. I have come to admire their judgment and wisdom, their courage and faith, and their awesome accomplishments when given a chance to use their innate abilities . . . .

The bond of our common humanity is stronger than the divisiveness of our fears and prejudices. God gives us the capacity for choice. We can choose to alleviate suffering. We can choose to work together for peace. We can make these changes—and we must.

—Jimmy Carter, former U.S. President, Carter Center founder and director and 2002 Nobel Peace Prize recipient, excerpts from Nobel Peace Lecture, Oslo, Norway, December 10, 2002

Global Health Issues

Disease Burden

Infectious Diseases

Throughout history, infectious diseases were the leading causes of death throughout the world. By the end of the 20th century, however, medical science had developed successful prevention and treatment methods that greatly decreased the death rates from infectious diseases and raised the average life expectancy in middle- and higher income countries by decades. Nevertheless, infectious diseases continue to kill more than 13 million people every year and cause disability and suffering for millions of others. The organisms that cause these diseases continue to evolve, often requiring the development of new drugs and methods to prevent and/or treat them. New pathogens are emerging or evolving from infecting animals to infecting humans. Recent estimates show that infectious diseases are responsible for one-third of all global mortality. Most of these deaths occur in low- and middle-income countries, emphasizing the fact that infectious diseases present a very different experience for the poor and the wealthy (WHO, 2014b).

Female children as young as 8 must take primary responsibility for younger children in many underdeveloped countries.

In low- and middle-income countries, three infectious diseases are among the top causes of death for adults ages 15 to 59: HIV/AIDS, tuberculosis (TB), and lower respiratory infections. HIV/AIDS causes 1.6 million deaths per year; the number has declined by almost a third since 2005 due to advances in prevention and treatment (UNAIDS, 2013). Similarly, the death rate from TB has declined by 45% since 1990; TB now causes approximately 1.3 million deaths per year (WHO, 2013a) and lower respiratory infections kill approximately 2.8 million people per year (Lozano et al., 2012), two-thirds of them children (Hustedt & Vazquez, 2010). In high-income countries, infectious diseases are not listed in the top 10 causes of death for adults. In low- and middle-income countries, 7 of the 10 leading causes of death for children younger than 14 years old are infectious diseases—many of them preventable—which kill about 6 million children each year (Black et al., 2008). The leading infectious diseases causing high mortality rates in children are lower respiratory infections, diarrheal diseases, and malaria (Disease Control Priorities Project, 2006a). One striking contrast is the steep decrease in deaths due to measles, which has declined 74% since 2000 due to global vaccination efforts (WHO, 2012b).

MEDIA MOMENT

Rx for Survival: A Global Health Challenge (2006)

From vaccines to antibiotics, clean water to nutrition, bioterror threats to the HIV/AIDS pandemic, the six-part series *Rx for Survival* tells the tales of public health pioneers and captures the real-life drama of today's global struggle to overcome poor health and disease. Employing both historical dramatic sequences and current documentary stories, the series showcases milestones in public health history, such as the eradication of smallpox, alongside modern and future challenges, including severe acute respiratory syndrome (SARS), a potential global flu pandemic, and recovery from the Asian tsunami catastrophe. The series can be previewed and ordered at http://www.pbs.org/wgbh/rxforsurvival/series/about/index.html

Noncommunicable Diseases

In the 21st century, many developing countries are undergoing the same changes in the causes of morbidity and mortality that the developed countries experienced in the 20th century. Because of changes in diet and lifestyle and increases in life expectancy, many developing countries are seeing increases in the incidence of chronic diseases such as cardiovascular diseases, cancers, diabetes, and chronic respiratory diseases. These diseases, which until recently were largely confined to wealthy nations, have risen markedly in developing nations, and noncommunicable diseases now account for more than two-thirds of all deaths worldwide (Lozano et al., 2012).

Obesity is fast becoming one of the world's leading risk factors for premature death. One in four people in the world is too fat. One-third of total deaths worldwide are directly linked to excessive weight, lack of exercise, and tobacco use. Most distressing is the rapid spread of obesity beyond wealthy developed nations to some of the poorest countries in the world (MSNBC, 2004). Because infectious diseases, malnutrition, and maternal mortality are still responsible for 40% of deaths in these countries, the rapid rise in chronic diseases is creating a dual burden of disease that many of the healthcare systems in these poor countries are ill equipped to handle (Disease Control Priorities Project, 2006b).

Cardiovascular disease is now the number one cause of death worldwide. Eighty percent of the world's 13 million cardiovascular disease deaths occur in low- and middle-income countries. Conventional risk factors such as tobacco use, high blood pressure, high blood glucose, lipid abnormalities, obesity, and physical inactivity contribute to the vast majority of cardiovascular disease mortality and morbidity. Even in sub-Saharan Africa, high blood pressure, high cholesterol, extensive tobacco and alcohol use, and low

RESEARCH ALERT

To explore the state of reproductive health in Central and Eastern Europe since the dissolution of the Soviet Union, a study was conducted in two urban areas of the Ukraine. During a 19-month period between 1992 and 1994, 17,137 pregnancy outcomes were recorded. Sixty percent of the pregnancies were voluntarily terminated, generally before the 13th week. In pregnancies delivered after 20 weeks' gestation, fetal mortality was 29 per 1,000, nearly five times the rate among Caucasians in the United States. Perinatal mortality was estimated to be 35 per 1,000, about three times the U.S. rate. The data documented elevated reproductive risks in a former Soviet state. This study is believed to be the first to count and report pregnancy outcomes in the former Eastern bloc using World Health Organization definitions and research procedures.

Source: Little, R. E., Monaghan, S. S., Gladen, B. C., Shykryak-Nyzhnyk, Z., & Wilcox, A. J. (1999). Outcomes of 17,137 pregnancies in 2 urban areas of Ukraine. *American Journal of Public Health, 89*(12), 1832–1836.

vegetable and food consumption are among the top risk factors for disease. More 13- to 15-year-olds around the world are smoking than ever before, and obesity levels in children are increasing not only in the United States and Europe, but also in Brazil, China, India, and almost all island nations (Disease Control Priorities Project, 2006b).

Cancer is creating a quickly growing major global disease burden. The yearly incidence of cancer is projected to increase from 10 million to 15 million in 2020. Nine million cases are expected to occur in low- or middle-income countries. Cancer epidemiology differs between the developed and developing countries of the world, however. Developed countries have relatively high rates of lung, colorectal, breast, and prostate cancer; in these countries, there is a strong link between cancer and tobacco use, occupational carcinogens, diet, lifestyle, and obesity. By comparison, as many as 25% of cancers in developing countries are associated with chronic infections. Seven types of cancer account for 60% of all newly diagnosed cancer and cancer deaths in poorer countries: cervical, liver, stomach, esophageal, lung, colorectal, and breast (Disease Control Priorities Project, 2006b).

Diabetes is rapidly becoming a global pandemic, with 285 million adults affected worldwide (Shaw, Sicree, & Zimmet, 2010). The vast majority of affected persons have a diagnosis of type 2 diabetes, which until recently was an adult-onset disease, but is now being seen in more children, especially in the more-developed nations. This number is projected to grow 69% by 2030, a trend blamed on the epidemic increases in childhood obesity. In fact, today's youth are the first generation in history predicted to have a shorter life expectancy than their parents (Jain, 2004).

More than 141 million people with diabetes now live in low- and middle-income countries, which account for 72.5% of the world's total number of cases. These countries are spending between 2.5% and 15% of their annual health budgets on diabetic care. In 2025, it is predicted that more than 6% of the world's population will be diabetic, up 24% from 2003 levels (Disease Control Priorities Project, 2006b).

Chronic adult respiratory diseases, such as chronic obstructive pulmonary disease (COPD) and asthma, are major causes of the growing burden of chronic disease mortality and morbidity in the developing world. COPD, which includes emphysema, chronic bronchitis, and obstructive airway disease, is closely linked to cigarette smoking as well as to use of poorly vented, coal-burning cooking stoves. Asthma's prevalence worldwide is lower than the prevalence of other adult respiratory diseases, but studies done in some middle-income countries show that healthcare costs for asthma make up more than 1% of total healthcare costs (Disease Control Priorities Project, 2006b).

GLOBAL CONNECTION

Bill Gates, founder of Microsoft, is the richest man in history, with an estimated fortune of $50–100 billion. Gates and his wife Melinda have also donated more money than anyone in history to projects designed to put computers in impoverished schools and have created a foundation that pours millions of dollars into global health problems, such as HIV/AIDS in Africa and other countries.

Violence and War

Levels of Violence

WHO (2002) defines **violence** as "the intentional use of force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation" (p. 3). This definition includes all types of violence in all forms against individuals, families, and communities. *World Report on Violence and Health*, published by WHO in 2002, uses an ecological model to explore the biological, social, cultural, economic, and political factors that influence violent acts. The model categorizes violent behavior on four different levels—individual, relationship, community, and societal (WHO, 2002).

At the individual level, the model examines the biological and personal histories that influence whether an individual may become a perpetrator or victim of violence.

These factors may include not only demographic characteristics, such as age, education, and income, but also substance abuse, psychological or personality disorders, and a history of experiencing abuse or behaving aggressively. At the relationship level, the model looks at factors such as harsh physical punishment of children, lack of attention and bonding, family dysfunction, association with delinquent peers, and marital or parental conflict to determine how relationships with families, friends, intimate partners, and peers influence violent behavior. The community level examines schools, workplaces, and neighborhoods in an attempt to identify characteristics that may increase the risk for violence, such as poverty, high population density, low social capital, transient residents, and the existence of gangs or drug cultures. The fourth level looks at societal factors that create an environment that encourages or inhibits violence. Health, economic, educational, and social policies that maintain economic or social inequalities between groups in society are all factors that encourage violent acts (WHO, 2002).

Armed Conflict and War

Violent conflicts between nations and groups, acts of terrorism, rape as a weapon of war, the mass migration of people displaced from their homes, and gang warfare are occurring daily in many parts of the world. These acts of collective violence have devastating effects on physical and mental health, along with vast social, political, and economic consequences. During the last century, which was one of the most violent periods in human history, an estimated 191 million people lost their lives as a direct or indirect result of conflict. More than half of those fatalities were civilians. Besides the many thousands who are killed each year, there are huge numbers of people who are injured—including some who are mentally or physical disabled or physically mutilated. Torture and rape are used as methods to undermine communities, although exact numbers of people affected are not always known (WHO, 2002). **Box 5** outlines some of the causes of death for civilians during violent conflict or **war**.

GOT AN ALTERNATIVE?

Herbal remedies are commonly used in many countries, such as Cuba and Jamaica, as an integral part of their healthcare system and are not considered "alternative."

BOX 5 The Consequences of Collective Violence

Increased civilian death rates during violent conflicts are usually due to the following causes:

- Injuries
- Decreased access to food
- Increased risk of communicable disease
- Decreased access to health services
- Decreased public health programs
- Poor environmental conditions
- Psychological distress

Source: Data from World Health Organization. (2002). *World report on violence and health* [abstract]. Geneva, Switzerland: WHO Press.

Armed conflicts disrupt trade and other business activities, diverting resources from vital services and programs to pay for defense. Food production and distribution are slowed or stopped as thousands of people are displaced from their homes. Famine related to war, other armed conflicts, or genocide killed an estimated 40 million people in the 20th century (WHO, 2002).

Poverty

> There can be no peace as long as there is grinding poverty, social injustice, inequality, oppression, environmental degradation, and as long as the weak and small continue to be trodden by the mighty and powerful.
>
> —*Dalai Lama*

Poverty means powerlessness, lack of representation, and freedom. Almost half of the world's 7 billion people are poor. According to the World Bank, there are three levels of poverty: extreme, moderate, and relative. Extreme poverty, also known as absolute or abject poverty, is defined as living on less than $1 per day. At this income level, members of households are not able to meet basic needs for survival. They have chronic hunger, do not have access to health care, lack safe drinking water and sanitation, are uneducated and illiterate, and often do not have an adequate place to live or clothes to wear. Extreme poverty is the kind of poverty that kills. Moderate poverty is defined as living on less than $2 per day. At this income level, the basic survival needs of households are being met, but just barely. Relative poverty is defined as a household income below a given proportion of the national average. It means not having things that the middle class in countries take for granted (Sachs, 2005; World Bank, 2014c).

Extreme poverty now exists only in developing countries. In 2007, an estimated 1 billion people across the world lived in extreme poverty, down from 1.5 billion in 1981. While that decline indicates great global progress in poverty reduction, the progress has not been equal.

Rapid economic growth in East Asia, especially China, and the Pacific regions has greatly reduced levels of poverty in those regions, although rapid population growth has kept Asia in the lead with total numbers of poor people. South Asian countries have seen only moderate reductions in poverty levels, while poverty levels in the former Soviet Bloc countries in Eastern Europe and Central Asia increased in the last decade of the 20th century before declining slightly. However, sub-Saharan Africa has the largest proportion of poor people, with almost half of the population living in extreme poverty. The overall per capita income of African nations decreased by 14% between 1981 and 2001, and poverty levels in that region rose from 41% to 46% over the same period (Sachs, 2005; World Bank, 2014c). Much of that increase is related directly to HIV/AIDS, drought, isolation, and civil wars (Sachs, 2005).

> The Millennium Declaration made clear, gender equality is not only a goal in its own right; it is critical to our ability to reach all the others.
>
> *—Kofi Annan, Secretary-General of the United Nations, 2004*

Women's Rights

Every day, all over the world, girls are kept out of school, beaten, ignored, forced to marry and have sex, sold as slaves, made to fight in wars, and asked to sit silently while others make decisions affecting their lives (UNICEF, 2014). In many countries of the world, women are not allowed to vote, own or inherit property, drive a car, get an education, or make any decisions about themselves or their children.

One woman dies from complications of pregnancy and childbirth every minute, accounting for more than half a million deaths worldwide each year. Ninety-nine percent of these deaths occur in the developing world, where the highest maternal mortality rates occur in sub-Saharan Africa, followed by South-Central Asia. According to WHO (2012a), a woman living in a developing country has a one in 416 chance of dying in pregnancy or childbirth during her lifetime, as compared with a one in 6,250 chance for a woman living in a developed country. Maternal mortality is both a human rights issue and an equity issue. Given that the vast majority of maternal deaths can be prevented with access to skilled prenatal, perinatal, and postnatal care, successful pregnancies and births should be a fundamental human right for all women (WHO, 2004).

Many women worldwide are victims of violence at all levels. Until recently, violence against women was considered to be a minor social problem by many governments and policymakers. This was especially true for women who were victims of violence perpetrated by their husbands or intimate partners. Beginning in the 1990s, however, the problem began to become more widely recognized as a serious human rights and public health issue. This rise in awareness was spurred on by the efforts of women's organizations and governments, which were committed to eliminating violence against women under international human rights laws. It is believed that the only way to effectively eliminate violence against women is through political will and by legal action in all sectors of society (WHO, 2005).

Women in many underdeveloped countries are making progress in careers previously restricted to men.

Although maternal mortality is still a significant problem for Nepalese women, it is being addressed by increases in postpartum care technology as Nepal struggles to improve the health status of women.

MEDIA MOMENT

Slumdog Millionaire (2008)

This Academy Award winning movie is the story of Jamal Malik, an 18-year-old orphan from the slums of Mumbai, who has grown up on the streets. Malik is in the finals of a television quiz show, with 20 million rupees on the line as the final prize earnings. Prior to the last competition, he is arrested by the police who suspect Malik of cheating, due to his lack of formal education and a life lived as a homeless orphan. To prove his innocence, Jamal tells the story of his life in the slum where he and his brother grew up, of their adventures together on the road, of violent encounters with local gangs, and of Latika, the girl he cared for. Each chapter of his story reveals the key to the answer to one of the game show's questions. Jamal is released and returns to the game competition after explaining, through his experiences of life on the street, how he could know the correct answers. This story is one of street survival, created communities, and how we all learn through a diversity of experiences and circumstances.

> Women have an enhanced vulnerability to disease, especially if they are poor. Indeed, the health hazards of being female are widely underestimated. Economic and cultural factors can limit women's access to clinics and health workers. The World Health Organization reports that less is spent on health care for women and girls worldwide than for men and boys. As a result, women who become mothers and caretakers of children and husbands often do so at the expense of their own health. The leading causes of death among women are HIV/AIDS, malaria, complications of pregnancy and childbirth, and tuberculosis.
>
> —*Carol Bellamy, United Nations Children's Fund, New York, 2004*

In addition to violence, hunger, lack of education, and inferior legal status, HIV/AIDS and other infectious diseases disproportionately affect and further weaken the position of women in many of the world's poorest countries. Women typically have a more severe course of illness because of their lack of access to care, social inequalities, and restrictive cultural norms (Gerberding, 2004). In many cases the social, economic, and psychological effects of HIV are devastating. Fulfilling the traditional role of family caretaker means that women receive healthcare treatment only after the needs of their men and male children have been met. When their husbands or fathers die, the laws of many countries may allow women to lose their economic rights, which can leave them without property, without money, and without health care.

Global Initiatives

Declaration of Alma Ata

In 1978, 164 countries and 67 international organizations met in Alma Ata, Kazakhstan, for the International Conference on Primary Health Care. The nations of the world came together to recognize the concept of **primary health care** as a strategy to reach the goal of **"Health for All by the Year 2000."** The conference produced the document known as the ***Declaration of Alma Ata***, which was a major milestone for public health in the 20th century. The *Declaration* defined primary health care as:

> essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self determination. (Pan American Health Organization [PAHO], 2003)

The conference not only reaffirmed the WHO definition of health as a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity, but also declared health to be a fundamental human right. The attainment of the highest possible level of health was identified as an important global social goal that will require the action of all nations and the collaboration of many social and economic government agencies within and among governments.

The *Declaration of Alma Ata* promoted the concept that governments have a responsibility to promote the health of their citizens by providing adequate health and social services. Governments, international organizations, and the entire world community were challenged to work toward attaining a level of health for all peoples of the world that will permit them to lead socially and economically productive lives by 2000. Primary health care, as part of economic development and social justice, was designated as the key to attaining the goal. Countries were encouraged to work together, in recognition of the fact that the attainment of health by the people in any one country directly concerns and benefits every other country. All governments were encouraged to develop national policies, strategies, and plans of action to include primary health care as part of a comprehensive healthcare system (PAHO, 2003). The United States, while not creating policy to address the goal of Health for All by the Year 2000, developed the *Healthy People 2000* objectives, which was updated to *Healthy People 2010* in 2000, and *Healthy People 2020* in 2010.

At the Fifty-Sixth World Health Assembly meeting in 2003, 25 years after the *Declaration of Alma Ata*, WHO reviewed the health status of the world's citizens and the progress made toward the attainment of the Health for All by the Year 2000 goal. Evaluations identified a genuine commitment within countries to the principles of primary health care. In those countries where the development of primary health care has not been successful, failures were attributed to a lack of practical guidance for implementation, poor leadership, insufficient political commitment, inadequate resources, and unrealistic expectations (WHO, 2003).

MEDIA MOMENT

How do the images we view from other countries on television news shows, such as those broadcast by network news, *CNN* and *Fox News*, shape our opinions about the U.S. role in global health?

Millennium Developmental Goals

In 2000, the UN adopted the Millennium Declaration, which recognized that all governments not only have a responsibility to their own citizens, but also have a collective responsibility to uphold the principles of human dignity, equality, and equity for all of the world's people, especially the most vulnerable. Leaders from every country agreed on the importance of creating a world with less hunger, poverty, and disease; better survival rates for mothers and babies; better educated people; equal rights for women; and healthier environments (UN, 2000, 2006).

The UN **Millennium Developmental Goals** were developed to coordinate and strengthen unprecedented global efforts to meet the needs of the world's poorest people. A target date of 2015 for meeting these goals was agreed on by all of the world's governments and the leading global developmental institutions. **Box 6** lists the eight Millennium Developmental Goals.

Global Nursing

Nursing Shortages

WHO estimates it will take an additional 4.3 million healthcare workers (nurses, midwives, physicians, and support workers) to address the pandemic crisis of the shortage of global healthcare workers, which affects all countries of the world. Many developed nations are recruiting workers from less-developed nations to alleviate their staffing shortages. This practice has resulted in a global redistribution of healthcare workers and has left the countries with the greatest needs with the greatest shortages. African nations carry 25% of the world's disease burden but have only 3% of the world's healthcare workforce. There are many reasons why nurses and physicians migrate. While higher incomes are a major consideration, safer working conditions and better resources to provide quality care are equally important (Emory University, 2006).

International Council of Nurses

The ICN works to ensure quality nursing care for all, sound global health policies, the advancement of nursing knowledge, and the presence of a respected, competent, and satisfied global nursing workforce. Three goals and five core values guide all ICN programs and activities. The ICN's goals are to bring nurses together worldwide, to advance nurses and nursing worldwide, and to influence health policy. Its five core values are visionary leadership, inclusiveness, flexibility, partnership, and achievement. The ICN Code for Nurses is the foundation for ethical nursing practice throughout the world (ICN, 2013).

MEDIA MOMENT

Global Health Care: Issues and Policies (Carol Holtz, Jones & Bartlett Learning, 2013)

This comprehensive book outlines the cultural, religious, economic, and political influences that impact global health care. Each chapter includes a summary of health policy issues in a specific global region, followed by an explanation of how these issues are affected by significant world events. Contributing authors are from various regions and countries of origin, which offer validity and authenticity to global perspectives of the current state of global health issues.

Nursing and Human Rights

Human rights are primarily concerned with the rights of individuals in relation to government. The goal of the global movement toward human rights is to ensure that all people have an opportunity to survive to achieve their full potential. Safe water and food, adequate nutrition, protection against slavery or torture, access to education, health care, and basic freedoms are the foundation for human rights. The Universal

BOX 6 United Nations Millennium Developmental Goals

Goals	Target
1. Eradicate extreme hunger and poverty.	Halve, between 1990 and 2015, the proportion of people whose income is less than $1 per day. Halve, between 1990 and 2015, the proportion of people who suffer from hunger.
2. Achieve universal primary education.	Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.
3. Promote gender equality and empower women.	Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015.
4. Reduce child mortality.	Reduce by two-thirds, between 1990 and 2015, the under-5 mortality rate.
5. Improve maternal health.	Reduce by three-fourths, between 1990 and 2015, the maternal mortality ratio.
6. Combat HIV/AIDS, malaria, and other infectious diseases.	Have halted by 2015 and begun to reverse the spread of HIV/AIDS. Have halted by 2015 and begun to reverse the incidence of malaria and other major infectious diseases.
7. Ensure environmental sustainability.	Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources. Halve, by 2015, the proportion of people without sustainable access to safe drinking water and sanitation. By 2020, have achieved a significant improvement in the lives of at least 100 million slum dwellers.
8. Develop a global partnership for development.	Address the special needs of the least-developed, landlocked countries and small-island developing states. Develop further an open, rule-based, predictable, nondiscriminatory trading and financial system. Deal comprehensively with developing countries' debt. In cooperation with developing countries, develop and implement strategies for decent and productive work for youth. In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries. In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.

Declaration of Human Rights, adopted by the UN in 1948, committed the international community to pursue a minimum standard of health care for all people (Williams, 2004).

Because the role and status of individuals in society strongly influence their health, human rights abuses contribute significantly to disease development. Nurses must care about human rights because their presence or absence affects a nurse's ability to practice nursing. The fundamentals of nursing are rooted in the act of

LEVELS OF PREVENTION

Primary: Develop educational programs for teens in Haiti on how to avoid risky behavior associated with HIV/AIDS.

Secondary: Screen Haitian teen population for HIV/AIDS.

Tertiary: Manage treatment protocols for those in Haiti infected with HIV/AIDS, with emphasis on prevention of spreading the disease and reducing complications from the disease.

A DAY IN THE LIFE

A Nursing Student's Story

Border issues affect everyone. During a clinical experience at a level 1 trauma center, another student and I were assigned to a room in the emergency department. A 16-year-old boy was brought in by the triage nurse. He was in obvious respiratory distress. He had renal failure, a Hickmann to right anterior chest wall, soiled dressings, bilateral rales, and +3 pitting edema. After assessment by the first-year resident, the chief resident was called and determined that this boy was not a candidate for emergency dialysis. An interpreter was called, and it was learned that the boy was from Honduras and had no medical coverage. He was admitted for observation. Following up on the patient's status the next day, we found the notation "illegal" recorded again and again in his medical record. Social Services could not help this young man. While we visited the patient, the chief nephrologist came to see him. He wanted us to translate for him as he gave discharge instructions. There would be no dialysis, and the Hickmann would not be removed. He said, "Marry a U.S. citizen or go back to your country. You will be discharged today."

We told the patient we were sorry and asked for his phone number. We told him we would try to do something. We knew that there is no hemodialysis in Honduras and that Social Services could have attempted to make referrals. We did some research and found a hospital willing to treat our patient and referred our patient there. In this cultural experience, we were able to integrate respect for human rights, patient advocacy, and ethics with critical care skills to assist this patient. We hope that we empowered this patient to use available community resources to care for himself despite cultural differences.

—Jamy Josey, BSN Nursing Student

1. What are the ethical issues this nurse faced?
2. What would you do for this patient if home health services were available after hospitalization?
3. How would this situation differ if a patient with the same condition were a U.S. citizen?

caring for other human beings. To provide the best nursing care, nurses must directly confront discrimination, poverty, and human rights abuses (Williams, 2004).

HEALTHY ME

Have you visited another country? What was the first thing you experienced upon arrival? Did you experience "culture shock"? How did you react? Imagine how immigrants experience the United States for the first time. Consider the kind of support they need to succeed in a new culture.

Critical Thinking Activities

1. Which groups or organizations in your community are working locally to improve people's lives?
2. Are nurses actively involved with any of these groups? If so, in what capacity?

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Appendix: Canada

Heather R. Sherry

Canada's healthcare system, commonly referred to as "Medicare," is designed to ensure reasonable access to healthcare services for all Canadian residents on a prepaid basis. It can be described as a series of 13 interlocking provincial and territorial health insurance plans and is funded predominantly through public tax dollars. Healthcare services are administered and delivered by the provincial and territorial governments, with funding assistance provided by the federal government. These services are provided to Canadian residents free of charge.

The *Canada Health Act (CHA)* is the federal legislation that governs the conditions under which provinces and territories may receive funding for the healthcare services they provide to Canadian residents. Provincial and territorial insurance plans must meet five specific criteria outlined in the CHA to be eligible for their full allocation of funding from the federal government:

- *Public administration*: The healthcare insurance plan of a province must be administered and operated on a nonprofit basis by a public authority appointed or designated by the government of the province. This public authority is accountable to the government and must be subject to audit.
- *Comprehensiveness*: The healthcare insurance plan of a province must insure all necessary health services including hospitals, physicians, and surgical dentists.
- *Universality*: All insured residents must be entitled to the same level of health care.
- *Portability*: Any resident who moves to a different province is guaranteed coverage from his or her home province during a minimum waiting period (also applies to residents who leave the country).
- *Accessibility*: All insured persons must have reasonable access to healthcare, and healthcare providers must receive reasonable compensation for their services.

As stated in the CHA, the primary objective of Canadian healthcare policy is "to protect, promote, and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers" (Canada Health Act 1985, c.6, s.3). In support of this objective, primary care doctors, specialists, hospitals, and dental surgery are all covered under provincial insurance policies. More than half of all doctors in Canada are primary care physicians, and the remaining doctors are specialists who provide services outside the scope of primary care physicians.

Although most basic healthcare services are provided under the provincial insurance plans, some services are not covered. For example, prescription medications, vision, and dental (nonsurgical) services are covered only through private insurance plans, which can be used to supplement primary health coverage. Private insurance plans are typically used by individuals with specific needs that are not covered by the primary plan and are often offered as part of employee benefits packages. In addition, many private clinics exist in Canada that offer specialized services. By law, they are not allowed to duplicate services provided by the CHA, but many still do. Residents often use these clinics to reduce the wait times that they can experience in the public healthcare system. This is controversial because there is a sense that the existence of these clinics creates an imbalance in the healthcare system that favors individuals with higher incomes.

Over the years, since public funding for health care began in Canada, the delivery of healthcare services has shifted away from hospitals and doctors and toward alternative care and public health interventions. Reforms have focused on primary healthcare delivery, which have included establishing 24-hour community healthcare centers, creating primary healthcare teams, emphasis on health promotion, prevention of illness and injury, management of chronic diseases, increased coordination and integration of comprehensive services, and improving the work environment of primary healthcare providers (Health Canada, 2009). Although there are some concerns about the efficiency of the Canadian healthcare system (which serves a population of more than 35 million people), Canadians as a whole continue to have a favorable health status. The average life expectancy in Canada is among the highest in the industrialized countries and the infant mortality rate is one of the lowest in the world.

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Cuba

Juana Diasy Berdayes Martinez

Cuba, a Caribbean island nation with a population of more than 1 million, is located between the Caribbean Sea and the Atlantic Ocean, approximately 90 miles off the coast of the United States. After the Cuban Revolution in 1959, Cuba experienced many economic and social transformations, which led to the development of its current healthcare policy. The belief in the right to health care for all citizens and the duty of the state to guarantee it brought about the provision of free healthcare services for all Cuban citizens. A process of reorganization and expansion of the national healthcare system was initiated based on a primary care model. Several measures were taken to guarantee accessibility of healthcare services for all. For example, new hospitals were constructed in rural zones and mountain areas, greatly increasing the number of hospital beds nationwide. Health professionals no longer worked in private practices, but instead became a part of the government's primary care system (Jardnes, Ouvina, & Aneiro Riba, 1991).

From its beginnings, the Cuban public health system has included the participation of the community in its historic evolution. In 1964, the first polyclinic was created to deliver comprehensive health care to communities. Community participation in health care was reinforced in 1975 with the creation of health advisory committees. Health advisory committees consist of people in each community who participate in analyzing the health of the community and facilitating collaboration between the healthcare system and community residents. In 1984, the new Cuban primary care model was introduced with family physicians and nurses as essential components. Family practice physician offices, staffed by a physician and one or two nurses, began to spring up in every neighborhood. The principles of primary care proclaimed in Alma Ata in 1978 were applied in creative ways and adjusted to the economic and social conditions of Cuba. In this way, the truly humanistic dimensions of medicine and health care were applied to the care of people in their own communities. As a result, Cuba met the WHO's "Health for All by the Year 2000" objectives in 1985.

Since 1989, with the collapse of the Soviet Union (with which Cuba conducted 85% of its economic trade), the living conditions of the Cuban population have deteriorated. In addition, the longstanding economic embargo of Cuba by the United States has contributed significantly to the former country's economic depression. According to a 1997 study conducted by the American Association for World Health, the U.S. embargo has had a detrimental effect on the health and nutrition of large numbers of Cuban citizens. However, the negative impact has been offset by the commitment of the Cuban government to maintain a high level of budgetary support for the universal delivery of primary and preventive health care. The health services that have been affected most are organ transplant and other technology programs, surgical activity, the availability of medications, and the acquisition and maintenance of medical equipment. Despite these resource limitations, the goals of the Ministry of Public Health are focused on maintaining free and accessible health care for all citizens.

At present, Cuba has approximately 75,000 physicians and 103,000 nurses (World Bank, 2014a, 2014b). Many of these physicians and nurses work in family practice settings in the community, with an emphasis on health promotion and illness prevention. Nurses working in communities are in privileged situations to identify and satisfy the needs of families. By interacting with individuals and families in the community on a daily basis, nurses are able to develop a holistic view of the health status of the community and its members.

Despite the difficulties encountered during recent years, Cuba offers a healthcare system that is highly developed and effective. Because of the focus on primary care in the community, Cuba's main health indicators (such as average life expectancy and infant mortality) are comparable to those of industrialized nations, placing Cuba far ahead of the rest of Latin America and other developing countries around the world. Cuban collaboration on health is currently present in 66 countries in Latin America, the Caribbean, Asia, and Africa. With more than 23,000 Cuban health collaborators at work internationally, their contributions have been noteworthy in the face of serious health problems in many developing nations.

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Jordan

Waddah Demeh

Jordan, a country with a population of 6.3 million, is located in the heart of the politically volatile Middle East, between Iraq, Saudi Arabia, Syria, West Bank, and Israel. The first Ministry of Health (MOH) was established in 1950 and the first health insurance system was implemented among Force Army members in 1963. Health services are provided through five major sectors:

- Ministry of Health: hospitals, clinics, and mother–child health centers
- Royal Medical Services (Force Army)
- Private sector: hospitals and clinics
- United Nation Relief and Work Agency (UNRWA): clinics and mother–child health centers
- Medical services at governmental universities: Jordan University Hospital and the Hospital of King Abed Allah Ibn al-Hussein

Jordan has limited financial resources and is still considered to be a developing country. Since King Abdullah II took the throne in 1999, health care, education, and technology have advanced quickly. Under his leadership, emphasis was placed on industry and the importance of Jordanian social and economic development. Jordan has approached development from a holistic perspective, realizing that poverty, illiteracy, and health form a triangle and must be addressed together. Advances in the struggle against poverty and illiteracy, in addition to the spread of sanitation, clean water, adequate nutrition, and housing, have resulted in a healthier Jordanian citizenry. The main goal of Jordan's health strategy has been to provide adequate health coverage to all. Jordan's public health system has concentrated on primary health care (e.g., childhood immunization and prenatal care) in all parts of the country, while leaving tertiary health care mostly to the private sector. Jordan's healthcare system has improved dramatically in the last few decades, placing it among the top 10 countries of the world in reducing infant mortality.

Jordan's health needs are met by a high ratio of medical personnel per capita, with the only personnel shortage being in trained local nurses. The government is establishing new nursing colleges and encouraging students to specialize in nursing by offering incentives for trained nurses and giving priority in employment for both male and female Jordanian nurses. Five of eight public universities have nursing colleges that offer both bachelor's and master's degrees in nursing, and two other private universities offer a degree in nursing as well.

Jordan is taking the lead in the Middle East region in recognizing nursing as an independent profession. In 2002, the Jordanian Nursing Council (JNC) was established to regulate the nursing profession through the development of bylaws and credentials policies as well as strategies to protect the health, safety, and welfare of the public. Some accomplishments of JNC to date include the following developments:

- Revising the current law and suggesting amendments
- Laying down the strategic planning of the JNC and the plan of action
- Forming committees to establish the clinical ladder
- Requesting institutions to participate in different committees that are defined in strategic planning (JNC, 2007)

Ninety-two percent of the population in Jordan is Muslim, and this plays a major role in individual and group perceptions about health. The purpose of Islam, as stated in the Qur'an, is to foster beneficial relations between individuals and groups to weld mankind into a true brotherhood. Families are considered the primary social unit in the community, and it is mainly women within families who care for and maintain essential family functions. They determine the nutritional status of the family; they manage and budget the household income; they teach, educate, and care for their children; and they provide health care to the household and community (Mahasneh, 2001).

Women in Jordan have many freedoms. The majority of young women attend universities, have voting rights, drive, and cover themselves only by choice. In fact, many young feminist women in Jordan today are returning to traditional Islamic values (including traditional dress) through the original interpretation of the Qur'an because they contend that the profit Muhammad defended the rights of women. These traditional religious beliefs influence their behavior on many levels, including teaching children to uphold the family honor in the name of God through maintaining virginity before marriage and not being seen alone with a man as a young girl. Shame brought on a family lasts generations and can influence family connections in the community. Men care for their families by protecting the women (Miller & Petro-Nustas, 2002).

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CHAPTER FOCUS

QUESTIONS TO CONSIDER

After reading this chapter, you will know the answers to the following questions:

1. Which specific global environmental threats affect public health?
2. What are current trends in disease and exposure in the environment?
3. What is the history of environmental health in the United States?
4. What is environmental health policy?
5. How does environmental health policy evolve?
6. What is the government's role in environmental health policy?
7. What are the specific roles of the community health nurse in promoting a healthy environment?
8. What is an exposure assessment, and how is it conducted?
9. What is the role of effective communication in the education of community residents?
10. What is upstream thinking, and how is it related to environmental health?
11. What are the key ethical principles related to the environment?
12. How does a community health nurse develop a clinical practice in environmental health?

Environmental Health

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KEY TERMS

environmental health
environmental justice
risk assessment
risk management
social justice
toxicology
toxins
upstream thinking

> Only after the last tree has been cut down,
>
> Only after the last river has been poisoned,
>
> Only after the last fish has been caught,
>
> Only then will you find that money cannot be eaten.
>
> —Cree Indian Philosophy

> There are five essential points in securing the health of houses:
>
> 1. Pure air
> 2. Pure water
> 3. Efficient drainage
> 4. Cleanliness
> 5. Light
>
> —Florence Nightingale, 1860

REFLECTIONS

As you reflect on your personal relationship with the environment, how do these quotes reflect changes through the past century of humans and their environment? As nurses, do we consider environmental influences as we care for our patients?

WHEREVER A POPULATION EXISTS, THE IMPACT of environmental agents on human health is obvious when exposures are high and health effects are immediate. Nurses are most likely to see this type of situation in emergency departments or poison control centers. Frantic parents might call to report that their 3-year-old daughter was found playing with a bag of fertilizer in the garage. A young father, stripping woodwork in a spare basement room, may be brought into the emergency departments by his wife after being overcome by fumes from paint stripper. An elderly woman may be found unconscious in her home after using her gas stove burners to heat her small apartment. In each situation, nurses and other professionals organize a collective response to an immediate health crisis precipitated by an environmental agent. Detoxification procedures begin, and emergency efforts focus on protecting a person's target organ systems. In these scenarios, the link between an environmental exposure and human health is clear. It is easy to see that harmful consequences can result from a single exposure to a toxic agent.

However, acute exposures represent only the tip of the iceberg in the domain of environmental health. In most situations, associations between exposures and disease are not easily traced; years or decades may have elapsed between exposure to the agent of concern and subsequent health effects. In addition, exposures may have occurred in small doses over time or may involve contact with a variety of compounds that interact with each other to cause small changes that ultimately lead to disease. An additional complicating factor is that, for many environmental factors, inconclusive science characterizes associations between exposure and the development of disease. Climate change (or "global warming") remains a constant concern throughout the world, and the 21st century continues to see the results of these changes in extreme weather patterns and effects on the global population.

Because of these and other considerations, environmental health is one of the most challenging and rapidly developing aspects of community health nursing. Fortunately, for many nurses, it is also one of the most rewarding areas of practice. Florence Nightingale is considered the first to recognize the role of the nurse in addressing environmental issues in the hospital, at home, in the workplace, and in the community. In 2010, the American Nurses Association added environmental health principles to its Standards of Professional Practice, which further recognizes the critical expectations of the professional nurse's role in knowing environmental risks and implementing risk-mitigation strategies. Nurses have a unique place in the promotion of a healthy environment and prevention of environmental hazards for all populations. The American Nurses Association's Principles of Environmental Health for Nursing Practice are provided in **Box 1**.

BOX 1 American Nurses Association's Principles of Environmental Health for Nursing Practice

1. Knowledge of environmental health concepts is essential to nursing practice.
2. The Precautionary Principle guides nurses in their practice to use products and practices that do not harm human health or the environment and to take preventive action in the face of uncertainty.
3. Nurses have a right to work in an environment that is safe and healthy.
4. Healthy environments are sustained through multidisciplinary collaboration.
5. Choices of materials, products, technology, and practices in the environment that impact nursing practice are based on the best evidence available.
6. Approaches to promoting a healthy environment respect the diverse values, beliefs, cultures, and circumstances of patients and their families.
7. Nurses participate in assessing the quality of the environment in which they practice and live.
8. Nurses, other healthcare workers, patients, and communities have the right to know relevant and timely information about the potentially harmful products, chemicals, pollutants, and hazards to which they are exposed.
9. Nurses participate in research of best practices that promote a safe and healthy environment.
10. Nurses must be supported in advocating for and implementing environmental health principles in nursing practice.

Source: American Nurses Association. (2007). *Principles of Environmental Health for Nursing Practice*. Silver Spring, MD: Author.

Upstream Thinking: Making Connections Between Environmental and Human Health

One of the most challenging areas in environmental health is linking a past exposure from 10 to 20 years ago with the development of a current health problem. Even though we are intellectually aware that some agents have health consequences that may not be seen for years or decades, it can be difficult to take such a distant and uncertain threat seriously.

One conceptual approach that has been used in interdisciplinary public health efforts, referred to as **upstream thinking**, uses the analogy of a river to demonstrate connections between preceding exposures and later health consequences. This approach is based on an article by McKinlay (1979), who tells the story of a physician friend and his struggle to keep from feeling overwhelmed by the enormity of health problems that he encounters in clinical practice. The friend notes that he feels as if he is so caught up in rescuing individuals from the river that he has no time to look upstream to see who is pushing them in. In this analogy, the river represents illness and health providers' efforts to rescue people from illness. However, in this portrayal no one receives care until they are downstream in the river of illness, which precludes efforts to intervene before illness develops.

McKinlay (1979) challenges providers to look upstream, where the real problems lie. The river analogy includes many concepts in community health nursing, including epidemiology, the natural history of disease and levels of prevention. The power of the upstream conceptualization of health lies in its simplicity and the ease with which one can connect the correlates and causes of disease with their consequences.

Upstream thinking lends itself well to health problems of environmental origin and can be helpful in guiding practice decisions that have long- and short-term consequences for our patients. Examples of environmental upstream nursing actions include the following:

- Instructing a patient to wear a respirator when stripping paint from an old home
- Encouraging farmers who work with pesticides to refrain from wearing their work boots into the house
- Developing a school policy to establish waiting periods for children to be off playgrounds and recreational areas, such as sports fields, following applications of fertilizers and herbicides
- Educating new parents about the need for safe materials, nontoxic furniture and decorations in a newborn nursery

In each situation, the nurse is acting from a primary prevention viewpoint to prevent or minimize the occurrence of an exposure. It is not necessary to know the toxicology of all of the agents involved. Nurses can initiate an action and then seek guidance from experts in toxicology or other disciplines. The goal is to minimize the opportunity for harm by linking an understanding of nursing actions at the present time with the prevention of harmful health effects in the future (Butterfield, 1990; Butterfield & Postma, 2009).

Trends in Exposure and Disease

Health professionals and citizens are generally aware of the delicate balance that exists between the environment and global health. A goal of policymakers, both in the United States and elsewhere, has been to increase technology without compromising public health and safety. With increasing technological advancements, also come known and unknown environmental toxins. Unfortunately, despite our knowledge of the links between environmental contaminants and health problems, our society continues to manufacture, use, and dispose of many potentially hazardous chemicals. In 2012, U.S. industry reported the release of 3.63 billion pounds of potentially toxic chemicals into the air, water, and soil (U.S. Environmental Protection Agency [EPA], 2012). The widespread use of chemicals with toxic effects (**toxins**) highlights the importance of educating nurses who can work to reduce exposures to those substances in homes, workplaces, and public areas. Many cases of environmentally induced illness can be prevented, but it requires actions that have not traditionally been a central part of community health nursing (Butterfield, 2002; Butterfield & Postma, 2009; Kleffel, 1996). As can be understood from Box 13-1, nurses play a critical role in maintaining knowledge about known and possible toxins and promoting healthy environmental conditions for populations, especially those who are vulnerable, such as children, those with compromised immune systems and chronic conditions, and the elderly.

A World View

Despite efforts to reduce industrial pollution and automobile emissions, increasing numbers of citizens the world over are facing health risks from environmental toxicants. Because of the rapid increase in the world's population, small changes in urbanization and agricultural production can have large consequences on global public health (Briggs, 2003). The health consequences of increased industrial globalization and planetary climate change are problems for the world that no single nation can hope to address alone (Kirk, 2002). The relationships of industrialization and deforestation to the emergence of new diseases and the reemergence of diseases previously thought to be under control (e.g., tuberculosis) are of special concern. Recent ecological changes associated with human health problems include the following:

- Population movements and the intrusion of humans into new habitats, particularly tropical forests
- Deforestation, with new forest–farmland margins that expose farmers to new vectors of disease (Daszak, Tabor, Kilpatrick, Epstein, & Plowright, 2004)

- Irrigation, especially primitive systems that serve as breeding areas of arthropods
- Rapidly expanding urbanization, with vector populations finding urban breeding grounds in standing water and sewage (Patz et al., 2004)
- Changes in agricultural practices, such as the use of antimicrobial-supplemented animal feeds and the crowding of animals in confined spaces
- The growth in large corporate farms, including farmed fish and seafood, and corporations that produce massive amounts of toxins that are released into the environment, often with insufficient and inconsistent regulatory compliance or government oversight
- Climate change resulting in massive numbers of persons who are affected by typhoons, earthquakes, droughts, and other extreme weather conditions, resulting in mass relocation to unfamiliar and potentially toxic terrains
- Increasing number of political refugees crossing national boundaries and living in crowded, unhealthy conditions resulting from numerous wars and military/national conflicts
- Nuclear accidents, such as the Fukushima disaster in Japan in March 2011, in which a major earthquake touched off a 15-meter high tsunami, disabling the power supply that cooled three Fukushima Daiichi reactors (All three cores largely melted in the first 3 days. Nuclear hazardous materials continue to be monitored worldwide after the catastrophe.)

These problems require a perspective that goes beyond national boundaries and mobilizes global concern and cooperation. Import policies in developed nations need to address the transfer of natural resources from developing countries, such as mineral wealth, oil, and exotic lumber. Environmentally sound practices in the mining, agriculture, and forestry industries need to be enhanced through cooperative efforts between industry and citizen groups. Several disease surveillance organizations have requested additional funding for the development of a system that could coordinate global reporting of disease surveillance and control efforts. Better diagnostic techniques, prevention strategies, and risk factor analysis must be taught to healthcare professionals worldwide. More funding for basic and applied research related to the environment and infectious diseases can yield significant improvements in public health. Education for a global perspective is needed to address the issue of infectious disease within the context of shared environmental responsibility. As our planet moves from a national to an international perspective on health problems, it is easy to see that environmentally destructive practices in one country can lead to health problems in many other parts of the world.

The Centers for Disease Control and Prevention (CDC)(2013a) continues to analyze the public health consequences from global heat waves and extreme weather conditions—increasingly common events that are setting alarming new records for low and high temperatures as well as producing greater intensity of storms, floods, and droughts. Many scientists have hypothesized that global changes in weather patterns will lead to critical changes in disease occurrence over the next few decades.

The Environment and Health

A healthy environment is one in which people—whether at home, in schools, at workplaces, or in their communities—have access to safe food and water, have adequate sanitation, and are protected from risks associated with chemical pollution, environmental degradation, and disasters (World Health Organization, 2005). The term **environmental health** refers to freedom from illness or injury related to toxic agents and other environmental conditions that are potentially detrimental to human health (Pope, Snyder, & Mood, 1995). Healthcare providers' roles in environmental health are expanding to include caring for people with exposures to hazards in their homes, workplaces, and communities through contaminated air, water, and soil.

Because "environment" is such a universal concept, it can be difficult to define the boundaries of environmental health. The application of environmental health in clinical practice ranges from descriptions of hospital rooms to international and global perspectives on the health of the planet. Although a hospital room differs from a global ecology perspective in complexity and other dimensions, both views can provide insights into opportunities for health at the individual and collective levels. Just as the scope of clinical practice varies from individual emergencies to situations in which a healthcare provider is charged with the health assessment of populations, so too must the scope of environmental health assessment vary across situations.

Because of the rapid increase in chemical production and use since World War II, synthetically derived chemicals are often considered inherently dangerous. However, each environmental agent must be studied and understood; it is a big mistake to overgeneralize and say that all synthetic products are dangerous and that all natural products are inherently safe. Some of the biggest threats to human health throughout human history have come from "natural" substances such as lead, mercury, and arsenic. Furthermore, chemicals are often considered the only source of environmental health threats; however, physical agents (e.g., noise, vibration, ionizing radiation) and biological agents (e.g., bacterial contamination, fungal spores, viruses) also play significant roles in health problems of environmental etiology.

CULTURAL CONNECTION

Some cultural and religious groups do not believe in the use of added minerals, such as fluoride, to drinking water. With current research providing evidence that fluoridated drinking water dramatically reduces tooth decay in children, how can these belief systems be respected while still preserving the health of the population?

Environmental Health Policy: Historical Perspectives

In Europe and North America, early environmental health regulations focused exclusively on sanitation, water quality, and housing. The public health implications of these regulations cannot be overemphasized; mortality rates dropped significantly following the institutionalization of quality standards for drinking water and sewage disposal (Kotchian, 1997). Following the publication of Rachel Carson's *Silent Spring* in 1962, citizen groups mobilized in support of more comprehensive legislation to protect the environment and endangered species. Examples of legislation passed during the 1960s and 1970s include clean air and water acts, occupational health and safety acts, toxic substances controls acts, and the Poison Prevention Packaging Act. During these two decades, the EPA, Occupational Safety and Health Administration (OSHA), and Nuclear Regulatory Commission were also established (Stevens & Hall, 1997).

Public and governmental actions addressing environmental health continue to this day, although some observers believe that responses have not been sufficient to reduce the health risks in the environment. Community right-to-know federal legislation, enacted in 1987, authorizes citizens' access to information addressing the presence, management, and release of hazardous chemicals in their community. Information addressing the storage and use of more than 300 chemicals was collected by the EPA, assembled into databases called the Toxic Release Inventory, and made available to the public. The Pollution Prevention Act of 1990 authorized data-collection activities addressing toxic chemicals that leave a community facility. These recent governmental efforts have greatly enhanced the ability of citizens to gain access to environmental data from their neighborhood. Such data can empower citizens to advocate on behalf of their community and hold government and private officials accountable for policy decisions.

Despite recent advances in environmental information through Internet access, some environmental advocates point out that, although some environmental risks have been minimized or eliminated, new risks have been identified but not addressed. Citizen advocacy groups have observed that many health and safety regulations have not been uniformly implemented or enforced; loopholes exist in others. In addition, some policymakers and legislators believe that environmental initiatives and laws are not in the best interests of the economy; thus, laws, standards, or initiatives have been canceled, weakened, or not given the funds they need to be effective.

In regard to the built environment, many scientists are beginning to view cities and towns almost as ecosystems and to critically examine the placement of roads, sidewalks, and buildings. Using mapping (e.g., with global positioning system [GPS] technology) and other research techniques, they can compare differences in obesity levels between neighborhoods with and without sidewalks (Booth, Pinkston, & Poston, 2005). Other scientists are examining the complex relationships among neighborhood factors such as walkability, grocery store access, and the availability of bike paths. Their studies are beginning to quantify what we already know intuitively: Depending on their attributes, "places" can promote or inhibit health in the same way that a poor diet can. In fact, the more we learn about built environment, the more scientists are beginning to see links between physical and mental health and automobile use (or overuse; Pohanka & Fitzgerald, 2004).

Since the early 2000s, children's environmental health issues have also become the focus of greater scientific scrutiny. An increasing recognition that children absorb chemicals in different ways than adults has led to studies examining children's exposure to substances such as pesticides, mercury, and tobacco smoke (Hill & Butterfield, 2006; Reddy, Reddy, & Reddy, 2004). One big concern is the cumulative effect of exposure to multiple chemicals over a child's life. Historically, cancer studies have been conducted to examine links between a single agent (e.g., benzene) and a single type of cancer. Now, however, scientists are beginning to recognize the limitations of looking at just one agent at a time and are beginning to look at exposure to multiple chemicals in human milk, in drinking water, and in school settings (Shendell, Barnett, & Boese, 2004). Close to 30 million U.S. citizens drink water that exceeds one or more of the EPA's safe drinking water standards, and 50% of the population of the United States lives in areas that exceed national air quality standards.

Recent Environmental Health Issues

In the second half of the 20th century, awareness of the damage to the environment and its resulting effect on health grew dramatically. Population growth (see **Figures 1** and **2**), urban spread, advanced

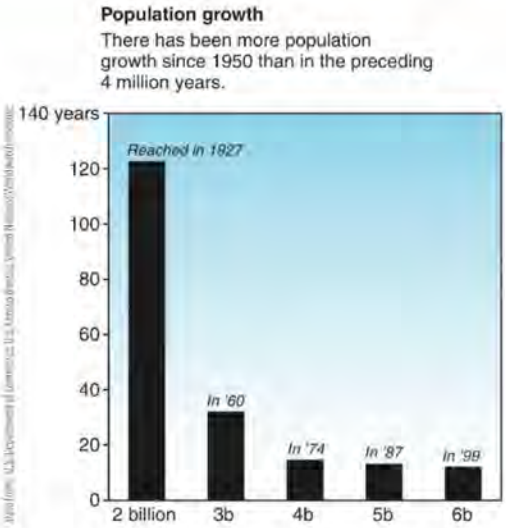

Figure 1 Years taken to reach one billion markers.

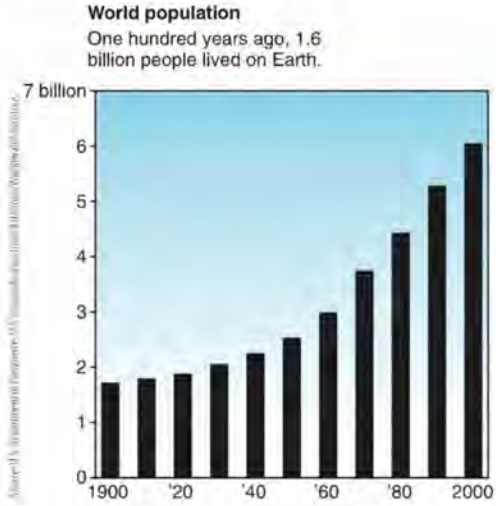

Figure 2 Estimates of world population.

technology, industrialization, and modern agricultural methods were the source of great progress, but they also led to the creation of environmental hazards that may not have been observed previously. It seems as if news outlets feature stories on new threats almost daily, leaving citizens to sort out the difference between hype and reality. Three trends that seem here to stay include: (1) the focus on the built environment, (2) an emphasis on children's environmental health, and (3) the environmental justice movement.

The environmental justice movement has played a critical role in changing government policies addressing the placement and operation of factories and other industrial facilities in the United States. When citizens began to protest the placement of factories in minority neighborhoods, state and local policymakers began to examine historical (and current) business and zoning regulations. What they found was a pattern of putting "dirty" businesses in poorer or minority communities, while higher income neighborhoods remained free of such facilities (Frumkin, 2005). From these beginnings came the environmental justice movement, which sowed the seeds of activism across the nation. Today, environmental justice has come to be known as the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (EPA, 2014).

Historical Perspectives on Environment and Health

The science of epidemiology has been closely linked to environmental health since the original work done by John Snow in 1854. The same deductive processes in inquiry that Snow used to link cholera deaths to contaminated Thames River water have been used countless times over the past century to link environmental agents with disease occurrence. Because the basic tenets of descriptive epidemiology (i.e., time, person, and place) have been such a powerful tool in establishing links between environmental agents and disease, this approach to scientific inquiry has stood the test of time for investigations of environmentally induced diseases at both local and global levels.

Some argue that epidemiological methods have been more effective in addressing infectious and acute diseases than chronic conditions. There may be some validity to this position, because links between exposure and disease are most easily made when the induction period is relatively brief. However, in recent years, chronic disease epidemiology has played an important role in furthering an understanding of relationships between environmental exposures and several types of cancer, neurological impairment, and autoimmune conditions. Examples in this area include associations between the following:

- Asbestos exposure and mesothelioma
- Prenatal exposure to diethylstilbestrol (DES, a form of estrogen given to pregnant women in the 1950s and 1960s to prevent miscarriage) and a rare form of cervical cancer
- Occupational exposure to vinyl chloride (used in the manufacture of polyvinyl chloride plastic pipe) and the development of liver cancer
- Various toxins linked to Alzheimer's disease

One of the biggest challenges in the area of chronic disease epidemiology is to establish evidence of exposure dose for agents without biomarkers (i.e., physiological fingerprint of exposure). In these cases, exposure has most often been "estimated" using a questionnaire or interview guide. This method of estimating exposure can be problematic for exposures that may (or may not) have happened years or decades ago. More recently, the CDC began to test citizens for body burden levels of a variety of environmental chemicals. In 2003, the CDC released findings that included citizens' blood and urine levels for 116 chemicals, including selected insecticides and herbicides, dioxins, phytoestrogens, and lead. Preliminary findings revealed that only 2.2% of children (ages 1–5 years) were found to have elevated blood lead levels—an improvement from the 4.4% rate seen in the 1990s.

The *Fourth National Report on Human Exposure to Environmental Chemicals, Updated Tables, September 2013* (2013a) provides new CDC data since the release of the *Fourth Report, 2009*. Since the publication of the Fourth Report, 201 chemicals have been updated and data on 49 chemicals have been added. This update also includes new data for 91 chemicals measured in serum-pooled samples. Readers are advised to review this publication for the most recent and complete biomonitoring data on the CDC website (http://www.cdc.gov/exposurereport/).

The authors of this report noted that is it important to remember that there has been no baseline information available for most of these chemicals; therefore, one cannot say whether the levels found are safe or unsafe. The important gap that this study fills is in providing baseline information so that we can begin to understand what are "normal" ranges for these chemicals. There is good news on the horizon. The CDC is releasing new reports via their website on a more frequent basis, so that scientists can begin to understand trends in chemical exposures. Understanding these exposures will provide a scientifically accurate foundation for the development of U.S. chemical reduction policies For the most up-to-date information, go to their website (http://www.cdc.gov/exposurereport/).

Origins of Environmental Health Policy

Although concerns for environmental risks to health and safety have existed to some extent for centuries, the current widespread awareness and concern about these risks among public and private sectors are relatively recent phenomena. With the Industrial Revolution in the 1800s, the developed world, including the United States, focused on modernization and rapid production of goods and services. Concerns about depletion of natural resources or damage and hazards resulting from the products and wastes of industrialization were not yet realized or acted on. During this time, however, there was growing concern for working conditions and safety of workers, as reflected in the movement to organize and unionize the workforce to demand safe work environments, among other improvements.

In the early decades of the 1900s, concerns about environmental health and safety were demonstrated by governments with the passage of laws to protect the public from hazardous goods in the marketplace. In the United States, for example, the Pure Food and Drug Law was passed in 1906 and the Food and Drug Administration was established in 1931 (Henson, Robinson, & Schmele, 1996).

In the next several decades of the 1900s, war efforts and postwar industrial rebuilding consumed the energies of governments and the public. Again, the international production of war and postwar goods and services took precedence, and the lay public held a belief that their governments would protect them from environmental risks and hazards.

The birth of the consumer-driven environmental movement that continues today can be traced to the 1960s and 1970s. Multiple trends and events served to

APPLICATION TO PRACTICE

Health Policy Actions Result from Community Involvement

Pam and Steven are registered nurses practicing at a mobile clinic that provides health care for migrant farm workers and their families in a Midwestern state. They discuss the numerous children with skin and respiratory complaints that they have recently seen at the clinic. A review of clinic records reveals that more than twice the expected number of children had been seen in the clinic presenting with skin irritations, headaches, or abdominal cramping. The nurses begin to gather more detailed interview data from mothers who bring their children to the clinic with these symptoms. They learn that mothers are bringing their infants to the fields because there is no affordable day care available in this area. Older children work with their parents picking vegetables. They discuss their observations with the clinic's medical director and a toxicology consultant from the Migrant Council. They learn that the symptoms they have observed are common in pesticide exposure or poisoning.

A team from the clinic and Migrant Council visits the local vegetable fields and finds multiple exposure risks for children. Some mothers carry infants into the fields in cloth carriers as they pick crops. Other infants are left at the edges of the crop rows in child carriers and strollers. Children as young as 4 years old pick vegetables next to their parents. Rubber gloves and other protective coverings are not available in sizes small enough for child

(Continued)

APPLICATION TO PRACTICE (*CONTINUED*)

workers. Some children are observed picking pesticide-dusted vegetable and eating them unwashed for lunch. On review of applicable federal and state laws, they find that while regulations protecting children from pesticides in foods are strict and clear, they are much less clear regarding protection of adults or children who harvest that food. Laws regulating or providing for safety for agricultural child workers are also not clear.

The team meets to examine the data collected and formulate an approach. They decide that an immediate priority is to reduce the potential pesticide exposures in this local area. They plan to work with farm owners to provide low-cost or no-cost day care and child-sized protective equipment. They also plan educational programs for migrant parents, offered after hours in their housing areas, focused on reducing exposures. Because migrant workers travel after harvest to other agricultural areas, reducing the problem in this area alone will not protect the children as they move to other areas. The team identifies informal leaders in the group of migrant workers and provides them with training in community development so that they will be better able to advocate for safe working conditions on behalf of their group wherever they work. The team also contacts legislators and policymakers to advocate for improved regulations to protect migrant workers and their families from pesticide exposures.

Source: Adapted from Crenson, M. (1997, December 28). Kids at work in fields of unseen danger. *Missoulian*, p. A4.

raise international consciousness that some aspects of the environment had become a growing risk to public health and safety. Disenchantment with postwar living conditions and the realization of the environmental effects of nuclear proliferation and war occurred after World War II. Public cynicism toward the government and other institutions occurred in the United States during and after the Vietnam War era. Several widely read exposés of environmental hazards also were published during this time. One influential publication, *Silent Spring* (Carson, 1962), predicted the poisoning and destruction of the natural environment in the name of progress with the use of pesticides. Rachel Carson's book was history making in its effect on thought and policymaking following its publication. Consumerism gained momentum during this time as a result of the efforts of national leaders and consumer advocate groups. All of these trends and events resulted in public concern and activism followed by governmental responses to citizens' growing environmental awareness.

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> The nation that destroys its soil destroys itself.
>
> —*Franklin D. Roosevelt*

Environmental Policy: Governmental and Public Roles

One of the primary purposes of government in a democratic society is to protect and safeguard the governed or the public. To fulfill this purpose, the government passes laws and enacts rules and regulations to prevent and reduce risks to the public. Government agencies and offices have been created to identify and monitor risks and hazards, monitor compliance with rules, and gather data to inform policymakers. Government initiatives have been implemented because of priorities of elected or appointed officials as well as in response to pressures from an environmentally conscious public.

Despite all of this governmental activity, our environment still poses hazards to the safety and health of the public. In many cases, the dangers are more complicated now than ever before. Reasons for that increased risk include the following:

- Environmental health has been addressed in a piecemeal fashion instead of in a potentially more effective comprehensive plan.
- Proposed policies and laws that improve the health of the environment are often perceived to be in conflict with what is in the best interest of business and the economy.
- Laws and policies cannot solve all environmental problems and risks without voluntary actions by individuals, groups, and organizations.
- Science has not been able to keep pace with potential environmental hazards and pollutants.
- In a world of finite resources, the costs of cleaning and protecting the environment are in competition with the costs of other desired and needed social programs.

At the local and national levels, policymakers set national and state priorities among competing social programs, establish standards for environmental hazards and risks, take action against those who violate standards, and allocate billions of federal and state funds according to these established priorities. A broad set of population health goals to be achieved by the year 2000 was established by the U.S. Public Health Service in 1990 and was reaffirmed with the publication of *Healthy People 2010*, and now the *Healthy People 2020* objectives, which include environmental health as a priority area; these objectives serve as the basis for federal and state policy formulation and action (U.S. Department of Health and Human Services, 2014). Selected objectives related to the environment are listed in the *Healthy People 2020* feature that follows.

The public plays an important role in setting the stage for policy decisions by expressing its values and in the actions it takes as an electorate. Policymakers are also influenced by organized interest groups and elected and appointed officials who represent these interests. In the environmental health arena, these groups have traditionally been organized into two factions: (1) businesses and industries that depend on the environment for raw materials and/or disposal of waste and (2) citizen groups and voluntary organizations that have an interest in preventing or limiting the extraction of raw materials or disposal of waste. Nurses can work to foster health communication between groups and direct the dialogue to areas of common ground. In addition to participation of citizens, nurses can enlarge their role in environmental health policymaking by increasing their political expertise and activity as professionals.

In the United States, policymakers and the public alike trust the nursing profession to be advocates for patients and to speak and act on behalf of the health of the population. Nurses are considered reliable and trustworthy sources of information about threats to health and also represent the largest group of healthcare professionals among the voting age population. By staying informed of current and accurate information on environmental risks, organizing and becoming actively involved with groups of nurses and others around environmental issues, and actively communicating with and lobbying policymakers and organized interest groups, nurses can effectively influence public policy. In the practice arena, nurses can also inform and mobilize citizen groups and other professionals to become actively involved in communicating with and lobbying policymakers about environmental issues of concern to themselves and their communities.

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Recycling efforts have increased with significant environmental benefits.

HEALTHY PEOPLE

Selected Objectives Related to Environmental Health

EH-8.1: Eliminate elevated blood lead levels in children.

EH-9: Minimize the risks to human health and the environment and hazardous sites.

EH-10: Reduce pesticide exposures that result in visits to the health facility.

EH-11: Reduce the amount of toxic pollutants released into the environment.

EH-13: Reduce indoor allergen levels.

EH-18: Decrease the number of U.S. homes that are found to have lead-based paint or related hazards.

Source: U.S. Department of Health and Human Services. (2014). Environmental health objectives. Retrieved from http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=12

> Within the last few years, a large part of London was in the daily habit of using water polluted by the drainage of its sewers and water closets. This has happily been remedied. But, in many parts of the country, well water of a very impure kind is used for domestic purposes. And when epidemic disease shows itself, persons using such water are almost sure to suffer.
>
> —*Florence Nightingale, 1860*

Nursing and the Environment

Nursing's efforts to promote health by influencing environmental conditions predate the modern environmental movement by more than a century. Florence Nightingale, the founder of modern nursing, developed her theory of nursing with a strong emphasis on the individual's environment. Although the term "environment" did not appear in her published works, she addressed health using five environmental dimensions: (1) pure, fresh air; (2) pure water; (3) efficient drainage; (4) cleanliness; and (5) light—that is, direct sunlight (Nightingale, 1969/1860). To Nightingale, the environment was the surrounding context in which the individual lived: a person's health or illness was a direct result of environmental influences. Deficiencies in any of the five factors produced a health deficit. Nightingale also stressed the importance of a comfortably warm, noise-free environment and a good diet. Although originally intended to address a hospital environment, her concepts were broad enough to serve as a basis for public health nursing, and they remain integral parts of nursing and health care.

Nursing has long noted the influence of the environment on health and has assumed the role of managing the interaction between patients and their environments. Often, nursing's approach has been to assist the patient to adapt to the environment; thus, the focus for intervention was changing the individual or community patient to facilitate a better match with the environment. An emerging role for nursing today is to intervene directly in environmental factors in an attempt to change unhealthy conditions and mobilize individuals or communities to do the same. Nurse scientists are conducting studies in environmental factors directly, such as water and air quality, policies, laws that influence the health of the population, and conditions in workers' environments to improve understanding of healthful and unhealthful environmental conditions and the interventions that can improve them.

ETHICAL CONNECTION

Attempts to ban smoking in bars have resulted in community divisiveness over public health and individual right to freedom of expression, especially in small, western U.S. towns. As a community health nurse, how can you provide advocacy for the entire population in this environmental health issue?

GOT AN ALTERNATIVE?

Using organic or nontoxic household products in the home is safer for the environment and for the residents of both the home and the community. One common concern is the high cost of these products. What can the community health nurse do in regard to educating families about reducing environmental toxins when the costs of these products limit their use among disadvantaged families?

Just as it is a challenge to draw a circle around the concept of environmental health, so, too, is it difficult to delineate the unique role of nursing in addressing environmental health issues. Many professional disciplines—from wildlife biologists to microbiologists to engineers—consider environmental health problems within their domain of expertise. Environmental health is an area in which many different professionals are needed to prevent, minimize, and improve environmental problems. Both basic and applied research efforts are required to understand all of the implications of environmental health problems. Professional nurses are well suited to participate in collaborative efforts because they have historically functioned at the center of the healthcare team. However, nursing efforts are focused exclusively on human health, in contrast to some professions, whose efforts are directed toward other species such as fish, large mammals, and plant life. Nursing interventions are directed toward preventing and minimizing the effects of environmental health problems on persons of all ages. This focus does not mean, however, that concerns about animal and plant life are dismissed or that health connections between species are not recognized.

Robert Kennedy, Jr., environmental activist, attorney, and author of *Crimes Against Nature*, with text author Dr. Karen Saucier Lundy.

Community health and occupational health are the nursing practice specialties often associated with health hazards in the physical environment. In view of the universal presence of environmental hazards, it is critical that nurses in all practice specialties have an understanding of environmental health (Pope et al., 1995). As patient advocates, all nurses need to be concerned about the health of the environment because it is a major determinant of their patients' health.

Roles of the Community Health Nurse

Nursing has a long history of identifying health risks and intervening directly on behalf of patient health. The role of the nurse in providing pure water, a restful setting, and a hygienic hospital environment was among the early environmental concerns of the nursing profession. By the late 1800s and early 1900s, nursing became concerned with identifying and resolving communicable disease outbreaks, improper food handling, inadequate disposal of wastes, and unsafe water supplies (Tiedje & Wood, 1995). During the growing environmental awareness of the 1960s and 1970s, nursing expanded its environmental concerns to include identification and interventions related to exposures to toxins and chemicals from the home and community environments. More recently, nursing has acknowledged that the environment relevant to our patients' health is larger and more multifaceted than was appreciated previously. Accordingly, nursing's concerns have expanded to regional, national, and global physical environmental hazards as well as influences arising from the social, economic, psychological, and political environments.

RESEARCH ALERT

Amaya and colleagues have documented high rates of exposure to lead, trace elements, and pesticides in Hispanic persons residing in United States–Mexico border communities. As one part of a larger study examining the serum lead levels in pregnant Hispanic women, a case investigation of a family with two children with elevated lead levels was conducted. Dust samples were collected both inside and outside the residence; additional samples were taken from water, paint, and cookware in the home. The evidence supported a hypothesis that primary exposure occurred from battery recycling and burning of electrical wire conducted on the premises by the father and grandfather of the children. Steps to ameliorate exposure pathways were undertaken by community health nurses working with the family. Monthly lead levels taken on both children declined over the next 4 months. Unfortunately, the family moved away without notice and was lost to follow up 9 months after the initial event.

Such investigations capitalize on the risk communication skills of nurses working in border communities. Nurses' abilities to locate and intervene effectively with disenfranchised families are unsurpassed among health professions. Case-series and case-control studies by nurse scientists can yield important findings at the local and national levels, while furthering the role of nursing and the environmental health sciences. Elevated blood lead levels have been reported in approximately 8% of low-income children in El Paso County, Texas. Nursing research addressing the areas of risk communication, healthcare access, and intervention strategies with families at risk for lead exposure can lead to a significant reduction of persons affected by this serious health problem.

Source: Amaya, M. A., Ackall, G., Pingitore, N., Quiroga, M., & Terrazas-Ponce, B. (1997). Childhood lead poisoning on the US–Mexico border. A case study in environmental health nursing lead poisoning. *Public Health Nursing, 14,* 353–360.

Identifying Risks

Community health nurses often emphasize primary prevention activities that address environmental health because many environmentally induced illnesses are preventable through risk management activities. In concert with other professionals, community health nurses often conduct a systematic review of risks known as a quantitative **risk assessment**. Risk is the probability of injury, disease, or death for individuals or populations exposed to hazardous substances; it may be expressed numerically (e.g., "one in 1 million"), but this rate is often impossible to estimate. In such situations, risk may be expressed using terms such as high, medium, or low. The steps involved in a risk assessment are outlined in **Box 2**. **Risk management** involves developing and evaluating possible regulatory actions guided by the risk assessment plus other ethical, political, social, economic, and technological factors (U.S. Congress, Office of Technology Assessment, 1990).

It is important to consider the depth of inquiry when addressing the role of nursing in environmental health. Which areas of inquiry contain the dimensions of environment that fall within the scope of nursing? Surely, given enough time and paper, one could generate a seemingly endless list of questions that relate human health to the environment. The challenge then lies in the ability to focus nursing assessment activities into areas that are most obvious to the clinical or research area of interest. One would expect to see overlapping areas of focus between environmental health, as it relates to professional nursing, and other professions such as **toxicology**, pharmacology, and the behavioral sciences. The goal in such a case is not to stake out a new specialty area for nursing practice,

BOX 2 Steps in an Environmental Risk Assessment

1. *Hazard identification:* Does the agent cause the adverse effect?
2. *Exposure assessment:* Which exposures are currently experienced or anticipated?
3. *Dose–response assessment:* What is the relationship between the dose and incidence?
4. *Risk characterization:* What is the estimated incidence of the adverse effect in a given population?

but rather to integrate knowledge from nursing and other disciplines and apply this knowledge to the patients' needs for health promotion or restoration.

Looking at the environment from a broad view, environmental factors are involved in almost all disease risks and include areas such as housing, nutrition, socioeconomic status, and lifestyle. Even the health of persons with genetic disorders can often be enhanced through nursing actions addressing personal and societal aspects of the environment. Environmental health includes a concern for not only the physical environment, but also the interrelated social, economic, psychological, and political environments. Such conditions as poverty, powerlessness, social injustice, and racism that arise from diverse environmental factors can reduce opportunities for health and contribute to illness just as certainly as do chemical or physical agents. A central goal of this chapter is to provide information that allows for a richer understanding of the connectedness among many features of the environment. Although information addressing physical agents predominates this chapter, it is important to understand that aspects of the social and economic environment are also centrally linked to opportunities for health in civilizations throughout the world.

THINK ABOUT THIS

After the damage inflicted by Hurricane Katrina and the resulting levee break in New Orleans in August 2005, the area's unprecedented environmental debris and hazards created the nation's greatest recycling challenge. The sheer volume of debris created by Katrina was staggering—including about 25 million cubic yards of "green waste" (tree limbs, trunks, leaves, dead bushes), enough to fill up the Louisiana Superdome nearly twice. Some had to be incinerated, some was used as cover in landfills due to the time factor, and much is now being used as lawn and garden mulch and composting material. Flooded vehicles and hundreds of thousands of destroyed refrigerators, washing machines, and other appliances have yielded about 280,000 tons of steel, according to Louisiana state officials. Many builders, restoration experts, artists, and grassroots organizations have recycled much of the debris into jewelry and for use in the restoration of homes.

Assessing Exposures

Community health nurses often participate in exposure assessments following the development of a case or suspected cluster of disease. Because of their methodical skills in home assessment, nurses are often called on to conduct comprehensive exposure assessments in homes or occupational settings. Strong interview, observation, and family assessment skills are needed by nurses to collect these data in a clear and systematic manner. Clues to potential solutions to environmental risks may occur during the course of community or home assessments, although the resolution of some risks may require the expertise of nonnursing professionals. Home visits often require follow-up conversations with toxicologists, industrial hygienists, or other scientists who have expertise with the exposures of interest.

Exposure assessments are much simpler when patients present with an acute illness, such as acute pesticide poisoning or inhalation fever. Assessments become much more complex when the specific types of agents have not been considered a priori or when the induction period between exposure and disease occurrence is unknown. The greatest challenges occur in persons with chronic disease or disease of unknown cause or when exposure to small doses of multiple agents has occurred over years or decades. In these types of clinical situations, it is very unusual to make a link between disease and a specific type of exposure with a high degree of confidence. Unusual conditions and rarer forms of cancer, such as the association between asbestos and development of mesothelioma, are the exception and can often be narrowed down to a specific place and time in one's life. **Box 3** includes

BOX 3 Conducting a Home Assessment and Environmental Exposure History

A public health nurse has been assigned to a home that may be hazardous for the family to live in. A reference has been made to the public health nurse by a home health nurse who has been visiting the family, which includes one elder over 65, two parents, and two children under the age of 6. The nurse uses the following guide to make his assessment and determine any risks that may be threatening to the family's health and wellbeing.

Areas of Visual Inspection

Examine areas in the immediate vicinity of the home for the presence of the following:

- Water hazards
- Automobiles, farms, or other large equipment
- Garbage/waste storage containers
- Garages, sheds, or other outbuildings for safety hazards
- Chemical storage areas
- Pets or livestock

- Areas where rats or mice could live around home or outbuildings
- General age and condition of home (e.g., presence of peeling paint, metal edges from siding)

Consider whether any of the aforementioned items constitute a health threat to any family members or to the community in general.

Questions to Consider in Assessing Environmental Agents in the Home

Ask family members about the following:

- Hobbies or crafts involving potential for lead exposure (e.g., stained glass, ceramic glazing)
- Potential for significant exposure to gasoline or diesel exhaust from car repair activities or from nearby traffic
- Safe storage of food (stored where vermin cannot contaminate food) and proper cooking and refrigeration facilities
- Storage and use of insecticides, lawn care products, fertilizers
- Use of deodorizers and candles with additives for aroma
- Home heating—type of furnace, use of wood stoves
- Use of cleaning products that are strong irritants
- Fumigants or other products used for tick or flea control in the home
- Storage of food in copper or brass containers (can contaminate food with copper or lead)
- Exposure to wood preservatives (e.g., pentachlorophenol) in log homes
- Potential for lead exposure through lead-based plumbing
- Source of water (municipal or private well)
- Any seasonal changes in water sources during the year (e.g., private well during the winter and water delivered to a cistern during the summer months)
- Recent home renovation activities such as sanding or stripping of old paint that could result in lead exposure to family members

Questions Addressing Symptoms Related to Environmental Agents in the Home

Do any members of the family have symptoms that they attribute to an environmental exposure? If so, elicit the nature of symptoms, duration, fluctuations in symptoms over the day and from week to week, seasonal changes, and related symptoms in other family members or others who spend extended time in the home.

Ascertaining Agent-Specific Data from Individuals

Exposures

- Concurrent and past exposures to metal, dust, fibers, fumes, chemicals, biological hazards, radiation, noise, vibration
- Typical workday (job tasks, location, materials, agents used)
- Changes in routines or processes
- Other employees or household members similarly affected

Health and Safety Practices at Worksite

- Ventilation
- Medical and industrial hygiene surveillance
- Employment examinations
- Personal protective equipment (e.g., respirators, gloves, coveralls)
- Lockout devices, alarms, training, drills
- Personal habits (smoking, eating in the work area, handwashing with solvents)

Work History

- Description of all prior jobs, including short-term, seasonal, or part-time employment and military service
- Description of present job(s)

Environmental History

- Present and prior home locations
- Jobs of household members
- Home insulating, heating, and cooling system
- Home cleaning agents
- Pesticide exposure (e.g., pet flea treatments, roach and ant sprays)
- Water supply
- Recent renovation/remodeling
- Air pollution, indoor and outdoor
- Hobbies: painting, sculpting, welding, woodworking, piloting, autos, firearms, stained glass, ceramics, gardening
- Hazardous wastes/spills exposure
- Presence of pets and animals
- Use of protective devices when using any known toxins at home, in the workplace, and in the community

Medical History

- Past and present medical problems
- Medications

Source: Adapted from Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services. (2000). *Case studies in environmental medicine: Taking an exposure history.* Retrieved from http://www.atsdr.cdc.gov/csem/csem.asp?csem=17&po=0

basic information addressing the components of a home assessment and environmental exposure history. As one would expect, data collection is customized to address the unique aspects of the exposures, setting, and persons involved in the situation.

Communicating Risks

Often, the most successful strategies for responding to environmental risks affecting a community involve empowering citizens to address the problem. If successful, these strategies result not only in the resolution of the immediate problem but also in the creation of a group able to address future threats. Nurses should be encouraged to become familiar with the principles of environmental risk communication. An increased availability of information to the public increases the possibility that the community health nurse will be sought for advice and further information. Nurses are trusted in a community, and the public values their opinions. It is professionally responsible to share science-based information with persons most affected by that information. Nurses should understand the influence of the environment and environmental agents on human health based on knowledge of relevant epidemiological, toxicological, and exposure factors.

Basic principles of risk communication can be used in many environmental health situations, ranging from a toxic spill incident to a neighborhood meeting to discuss groundwater contamination. Overall, risk communication focuses on telling citizens what is known about a risk situation in a clear and forthright manner. In addition, it is important to directly explain what information is not currently known and the process by which additional information will be communicated to all parties. Basic guidelines addressing the principles of risk communication are listed in **Box 4**. Infants and children have a unique vulnerability to being exposed to chemical agents.

Communicating a balanced view of these risks to parents is a challenge for nurses in the community. An example of this challenge involves the practice of breastfeeding.

For many years, nurses have played a significant role in policies and clinical actions that support breastfeeding practices in new mothers. This advocacy role has been based on scientific findings that human milk is the ideal infant food, because of the easy digestibility of milk proteins, the presence of maternal antibodies, and safety from contamination through the use of improperly sanitized bottles, among other health benefits.

- Since the 1990s, scientists have become increasingly aware that human milk also carries a host of potentially serious risks to infant health. The greatest concern has been physiological evidence that many chemicals to which the mother has been exposed are transferred into breast milk. Of special interest are the findings from studies that examine the metabolism and fate of chemicals that have extremely long half-lives (i.e., years and decades) within human populations. Such agents include polychlorinated organic pollutants, such as organochlorine pesticides, polychlorinated biphenyls (PCBs), and polychlorinated dibenzodioxins and dibenzofurans, (PCDDs/PCDFs), as well as some forms of metals such as methylmercury. In most cases, persons ingest these agents in their diets, usually from contaminated fish and animal products such as meats, fats, cheese, and eggs. In large doses, many pesticide products and mercury compounds have

BOX 4 Basic Guidelines for Risk Communication

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affected neurobehavioral, neuromotor, and speech development. Unfortunately, much less is known about the long-term effects of low-dose exposure in human milk. For a variety of feasibility and methodological reasons, scientific studies of low-dose and early-life exposures are extremely difficult to conduct. Such studies often help in the incremental advancement of scientific understanding but are not able to yield clear-cut answers to clinical questions (Gladen et al., 1999; Hooper, 1999; Landrigan, 2002). According to the CDC, although some women may have detectable levels of chemical agents in their breast milk, no established "normal" or "abnormal" levels exist to aid in clinical interpretation. As a result, breast milk is not routinely tested for environmental pollutants.

Breastfeeding is still recommended despite the presence of chemical toxins. For the vast majority of women, the benefits of breastfeeding appear to far outweigh the risks. To date, effects on the nursing infant have been seen only where the mother herself was clinically ill from a toxic exposure.

Infants and children are particularly susceptible to the toxic effects of chemical exposure for a number of reasons. Pound for pound of body weight, a child eats much more food than an adult. Youngsters between the ages of 1 and 5 years eat and drink three to four times more food and water than do adults. In addition to this increased food intake, there is evidence that compared with adult bodies, the metabolic pathways of children have a diminished ability to metabolize or detoxify chemical agents effectively. Children's daily activity patterns, such as playing on the ground and hand-to-mouth behavior, can also increase their exposure to some environmental toxicants. Because of incomplete scientific evidence about the long-term consequences of exposure to chemical agents, primary prevention activities that reduce the opportunity of exposure provide the first and most important line of defense on behalf of children's health (Schmidt, 1999).

The physical environment in which we live, such as the Colorado winter above, greatly affects a population's health.

Assessing and Referring Patients

A critical piece of comprehensive nursing practice is the identification of high-risk patients so that these individuals can be referred for further evaluation and follow up. To provide such care for these patients, nurses must have a good understanding of the environmental health resources located within their geographic area. In many communities, professionals with environmental health expertise, such as industrial hygienists, physicians, and toxicologists, are located in the state health department. Other experts may be located in occupational health clinics in both hospital and community settings. For nurses working in agricultural communities, expertise in environmental health may often be found through contacts with county extension agents, pest management specialists, migrant and seasonal farm worker clinics, or agricultural medicine programs (Shreffler, 1996). It is essential that patients be referred to resources that are culturally and socioeconomically appropriate (Pope & Rall, 1995).

There is some evidence from applied research studies that both pediatric and adult patients are falling through the cracks of the health system when they are in need of specialized environmental health services. In a review of children residing in New York City, Markowitz, Rosen, and Clemente (1999) estimated that only 60% of high-risk children were being screened for lead poisoning; of those children who were found to have elevated lead levels, nearly 60% were not receiving timely follow up by healthcare providers. In a more recent study that specifically looked at immigrant children in New York, researchers found risk of lead poisoning was five times higher in foreign-born children than in U.S.–born children, suggesting environmental exposures prior to arrival might compound the problem (Tehranifar et al., 2008). In another study examining the health consequences of lead exposure, elevated values were associated with an increased risk for hypertension later in life (Korrick, Hunter, Rotnitzky, Hu, & Speizer, 1999). According to the CDC, primary prevention is a strategy that emphasizes the prevention of lead exposure, rather than a response to exposure after it has taken place. Primary prevention is necessary because the effects of any lead appear to be irreversible (CDC, 2005, 2013a).

A third environmental health study focused on persons at increased risk of developing lung cancer caused by both household radon exposure and cigarette smoking. Researchers developed statistical models of risk and determined that the most effective strategy to reduce the risk

Chapter author Dr. Patricia Butterfield conducting a home environmental exposure assessment.

of radon-related cancer was smoking cessation. Stopping smoking was more effective in reducing cancer risk than directly reducing the levels of radon in the home (Mendez, Warner, & Courant, 1998). Although it is always optimal to reduce disease risk through all possible means (e.g., smoking cessation plus radon-reduction interventions), this study demonstrates the importance of addressing both environmental and behavioral means to minimize disease risk in exposed persons.

Community health nurses are the health providers most familiar with their patients' home setting, lifestyle, work habits, and environmental exposures. Because of their unique presence in a variety of patient settings, nurses may become aware of patients' environmental health risks and work toward directing them to an appropriate source of evaluation and treatment. See the Application to Practice feature addressing household environmental assessment and interventions for children with asthma.

APPLICATION TO PRACTICE

Asthma Management in a Young Girl

A public health nurse working in an urban area has been coordinating services with the school nurse practitioner at Northside Elementary, a primary school located in a low-income neighborhood. The nurse practitioner calls to request a home assessment for 7-year-old Lateesha. Lateesha is in the second grade, and the teacher notes that she has performed poorly in the classroom compared with her skill level during the previous year. In a phone interview, the mother states that she thinks the child's inattentiveness in the classroom results primarily from several recent colds that required Lateesha to miss school. The mother notes that Lateesha has missed 8 days of school so far this year and has had some difficulty with the make-up work following these absences.

When the nurse visits the home, she notes that Lateesha's mother, brother, sister, and grandmother live in a three-bedroom apartment near the school. When entering the home, the nurse notes that the room is very warm and sees an older model space heater in the kitchen area. The mother explains she wants to keep it warm for Lateesha's 4-year-old sister, who has complained that the apartment is too cool during winter. The nurse also notes several ashtrays in the living room and the presence of Tigger, the family cat. The mother informs the nurse that Lateesha has had four severe colds since October and that the last physician they saw at the clinic suggested that Lateesha has asthma. The mother received two types of inhalers for Lateesha following this clinic visit but notes that no one explained whether Lateesha is to use the inhalers every day or only after she develops a cold or breathing difficulties.

What should be the focus of the interventions of the community health nurse with this family?

NOTE THIS!

A remarkable decrease in the incidence of many childhood communicable diseases has occurred during this and the last century in U.S. populations; these conditions include diphtheria, pertussis, and polio. Unfortunately, this progress against many communicable diseases has been offset by an equally remarkable increase in asthma occurrence in both pediatric and adult populations in industrialized nations throughout the world. Overall asthma prevalence has increased by 58% since 1980; the mortality rate has increased by 78%. Children from urban areas and racial/ethnic communities have experienced the greatest increases in both prevalence and mortality. Hospitalization and morbidity rates for nonwhite children are almost twice those for white children. Asthma symptoms are caused by hyperresponsiveness of the airways to a number of common environmental allergens, including dust mites, animal dander, cockroaches, fungal spores, and pollens. Exacerbation of asthma has also been associated with air quality problems such as increased levels of sulfur dioxide, nitrogen dioxide, and ozone. Cigarette smoking and exposure to secondhand smoke also contribute to exacerbation of several childhood conditions such as otitis media, pneumonia, bronchitis, and asthma. Currently, approximately 30% of American preschoolers are exposed to residential tobacco smoke. Just as the precipitating factors for asthma are multiple, so too must be prevention efforts by nurses and other health providers. These efforts need to address household and community-based patterns of exposure as well as continuity of care and ongoing management for affected persons.

Sources: Clark, N. M., Brown, R. W., Parker, E., Robins, T. G., Remick, D. G. Jr, Philbert, M. A., . . . Israel, B. A. (1999). Childhood asthma. *Environmental Health Perspective, 107*(Suppl. 3), 421–429; Eggleston, P. A., Buckley, T. J., Breysse, P. N., Wills-Karp, M., Kleeberger, S. R., & Jaakkola, J. J. (1999). The environment and asthma in U.S. inner cities. *Environmental Health Perspectives, 107*(Suppl. 3), 439–450, CDC, 2013b).

Ethical Principles Addressing Environmental Health Nursing

Nurses have a duty to safeguard patients from environmental hazards and risks regardless of patients' income, insurance status, or lack of access to care. The nurses' *Code of Ethics* addresses responsibilities to collaborate with other health professionals and citizens in promoting community and national efforts to meet the health needs of the public (American Nurses Association, 2001).

Justice is a highly valued ethical principle in most societies today and is one of the beliefs that guide the practice of nursing. The concept of fairness of opportunity is a value in the United States that is supported in laws that forbid discriminatory treatment that limits one's opportunities on the basis of unchangeable characteristics such as gender, race, or socioeconomic status. **Social justice** means fairness or equality in the distribution of the benefits and burdens of society. According to the principles of social justice, no one person or group should have a disproportionate share of the benefits available to a society nor of the burdens that are present.

MEDIA MOMENT

Last Child in the Woods: Saving our Children from Nature-Deficit Disorder (2008)

By Richard Louv. New York, NY: Algonquin Books

Richard Louv brings together critical research that links direct exposure to nature as essential for a child's healthy physical and emotional development. There is a growing body of evidence linking the lack of nature in children's lives and the rise in obesity, diabetes, attention disorders, and depression. Louv provides guidance to readers on how to reverse this trend and encourage children (and parents) to experience the healing and essential aspects of nature.

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Children are more vulnerable to environmental risks than adults due to greater time outdoors, immaturity of their immune systems, and other developmental differences.

When applied to environmental health, principles of social justice suggest that the ability to live in a healthy environment as part of the process for attaining or maintaining health should be available to all. Because health is of fundamental importance to having opportunities for life, liberty, and the pursuit of happiness, environmental risks that take place or are allowed to persist differentially that are based on gender, race, or socioeconomic status would not be consistent with justice or fairness of opportunity (Daniels, 1985). **Environmental justice** is not served when some persons or groups have disproportionate shares of the benefits of healthy environments and others have disproportionate shares of the burdens of contaminated ones.

Most environmental hazards do not pose uniform or equal risks to the health of an entire population. Some widespread hazards, such as global warming, acid rain, and air or water pollution, involve an entire region or country, but most environmental health concerns involve different exposures within the same population. Some exposures occur because of behaviors or practices that could be considered changeable as a result of choices the individual makes. The decision to not wear protective gear when applying pesticides is an example of a choice that could easily be changed from health damaging to health protecting. Some exposures occur, however, because of unchangeable characteristics or circumstances of some individuals in the population, such as socioeconomic status, race, powerlessness, age, or gender. Lead exposure, for example, is most common in children who live in low-income housing. The disposal of toxic waste into sites located near low-income neighborhoods whose residents lack the financial resources and power to prevent it is another example of disproportionate exposure to environmental hazards (Bullard, 1990, 1993).

The distinction between changeable and unchangeable courses of action may not always be clear. For example, the training one receives about pesticide safety and the availability of safety equipment may affect the use of safety measures more than personal choice. Many environmental risks occur from exposures to toxic substances on the job. Some individuals may have the ability to change occupations to reduce risks, but many others cannot reasonably entertain such an option. It also may be possible to alter some risks such as living in low-income housing with lead-based paint. In this example, although residents' incomes and ability to relocate may be unchangeable, they can work to improve the safety in their current housing and influence landlords to correct or reduce environmental hazards such as lead-based paint.

Nurses play a role in promoting environmental justice in several ways. Educating individuals on ways to reduce exposure to toxic substances is important. Giving information about contacts in health departments or work safety committees is helpful to individuals and groups. Helping groups organize and present a united voice to industries and politicians is important to people who may otherwise have been powerless to protest. Community health nurses know the strengths of their communities and are able to identify the people who provide leadership to the group. Community health nurses are also already sensitive to their community's cultural or ethnic attributes, which may affect the process of seeking environmental justice.

MEDIA MOMENT

Erin Brockovich **(2000)**

In this film based on a true story, Julia Roberts stars as an unemployed single mother who becomes a legal assistant instrumental in bringing a case against a giant California energy company for releasing a cancer-causing chemical into the drinking water supply for the small town of Hinkley. Despite having little formal legal training, Brockovich successfully initiates one of the biggest class-action environmental lawsuits in American history, winning a settlement of over $300 million from the company.

Activists concerned about environmental hazards and social justice have also begun to work with and for disadvantaged groups to increase their awareness of unequal environmental risks and possible strategies to improve them. Disadvantaged, at-risk groups in a particular area may not be organized into a functioning community or have community or neighborhood organizations that can be readily mobilized for action. In this case, activists work with whatever organizations exist or form an informal group of concerned residents who may get others involved over time. An environmental hazard close to where people live is an issue that can be effective in organizing and mobilizing citizens to work together as a group (Butterfield & Postma, 2009).

Conclusion

The role of community health nurses in environmental health is evolving in several ways:

- From illness treatment to illness recognition and prevention
- Toward a multidisciplinary foundation of basic and applied science
- Toward an emphasis on activities in which nursing excels, such as risk communication, community-based investigations, and patient advocacy strategies
- Toward an integration of environmental health principles into all domains of nursing practice and research

Knowledge of pollutants—whether physical, chemical, or biological—is characterized by incomplete science. The field is constantly changing, with the discovery of new hazards, but also innovative ways of minimizing hazard use and exposure. Nurses can participate in advancing environmental health science by participating in applied research activities on behalf of vulnerable groups or those disproportionately exposed to agents of concern. A list of websites that provide scientifically sound environmental health information is provided in **Table 1**.

Nurses have functioned at the fringe of power and politics, which has often been detrimental to the nursing profession, perhaps even to health care. In the field of environmental health, nurses are capable of making great contributions to the social, political, and economic forces that presently guide environmental healthcare policy. By broadening nurses' understanding of the environment, new horizons in environmental health can be developed and expanded on behalf of the health of our patients, our nation, and our planet.

GLOBAL CONNECTION

Home to only 4.4% of the world's population, the United States accounts for about 19% of the Earth's greenhouse gas emissions.

Source: U.S. Environmental Protection Agency. (2008). Global greenhouse gas emissions data. Retrieved from http://www.epa.gov/climatechange/ghgemissions/global.html

NOTE THIS!

In a nationwide survey, more than 86,000 school children were asked what they worry about the most. Their answer? The environment!

Source: Environmental and Occupational Sciences Institute, Public Health and Risk Communication Division

TABLE 1 Resources for Environmental Health Information

Agency or Organization	Purpose	URL
Agency for Toxic Substances and Disease Registry (ATSDR)	Part of the U.S. Department of Health and Human Services. Conducts public health assessments of waste sites, health consultations concerning specific hazardous substances, and applied research in support of public health assessments. Supports an environmental health nursing initiative. Also provides an exceptional list of fact sheets for specific toxics and a comprehensive group of case studies addressing specific exposures.	http://www.atsdr.cdc.gov/
American Association of Occupational Health Nurses (AAOHN)	Professional organization for occupational and environmental health nurses. Provides information resources about nursing and environmental health.	http://www.aaohn.org/practice/standards.html
Association of Occupational and Environmental Clinics	Conducts information sharing, education, and research through a network of clinics. Provides professional training, community education, exposure and risk assessment, clinical evaluations, and consultation services.	http://www.aoec.org/
Environmental Protection Agency (EPA)	Employs 18,000 people across the United States, including in its headquarters offices in Washington, DC; 10 regional offices; and more than a dozen labs. Develops and enforces regulations addressing environmental protection, performs research, and provides educational support throughout the country.	http://www.epa.gov/
EnviRN	An information resource site operated by the University of Maryland School of Nursing.	http://envirn.umaryland.edu
National Center for Environmental Health (NCEH)	Part of the Centers for Disease Control and Prevention. Works to prevent illness from interactions between people and the environment. Especially committed to safeguarding the health of vulnerable populations.	http://www.cdc.gov/nceh/
National Environmental Education and Training Foundation	An environmental education site with links to nursing and health education materials.	http://www.neetf.org/
National Institute of Environmental Health Sciences (NIEHS)	Part of the National Institutes of Health. Works to reduce the burden of human illness from environmental causes by understanding each of these elements and how they interrelate.	http://www.niehs.nih.gov/
RN No Harm	An American Nurses Association program focusing on the prevention of pollution and medical waste from hospitals and clinics.	http://www.nursingworld.org/rnnoharm/

APPLICATION TO PRACTICE

Broadening Nurses' Expertise in Environmental Health Clinical Practice: Thinking Upstream

Over the course of several years, a public health nurse was asked about water quality issues by patients attending the well-child clinic. These questions most commonly addressed parents' concerns about potable water contamination, and the nurse believed she was unqualified to answer these types of questions. After spending a few hours at home reviewing water quality information on the EPA's website, the nurse decided to seek some advice from the health department director about the lack of preparation to respond to patients' questions regarding environmental health. The director suggested that the nurse

(Continued)

APPLICATION TO PRACTICE (*CONTINUED*)

spend some time with a water quality specialist, who was located within another department, and authorized time for the nurse to work 1 week in that department. During her week with environmental health personnel, the nurse worked in the field when the environmental engineer inspected the installation of a private well west of town. She made a special effort to talk with all of the people in the environmental health department so that she had a better understanding of the full range of expertise within the department. After working in the field, she visited the laboratory to observe testing procedures for water quality and to learn about the different water tests available to the public.

When she returned to the well-child clinic the following week, the nurse decided to allocate at least half an hour per day to developing a resource library on water quality issues in the clinic. She obtained educational brochures from the environmental health department; in addition, she established a system where nurses could give interested patients a plastic bottle for water sampling and have them send it directly to the laboratory for analysis. The nurse also asked the environmental engineer to make his phone number available to respond to any questions from patients about their water and septic systems.

Over the next year, the nurse provided continuing education for the nursing staff until they became more comfortable providing patients with specific information about water quality and differentiating between questions they could answer and those that were best referred to the engineers and scientists in the other department. Nurses came to understand that the prevention of problems held the key to long-term sustainability of water quality in their community and ecosystem. Many of the same principles of prevention that were so familiar to them in public health nursing could be applied equally well to actions to reduce opportunities for water pollution.

During the next few months, the nursing staff reached beyond their original contacts with the environmental health department and extended further into partnerships with other environmental information and advocacy groups in the area. They worked with the local university's pollution prevention program to display and educate patients about the safe disposal of household products and solvents, to reduce solid waste, and to increase participation in recycling of paint and motor oil. Nurses found that they could often incorporate several minutes of "pollution prevention" instruction into many well-child visits and that parents were often appreciative of this information. The nurses worked to make other health departments aware of their efforts and presented a summary of their program at their annual public health association conference. As a culmination of their work, the nurses developed a website to educate professional colleagues throughout the nation on their growing expertise in water quality and pollution prevention.

Daffodils

I gathered in the first of the daffodils this morning
And built a fire.
We always have one more cold day before the Easter
Out the window beyond the streaks of slow soft rain I see
The green netting of spring—high in the trees.
I remember how—on days like this—when I was very young
I fought to keep from running away
Such promises the yellow flowers made.

—Ann Thedford Lanier

HEALTHY ME

How often do you get outside? We spend more and more time inside than anytime in history, much having to do with advances in technology. Spend time outside almost each day, just to walk and benefit from the healing elements of nature.

ART CONNECTION

Peruse the Internet for art of the environment which is of interest to you. This can be of nature, from flowers to people outside their homes. How does the art affect you? Does it calm you? What is your overall sense of how art represents one aspect of how the environment affects our lives on a daily basis?

LEVELS OF PREVENTION

Primary: Educating families about the risk of radon in homes

Secondary: Assisting a family in seeking appropriate resources to help them remove the radon from the house and screening all members for radon poisoning

Tertiary: Taking appropriate action and seeking assistance from professionals to support the family should there be radon damage to any of the family members

Critical Thinking Activities

1. Take a walk or a drive around your own neighborhood and identify any potential environmental health risks. What kind of prevention interventions can be done to minimize exposure to these hazards? As a nursing student, what role can you play?

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Appendix
Environmental Agents and Their Adverse Health Effects

Note: This table is not meant to be comprehensive, but to provide examples of several types of agents.

Agent	Exposure	Route of Entry	System(s) Affected	Primary Manifestations	Aids in Diagnosis	Remarks
Metals and Metallic Compounds						
ARSENIC	Alloyed with lead and copper for hardness; manufacturing of pigments, glass, pharmaceuticals; byproduct in copper smelting; insecticides; fungicides; rodenticides; tanning	Inhalation and ingestion of dust and fumes	Neuromuscular Gastrointestinal Skin Pulmonary	Peripheral neuropathy, sensory–motor Nausea and vomiting, diarrhea, constipation Dermatitis, finger and toenail striations, skin cancer, nasal septum perforation Lung cancer	Arsenic in urine	
ARSINE	Accidental byproduct of reaction of arsenic with acid; used in semiconductor industry	Inhalation of gas	Hematopoietic	Intravascular hemolysis; hemoglobinuria, jaundice, oliguria or anuria	Arsenic in urine	
BERYLLIUM	Hardening agent in metal alloys; special use in nuclear energy production; metal refining or recovery	Inhalation of fumes or dust	Pulmonary (and other systems)	Granulomatosis and fibrosis	Beryllium in urine (acute); beryllium in tissue (chronic); chest x-ray; immunological tests (such as lymphocyte transformation) may also be useful	Pulmonary changes virtually indistinguishable from sarcoid on chest x-ray.
CADMIUM	Electroplating; solder for aluminum; metal alloys, process engraving; nickel–cadmium batteries	Inhalation or ingestion of fumes or dust	Pulmonary Renal	Pulmonary edema (acute); emphysema (chronic) Nephrosis	Urinary protein	Also a respiratory tract carcinogen.
CHROMIUM	In stainless and heat-resistant steel and alloy steel; metal plating; chemical and pigment manufacturing; photography	Percutaneous absorption, inhalation, ingestion	Pulmonary Skin	Lung cancer Dermatitis, skin ulcers, nasal septum perforation	Urinary chromate (questionable value)	

(Continued)

Agent	Exposure	Route of Entry	System(s) Affected	Primary Manifestations	Aids in Diagnosis	Remarks
Metals and Metallic Compounds *(continued)*						
LEAD	Storage batteries; manufacturing of paint, enamel, ink, glass, rubber, ceramics, chemical industry	Ingestion of dust, inhalation of dust or fumes	Hematological Renal Gastrointestinal Neuromuscular Central nervous system (CNS) Reproductive	Anemia Nephrotoxicity Abdominal pain ("colic") Palsy ("wrist drop") Encephalopathy, behavioral abnormalities Spontaneous abortion	Blood lead Urinary ALA Zinc protoporphyrin; free erythrocyte protoporphyrin	Lead toxicity, unlike that of mercury, is believed to be reversible, with the exception of late renal and some CNS effects.
MERCURY Elemental	Electronic equipment; paint; metal and textile production; catalyst in chemical manufacturing; pharmaceutical production	Inhalation of vapor; slight percutaneous absorption	Pulmonary CNS	Acute pneumonitis Neuropsychiatric changes (erethism); tremor	Urinary mercury	Mercury illustrates several principles. The chemical form has a profound effect on its toxicology, as is the case for many metals. Effects of mercury are highly variable. Though inorganic mercury poisoning is primarily renal, elemental and organic poisoning are primarily neurological.
MERCURY Inorganic Organic	Agricultural and industrial poisons	Some inhalation and gastrointestinal (GI) and percutaneous absorption Efficient GI absorption, percutaneous absorption, and inhalation	Pulmonary Renal CNS Skin CNS	Acute pneumonitis Proteinuria Variable Dermatitis Sensorimotor changes, visual field constriction, tremor	Urinary mercury Blood and urine mercury	The responses are difficult to quantify, so dose-response data are generally unavailable. Classic tetrad of gingivitis, sialorrhea, irritability, and tremor is associated with both elemental and inorganic mercury poisoning; the four signs are not generally seen together. Many effects of mercury toxicity, especially those in CNS, are irreversible.
NICKEL	Corrosion-resistant alloys; electroplating; catalyst production; nickel–cadmium batteries	Inhalation of dust or fumes	Skin Pulmonary	Sensitization dermatitis ("nickel itch") Lung and paranasal sinus cancer		

ZINC OXIDE	Welding byproduct; rubber manufacturing	Inhalation of dust or fumes that are freshly generated		"Metal fume fever" (fever, chills, and other symptoms)	Urinary zinc (useful as an indicator of exposure, not for acute diagnosis)	A self-limiting syndrome of 24–48 hours with apparently no sequelae.
HYDROCARBONS						
BENZENE	Manufacturing of organic chemicals, detergents, pesticides, solvents, paint removers; used as a solvent	Inhalation of vapor; slight percutaneous absorption	CNS Hematopoietic Skin	Acute CNS depression Leukemia, aplastic anemia Dermatitis	Urinary phenol	Note that benzene, as with toluene and other solvents, can be monitored via its principal metabolite.
TOLUENE	Organic chemical manufacturing; solvent; fuel component	Inhalation of vapor, percutaneous absorption of liquid	CNS Skin	Acute CNS depression Chronic CNS problems such as memory loss Irritation dermatitis	Urinary hippuric acid	
XYLENE	A wide variety of uses as a solvent; an ingredient of paints, lacquers, varnishes, inks, dyes, adhesives, cements; an intermediate in chemical manufacturing	Inhalation of vapor; slight percutaneous absorption of liquid	Pulmonary Eye, nose, throat CNS	Irritation, pneumonitis, acute pulmonary edema (at high doses) Irritation Acute CNS depression	Methylhippuric acid in urine, xylene in expired air, xylene in blood	
KETONES Acetone (methyl ethyl ketone—MEK, methyl *N*-propyl ketone—MPK, methyl *N*-butyl ketone—MBK, methyl iso-butyl ketone—MIBK)	A wide variety of uses as solvents and intermediates in chemical manufacturing	Inhalation of vapor, percutaneous absorption of liquid	CNS Peripheral nervous system (PNS) Skin	Acute CNS depression MBK has been linked with peripheral neuropathy Dermatitis	Acetone in blood, urine, expired air (used as an index for exposure, not for diagnosis)	The ketone family demonstrates how a pattern of toxic responses (i.e., CNS narcosis) may feature exceptions (i.e., MBK peripheral neuropathy).
FORMALDEHYDE	Widely used as a germicide and a disinfectant in embalming and histopathology, for example, and in the manufacture of textiles, resins, and other products	Inhalation	Skin Eye Pulmonary	Irritant and contact dermatitis Eye irritant Respiratory tract irritation, asthma	Patch testing may be useful for dermatitis	Recent animal tests have shown it to be a respiratory carcinogen. Confirmatory epidemiological studies are in progress.

(Continued)

Agent	Exposure	Route of Entry	System(s) Affected	Primary Manifestations	Aids in Diagnosis	Remarks
HYDROCARBONS *(continued)*						
TRICHLOROETHYLENE (TCE)			Nervous Skin Cardiovascular	Acute CNS depression Peripheral and cranial neuropathy Irritation, dermatitis Dysrhythmias	Breath analysis for TCE	TCE is involved in an important pharmacological interaction. Within hours of ingesting alcoholic beverages, TCE workers experience flushing of the face, neck, shoulders, and back. Alcohol may also potentiate the CNS effects of TCE. The probable mechanism is competition for metabolic enzyme.
CARBON TETRACHLORIDE	Solvent for oils, fats, lacquers, resins, varnishes, other materials; used as a degreasing and cleaning agent	Inhalation of vapor	Hepatic Renal CNS Skin	Toxic hepatitis Oliguria or anuria Acute CNS depression Dermatitis	Expired air and blood levels	Carbon tetrachloride is the prototype for a wide variety of solvents that cause hepatitis and renal damage. This solvent, like trichloroethylene, acts synergistically with ethanol.
CARBON DISULFIDE	Solvent for lipids, sulfur, halogens, rubber, phosphorus, oils, waxes, and resins; manufacturing of organic chemicals, paints, fuels, explosives, viscose rayon	Inhalation of vapor, percutaneous absorption of liquid or vapor	Nervous Renal Cardiovascular Skin Reproductive	Parkinsonism, psychosis, suicide Peripheral neuropathies Chronic nephritic and nephrotic syndromes Acceleration or worsening of atherosclerosis; hypertension Irritation; dermatitis Menorrhagia and metrorrhagia	Iodine azide reaction with urine (nonspecific since other bivalent sulfur compounds give a positive test); CS_2 in expired air, blood, and urine	A solvent with unusual multisystem effects, especially noted for cardiovascular, renal, and nervous system actions.
STODDARD SOLVENT	Degreasing, paint thinning	Inhalation of vapor, percutaneous absorption of liquid	Skin CNS	Dryness and scaling from defatting; dermatitis Dizziness, coma, collapse (at high levels)	A mixture of primarily aliphatic hydrocarbons, with some benzene derivatives and naphthalenes	

ETHYLENE GLYCOL ETHERS Ethylene glycol monoethyl ether—Cellosolve, ethylene glycol monoethyl acetate—Cellosolve acetate, methyl- and butyl-substituted compounds such as ethylene glycol mono-methyl ether-methyl Cellosolve	The ethers are used as solvents for resins, paints, lacquers, varnishes, gum, perfume, dyes, and inks; the acetate derivatives are widely used as solvents and ingredients of lacquers, enamels, and adhesives. Exposure occurs in dry cleaning, plastic, ink, and lacquer manufacturing, and textile dying, among other processes	Inhalation of vapor, percutaneous absorption of liquid	Reproductive CNS Renal Liver		Ethylene glycol ethers, as a class of chemicals, have been shown in animals to have adverse effects including reduced sperm count and spontaneous abortion, as well as CNS, renal, and liver effects	
ETHYLENE OXIDE	Used in the sterilization of medical equipment, in the fumigation of spices and other foodstuffs, as a chemical intermediate	Inhalation	Skin Eye Respiratory tract Nervous system	Dermatitis and frostbite Severe irritation; possibly cataracts with prolonged exposure Irritation Peripheral neuropathy		Recent animal tests have shown it to be carcinogenic and to cause reproductive abnormalities. Epidemiological studies indicate that it may cause leukemia in exposed workers.
DIOXANE	Used as a solvent for a variety of materials, including cellulose acetate, dyes, fats, greases, resins, polyvinyl polymers, varnishes, and waxes	Inhalation of vapor, percutaneous absorption of liquid	CNS Renal Liver	Drowsiness, dizziness, anorexia, headaches, nausea, vomiting, coma Nephritis Chemical hepatitis		Dioxane has caused a variety of neoplasms in animals.
POLYCHLORINATED BIPHENYLS (PCBs)	Formerly used as dielectric fluid in electrical equipment and as a fire-retardant coating on tiles and other products. New uses were banned in 1976, but much of the electrical equipment currently used still contains PCBs	Inhalation, ingestion, skin absorption	Skin Eye Liver	Chloracne Irritation Toxic hepatitis	Serum PCB level for chronic exposure	Animal studies have demonstrated that PCBs are carcinogenic. Epidemiological studies of exposed workers are inconclusive.

(Continued)

Agent	Exposure	Route of Entry	System(s) Affected	Primary Manifestations	Aids in Diagnosis	Remarks
IRRITANT GASES						
AMMONIA	Refrigeration; petroleum refining; manufacturing of nitrogen-containing chemicals, synthetic fibers, dyes, and optics	Inhalation of gas	Upper respiratory tract Eye Moist skin	Upper respiratory irritation Irritation Irritation		
HYDROCHLORIC ACID	Chemical manufacturing; electroplating; tanning; metal pickling; petroleum extraction; rubber, photographic, and textile industries	Inhalation of gas or mist	Upper respiratory tract Eye Mucous membrane, skin	Upper respiratory irritation Strong irritant Strong irritant		
HYDROFLUORIC ACID	Chemical and plastic manufacturing; catalyst in petroleum refining; aqueous solution for frosting, etching, and polishing glass	Inhalation of gas or mist	Upper respiratory tract	Upper respiratory irritation		In solution, causes severe and painful burns of skin and can be fatal.
SULFUR DIOXIDE	Manufacturing of sulfur-containing chemicals; food and textile bleach; tanning; metal casting	Inhalation of gas, direct contact of gas or liquid phase on skin or mucosa	Middle respiratory tract	Bronchospasm (pulmonary edema or chemical pneumonitis in high dose)	Chest x-ray, pulmonary function tests	Strong irritant of eye, mucous membranes, and skin.
CHLORINE	Paper and textile bleaching; water disinfection; chemical manufacturing, metal fluxing; detinning and dezincing iron	Inhalation of gas	Middle respiratory tract	Tracheobronchitis, pulmonary edema, pneumonitis	Chest x-ray, pulmonary function tests	Chlorine combines with body moisture to form acids, which irritate tissues from nose to alveoli.
OZONE	Inert gas-shielded arc welding; food, water, and air purification; food and textile bleaching; emitted around high-voltage electrical equipment	Inhalation of gas	Lower respiratory tract	Delayed pulmonary edema (generally 6–8 hours following exposure)	Chest x-ray, pulmonary function tests	Ozone has a free-radical structure and can produce experimental chromosome aberrations; it may thus have carcinogenic potential.

NITROGEN OXIDES	Manufacturing of acids, nitrogen-containing chemicals, explosives, and more; by-product of many industrial processes	Inhalation of gas	Lower respiratory tract	Pulmonary irritation, bronchiolitis fibrosa obliterations ("silo filler's disease"), mixed obstructive–restrictive changes	Chest x-ray, pulmonary function tests	
PHOSGENE Isocyanates TDI (toluene diisocyanate) MDI (methylene diphenyl diisocyanate) Hexamethylene diisocyanate and others	Manufacturing and burning of isocyanates, and manufacturing of dyes and other organic chemicals; in metallurgy for one separation; burning or heat source near trichloroethylene Polyurethane manufacture; resin-binding systems in foundries; coating materials for wires; used in certain types of paint	Inhalation of gas Inhalation of vapor	Lower respiratory tract Predominantly lower respiratory tract	Delayed pulmonary edema (delay seldom longer than 12 hours) Asthmatic reaction and accelerated loss of pulmonary function	Chest x-ray, pulmonary function tests Chest x-ray, pulmonary function tests	Isocyanates are both respiratory tract "sensitizers" and irritants in the conventional sense.
ASPHYXIANT GASES (simple asphyxiants: nitrogen, hydrogen, methane, and others)	Enclosed spaces in a variety of industrial settings	Inhalation of gas	CNS	Anoxia	O_2 in environment	No specific toxic effect; act by displacing O_2.
CHEMICAL ASPHYXIANTS						
CARBON MONOXIDE	Incomplete combustion in foundries, coke ovens, refineries, furnaces, and more	Inhalation of gas	Blood (hemoglobin)	Headache, dizziness, double vision	Carboxyhemoglobin	
HYDROGEN SULFIDE	Used in manufacturing of sulfur-containing chemicals; produced in petroleum product use; decay of organic matter	Inhalation of gas	CNS Pulmonary	Respiratory center paralysis, hypoventilation Respiratory tract irritation	PaO_2	
CYANIDE	Metallurgy, electroplating	Inhalation of vapor, percutaneous absorption, ingestion	Cellular metabolic enzymes (especially cytochrome oxidase)	Enzyme inhibition with metabolic asphyxia and death	SCN in urine	

(Continued)

Agent	Exposure	Route of Entry	System(s) Affected	Primary Manifestations	Aids in Diagnosis	Remarks
PESTICIDES						
ORGANOPHOSPHATES (malathion, parathion, and others)		Inhalation, ingestion, percutaneous absorption	Neuromuscular	Cholinesterase inhibition, cholinergic symptoms: nausea and vomiting, salivation, diarrhea, headache, sweating, meiosis, muscle fasciculations, seizures, unconsciousness, death	Refractoriness to atropine; plasma or red cell cholinesterase	As with many acute toxins, rapid treatment of organophosphate toxicity is imperative. Thus diagnosis is often based on history and a high index of suspicion rather than biochemical tests. Treatment is atropine to block cholinergic effects and 2-pyridine aldoxime methyl chloride (2-PAM) to reactivate cholinesterase.
CARBAMATES (carbaryl [Sevin] and others)		Inhalation, ingestion, percutaneous absorption	Neuromuscular	Cholinesterase inhibition, cholinergic symptoms: nausea and vomiting, salivation, diarrhea, headache, sweating, meiosis, muscle fasciculations, seizures, unconsciousness, death	Plasma cholinesterase; urinary 1-naphthol (index of exposure)	Treatment of carbamate poisoning is the same as that of organophosphate poisoning except that 2-PAM is contraindicated.
CHLORINATED HYDROCARBONS Chlordane DDT Heptachlor Chlordecone (Kepone) Aldrin Dieldrin Uridine		Inhalation, ingestion, percutaneous absorption	CNS	Stimulation or depression	Urinary organic chlorine, or *p*-chlorophenol acetic acid	The chlorinated hydrocarbons may accumulate in body lipid stores in large amounts.
BIPYRIDYLS Paraquat Diquat		Inhalation, ingestion, percutaneous absorption	Pulmonary	Rapid massive fibrosis, only following Paraquat ingestion		An interesting toxin in that the major toxicity, pulmonary fibrosis, apparently occurs only after ingestion.

Source: Tarcher, A. B. (Ed.). (1992). *Principles and practice of environmental medicine*. New York, NY: Plenum Press.

Courtesy of the Visiting Nurse Service of New York.

Fundamentals of Epidemiology and Social Epidemiology

Susan Moscou

> *In community health work she has become an indispensable factor, because of her great advantage in being the natural object of people's confidence. Almost from the time when the first independent organization of visiting nurses was created to carry the greatest discoveries of science into the humblest homes of the community, its social value has been full recognized. In the numerous measures for human progress and social welfare that the last two decades have seen develop the nurse has had her share-in the protection of child life, the following up of the individual by all sorts of unified and harmonized public powers aiming at care and prevention rather than at police power and punishment, such as probation systems, children's courts, and care and segregation of feeble-minded and defectives; the early detection and treatment of mental cases as well as physical disease; the study of economic conditions and their effect on homes and the nuture* [sic] *of children; the supplementing of parents' imperfect efforts—in all these efforts toward health in physical, mental, and moral spheres the nurse has contributed.*
> (Wald, 1913, June 23, n.p)

LEARNING OBJECTIVES

At the completion of this chapter, the reader will be able to:

- Describe the concepts in epidemiology and social epidemiology.
- Explain how epidemiology and social epidemiology support the public's health.
- Analyze the use of epidemiology and social epidemiology within the application of public health nursing practice.

KEY TERMS

Epidemiology Terms
- ☐ Age-specific rates
- ☐ Analytical epidemiology
- ☐ Attack rates
- ☐ Chain of infection
- ☐ Crude rates
- ☐ Descriptive epidemiology
- ☐ Epidemiological triad
  - ○ Agent
  - ○ Environment
  - ○ Host
- ☐ Incidence rates
- ☐ Prevalence rates
- ☐ Rate

Social Epidemiology Terms
- ☐ Developmental and life-course perspective
- ☐ Life-course model
- ☐ Multilevel analysis
- ☐ Population perspective
- ☐ Social context
- ☐ Social determinants of health
  - ○ Discrimination
  - ○ Education
  - ○ Income
  - ○ Income inequality
  - ○ Occupation
  - ○ Socioeconomic position
  - ○ Socioeconomic status

This chapter discusses the concepts of epidemiology and social epidemiology and their use in public health nursing. Nurses use epidemiological tools when they want to understand how and why disease occurs within populations instead of individuals. Examples of populations are pregnant adolescents living in a geographic area, such as the South Bronx in New York City, or in a particular demographic group, such as college-aged students with sexually transmitted diseases. Nursing students use social epidemiological tools when they want to understand how the effects of poverty, **income inequality**, and **discrimination** contribute to how and why disease occurs within specific populations. The purpose of this chapter is to present the concepts of epidemiology and social epidemiology to the public health nurse for application in his or her practice.

Florence Nightingale.

Courtesy of the National Library of Medicine.

Epidemiology

Epidemiology is the scientific discipline that studies the distribution and determinants of diseases and injuries in human populations (Tarzian, 2005). The goal of epidemiology is to limit disease, injury, and death via specific interventions designed to prevent or limit outbreaks or epidemics (U.S. Department of Health and Human Services [DHHS] & Centers for Disease Control and Prevention [CDC], 1998, 2006). Epidemiology is concerned with the health of particular populations, whereas clinical nursing and medicine are concerned with individual health issues. The perspective of epidemiologists is to understand the source of the illness cause or exposure, ascertain who else has been exposed, if the exposure has spread beyond the initial point of contact, and prevent additional cases or recurrences (U.S. DHHS & CDC, 1998, 2006, 2011). In comparison, the clinical perspective of medicine and nursing is to obtain information about the history of the present illness, conduct a physical, make a diagnosis, prescribe treatment—issues are considered on an individual basis and are treated as a single episode. Public health nurses are more in line with the epidemiology perspective because they are educated to integrate knowledge about the environment and the community with their understanding of health and illness as experienced by the individual, family, and population. The perspective in medicine tends to be focused on individual health, whereas the perspective in epidemiology tends to be focused on the population. **Box 1** illustrates the various ways these clinicians, practicing within these two frameworks, would approach a situation in which a college student falls ill and is taken to the student health center.

Florence Nightingale applied this epidemiological framework when attending to soldiers in the Crimean War. Nightingale recognized that environmental

Box 1 Clinical versus Epidemiology Perspective

Picnic Scenario: Fifty college students attend a picnic. The food is served at noon, and the students eat turkey, cornbread, tuna salad, and ice cream. The students return to campus. One student becomes sick and is taken to the student health center.

Clinical Perspective (Single Episode)

- History/physical finding of present illness
- Diagnosis
- Treatment

The clinician asks about the illness, diagnoses the ailment based on symptoms, and then treats.

Epidemiologist Perspective (Possible Multiple Episodes)

- History of present illness and observation for patterns
- How many students were at the picnic?
- Who else was sick?
- Timing
- What caused the illness?
  - Food
  - Heat
- Is this an epidemic?

The epidemiologist not only asks about the illness but also wants to know how many students attended the picnic and how many became sick. The epidemiologist also explores with the students what could have caused the illness: Was it the heat or the food? The epidemiologist would also analyze the food and ask if there was mayonnaise in the tuna salad or how long had the tuna salad been sitting in the heat before it was served? Most importantly, after the epidemiologist gathers the information about the illness, he or she wants to make sure this is not an epidemic and learns how to prevent this illness in the future.

problems such as poor nutrition, sanitation, and contaminated blankets contributed to infection and increases in mortality and morbidity. Nightingale's empirical observations of her surroundings enabled her to methodically examine the factors that contributed to disease (Pfettscher, 2002). This big picture allowed Nightingale to deduce how illness occurred and what strategies reduced the spread of disease.

History

Epidemiological tenets have been used to describe and explain disease and the prevalence of these diseases since 400 BC. A brief history of epidemiological events and well-known persons who used epidemiological thinking is found in **Table 1**.

This epidemiological history can be viewed within the context of two revolutions (**Table 2**).

Table 1 Epidemiological History and Events

400 BC

Hippocrates (c. 400 BC) provided an approach to those who wanted to investigate disease.
Hippocrates's treatise, *On Airs, Waters, and Places,* noted that these elements affected health.
Hippocrates believed that knowing how these elements were similar and different in specific areas would provide the basis to understand why a disease occurred and the probability of where the disease would occur.

17th Century

John Graunt (1620–1674) from London published *Observations on the Bills of Mortality,* which quantified Britain's mortality data in 1662.
Graunt noted birth and death patterns, infant mortality, occurrences of disease, differences in disease by gender, differences in disease in urban and rural areas, and variations in disease by season.

18th Century

James Lind (1716–1794) studied scurvy (vitamin C deficiency) while sailing on a Navy ship in 1747.
In 1753, Lind published *A Treatise on Scurvy in Three Parts.*
This publication explained why scurvy occurred and the treatment for scurvy.

19th Century

William Farr (1807–1883) was responsible for the concept of surveillance data.
John Snow (1813–1858), an anesthesiologist, conducted investigations in London during the cholera outbreak.

20th Century

Joseph Goldberger (1874–1929) discovered why the disease pellagra (niacin deficiency) occurred.
The 1964 Surgeon General Report: Smoking and Health: Report of the Advisory Committee to the Surgeon General linked tobacco to lung cancer.
The Framingham Heart Study was initiated to identify factors contributing to heart disease in the United States.
The 1986 Surgeon General's Report *The AIDS Epidemic* was published.

Data from Hippocrates. (400 BCE). Translated by Francis Adams. On airs, waters, and places. Retrieved from http://classics.mit.edu//Hippocrates/airwatpl.html; The James Lind Library. (n.d.). Treatise of scurvy. Retrieved from http://www.jameslindlibrary.org/trial_records/17th_18th_Century/lind/lind_tp.html; National Library of Medicine (n.d.a.). The reports of the surgeon general: The AIDS epidemic. Retrieved from http://profiles.nlm.nih.gov/NN/Views/Exhibit/narrative/aids.html; National Library of Medicine. (n.d.b.). The reports of the surgeon general: The 1964 report on smoking and health. Retrieved from http://profiles.nlm.nih.gov/NN/Views/Exhibit/narrative/smoking.html; Office of History, National Institute of Health. (2005). Dr. Joseph Goldberger & the war on pellagra. Retrieved from http://history.nih.gov/exhibits/goldberger/index.html; Stephan, E. (n.d.). John Graunt. Retrieved from http://www.edstephan.org/Graunt/graunt.html; UCLA Department of Epidemiology School of Public Health. (n.d.). John Snow. Retrieved from http://www.ph.ucla.edu/epi/snow.html

Table 2 **Epidemiological Revolutions**

First Epidemiological Revolution (1870–1930)

The first epidemiological revolution was largely about infectious diseases. Scientists and public health practitioners discovered the causes of infectious diseases.

Immunizations discovered during this time period:

- Smallpox
- Polio
- Tetanus

Antibiotics discovered:

- Streptomycin: effective against tuberculosis (1947)
- Penicillin

Immunizations and antibiotics accounted for only a 5% drop in mortality rates.

Greatest advances of the first epidemiological revolution:

- Water purification
- Pasteurization
  - Decrease in diarrhea
  - Decrease in gastroenteritis

Second Epidemiological Revolution (1950–Present)

The second epidemiological revolution focused on chronic diseases such as asthma, cancer, and heart disease and on understanding levels of prevention.

Epidemiologists had little understanding of noninfectious diseases until 1950. During the second revolution, epidemiologists began to understand that 38% of deaths were a result of:

- Tobacco (lung cancer and heart disease)
- Diet and inactivity (heart disease, diabetes)
- Alcohol (heart disease, liver disease)

Understanding the factors that contribute to noninfectious diseases paved the way for interventions. Clinicians use the following levels of preventions with their clients:

- Primary (prevent from the outset)
  - Immunizations
  - Health education
- Secondary (early detection of disease)
  - Screening tests
    - Pap
    - Mammogram
    - Cholesterol
    - Colonoscopy
- Tertiary (reducing mortality and morbidity of the disease)
    - Cardiac rehabilitation

Data from Bodenheimer, T. S., & Grumbach, K. (2008). *Understanding health policy: A clinical approach* (5th ed.). New York, NY: McGraw-Hill Lange Medical Books.

The first epidemiological revolution focused on infectious diseases such as influenza, plague, and tuberculosis, which were largely responsible for illnesses and death in previous centuries. It was also during these times that scientists and public health practitioners discovered that the causes of infectious diseases were poverty, overcrowding, sanitation, and contaminated food and water supplies (Breslow, 2005). From 1870 to 1930, scientists and public health practitioners began to understand the cause(s) of infectious diseases. Once epidemiologists had an understanding about why infectious diseases occurred, public health interventions and some medical advances played a role in the reduction of those diseases.

The **rates** of morbidity and mortality of infectious diseases declined in the 18th and 19th centuries because of increases in food production, which led to less malnutrition. Improvements in nutrition led to healthier adults and children. Improvements of overall living conditions were a result of improved sanitation and clean water, pasteurization of milk, and less overcrowding. Decreases in infectious disease rates occurred because of public health interventions.

The second epidemiological revolution began in 1950 when epidemiologists started to understand the causes of noninfectious diseases (e.g., heart disease, asthma, diabetes). With this understanding, public health practitioners could apply epidemiological principles to shed light on health promotion, disease prevention, and the role of risk factor identification and behavioral change in the promotion of health. Noninfectious diseases are discussed later in this chapter.

To summarize, during the first epidemiological revolution (1870–1930), scientists had little understanding about the causes of infectious diseases (e.g., tuberculosis and influenza). Reductions in infectious diseases were largely the result of public health interventions, whereas medical advances (immunizations and antibiotics) contributed to about a 5% reduction in mortality rates. During the second epidemiological revolution, beginning in 1950, epidemiologists began to understand the causes of noninfectious diseases such as heart disease, asthma, and diabetes, which then paved the way for public health and clinical interventions (Bodenheimer & Grumbach, 2008).

Uses of Epidemiology

Why is it important to understand epidemiology, and how it is used? In this section, the reader will come to see how epidemiology is applied in public health nursing practice. This process includes the systematic collection of data and how the analysis of these data not only leads to a better understanding of a disease process but the reduction of disease. The reader will also come to understand how the epidemiological process informs the public health nurse's decision-making.

The collection and use of epidemiology data for decision-making can be viewed in the following ways. Public health nurses engage in an assessment process that informs them about the health of the individual, family, population, and community. The process of assessment provides information so the public health nurse may engage in problem identification and/or potential problem identification, as well as information that may support program development and, at times, the development of public health policy. For example, the data collected by public health nurses may be presented to policymakers to shed light about the actual and potential problems seen in the population of their targeted home communities. Examples of this information may include data that highlight health, social, or environmental problems in a particular population in a policymaker's constituency; data on risks within that constituency; the history of health problems within a particular population, showing trends such as the increase or the decrease of a particular disease; and the services available in a community. Knowing this information helps policymakers make decisions regarding the establishment of law and resource utilization and allocation.

Epidemiology plays a role in our day-to-day individual decisions pertaining to healthy behaviors such as smoking cessation, exercising, weight control, and eating healthy foods. These positive decisions are made because of epidemiological studies. Epidemiology has contributed to the fount of information about associations and causal relationships (we say causal relationships because research can never prove cause and effect) between obesity and diabetes, smoking and lung cancer, and risky sexual practices, such as engaging in unprotected sex, and sexually transmitted diseases. Without epidemiology, we would not know how a disease is transmitted or the strategies to reduce our risks of contracting the disease. Public health nurses use this evidence-based knowledge in their practice as they develop educational programs for individuals, families, and populations in an effort to offer information that assists others to make healthy lifestyle choices.

The work of public health practitioners involves public health nurses, epidemiologists, health department officials, clinicians, physicians, scientists, media experts, educators, sanitation officials, and researchers. These individuals all provide particular worldviews that, when joined collectively, complete the clinical picture needed to understand the disease, the progression and trajectory of that disease, and interventions. Completing the clinical picture is identifying what the infectious agent is, why and how the disease is transmitted to the host, where the disease is most prevalent in terms of the place or location, when the disease most makes itself known with regard to time, and who the individual is who is affected by the disease. These are known as the five W's of **descriptive epidemiology** (U.S. DHHS & CDC, 2006, 2011, p. 31). Part of this clinical picture is understanding the determinants of health. One practitioner alone is unable to be a solo artist in this endeavor because effective public health strategies require collaborative and collective efforts between and among many different professions.

Human immunodeficiency virus (HIV) is an example of how epidemiologists were able to complete the clinical picture. In the early 1980s, a strange pneumonia affected five men who identified themselves as having sex with men. *Pneumocystis carinii* pneumonia was a relatively rare lung disease and appeared to be clustered only within this specific population (Sepkowitz, 2001). Additionally, clinicians were seeing Kaposi's sarcoma (KS), a relatively benign form of cancer, in their younger male patients who had sex with men. KS was also relatively rare in the United States; the skin lesions associated with KS were usually localized to the lower extremities and affected older people in their 70s (Hymes et al., 1981).

Because these cases appeared to be clustered within a specific population and puzzled the medical community, the cases and the laboratory results were reported to the CDC for further investigation. In 1981, the CDC provided information about the first cases of *P. carinii* pneumonia and KS among men who have sex with men (CDC referred to this group as homosexuals) to the medical community, and in 1982 the CDC named this disease acquired immune deficiency syndrome, known as AIDS. It was not until 1986 that the term human immunodeficiency virus, or HIV, was adopted by the clinical community (Sepkowitz, 2008). Once a particular disease or health event is identified, healthcare professionals make the diagnosis in individual cases, whereas epidemiologists contribute to our understanding of the natural history of the disease. Since this time, the work pertaining to HIV has been carried on by a wide and varied group of healthcare professionals. Take a few minutes and just think. Who has contributed to the knowledge of this disease and the treatment of this disease? The list is rather overwhelming, yet at the same time, it clearly presents for us the view that in order for the health of the public to be sustained there is a need for the collective wisdom of many working together. Public health nurses are a valued member of this collective group.

Finally, the search for causes is epidemiological research. This research is dedicated to the investigation of the causes and individual, societal, and environmental factors that contribute to a person's risk for contracting a disease and/or suffering injury. This research provides evidence for interventions that health professionals can use in their clinical practice, such as counseling about smoking, protective sexual practices, seat belts, child car seats, and immunizations. Public health nurses not only apply this research as evidence in their practice but raise questions for research and conduct research.

Epidemiological Approach

When we see a particular disease in our clinical practice, or if we decide to explore a particular disease, we want to know who is affected by this disease, what factors contribute to this disease (environmental, social, or personal factors), if there were other cases, when this disease became known, why some individuals are more prone to this particular disease, and what common factors do diseased individuals have in common. Epidemiologists begin with case definition as the standard criteria to guide their practice.

A case definition is that which determines if a person has a particular disease. For example, an individual is diagnosed with diabetes if his or her blood sugar levels are above the cutoff point (126 mg/dL) on two separate occasions (U.S. Preventive Services Task Force, 2008). Case definitions standardize the diagnoses of a particular disease, thus ensuring that every case is similarly diagnosed. Additionally, case definitions consist of clinical criteria, including subjective data, which are client complaints, and objective data, which are the clinician's observations inclusive of physical, environmental, and laboratory findings.

NUMBERS AND RATES

Epidemiologists are concerned about numbers and rates because it allows them to measure, describe, and compare the morbidity and mortality of a particular disease and/or injury in populations. Rates are "measures of frequency of health events that put raw numbers into a frame of reference to the size of a population. Rates are determined by statistical adjustments to the raw data, making them useful in making comparisons or examining trends" (Stotts, 2008, p. 91).

In epidemiology, the numerator is the actual number of cases or events occurring during a given time period, and the denominator is the total population at risk during the same time period. The denominator is typically converted to a standard base denominator, such as 1,000, 10,000, or 100,000, so that comparisons can be made among at-risk populations, communities, and neighborhoods (Tarzian, 2005). Rates are useful to the public health nurse because they can help the nurse identify what populations in the community are at an increased risk for a particular disease and/or injury. For example, City A has a population of 130,000 nursing home residents. City A reported 100 cases of hepatitis A among nursing home residents to the Department of Health (DOH). City B has a population of 120,000 nursing home residents. City B reported 150 cases of hepatitis A among its nursing home residents to the DOH. The DOH determined that the specific rate for hepatitis A was 7.6 cases per 10,000 persons living in a nursing home in City A and was 12.5 cases per 10,000 persons in City B. The DOH specific rate calculations for these cities are found in **Box 2**. This type of data helps the public health nurse think about and develop initiatives that target nursing home residents who appear to be a high-risk population for contracting hepatitis A.

In addition to the specific rates, there are many other rate definitions that measure morbidity (illness rates) or mortality (death rates) for populations at risk for contracting or dying from a particular disease, such as asthma, diabetes, or high blood pressure, or cause, such as a motor vehicle accident. Examples of these rates or statistical calculations are **incidence rates**, **prevalence rates**, **attack rates**, **crude rates**, and **age-specific rates**, as listed in **Table 3**.

DESCRIPTIVE EPIDEMIOLOGY

Descriptive epidemiology describes the extent of an outbreak in terms of who gets the disease, where the disease occurs, and when the disease occurred. These characteristics are described in **Table 4**. For example, Lyme disease was classified as a new disease

***Box* 2** Specific Rate Calculations for Hepatitis A Found in City A and City B

Numbers and rates permit the epidemiologist to measure, describe, and compare the morbidity and mortality of particular diseases. A rate is:

$$\frac{\text{Number of cases or events occurring during a given time period}}{\text{Population at risk during the same time period}}$$

In epidemiology, rates are changed to a common base such as 100,000 because it changes the result of the division into a quantity that permits a standardized comparison.

Example:
City A and City B saw an outbreak of hepatitis A in their nursing home residents. Each city reported these cases to the Department of Health. The Department of Health calculated the specific rates for each city using 10,000 as the standard base number. Hepatitis A specific rate for nursing home residents is calculated as follows:
City A specific rate:

$$\frac{\text{100 cases of reported hepatitis A cases}}{\text{130,000 City A nursing home residents}}$$

City A specific rate: 7.6, which means that in nursing homes for City A, about seven to eight residents contracted hepatitis A.
City B specific rate:

$$\frac{\text{150 cases of reported hepatitis A cases}}{\text{120,000 City B nursing home residents}}$$

City B specific rate = 12.5
By calculating the specific rate, the Department of Health can compare the hepatitis rates in City A and City B. Additionally, the Department of Health knows that nursing home residents are at risk for contracting hepatitis A.

Modified from U.S. Department of Health and Human Services (DHHS) & Centers for Disease Control and Prevention (CDC). (2011). *Principles of epidemiology in public health practice: An introduction to applied epidemiology and biostatistics* (3rd ed.). Atlanta, GA: Author.

when about 50 children were diagnosed with arthritis in Lyme, Connecticut. This cluster of arthritis in children caused an epidemiologist in Lyme, who was concerned because juvenile rheumatoid arthritis is relatively rare in children (France, 1999), to request that the CDC investigate this outbreak. The who in this outbreak were children, the where in this outbreak was a wooded hamlet at the mouth of the Connecticut River, and the when for this disease is typically during the summer and fall when people tend to spend more time outdoors and thus are more at risk for a tick bite. The collection and analysis of this descriptive information form a critical first step in the epidemiological investigatory process.

This gathering and analyzing of data in descriptive epidemiology is also called the gathering of data on person, time, and place. This information allows the public health nurse to become knowledgeable about the public health problem being studied, thus enabling the public health nurse to provide a comprehensive picture of the health of the population under study and determine who is at risk for

Table 3 Rate Definitions

Incidence Rate	Prevalence Rate	Attack Rate	Specific Rates	Crude Rate	Age-specific Rate
Applied in the study of acute diseases, a disease outbreak, or in the diagnosis of new cases. Incidence rates are the frequency with which a new condition or event occurs in a population over a period of time. Example We want to know the number of new cases of flu. In the second week of November the student Health Services diagnosed three students with the flu. The total student population is 1,600. *Calculation* three new flu cases ÷ 1,600 (student population) × 1,000 (comparison denominator) Incidence rate is 1.8.	Applied in the study of chronic disease. Prevalence rate measures the number of people in a given population who have an already existing condition at a given point in time. Example We want to know the number of existing cases of flu. There were three new cases of the flu in the second week of November and 10 old cases of the flu in the first week of November. *Calculation* 3 + 10 cases ÷ 1,600 (student population) × 1,000 Prevalence rate is 8.1.	Important for the study of a single disease outbreak or epidemic during a short time period. The number is expressed as a percentage. Example 120 people flew from New York to Los Angeles. The meal served was meatloaf. Eighty people ate the meal and 40 people chose not to eat meatloaf. Twenty of those who ate meatloaf became ill. *Calculation* 20 (ill) ÷ 80 (meatloaf pop) × 100 Attack rate is 25%.	These measure morbidity or mortality for a particular population: • Age specific • Gender specific • Income • Race/ethnicity • Infant mortality • Maternal mortality Example Age-specific diabetes mortality in 45- to 55-year-olds *Calculation* Number of diabetes deaths in 45 to 55-year-olds ÷ Population of individuals 45- to 55-year-olds × 1,000	A crude rate measures the experience of the entire population in a specific area with regard to the specific disease or condition being investigated. The crude mortality rate looks at the entire mortality rate from all causes of death for a population in a particular area during a specific time. Example NYC death rate *Calculation* The total number of NYC deaths reported during 1985 ÷ 5 million × 100,000	These rates provide age-specific information for a particular disease. Example Age-specific mortality rate is one limited to a particular age group. The numerator is the number of deaths in that age group and the denominator is the number of persons in that age group in the population. Examples include: Neonatal mortality rate Infant mortality rate

Modified from U.S. Department of Health and Human Services (DHHS) & Centers for Disease Control and Prevention (CDC). (2011). *Principles of epidemiology in public health practice: An introduction to applied epidemiology and biostatistics* (3rd ed.). Atlanta, GA: Author.

Table 4 Descriptive Epidemiological Variables

Person	Place	Time
Person variables are used to understand what makes a person susceptible to a disease or injury. Inherent characteristics include age, race/ethnicity, and sex. Acquired characteristics include marital status, education, occupation, living conditions, socioeconomic status, and access to health care. Inherent characteristics are considered fixed or unchangeable. A person's gender makes him or her at higher risk for some diseases, such as breast cancer. However, because age varies, the person becomes more susceptible to illness as he or she ages. Acquired characteristics may be modifiable via education. Example A 50-year-old man develops lung cancer. He has smoked for 30 years. The smoking is considered an acquired characteristic because it is potentially modifiable with education. Behavioral changes (quitting or smoking fewer cigarettes) lead to a healthier life and prevention of lung cancer.	Place variables describe the disease event by where the disease occurs, such as: • Place of residence • School district • Community • Country • State • Hospital unit Place information also provides insight into the geographical location and what factors in that environment facilitate the disease. For example, the temperature and climate may promote a place where a particular agent may grow and multiply. Example Lyme disease was first characterized in Lyme, Connecticut, because the lush wooded environment supported the agent, the host, and the environment cycle.	Time variables give information about how disease rates change over time. Time information can be reported in • Days • Weeks • Months • Years • Decades Epidemic period: when the number of cases is greater than normal. Does the disease manifest itself during certain seasons? Is the presentation of the disease predictable? If so, why? Can this information be used in the prevention of the disease? Example Seasonality may demonstrate disease occurrences by week or by month over the course of a year. For example, flu season typically begins in November and ends in March.

Modified from U.S. Department of Health and Human Services (DHHS) & Centers for Disease Control and Prevention (CDC). (2011). *Principles of epidemiology in public health practice: An introduction to applied epidemiology and biostatistics* (3rd ed.). Atlanta, GA: Author.

acquiring the particular disease. Another part of the epidemiological approach is known as **analytical epidemiology**, which facilitates the how and why of a particular disease.

ANALYTICAL EPIDEMIOLOGY

Analytical epidemiology illustrates the causal relationship between a risk factor and a specific disease or health condition. In other words, it seeks to answer questions about how and why disease occurs and the effects of a particular disease. Analytical studies use a comparison group to learn why one group has a disease and another does not. These groups are drawn from a healthy population living in the same community in which the disease has occurred. For example, a public health nurse was sent to a community where there was an outbreak of hepatitis A. The nurse interviewed the individuals who were diagnosed with hepatitis A and discovered they had attended a graduation party at the local high school in the neighborhood. The public health nurse learned about the food that was served at this party and asked each person what he or she had eaten at the party. The public health nurse recognized the need for a comparison group for further investigation of this hepatitis A outbreak. The comparison group in this case would be those individuals at the same party who did not eat those same foods and who were not ill. "When . . . investigators find that persons with a particular characteristic are more likely than those without the characteristic to develop a certain disease, then the characteristic is said to be associated with the disease" (U.S. DHHS & CDC, 2006, 2011, p. 46). These characteristics include demographics such as age, race/ethnicity, or sex; constitutional characteristics such as immune state; behavioral characteristics such as smoking; or other characteristics, such as living next to a waste site (U.S. DHHS & CDC, 2006, 2011).

Analytical epidemiology is used to search for causes and effects of the disease under study. Furthermore, epidemiologists discern how or why exposure to a particular agent results in the outcome of disease or no disease. Epidemiologists can study the occurrences of diseases in two ways: experimental studies and observational studies.

In an experimental study, the researcher is the one who determines the exposure status of the individual or population. The researcher does not only observe but also determines and actively initiates what the exposure is, where to deliver the exposure, how to deliver the exposure, when to deliver the exposure, and who will be the recipient of the exposure. The researcher determines recipient characteristics such as age, gender, and **socioeconomic status** (SES), which comprises education, income, and education. The researcher then carries out a research design to determine the effects of the exposure on the experimental individual or population and compares the outcomes with those not having had the exposure. Those who have not been exposed are the comparison group. This type of study is sometimes referred to as prospective because the research moves forward in time to look at the effects of the exposure. These studies rarely prove causation but often lead to more research. Experimental studies are generally used to determine the effectiveness of a treatment such as a vaccine or a drug. These types of studies are considered the gold standard of clinical trials. Study participants in clinical trials are either given the medication or the drug under study or given a placebo such as a sugar pill. Most of the major medications used to treat chronic diseases such as high blood pressure, diabetes, and asthma were subjected to clinical trials in experimental studies.

Observational studies include cohort and case-control studies. In a cohort study, a cohort of healthy individuals who share similar experiences or characteristics are identified and classified by their exposures. For example, in a study that wishes to look at tobacco use and lung cancer, the cohort identified may be men 21 years of age who are actively engaged in smoking. This group is studied over a period of years, allowing researchers to compare the disease rates in the exposed group (those who smoked) with the unexposed group (those who did not smoke). In a case-control group, the researcher identifies a group of people who have already been diagnosed with a disease (e.g., women diagnosed with breast cancer) and a group without the disease. The researcher compares and contrasts the participants' past life experiences, characteristics, and exposures to determine patterns. Again, a comparison group is important in case-control studies. This type of research is sometimes referred to as retrospective because the researcher is looking at a situation in the present and linking it to situations or conditions in the past.

The Framingham Study is an example of a classic cohort study. Since 1949, the National Heart Institute of the U.S. Public Health Service observed men and women living in Framingham, Massachusetts, to identify factors related to developing coronary heart disease (Kannel, Schwartz, & McNamara, 1969). The Nurses' Health Study, another example of a cohort study, was started several decades ago to examine the relationship between oral contraception (birth control pills) and breast cancer (Colditz, Manson, & Hankinson, 1997).

Epidemiological Triad

The epidemiological triad (**Figure 1**) is the traditional model of infectious disease causation. The three components are agent, host, and environment.

Agent factors refer to an infectious organism such as a virus, bacterium, parasite, or other microbe. **Host** factors that can mediate the effect of a particular agent are age, sex, socioeconomic factors (SES) (education, income, occupation), behaviors (smoking, drinking, and exercise), and genetic factors. For example, a 95-year-old man with multiple chronic illnesses who does not get his yearly flu vaccine is more susceptible to influenza than is a healthy 20-year-old college student who does not get a flu shot. These host factors are also known as intrinsic factors. **Environmental** factors are known as extrinsic factors and include physical factors such as geography, climate, and physical surroundings (e.g., homeless shelters); biological factors such as insects that transmit the agent (e.g., mosquito transmits malaria); and socioeconomic factors such as sanitation and available health services that can determine the spread of a particular disease (e.g., tuberculosis increases with overcrowding) (U.S. DHHS & CDC, 2006, 2011).

Figure 1 Epidemiological triad.

Modified from U.S. Department of Health and Human Services & Centers for Disease Control and Prevention. (2011). *Principles of epidemiology in public health practice: An introduction to applied epidemiology and biostatistics* (3rd ed.). Atlanta, GA: Author.

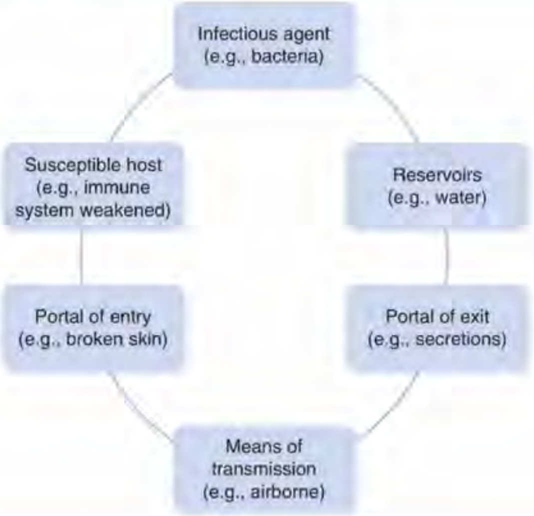
Again, Lyme disease is an excellent example of the epidemiological triad. A particular deer tick infected with the bacterium *Borrelia burgdorferi* (the agent) infects a person (the host). The bacteria enter the skin at the bite site only after the infected tick has been in the host for 36 to 48 hours. The initial symptoms felt by the host are primarily the result of the body's response to this invasion. Specific factors such as exposure to heavily wooded areas (environment), the season (infection is most likely contracted during the summer and fall), age (most common in children and young adults), and location (90% of cases occur in the coastal Northeast as well as in Wisconsin, Minnesota, California, and Oregon) predispose the host to contracting Lyme disease (Depietropaolo, Powers, & Gill, 2005).

Chain of Infection

Diseases are classified as communicable or noncommunicable. *Communicable diseases* are considered infectious because they can be transmitted by an infected person to a noninfected person. The common cold, HIV, and tuberculosis are examples of communicable diseases. Diseases come about when the body (host) is exposed to an infectious agent (virus or microorganism), and the organism or virus grows within the body. If the organism or virus is able to grow within the host, the host at some point in time might become infectious and then can transmit the particular disease to another susceptible host. *Noncommunicable diseases* such as diabetes, asthma, and heart disease cannot be transmitted by the person who has that particular diagnosis. The contributing factors of noncommunicable diseases are genetics (e.g., Tay-Sachs disease), environmental factors (e.g., Love Canal), and behaviors such as overeating.

The **chain of infection** (**Figure 2**) shows that infectious diseases result from their interaction with the agent, host, and environment. Transmission, direct or indirect, of an infectious agent takes place after the agent leaves its reservoir (host) by a portal of exit such as the mouth when coughing. The agent then enters the susceptible host via a

Figure 2 The chain of infection.



Data from U.S. Department of Health and Human Services & Centers for Disease Control and Prevention. (2011). *Principles of epidemiology in public health practice: An introduction to applied epidemiology and biostatistics* (3rd ed.). Atlanta, GA: Author.

portal of entry, such as a skin wound, to infect the susceptible host (U.S. DHHS & CDC, 2006, 2011).

Direct transmission modes are the immediate transfer of the disease agent between an infected person and a susceptible person. Examples of direct transmission modes are direct contact via touching, kissing, and direct projection, which includes a large short-range spray of droplets via sneezing or coughing. Indirect transmission takes place as an agent is carried from a reservoir to a host via air particles and gains access to the portal of entry via respiratory tract systems (e.g., mouth and nose). Vehicle-borne transmissions are contaminated materials or objects (fomites) in which communicable diseases are transferred (e.g., children's toys in a day care center) and vector-borne transmission methods transfer the disease by a living organism (e.g., mosquito) (U.S. DHHS & CDC, 2006, 2011).

Public Health Surveillance Data

Public health surveillance data are used by public health nurses and other health officials to understand disease prevalence and disease patterns. Surveillance data are critically analyzed and used by these individuals to make decisions about policy, funding, research, and program initiatives. Surveillance as an intervention strategy is discussed later in this book.

Social Epidemiology

Social epidemiology is the study of social conditions such as poverty, socioeconomic status (SES), and discrimination and their role and influence in the health of populations (Honjo, 2004). Social epidemiology goes beyond the analysis of individual risk factors such as age and gender to include the study of the social context or societal implications in which the health–disease phenomenon occurs (Krieger, 2002). Social epidemiology measures the impact of the social environment on health outcomes, whereas epidemiology is more concerned with the impact of the physical environment on health outcomes (Berkman & Kawachi, 2014). Galea, Tracey, Hoggatt, DiMaggio, and Karpati (2011) examined the literature about social factors and health outcomes from 1980 to 2007 and then calculated the deaths attributable to each social factor in the United States in 2000. Galea et al. (2011) found that the deaths attributed to low education numbered 245,000, racial segregation was 176,000, low social support was 162,000, impoverished individuals was 133,000, income inequality was 119,000, and area-level poverty accounted for 39,000. Although these numbers may vary in later years, the take-home message is that social factors play a large role in preventable deaths in the United States.

Social epidemiology attempts to address social inequality's role in disease causation. Social epidemiologists investigate social conditions responsible for patterns of health, patterns of disease, and the well-being of populations, as well as examine how social inequality in the past and present has a role in the health or disease of populations (Krieger, 2001a; Pavalko & Caputo, 2013). Social epidemiologists investigate the gradient of income on the health status of lower-income, middle-income, and upper-income classes in society. By looking at the health status at each income level, social epidemiologists can examine how income exerts an influence, either positive or negative, on health outcomes (Krieger, 2001b). For example, people growing up in poorer communities have worse health outcomes than those growing up in wealthier communities. Once a social epidemiologist teases out variations in health status by different income groups, the relationship between individual income, which is considered an individual factor, and income inequality, which is considered a contextual factor, can be explored (Subramanian, Kawachi, & Kennedy, 2001).

The concepts guiding social epidemiology are as follows:

- **Population perspective**, which means that because individuals are rooted in society, their risks for disease or staying healthy are situated with the population in which they belong.
- **Social context** of behavior, which means that certain behaviors such as smoking, drinking, and voter participation are shaped by social influences. For example, children who see their parents smoke are more likely to smoke when they get older, or communities with ample resources such as parks, grocery stores, and health clinics are more likely to inculcate healthier behavior.
- **Multilevel analysis**, which means that health outcomes are understood within the perspective of individual factors such as income and education, along with contextual factors that assess environmental exposures at the community, state, national, and global level.
- **Developmental and life-course perspective**, which means the early life experiences of an individual contribute to his or her susceptibility to disease later in life (**Table 5**).

Population Perspective

The population perspective is a guiding concept in social epidemiology. As discussed, the population perspective illustrates that an individual's risk for health problems cannot be isolated from the community in which he or she resides or from the population or society in which he or she belongs. Murray (2011) noted that "a population focus that addresses the social determinants of health is an essential component of primary health care" (p. 3); as such, an individual's risk for disease must be seen in the context of where he or she lives. For example, breast cancer survival rates in the population of Japanese women are higher than in the population of Japanese immigrants living in America and Japanese Americans. One explanation for the improved survival rate is the low dietary fat intake of Japanese

Table 5 **Guiding Perspectives in Social Epidemiology**

Population	Social Context of Behavior	Multilevel Analysis	Developmental and Life Course
This perspective examines an individual's health in the context of the population where the person resides. Example Breast cancer survival rates for women in Japan are higher than for Japanese women who become U.S. immigrants.	This perspective makes the case that risky behaviors such as smoking and drinking tend to be clustered in particular communities. The residents in these communities typically have less education, are more socially isolated, and have less access to health-promoting environments. This perspective recognizes that social environments have a large role in positive or negative health behaviors. Example Communities with higher rates of smoking exist in areas where smoking is heavily advertised.	This perspective encourages a larger analysis of the problem by assessing all factors that contribute to disease. This analysis assesses the levels of exposures found at the community, state, national, and global level. If we understand the relationship between the individual and the community level, we gain a larger understanding of health outcomes for the individual. Example A person lives in a community that does not have grocery stores with fresh food, but there are several fast food restaurants on every block. Eating fast food almost every day might contribute to becoming overweight and might lead to diabetes in the future.	This perspective examines the cumulative risk of health status based on early life exposures. This perspective recognizes that disadvantages in one's early life may facilitate disease later in life. Example A child grew up in a poor neighborhood next to a medical incinerator. Additionally, several family members smoked cigarettes. The family did not have health insurance until the child was 10 years old. The child, however, was healthy and did not need medical attention. The child went to college and became quite wealthy. The early life experience of deprivation for this child, however, may contribute to developing asthma when older even though the new environment is less conducive to developing asthma.

Data from Berkman, L. F., & Kawachi, I. (2014). A historical framework for social epidemiology. In L. F. Berkman, I. Kawachi, & M. M. Glymour (Eds.), *Social epidemiology* (2nd ed., pp. 1–16). New York, NY: Oxford University Press.

women (Pineda, White, Kristal, & Taylor, 2001). This means that when a Japanese woman moves from Japan to the United States, her breast cancer survival rate would be less than if she lived in Japan.

Social Context of Behavior

The social context of behavior is a guiding concept of social epidemiology. As discussed, the social context of behavior addresses individual behavioral risk factors, such as smoking and drinking, and examines these behaviors in a larger social context or by the social influences or conditions that contribute to specific behaviors. For example, the number of green spaces such as parks and supermarkets in a neighborhood often determines the choices the person has to make to maintain health and reduce his or her susceptibility to disease. If the neighborhood offers few healthy choices, it becomes more difficult for individuals to create and maintain healthy lifestyles.

Public health nurses working in the South Bronx, a part of one of the five boroughs of New York City, where many of the adults are overweight and at risk for diabetes or high blood pressure, recommend diet and exercise regimens for these individuals, but because there are few green space areas, no access to walking paths, no gym facilities, and the neighborhood feels less safe in the evening, many of these individuals are unable to adhere to the diet and exercise recommendations.

Social conditions often determine an individual's actions and play a role in how susceptible a person is to disease. Growing up in poverty or wealth determines the type of neighborhoods where people can live (unsafe versus safe), the environmental exposures in certain neighborhoods (lead), how people in these neighborhoods access health care (emergency room versus private healthcare office), and the levels of educational attainment (high-school degree versus college degree). For example, people living in poorer communities face increased risks of environmental exposures such as living near a medical incinerator, which might cause more asthma; lack of adequate housing might lead to overcrowding, which can increase the prevalence of tuberculosis; reduced availability of medical resources might lead to the increased use of the emergency room versus seeing a primary care clinician; and lower educational attainment might create the context for detrimental behaviors such as smoking and drinking, which contribute to disease later in life such as lung cancer, cirrhosis of the liver, or emphysema.

Social conditions do not create disease but generate a susceptibility to disease. Social epidemiology takes into account that the continued exposure to adverse social conditions has a role in how well the host can resist disease, and these exposures often lay the groundwork for poorer health in the future (Berkman & Kawachi, 2014; Kasper et al., 2008).

In summary, the whole notion of social context of behavior may also be viewed from a positive perspective in which the population's strengths are identified and engaged. In other words, how healthcare practitioners work with the population in shaping the social context of where they live can enhance health. Carthon (2011) engaged in a historical inquiry focusing on two civic associations that functioned in Philadelphia during the early 1900s. The population of individuals consisted of primarily black Americans who lived in economically and medically underresourced communities, which accounted for poorer health rates. The utilization of community and social networks provided the population with resources needed to effect change.

The above is also an exemplar of social capital at work. Social capital structures are systems of networks, norms, and trust relationships that allow communities to address common problems (Pronyk et al., 2008). Putnam (1995) has defined social capital as social relationships (interpersonal trust norms of reciprocity and civic responsibilities) within communities that act as resources for individuals and facilitate collective action for a mutual benefit. Residents of a community with high social capital may provide one another with greater instrumental and psychosocial support than residents of a community with low social capital. Furthermore, the community's level of interconnectedness and trust may reduce or increase barriers to care (Perry, Williams, Wallestein, & Waitzkin, 2008).

Multilevel Analysis

Multilevel analysis is a guiding concept of social epidemiology. As discussed, multilevel analysis is necessary to understand all factors that contribute to disease at the group and individual levels. It is an approach that permits simultaneous examination of group- and individual-level variables on individual-level outcomes (Diez-Roux, 2000). It has already been noted that individuals are influenced by their social context. Therefore, using a multilevel analysis will assist those in public health to look at independent and interacting effects of individual-level factors as well as group-level factors on health outcomes. An example of this is noted by Diez-Roux (2000):

> *Within this field, one of the main research areas in which multilevel models have been applied is the investigation of the effects of neighborhood*

> *social environments on health outcomes. . . . A key issue in investigating neighborhood effects on health is separating out the effects of neighborhood characteristics (context) from the effects of individual-level attributes that persons living in certain types of areas may share (composition). Because neighborhoods can be thought of as groups or contexts with individuals nested within them, multilevel models have been used to investigate how neighborhood factors, individual-level factors, and their interactions influence health. (p. 181)*

Life-Course Model or Perspective

The life-course perspective is a guiding concept in social epidemiology. The **life-course model** puts forward that the **socioeconomic position** of the family during childhood affects the child's health status, educational opportunities, and occupation choices in the future. Children growing up in families with less economic means or a lower socioeconomic position might have more health problems than do children growing up in families with more economic means or a higher socioeconomic position. For example, children growing up in poverty might have more health problems such as asthma, which then might contribute to a lower level of education because frequent asthma episodes result in more school absences, which in turn leads to less occupational choices because they did not do well enough in school to attend college, and less education results in lower income levels that can precipitate downward mobility (Dike van de Mheen, Stronks, & Mackenbach, 1998). Children, however, growing up in more prosperous neighborhoods tend to have better health outcomes than do children in economically disadvantaged communities because they attend better schools, have access to health care, and their parents are better educated and therefore have better jobs (Acevedo-Garcia, Lochner, Osypuk, & Subramanian, 2003). Economic disadvantages in early life can set in motion negative consequences that build up over time to produce disease after 20, 30, 40, or 50 years of being disadvantaged (Berkman & Kawachi, 2014).

Multilevel Approaches to Understanding Social Determinants of Health

Social determinants of health refer to the interaction of environmental and social systems that can affect individuals making them more susceptible to a disease and lead to health disparities. These interactions are frequently in evidence where the individuals live, work, learn, and play (Dean, Williams, & Fenton, 2013; Hassmiller, 2017; Huang, Cheng, & Theise, 2013; Robert Wood Johnson Foundation, 2014). For example, a child is exposed to secondhand smoke and develops asthma when he or she is 6 years old. Additionally, this child might even develop lung cancer later in life because of the continued exposure to secondhand smoke and the early development of lung disease. We know that early life experiences can contribute to subsequent health outcomes, good or bad. Solving the direct effects of material and environmental conditions such as pollution, malnutrition, and housing are important, but the person might still be at risk for health problems depending on how long he or she was exposed to the offending agent or experienced economic or social deprivation.

Socioeconomic factors such as income, education, occupation, medical care, healthcare barriers, language, environmental exposures, discrimination, and so forth are all correlated with health outcomes in one context or another (Dean, Williams, & Fenton, 2013; Sadana & Blas, 2013). The public health nurse considers the above variables to bring about a better understanding of health disparities noted in individuals, families, populations, and communities. Additionally, analyzing the interaction between socioeconomic factors, health, and discrimination gives the public health nurse a framework to develop interventions for specific individuals, families, or populations in specific areas. What follows is a discrete and detailed discussion of these social determinants of health.

Socioeconomic Status and Socioeconomic Position

The relationship of SES and health status has been well documented (Adler & Newman, 2002; Lipowicz, Koziel, Hulanicka, & Kowalisko, 2007; Lynch & Kaplan, 2000; Mirowsky, Ross, & Reynolds, 2000; Sadana & Blas, 2013; Berkowitz, Traore, Singer, & Atlas, 2015). Socioeconomic status consists of family income, educational level, and occupation. Additionally, SES determines an individual's socioeconomic position within society. How much money, level of educational attainment, and the occupation a person has have a bearing on and reflect his or her socioeconomic position or standing in society. Additionally, populations have a socioeconomic position, and this is based on the economic resources available to the community. Like SES, the relationship between the socioeconomic position of a person or population and health status has been well established. The effects of SES and socioeconomic position on health have been consistent with regard to health outcome disparities across different time periods, different geographical areas, and in nearly all measurements used to assess health and disease (Condliffe & Link, 2008; Lantz et al., 2001).

An individual's SES and socioeconomic position in society are based on his or her educational level, annual income, occupation, and level of assets such as stocks, bonds, and home ownership. A person's SES and socioeconomic position matter to health status because living in a relatively poor community can be bad for one's health, whereas living in a relatively affluent community can be good for one's health. The SES or socioeconomic position of an individual or population contributes to positive or negative health behaviors (Stringhini et al., 2010). For example, individuals growing up in lower socioeconomic circumstances are more likely to live in areas where there may be health-damaging exposures, such as living near a sewage treatment plant, as opposed to individuals in upper socioeconomic circumstances who are more likely to grow up in communities with health-enhancing resources, such as supermarkets containing fresh fruits and vegetables (Kaiser et al., 2016; Piccolo, Duncan, Pearce, & McKinlay, 2015). The SES and socioeconomic position of an individual or population reflect the social and economic risks, for example, living in unsafe neighborhoods, or rewards, for example, living in safe neighborhoods, of that particular class in society (Herd, Goesling, & House, 2007; Mirowsky et al., 2000).

Income

One of the most significant determinants of good health is **income**; therefore, many have suggested that economic policy is a powerful form of health policy (Dean, Williams, & Fenton, 2013). By increasing a person's income, you increase the health status for everyone in society (Kaplan, 2001). Income matters in society because income gives a person access to resources that are necessary to maintain health (Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010; Kawachi, 2000; Wilkinson, 1999). For example, stress has been shown to have a negative impact on one's health, so being able to relieve stress is an important resource (Kasper et al., 2008). A 55-year-old executive is able to relieve stress during the day because she has access to a gym in her office, whereas a 55-year-old bus driver does not have that resource available. The bus driver's inability to relieve stress makes him more susceptible to health problems.

Public health nurses work with individuals, families, and populations who experience stressors daily. How one responds to a particular stressor sets in motion physiological, behavioral, and psychological responses in the person. Additionally, how one handles a particular stressor depends on his or her coping mechanisms, support systems, and personality (Marmot, 2000; Schneiderman, Ironson, & Siegel, 2005). Sister Callista Roy, although not a social epidemiologist but a nursing theorist, recognized that adaptation to a particular stimuli is shaped by perceptions of the event and interpretation of the event. How the person interprets an event brings about a particular adaptive response. This response could have been formed by earlier life experiences.

The Roy Adaptation Model puts forth that adaptation mechanisms used by a person have health consequences in the present and possibly in the future (Badr Naga & Al-Atiyyat, 2013; Phillips, 2002). This example is presented for the reader in an attempt to demonstrate that public health nurses must also bring into their practice nursing's own unique body of knowledge.

Income Inequality

Income inequality describes where wealth is concentrated and who controls the wealth in society. Income inequality measures the degree of income variation in a population, and income inequality on a community level contributes to the loss of social capital. Social capital refers to social resources such as parks, medical facilities, schools, and economic investments that are needed to ensure that communities have the resources to maintain health (Pollack et al., 2013; Kawachi, 1999). Hence, communities with higher income are more likely to have higher social capital or resources—such as parks for their population to enjoy and enhance health—as opposed to communities with lower income and lower social capital. Income inequality also influences the average life expectancy for citizens in society.

Income inequality is either relative or absolute. Relative income inequality (growing up poor in a rich society versus growing up poor where everybody is poor) has health consequences because individuals' perceptions of the social and material world can trigger biological processes, for example stress, which can lead to a current illness such as a headache or a future illness such as heart disease. For example, a child who is from a lower-income family attends an expensive preparatory school on scholarship. This child is surrounded by students who have money and privilege. Furthermore, the child's classmates vacation in Europe, wear the latest fashions, and see a movie every weekend. The child often feels sad because he or she does not have the money to buy new clothes, go to the movies, or travel. Had this child, however, gone to the local school with children of similar economic means, he or she might have better health outcomes in the present and the future. This model posits that socioeconomic inequalities as experienced by this child may activate psychosocial factors that contribute to health and illness (Case, Darren, & Paxson, 2002; Wilkinson, 1999).

Education

Education is positively associated with employment and is an important variable in understanding the social determinants of health. For example, an individual with a college degree is more likely to have employment that is more secure, higher paying, with health benefits and has limited environmental exposures to hazards than an individual with a high-school diploma. *The New York Times* reported that staying in school for a long period of time and not smoking resulted in the best outcomes; thus, extreme education has a role in longevity (Kolata, 2007). Adults with more years of education are less likely to engage in risky health behaviors such as smoking and drinking. Additionally, more education leads to a greater sense of personal efficacy. Simply put, the number of years of schooling an individual attains has a significant effect on that persons health status (Robert Wood Johnson Foundation, 2011). Of note, educational attainment and income returns vary over time and often differ by gender, race, and ethnicity. For example, what this means is even though women may have the same educational degree and same occupation, they earn less than men because they are paid less for the same work.

Occupation

Occupation is studied less by researchers in the United States but is still an important indicator in health outcomes; Great Britain uses occupation in its analysis of health outcomes. A person's occupation tells us about his or her educational opportunities, economic independence, environmental exposures, and likely health stressors. For example, a coal miner in West Virginia has limited educational opportunities and less economic independence because he or she has skills that are unique to coal mining.

These same individuals are exposed to coal dust, which affects their lungs and can lead to illnesses such as asthma, emphysema, and chronic respiratory infections. Furthermore, coal miners experience a multitude of on-the-job stressors. Existing health problems may be worsened by stress because coal miners have less autonomy in their job and are unable to control or relieve their stress levels. A white-collar worker or executive has more education; thus his or her job is considered more prestigious. The more prestigious jobs are more likely to be held by individuals who are healthier, wealthier, and have more autonomy, which contributes to feelings of control. Furthermore, autonomy or how well one controls his or her life can improve social status and social supports and lead to better health status (Marmot & Wilkinson, 2006).

Discrimination, Disparity, and Health

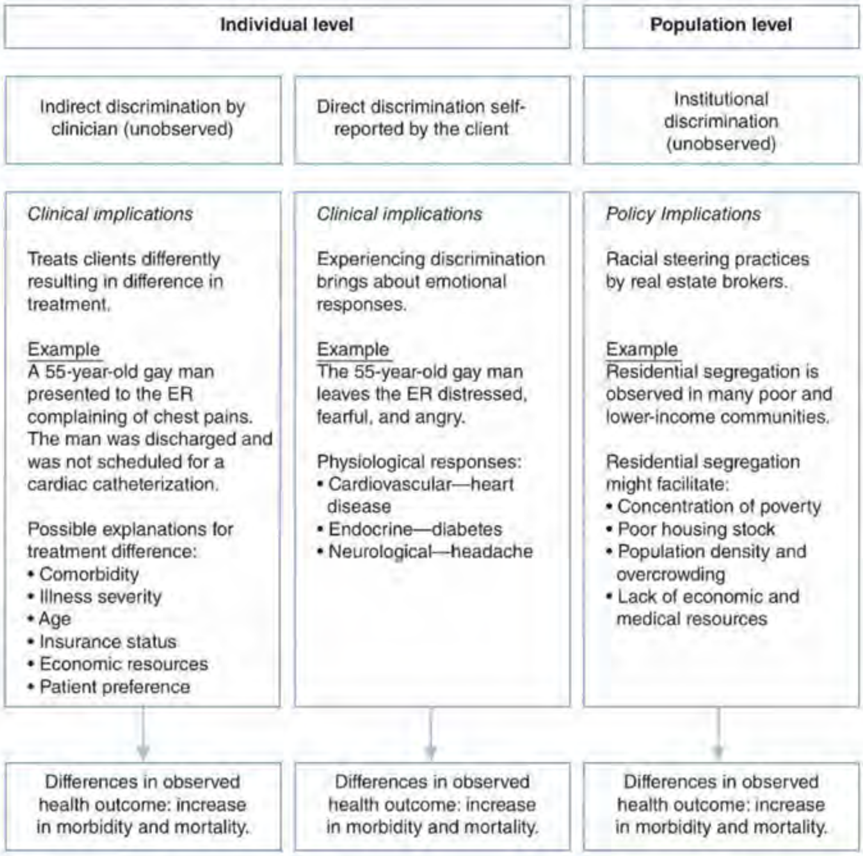
Studies of racial and ethnic disparities find that being a member of a minority group is a risk factor for less intensive and lower quality of healthcare services (Mead, Cartwright-Smith, Jones, Ramos, Woods, & Siegel, 2008; Institute of Medicine, 2002). Racial and ethnic disparities have been consistently noted in cardiovascular procedures (LaVeist, Arthur, Plantholt, & Rubinstein, 2003), cancer diagnosis and treatment, and colorectal cancer (Cooper, Yuan, & Rimm, 1997; Shavers & Brown, 2002; Ward et al., 2004). Thinking about how discrimination harms health requires the public health nurse to consider the different experiences of those considered a dominant group, such as white men, and those considered a subordinate group, such as women. Social epidemiology considers that discrimination has an adverse effect on health, and some social epidemiologists hypothesize that discrimination actually creates a biological pathway for disease to occur in the body.

Social epidemiologists posit "inequality hurts and discrimination harms health" (Krieger, 2000, p. 36). How discrimination affects one's health status necessitates a conceptual framework that provides measurements and methods that permit an analysis of how discrimination can affect health in the present and in the future. Discrimination is the process by which people are treated differently because they are members in a particular group. Particular *isms* such as racism (bias against racial and ethnic groups), sexism (bias against women), ageism (bias against elders), heterosexism (bias against gays and lesbians), ableism (bias against disabled), and classism (bias against lower incomes) are forms of discrimination. How these *isms* become pathways for poor health is called the ecosocial theory of disease distribution. Ecosocial theory seeks to integrate the biological and social mechanisms of discrimination within a historical and multilayered analytical perspective. Ecosocial theory leads social epidemiologists to develop knowledge about (1) how a person embodies disease or how disease grows within the body, (2) the social and biological pathways that contribute to this embodiment, and (3) the cumulative interaction between exposure, susceptibility, and resistance to disease (Krieger, 2001c). Additionally, ecosocial theory examines the biological and social mechanisms of discrimination and how they become expressions for disease or poor health.

The public health nurse assesses discrimination on an individual level and a population level. The individual level examines indirect or unobserved forms of discrimination (how clinicians treat their clients differently based on race or gender) and direct forms of discrimination as reported by the client, then links these to an observable outcome measure such as uncontrolled high blood pressure, as noted in **Figure 3**.

On the population level, institutional discrimination is examined. Institutional discrimination refers to policies that are part of the standard working relationships of institutions. An example is corporate policies that often make it difficult for women or people of color to advance into upper management even though they are qualified. The public health nurse should always consider how the individual level and population level of discrimination contribute to poorer health outcomes as evidenced by increases in morbidity and mortality rates.

Figure 3 Conceptual model to understanding discrimination.



Individual level		Population level
Indirect discrimination by clinician (unobserved)	Direct discrimination self-reported by the client	Institutional discrimination (unobserved)
Clinical implications Treats clients differently resulting in difference in treatment. Example A 55-year-old gay man presented to the ER complaining of chest pains. The man was discharged and was not scheduled for a cardiac catheterization. Possible explanations for treatment difference: • Comorbidity • Illness severity • Age • Insurance status • Economic resources • Patient preference	*Clinical implications* Experiencing discrimination brings about emotional responses. Example The 55-year-old gay man leaves the ER distressed, fearful, and angry. Physiological responses: • Cardiovascular—heart disease • Endocrine—diabetes • Neurological—headache	*Policy Implications* Racial steering practices by real estate brokers. Example Residential segregation is observed in many poor and lower-income communities. Residential segregation might facilitate: • Concentration of poverty • Poor housing stock • Population density and overcrowding • Lack of economic and medical resources
Differences in observed health outcome: increase in morbidity and mortality.	Differences in observed health outcome: increase in morbidity and mortality.	Differences in observed health outcome: increase in morbidity and mortality.

Data from Krieger, N. (2000). Discrimination and health. In L. F. Berkman, I. Kawachi, & M. M. Glymour (Eds.), *Social epidemiology* (2nd ed., pp. 36–75). New York, NY: Oxford University Press.

Discrimination can tell the public health nurse how groups are treated differently. Racism is a subset of discrimination. Jones (2001) developed a framework for understanding racism on three levels: institutionalized, personally mediated, and internalized.

- Institutionalized racism describes resources that are available to certain groups in society and their ability to access them. For example, the wait times in the emergency room in a private hospital are less than the wait times in a public hospital. Additionally, a wealthy community will have more grocery stores with fresh food than a poorer community.
- Personally mediated racism describes prejudice and discrimination as experienced by particular

Figure 4 Impact of racism on health outcomes.

Data from Jones, C. P. (2001). Race, racism, and the practice of epidemiology. *American Journal of Epidemiology, 154*(4), 299–304.

groups of people because of their race. This type of racism can be intentional or unintentional. For example, a black student attending Yale might experience feelings of racism when a classmate asks if he or she was accepted into Yale because of the affirmative action program.

- Internalized racism describes how members of a stigmatized race accept or internalize the negative messages about their abilities. Manifestations of internalized racism might be hopelessness, self-devaluation, and other actions that reflect loss of self-esteem. For example, a child of color may play only with a white doll.

Understanding how racism exemplifies itself on all three levels gives the public health nurse an understanding of the resulting health outcomes for individuals, families, populations, and communities. **Figure 4** illustrates the relationship between and among the three.

Conclusion

A historical review of epidemiology looked at special events in history that facilitated the need for epidemiological practices. Furthermore, epidemiological practices evolved after each significant revolution, for example, infectious disease control versus noninfectious disease control. Today, public health nurses and other public health practitioners apply epidemiological principles and tools to systematically collect health-related data, analyze these data, interpret these data, and recommend public health actions in terms of policy initiatives that address preventing and controlling disease(s) in particular populations and communities. Descriptive and analytical epidemiology was described and explored as well as the epidemiological triad and the chain of infection. Examples were offered throughout the reading to bring this material to life for the readers.

Social epidemiology makes the case that social determinants of health, which consists of SES (income, occupation, and education), socioeconomic position, and discrimination can influence health outcomes in the future. Additionally, it is the economic and educational advantages of an individual that facilitate better health outcomes. Social epidemiologists study how social equality and inequalities contribute to the biological expression of disease and positive or negative health outcomes.

Additional Resources

Centers for Disease Control and Prevention/Principles of Epidemiology in Public Health Practice at: http://www.cdc.gov/ophss/csels/dsepd/ss1978/

World Health Organization/Epidemiology at: http://www.who.int/topics/epidemiology/en/

Robert Wood Johnson Foundation Building a Culture of Health at: http://www.rwjf.org/en/library/features/culture-of-health-prize.html?cid=xps_other_pd_ini%3Aprize2017_dte%3A20160902-2b

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CHAPTER FOCUS

- **The Problem of Communicable Disease**
- **Transmission of Infectious Agents**
    - Chain of Infection
    - Routes of Infection
    - Susceptibility Versus Immunity
- **Communicable Disease Prevention**
    - Primary Prevention
    - Secondary Prevention
    - Tertiary Prevention
- **Control of Diseases**
    - Vaccine-Preventable Diseases
    - Routine Vaccinations Indicated for Adults
- **Emerging and Reemerging Infectious Diseases**
    - Healthcare-Associated Infections
    - Food-Borne Diseases
    - Vector-Borne Diseases
    - Zoonoses
    - Hantavirus
    - Parasitic Diseases
    - Bioterrorism
    - HIV/AIDS
    - Tuberculosis
    - The HIV/TB Connection
- **Global Disease Eradication Efforts**

QUESTIONS TO CONSIDER

After reading this chapter, you will know the answers to the following questions:

1. What is the current infectious disease threat both in the United States and worldwide?
2. What are the reasons for the emergence of new diseases and the reemergence of diseases previously under control?
3. What are the factors that make up the chain of infection?
4. What are the different types of immunity?
5. How do vaccines aid in the prevention of communicable disease?
6. What is the role of the community health nurse in the prevention and treatment of infectious disease?
7. What are the incidence and prevalence of reviewed communicable diseases?

Throughout the world, the eruption and spread of new and old communicable diseases once again threaten the survival of our species.

Communicable and Infectious Disease

Cathy Keen Hughes and
Sharyn Janes

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KEY TERMS

- acquired immunity
- active humoral immunity
- agent
- fomites
- herd immunity
- immunity
- incubation period
- isolation
- passive immunity
- pathogenicity
- period of infectivity
- personal surveillance
- quarantine
- reservoir
- segregation
- vector
- virulence
- zoonoses

> The single biggest threat to man's continued dominance on the planet is the virus.
>
> —Joshua Lederberg, Nobel Laureate

> The microbe is nothing; the terrain is everything.
>
> —Louis Pasteur

REFLECTIONS

Many communicable diseases, such as tuberculosis (TB) and syphilis, have made a "comeback" in the United States after many decades of dormancy. What has changed about the "terrain" of infectious diseases in recent years? What is the relationship between culture and communicable disease? How does the continued high rate of AIDS in Africa affect the health of U.S. populations? In this chapter, you will learn about the importance of communicable disease prevention and treatment in community health.

The Problem of Communicable Disease

Communicable disease, or infectious disease, has always been a focus of community health nursing practice. In fact, at the end of the 19th century, when public health nursing emerged as a nursing specialty, communicable diseases were the leading cause of illness and death. During the early years of the 20th century, nurses continued to care for large numbers of adults and children who were sick or dying from a wide variety of infectious diseases. The typhoid epidemic in the early 1900s and the great influenza pandemic of 1918, which killed 20 million people worldwide (Centers for Disease Control and Prevention [CDC], 1998), are just two examples of infectious diseases that caused enormous suffering and death. TB was a leading killer until well into the 1930s and 1940s, when TB sanitariums were overflowing. Nursing students in hospital schools in bigger cities were routinely tested for antibodies against TB, and most of those who came from rural areas tested positive. After a year in the urban hospital wards of the 1930s and 1940s, it was almost a certainty that nursing students would test positive for TB (Garrett, 1994).

CULTURAL CONNECTION

Think about how specific cultural groups define "hygiene." Can a culture's values about food preparation, personal hygiene, and childcare practices influence a group's risk for communicable disease transmission? How can public health nurses intervene appropriately considering a patient's cultural values when teaching about infectious disease control and prevention?

The development of antibiotics, particularly penicillin, in the mid-1940s curbed the spread of bacterial infections and significantly decreased the number of deaths from infectious diseases like TB and typhoid fever. Vaccinations against diseases such as polio, whooping cough, and diphtheria, along with urban sanitation efforts and improved water quality, dramatically lowered the incidence of infectious diseases (CDC, 1998). So although infectious disease still took an enormous toll on the rest of the world, a shift in leading causes of morbidity and mortality from infectious diseases to chronic diseases in industrialized nations like the United States caused attention to be focused on chronic conditions such as heart disease, cancer, and diabetes. Antibiotics became the "wonder drugs" of the latter half of the 20th century, and modern medicine triumphed—or so we thought.

As early as the 1950s, penicillin began to lose its effectiveness against infections caused by *Staphylococcus aureus*. In 1957, and again in 1968, new strains of influenza originating in China rapidly spread throughout the world. During the 1970s, several new diseases were identified in the United States and elsewhere, including Legionnaires' disease, Lyme disease, toxic shock syndrome, and Ebola hemorrhagic fever. The 1980s brought human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) and a resurgence of TB, which rapidly spread throughout the world. By the 1990s, it was apparent that the threat of infectious disease was again a global reality (CDC, 1998).

Now that we are in the second decade of the 21st century, we are again faced with infectious diseases that challenge medical and nursing practice. Some are old and familiar, like TB and influenza, and others are new and unfamiliar, like Ebola, severe acute respiratory syndrome (SARS), avian flu, and hantavirus. Many of the new challenges are viral in origin, but the overuse and misuse of antibiotics over the last half-century have also caused drug-resistant and often fatal strains of bacterial infections to emerge (**Box 1**). Conflict zones, which disrupt access to medical and preventive care and may create mass migrations of people who may wind up living in crowded and unsanitary makeshift refugee camps, can be particular breeding grounds for disease. For example, in October 2013, the World Health Organization (WHO) Global Alert Response (GAR) was alerted to clusters of acute flaccid paralysis (AFP) cases in Syria, which has been the center of significant internal fighting since 2011. This outbreak could represent the first polio cases in Syria since 1999 and is likely directly related to the lapse of access to preventive vaccines due to the Syrian civil war (WHO, 2013a).

BOX 1 Facts About Antibiotics and Antibiotic Resistance

- Alexander Fleming, a Scottish scientist, discovered the first antibiotic in 1928.
- Antibiotics became widely available in the 1940s.
- Two million pounds of antibiotics were produced in the United States in 1954. Today, more than 50 million pounds are produced.
- Antibiotics work by either killing bacteria or inhibiting their growth. They do not work on viral infections.
- People consume more than 235 million doses of antibiotics yearly. The CDC estimates that 20% to 50% of that use is unnecessary.
- Antibiotic resistance occurs when bacteria causing a specific infection are not destroyed by the antibiotics taken to halt the infection. Unnecessary and improper use of antibiotics promotes the spread of antibiotic-resistant bacteria.

Source: Data from CDC. (2013a). Vaccines and preventable diseases. Retrieved from http://www.cdc.gov/vaccines/vpd-vac/default.htm

The entire world is becoming much more vulnerable to the eruption and spread of both new and old infectious diseases. Infectious disease is a global problem brought about by recent dramatic increases in the worldwide movement of people, goods, and ideas. Not only are people traveling more, but they are traveling more rapidly and going to more places than ever before (Mann, 1994). The United Nations (UN, 2013) estimates that there are over 232 million international migrants worldwide. Every year more than 800 million people travel by air (U.S. Department of Transportation, 2013). At least 66 million people from around the world visit the United States each year. Currently, more than 17 million people throughout the world die each year from infectious diseases (Fauci, Touchette, & Folkers, 2005), with children disproportionately impacted. Some of the contributing factors are the emergence of new diseases, reemergence of diseases previously thought to have been contained, mass population shifts, and economic and social globalization. Control of many of these emerging and reemerging infectious diseases has become a global public health problem because of the lack of new, effective vaccines and therapeutic drugs, or because drugs that offered successful treatment in the past have become resistant to new strains of existing microorganisms (Heymann, 2004).

A home visit provided the public health nurse with an opportunity to assess a child with polio in familiar surroundings (circa 1951).

> In the old days, our neighbors were Canada and Mexico. Nowadays, with the frequency and speed of air travel, our neighbors are Sri Lanka and Paraguay, you name it.
>
> *—Jeffrey Koplan, Former CDC Director*

To address the increasing threat of infectious diseases, nurses must understand the problem from global and historical perspectives. There are many roles for nurses in the battle against infectious diseases. From a community health nursing perspective, primary and secondary prevention concepts must guide nursing practice. A holistic approach that includes health education, environmental health, political action, human rights, and cultural competency is the key. Communicable disease is, after all, not a new concept. Microbes have been an enemy of humans since ancient times. They did not disappear just because science developed drugs and vaccines or because Europeans and Americans cleaned up their cities and towns, and they certainly will not go away when humans choose to ignore or downplay their existence (Garrett, 1994). This chapter describes the present-day threat of infectious diseases and explores the role of community health nurses. Selected objectives related to communicable diseases are provided in the *Healthy People 2020* box.

HEALTHY PEOPLE 2020

Objectives Related to Communicable Diseases

Education

- ECBP-2.7 Increase the proportion of elementary, middle, and senior high schools that provide comprehensive school health education to prevent health problems in unintended pregnancy, HIV/AIDS, and STD infection
- ECBP-7.8 Increase the proportion of college and university students who receive information from their institution on HIV/AIDS and sexually transmitted infections

Food Safety

- FS-1 Reduce infections caused by key pathogens transmitted commonly through food
- FS-2 Reduce the number of outbreak-associated infections due to Shiga toxin-producing *Escherichia coli* O157, or *Campylobacter*, *Listeria*, or *Salmonella* species associated with food commodity groups
- FS-3 Prevent an increase in the proportion of nontyphoidal *Salmonella* and *Campylobacter jejuni* isolates from humans that are resistant to antimicrobial drugs
- FS-4 Reduce severe allergic reactions to food among adults with a food allergy diagnosis
- FS-5 Increase the proportion of consumers who follow key food safety practices
- FS-6 Improve food safety practices associated with foodborne illness in foodservice and retail establishments

Healthcare-Associated Infections

- HAI-1 Reduce central line–associated bloodstream infections (CLABSIs)
- HAI-2 Reduce invasive healthcare-associated methicillin-resistant *Staphylococcus aureus* (MRSA) infections

HIV

Diagnosis of HIV Infection and AIDS

- HIV-1 Reduce new HIV diagnoses among adolescents and adults
- HIV-2 Reduce new (incident) HIV infections among adolescents and adults
- HIV-3 Reduce the rate of HIV transmission among adolescents and adults
- HIV-8 Reduce perinatally acquired HIV and AIDS cases

Death, Survival, and Medical Health Care After Diagnosis of HIV Infection and AIDS

- HIV-9 Increase the proportion of new HIV infections diagnosed before progression to AIDS
- HIV-10 Increase the proportion of HIV-infected adolescents and adults who receive HIV care and treatment consistent with current standards
- HIV-11 Increase the proportion of persons surviving more than 3 years after a diagnosis with AIDS
- HIV-12 Reduce deaths from HIV infection

HIV Testing

- HIV-13 Increase the proportion of persons living with HIV who know their serostatus
- HIV-14 Increase the proportion of adolescents and adults who have been tested for HIV in the past 12 months
- HIV-15 Increase the proportion of adults with tuberculosis (TB) who have been tested for HIV

HIV Prevention

- HIV-16 Increase the proportion of substance abuse treatment facilities that offer HIV/AIDS education, counseling, and support
- HIV-17 Increase the proportion of sexually active persons who use condoms
- HIV-18 Reduce the proportion of men who have sex with men (MSM) who reported unprotected anal sex in the past 12 months

Immunization and Infectious Diseases

- IID-1 Reduce, eliminate, or maintain elimination of cases of vaccine-preventable diseases
- IID-2 Reduce early onset group B streptococcal disease
- IID-3 Reduce meningococcal disease
- IID-4 Reduce invasive pneumococcal infections
- IID-5 Reduce the number of courses of antibiotics for ear infections for young children
- IID-6 Reduce the number of courses of antibiotics prescribed for the sole diagnosis of the common cold
- IID-7 Achieve and maintain effective vaccination coverage levels for universally recommended vaccines among young children
- IID-8 Increase the percentage of children aged 19 to 35 months who receive the recommended doses of DTaP, polio, MMR, Hib, hepatitis B, varicella, and pneumococcal conjugate vaccines

- IID-9 Decrease the percentage of children in the United States who receive 0 doses of recommended vaccines by age 19 to 35 months
- IID-10 Maintain vaccination coverage levels for children in kindergarten
- IID-11 Increase routine vaccination coverage levels for adolescents
- IID-12 Increase the percentage of children and adults who are vaccinated annually against seasonal influenza
- IID-13 Increase the percentage of adults who are vaccinated against pneumococcal disease
- IID-14 Increase the percentage of adults who are vaccinated against zoster (shingles)
- IID-15 Increase hepatitis B vaccine coverage among high-risk populations
- IID-16 Increase the scientific knowledge on vaccine safety and adverse events
- IID-17 Increase the percentage of providers who have had vaccination coverage levels among children in their practice population measured within the past year
- IID-18 Increase the percentage of children under 6 years of age whose immunization records are in a fully operational, population-based immunization information system (IIS)
- IID-19 Increase the number of states collecting kindergarten vaccination coverage data according to CDC minimum standards
- IID-20 Increase the number of states that have 80% of adolescents with two or more age-appropriate immunizations recorded in an IIS among adolescents aged 11 to 18 years
- IID-21 Increase the number of states that use electronic data from rabies animal surveillance to inform public health prevention programs
- IID-22 Increase the number of public health laboratories monitoring influenza virus resistance to antiviral agents
- IID-23 Reduce hepatitis A
- IID-24 Reduce chronic hepatitis B virus infections in infants and young children (perinatal infections)
- IID-25 Reduce hepatitis B
- IID-26 Reduce new hepatitis C infections
- IID-27 Increase the proportion of persons aware they have a hepatitis C infection
- IID-28 Increase the proportion of persons who have been tested for hepatitis B virus within minority communities experiencing health disparities
- IID-29 Reduce tuberculosis (TB)
- IID-30 Increase treatment completion rate of all tuberculosis patients who are eligible to complete therapy
- IID-31 Increase the percentage of contacts to sputum smear–positive tuberculosis cases who complete treatment after being diagnosed with latent tuberculosis infection (LTBI) and initiated treatment for LTBI
- IID-32 Increase the proportion of culture-confirmed TB patients with a positive nucleic acid amplification test (NAAT) result reported within 2 days of specimen collection

Source: U.S. Department of Health and Human Services. (2013). *Healthy People 2020: Topics and Objectives A-Z.* Retrieved from http://healthypeople.gov/2020/topicsobjectives2020/default.aspx

ENVIRONMENTAL CONNECTION

How you travel can make you sick!

Infectious disease outbreaks aboard commercial cruise ships have become increasingly common. The CDC (2014a) has documented more than two decades' worth of incidents, usually involving diarrheal diseases. Transmission occurs via a number of routes: by food and person-to-person contact, as well as persistence of virus despite sanitization onboard, including introductions of new strains and seeding of an outbreak on land. Increased awareness of the problem—not to mention adverse publicity that affects the carriers when outbreaks occur—has led to intensified efforts to combat disease outbreaks, including significant procedural updates to the Vessel Sanitation Program (VSP) Operations Manual in 2011 (CDC, 2014a). Nevertheless, each year dozens of ships carrying 100 or more passengers experience an illness outbreak; four such outbreaks were recorded in the first two months of 2014 alone. The causative organisms in the vast majority of cases are Noroviruses (NoV), which have been positively identified in 82% of cases since 2010 and are potentially implicated in an additional 12% of cases where the pathogen involved is unknown (CDC, 2014a).

Noroviruses are the most common cause of infectious acute gastroenteritis and are transmitted feco-orally through food and water, directly from person to person, and by environmental contamination. These viruses are often responsible for protracted outbreaks in closed settings, such as cruise ships, nursing homes, and hospitals.

Although illness outbreaks on cruise ships were not unknown prior to 2002, that year had an unusually high level of disease outbreak incidence. According to the CDC's (2014a) Vessel Sanitation Program data, 21 separate incidents of cruise ship illness outbreaks involving 16 different ships from 11 different cruise lines were recorded for the year—more than five times the 2001 count. A 2005 study described one particularly tenacious outbreak in which a cruise ship recorded an elevated number of persons with acute gastroenteritis symptoms reporting to the ship's infirmary (84 [4%] of 2,318 passengers) during a 7-day vacation cruise from Florida to the Caribbean in November 2002 (Isakbaeva et al., 2005). According to federal regulations, when the incidence of acute gastroenteritis among passengers and crew exceeds 3%, an outbreak is declared and requires a formal

(*continues*)

ENVIRONMENTAL CONNECTION *(continued)*

investigation. The outbreak continued on the subsequent cruise (cruise 2), after which the vessel was removed from service for 1 week of aggressive sanitization. Despite cleaning, gastroenteritis also developed in 192 (8%) of 2,456 passengers and 23 (2.3%) of 999 crew members on the following cruise (cruise 3).

Epidemiologists began an investigation on cruise 1 and collected stool specimens from persons with gastroenteritis on this cruise and the next five cruises. All 2,318 passengers on cruise 1 were surveyed to determine dates of illness onset, symptoms, cabin locations, activities, and food consumption. Additionally, a sanitary inspection of the ship was performed. A case-control design was used, and all passengers in whom illness developed early in the cruise (days 3 and 4) after embarkation (defined as day 1) and with passengers who became ill later (day 5) were included in the study. Controls were systematically selected among passengers who reported no symptoms of gastroenteritis throughout the entire cruise. The number of acute gastroenteritis cases on the subsequent five cruises was monitored, and researchers collected fecal specimens from ill persons on all six cruises. During the shipboard investigation, researchers also obtained stool specimens from ill persons in a long-term care facility affected by an outbreak of acute gastroenteritis, in which the index patient was a passenger who returned ill to the facility after disembarking from a cruise.

In this investigation, epidemiological analysis suggested an initial food-borne source of infection with subsequent secondary spread from person to person, while molecular analysis provided several new insights into disease transmission. Application of genetic sequencing documented persistence of the same strain onboard between cruises by detecting identical sequences in stool samples from ill passengers before and after 1 week of the vessel's cleaning. Although these findings suggest that environmental contamination may have helped perpetuate the outbreak, infected crew members could have also been a reservoir of infection between cruises.

Molecular fingerprinting of detected viruses confirmed several introductions of new strains aboard, which underscores the difficulty in controlling outbreaks of NoV on cruise ships. Sequence analysis provided evidence that an outbreak of NoV in the care facility was caused by a person returning ill from an outbreak-affected cruise.

Like other outbreaks of viral gastroenteritis on cruise ships, this outbreak affected several hundred people, was transmitted by multiple modes, and recurred on subsequent cruises. Multiple routes of NoV transmission have been documented in other reports, such as that of an outbreak of gastroenteritis among football players, in which initial food-borne transmission of virus and secondary person-to-person spread were demonstrated. Outbreaks of gastroenteritis aboard cruise ships are similar to those in other closed and crowded settings where identifying and interrupting multiple routes of transmission have proved particularly challenging.

This investigation suggested that efforts to control gastroenteritis outbreaks on cruise ships should address all possible modes of NoV transmission, including food-borne, environmental persistence, and person-to-person spread. Such measures should include extensive disinfection, good food-and-water-handling practices, isolating ill persons, providing paid sick leave for ill crew, and promoting handwashing with soap and water among passengers and crew. Developing strategies and incentives to dissuade symptomatic passengers from boarding may also minimize opportunities to introduce new strains aboard. Cruise ship outbreaks with less than 3% of passengers reporting ill should be considered for investigation because they may contribute substantial information on the transmission and epidemiological characteristics of NoV, which could be used to develop control strategies and prevent future outbreaks on land and at sea.

Sources: Centers for Disease Control and Prevention (CDC). (2014a). Vessel Sanitation Program. Retrieved from http://www.cdc.gov/nceh/vsp/default.htm; Isakbaeva, E. T., Widdowson, M.-A., Beard, R. S., Bulens, S. N., Mullins, J., Monroe, S. S., ... Glass, R. I. (2005, January). Norovirus transmission on cruise ship. *Emerging Infectious Disease, 11*(1). Retrieved from http://www.cdc.gov/ncidod/EID/vol11no01/04-0434.htm

MEDIA MOMENT

Plague Among the Magnolias: The 1878 Yellow Fever Epidemic in Mississippi (2009)

By Deanne Stephens Nuwer, Tuscaloosa, AL:
The University of Alabama Press

This book explores the social, political, racial, and economic consequences of the 1878 yellow fever epidemic in Mississippi. A mild winter, a long spring, and a torrid summer produced conditions favoring the *Aedes aegypti* mosquito and its spread of yellow fever.

Transmission of Infectious Agents

The role of nurses in the control of infectious disease through prevention and treatment is based on an understanding of ways in which diseases are transmitted from one person to another. *Transmission* is "any mechanism by which an infectious agent is spread from a source or reservoir to a person" (Benenson, 1995, p. 544). There are three general modes of transmission: direct, indirect, and airborne. The importance of handwashing in any environment cannot be stressed enough. Following guidelines for handwashing with soap and water as well as the appropriate use of hand sanitizer is an example of a way to decrease transmission to others. Using soap and water with handwashing is the preferred intervention, especially if *Clostridium difficile* is the known or suspected organism, because alcohol-based products do not kill *C. difficile* spores (CDC, 2012a; Cohen et al., 2010).

Chain of Infection

The chain of infection is defined as the minimum requirements for an infectious or communicable disease to occur. Six factors make up the chain of infection: (1) an etiological agent or pathogen, (2) a source or reservoir of infection, (3) a means of escape from the source or reservoir (portal of exit), (4) a mode of transmission, (5) a portal of entry into the new host, and (6) a susceptible host.

The causative **agent** or pathogen is any substance or factor that can cause disease. Agents may be bacteria, virus particles, chemicals, or any other plant or animal substance that can cause illness, disease, disability, or death. Causative agents differ both in their ability to cause disease and in their ability to cause serious illness. **Pathogenicity** refers to the agent's capacity to cause disease in an infected host, whereas **virulence** defines the ability of the agent to produce serious illness. For example, both botulism and *Salmonella* are highly pathogenic agents (they can easily cause disease), but botulism is much more virulent (it causes more severe disease).

The source of infection, or **reservoir**, is the habitat or medium in which the agent lives and/or multiplies. Reservoirs can be living things (e.g., humans, animals, insects) or inanimate objects (e.g., food, intravenous [IV] fluids, feces, surgical instruments, stuffed animals) that are conducive to the maintenance or growth of the agent. Reservoirs of infection are human beings, animals, and environmental sources. Humans become reservoirs of infection when the infectious agent has entered the body and established itself. There are three levels of infection in humans: (1) colonization, (2) inapparent infection, and (3) clinically overt disease.

Colonization occurs when the agent is present on the surface of the body or in the nasopharynx and multiplies at a rate sufficient to maintain its numbers without producing any identifiable evidence of a reaction in the person. Inapparent infection (subclinical infection) occurs when the agent is not only present but multiplies in the human reservoir. In an inapparent infection, the agent causes a measurable reaction; however, it does not cause the human to have symptoms of illness. Inapparent infections are usually identified only through laboratory testing (Benenson, 1995; Merrill & Timmreck, 2013). Finally, clinical disease occurs when the agent is present in the human and causes physical symptoms. The time interval between initial contact with an infectious agent and the first appearance of disease symptoms is the **incubation period** (Benenson, 1995). The communicable period, or **period of infectivity**, is the time during which an infectious agent may be transferred directly or indirectly from an infected person to another person, from an infected animal to humans, or from an infected person to animals. All infected persons, including those with colonization, are reservoirs for the agent. Animal reservoirs are mainly domestic animals and rodents.

Zoonoses are animal diseases that are transmissible to humans under natural conditions. Animals transmit the disease directly to humans, but these diseases usually are not transmitted from human to human. Examples of zoonoses are bovine TB, rabies (although theoretically it can be transmitted by humans), and anthrax. Environmental reservoirs also transmit directly to humans. An example of an environmental reservoir is hookworm in soil. Inanimate objects such as food, surgical instruments, and human feces can also be reservoirs for diseases.

The agent leaves the reservoir through a portal of exit. Portals of exit and portals of entrance are similar. They include the following: respiratory, oral, gastrointestinal, reproductive, IV, urinary, skin, conjunctival, and transplacental (Merrill & Timmreck, 2013).

The last factor in the chain of infection is a susceptible host. The agent must enter a human host who is vulnerable to the specific disease agent. Susceptibility can be related to factors such as age, immunological status, lifestyle habits, or the presence of other infectious diseases or chronic illnesses.

ETHICAL CONNECTION

Public health nurses are often faced with ethical conflicts when patients diagnosed with sexually transmitted diseases (STDs) refuse to name possible contacts. Most states have some type of mandatory reporting of specific STDs, including notification of possible contacts of the patient. How can the nurse provide responsible care for the patient and fulfill legal obligations to report these diseases to the state and to possible contacts?

Routes of Infection

The agent then must be transmitted to the next susceptible host through a mode of transmission. Transmission can be direct, indirect, or airborne (see **Table 1**).

Direct transmission consists of the direct and immediate transfer of an infectious agent from one infected host or reservoir to a portal of entry in the new host. This may be through direct contact that occurs through biting, kissing, or sexual intercourse or by direct projection of droplet spray into the conjunctiva of the eye or mucous membranes

TABLE 1 Classification of Major Infectious Diseases by Mode of Transmission

Airborne Respiratory Diseases	Intestinal Discharge Diseases	Open Sores or Lesion Diseases	Zoonoses or Vector-Borne Diseases	Fomite-Borne Diseases
Chickenpox	Amoebic dysentery	AIDS	African sleeping sickness	Anthrax
Common colds	Bacterial dysentery (shigellosis) (staphylococcal)	Anthrax		Chickenpox
Diphtheria		Erysipelas	Encephalitis	Common colds
Influenza		Human papillomavirus	Lyme disease	Diphtheria
Measles	Cholera	Gonorrhea	Malaria	Influenza
Meningitis	Giardiasis	Scarlet fever	Rocky Mountain spotted fever	Meningitis
Pneumonia	Hepatitis	Smallpox		Poliomyelitis
Poliomyelitis	Hookworm	Syphilis	Tularemia	Rubella
Rubella	Poliomyelitis	Tuberculosis	Typhus fever	Scarlet fever
Scarlet fever	Salmonellosis	Tularemia	Yellow fever	Streptococcal throat infections
Smallpox	Typhoid fever			
Throat infections	Poliomyelitis			
Tuberculosis			Tuberculosis	
Whooping cough				

Source: Merrill, R. M., & Timmreck, T. C. (2013). *Introduction to epidemiology* (6th ed.). Burlington, MA: Jones & Bartlett Learning.

of the eye, nose, or mouth. The projection of droplet spray occurs with sneezing, coughing, talking, singing, or spitting and is usually limited to a distance of approximately 1 meter (Benenson, 1995; Merrill & Timmreck, 2013).

Indirect transmission usually occurs through a vector or by a vehicle. A vector is some form of living organism, usually an animal or an arthropod. Arthropods are insects such as flies and mosquitoes. Flies often carry organisms that are picked up on their feet or proboscis and transferred to food or water. When the organism is carried in this manner, it is called *mechanical vector-borne transmission* because the organism (or agent) does not multiply in the carrier. Mosquitoes, however, are often carriers of *biological vector-borne transmission* as multiplication and development of the organism occurs in the mosquito before the organism is transmitted to the new host through a bite (or inoculation). An example of this type of vector-borne disease is the transmission of malaria via the bite of a mosquito.

Vehicle-borne transmission is defined as transmission via contaminated inanimate objects, called **fomites**, which serve as an intermediate means by which an infectious agent is transported and introduced into a susceptible host through an appropriate portal of entry (Benenson, 1995; Merrill & Timmreck, 2013). Examples of fomites are toys, bedding, soiled clothes, surgical instruments, and contaminated IV fluids. An example of a vehicle-borne disease is *Salmonella,* which can be transmitted from a kitchen countertop contaminated while thawing raw chicken for dinner.

Airborne transmission occurs through droplet nuclei and dust, which are particles suspended in the air in which microorganisms may be present. Droplet nuclei result from the evaporation of fluid from droplets disseminated by coughing, talking, or sneezing between one infected person and another host. Droplet nuclei can remain suspended in the air for long periods in a dry state. During this time, some droplet nuclei retain their infectivity, while others lose their infectivity or virulence. The particles are very small and are easily breathed into the lungs, where they are retained. When these particles reach the terminal air passages, they begin to multiply and an infection begins in the new host (Benenson, 1995; Merrill & Timmreck, 2013). Pulmonary TB and legionellosis (Legionnaires' disease) are two illnesses that are transmitted by droplet nuclei.

Dust particles in which microorganisms may be present can also become airborne and thus can be breathed into the lungs and cause infection. Contaminated bedding and clothes are examples of objects that can create dust that may carry infectious microorganisms from one infected person to another host. Dust particles contaminated with deer mouse feces may be one way to transmit hantavirus to human hosts.

The cycle of transmission can be broken by breaking the chain of infection—by eliminating the agent, eliminating the reservoir of infection, eliminating transmission at the portal of exit or the portal of entry, or eliminating susceptible hosts.

Susceptibility Versus Immunity

For a disease to be transmitted, the new host must be susceptible to that disease. The concept of immunity forms the basis of understanding host resistance to disease. **Immunity** is the increased resistance on the part of the host to a specific infectious agent (Valanis, 1999). There are two types of acquired immunity found in humans: active and passive (Atkinson & Wolfe, 2003).

Acquired immunity can occur after having had the disease or through vaccination. If a person is infected with the disease (with or without clinical signs and symptoms), the disease agent stimulates the body's natural immune system. However, if the person is inoculated with the agent (in a killed, modified, or variant form), the vaccination artificially stimulates the immune system (see **Box 2** for a list of vaccine-preventable diseases). Both methods of acquired immunity result in active humoral immunity because the human body produces its own antibodies when the immune system is stimulated. **Active humoral immunity** is based on a B-lymphocyte response, which results in immunity that lasts for several years with diseases such as tetanus or a lifetime with diseases such as measles or mumps (Atkinson & Wolfe, 2003; Benenson, 1995). **Passive immunity** can be acquired either through the transplacental transfer of the mother's immunity to a disease to her unborn child or from the transfer of already-produced antibodies into a susceptible person (such as the use of immune serum globulin for persons exposed to hepatitis A). Passive immunity is based on a cellular, T-lymphocyte sensitization. Passive immunity is of short duration, lasting from days to months (Benenson, 1995; Merrill & Timmreck, 2013).

Herd immunity is the resistance of a population or group to the invasion and spread of an infectious agent (Benenson, 1995; Merrill & Timmreck, 2013). Herd immunity is based on the level of resistance a population has to a communicable disease because of the high proportion of group members in the population who cannot get the disease because they have been previously vaccinated (see **Box 3** for a list of potential new vaccines) or have previously had the disease. Jonas Salk, one of the developers of the polio vaccine, suggested that if 85% of the population were immunized against polio (the herd immunity level), a polio epidemic would not occur (Merrill & Timmreck, 1998). Herd immunity provides barriers to the direct transmission of infection through a group or population, because the lack of susceptible individuals in the population stops the spread of infection.

BOX 2 Vaccine-Preventable Diseases

Anthrax
Cervical cancer (HPV)
Chickenpox (varicella)
Diphtheria
Haemophilus influenzae
Hepatitis A
Hepatitis B
Influenza
Japanese encephalitis
Lyme disease
Measles
Meningococcal infections
Mumps
Pertussis
Pneumococcal pneumonia
Polio
Rabies
Rotavirus
Rubella
Shingles (Herpes zoster)
Smallpox
Swine flu (H1N1)
Tetanus
Typhoid
Tuberculosis
Yellow fever

Source: Data from CDC. (2013a). Vaccines and preventable diseases. Retrieved from http://www.cdc.gov/vaccines/vpd-vac/default.htm

Communicable Disease Prevention

One of the foundations of public health is the prevention and control of communicable disease. Merrill & Timmreck (1998) states that the three key factors in the control of communicable disease are as follows:

The removal, elimination, or containment of the cause or source of infection
The disruption and blockage of the chain of disease transmission
The protection of the susceptible population from infection and disease

Approaches to the control of communicable disease should be based on the levels of prevention—primary, secondary, and tertiary.

BOX 3 Vaccines 2010–2014

Group B Streptococci with perinatal morbidity and mortality
Vaccines for Alzheimer's disease
Vaccines against smallpox and anthrax
HIV vaccine
DNA vaccine focused on parasitic diseases
Alternate approaches to delivery of vaccines (intramuscular, intradermal, intranasal, etc.)

Source: Immunization Action Coalition. (2014). Potential New Vaccines 2014–2010. Retrieved from http://www.immunize.org/journalarticles/tol_poten.asp

Primary Prevention

Primary prevention activities are targeted at intervening before the agent enters the host and causes pathological changes. This level of prevention attempts to increase the host's resistance, inactivate the agent (source of infection), or interrupt the chain of infection.

A major focus of primary prevention is on increasing the resistance of the host. This can be accomplished through health education and/or immunization. Health education can target many subjects to increase the resistance of the host. It can identify a variety of activities that will improve the host's resistance, such as frequent handwashing, proper nutrition, adequate rest, and proper attire. Immunization is another method of primary prevention that increases the host's resistance. Education of the public by the news media as an early warning to avoid contaminated foods is considered primary prevention if the individual or population of an area has not consumed the food.

Immunization uses vaccines that are obtained either from the agent in a killed, modified, or variant form or from fractions or products of the agent (Merrill & Timmreck, 2013; Valanis, 1999). Vaccines are available for many common infectious diseases. See Box 2 for a list of vaccine-preventable diseases and Box 3 for vaccines in development.

Inactivating the agent involves stopping the agent by chemical or physical means. The protection of food has become particularly important in the last few years, with frequent food-borne illness outbreaks occurring as a result of improper storage, preparation, and handling. Proper temperatures must be maintained to inactivate the agent when storing, preparing, and cooking food. Proper food handling, which includes handwashing during preparation, is also important. Many bacterial agents (e.g., staphylococci, salmonellae, and *E. coli*) can contaminate food and make the consumers of the food extremely sick. Irradiation of food (particularly beef and vegetables) has been suggested as a method of control, but this continues to be vigorously debated. Chemical methods are also used to inactivate agents. Chemical methods are used to chlorinate water supplies and to treat sewage, as well as to disinfect infectious or potentially infectious materials.

A common method of breaking the chain of infection is environmental control. Environmental control is aimed at providing clean and safe air, food, milk, and water; managing solid waste (garbage) and liquid waste (sewage); and controlling vectors (insects and rodents). Environmental control may target the reservoir, such as chlorination of a water supply. Environmental control may also be aimed at destroying the vector that transports the agent. One way a community may target the vector is to spray swamp areas (known to serve as reservoirs) with an insecticide to prevent mosquito-borne viral encephalitis. However, when this method is used, care must be taken to preserve the ecosystem as much as possible. Another method of breaking the chain of transmission is to encourage good personal hygiene and use of protective clothing. Methicillin-resistant *S. aureus* (MRSA) is an increasingly difficult nosocomial infection seen on medical and surgical floors in hospitals and in nursing homes. Healthcare providers must protect themselves and their patients by using proper hygiene and standard precautions when caring for all patients. Structural changes in public restrooms, such as eliminating entrance doors and providing automated faucets and hand-dryers, reduce the opportunity for the host to have contact with an agent.

Primary prevention also includes restricting the spread of infection to human reservoirs and preventing the spread to other susceptible human hosts (Valanis, 1999). The four most commonly used methods are isolation, quarantine, segregation, and personal surveillance.

Isolation is the separation of infected persons during the period of communicability (Benenson, 1995; Merrill & Timmreck, 2013; Valanis, 1999). These infected persons may be under one of several different types of isolation: strict isolation, contact isolation, respiratory isolation, TB isolation, enteric precautions, and drainage/secretion precautions.

Quarantine is the restriction of healthy persons who have been exposed to a person with a communicable disease during the period of communicability. These persons are considered contacts of the infected human host. Quarantine prevents further transmission of the disease during the incubation period if the healthy contacts should become infected. Quarantine usually occurs for the longest usual incubation period of the disease. Quarantine is rarely if ever used today; however, before vaccination for diphtheria, it was often used in the United States.

Segregation is another method to control the spread of communicable disease. It is used to separate and observe a group of people who are infected with a specific disease. Segregation has been used in some countries to separate HIV-infected individuals from the general public in an effort to control the spread of AIDS. The United States still has public health laws that allow the segregation of persons with TB; however, those laws are rarely enforced, although in the early part of the 20th century, persons with TB were segregated from the general public in hospitals known as *sanitariums*. With the advent of new drug therapies and treatment, these sanitariums are no longer necessary.

Personal surveillance is close medical or other supervision of contacts and identified carriers of a specific disease without restricting their personal movement (Benenson, 1995). For example, public health officials continue to require personal surveillance of persons known to have had TB and to be carriers of typhoid.

As distinct from personal surveillance, disease surveillance is the continuing investigation of the incidence and spread of a disease relevant to effective control (Benenson, 1995). Public health surveillance is the systematic collection, analysis, interpretation, dissemination, and use of health information. Surveillance and data systems provide information on morbidity, mortality, and disability. Surveillance information is used to plan, implement, and evaluate public health programs to control communicable disease. To provide maximum benefits, surveillance data must be accurate, timely, and available in useful form (Merrill & Timmreck, 2013; U.S. Department of Health and Human Services [HHS], 1991).

Although successful disease surveillance involves collaboration among federal, state, and local agencies, the U.S. Public Health Service (PHS) takes a leading role. PHS activities include collecting and analyzing health information at the national, regional, and, when possible, state and local levels; providing data to federal, state, and local agencies for further analysis or use; assisting states and local agencies in conducting public health surveillance and evaluating data; and coordinating a network of federal, state, and local public health surveillance for diseases of public health importance (HHS, 1991). Since 1961, the CDC has been collecting and publishing data on nationally reportable diseases. While reporting of communicable diseases at the national level is voluntary, reporting communicable diseases at the state level is required. Each state health department determines which diseases are reportable in order to address state-specific issues (Merrill & Timmreck, 2013). Infectious diseases that are currently reported by most states are presented in **Table 2**. State health departments require physicians, dentists, nurses, allied health practitioners, and medical examiners to report any disease listed as reportable by their specific state. Some states may require that any reportable diseases also be reported by laboratory directors and administrators of hospitals, clinics, nursing homes, schools, and nurseries. Several social media sources and apps are available for mobile devices for tracking SARS, TB, influenza, and general use (CDC, 2013b).

Secondary Prevention

Secondary prevention activities are targeted at detecting disease at the earliest possible time to begin treatment, stop progression, and initiate primary prevention activities to protect others in the community (Merrill & Timmreck, 2013). Secondary prevention in infectious disease contributes to primary prevention because it restricts the infection to the human reservoir and prevents its spread to other susceptible individuals. Case finding and health screening are common activities used to accomplish this task. An example of case finding is following up on food handlers who may be infected during an outbreak of hepatitis. Screening for new cases of diseases can significantly decrease the spread of infection. Examples include screening for TB through tuberculin testing to detect and treat cases of TB among new immigrants, screening for herpes simplex virus type 2 in pregnant women to prevent infection of the infant during the birth process, screening for several sexually transmitted infections (STIs) as a requirement for marriage licenses in some states, and administering gamma-globulin or immune serum after exposure to hepatitis. Surveillance of disease and early detection of an outbreak of communicable diseases are also considered secondary prevention measures. Examining the outbreak from an epidemiological standpoint is important to determine any factors that may have changed within the agent, host, or the environment in which the disease occurred. This is applicable to the individual, population, and system levels.

Health education also plays a significant role in secondary prevention, because it provides education about signs and symptoms, which enables individuals to identify illness and seek care early. Knowledge of health risk behaviors that contribute to the spread of disease may influence infected individuals to modify their behavior and thus assist in the prevention of the spread of disease.

GLOBAL CONNECTION

An influenza pandemic of the type that ravaged the globe in 1918 and 1919 could kill as many as 62 million people today, with 96% of the deaths occurring in developing countries, according to WHO. The illness caused by the 1918 virus was largely untreatable. There were no antiviral drugs, no mechanical ventilators to help people breathe, and no antibiotics to treat bacterial pneumonias that often set in after the viral infection. All are available now and would reduce the death toll, although some interventions would be in short supply during a pandemic.

Historical accounts suggest that what became known as Spanish flu emerged at an Army camp in Kansas in early March 1918 and was carried to Europe by American troops. The infection circulated in Europe before undergoing a change early the next fall that made it unusually lethal. It spread around the world and was brought back to the United States, where it killed hundreds of thousands of Americans in October and November 1919. The disease continued to circulate until early 1920, with virtually everyone on Earth eventually being exposed to the virus.

The global death toll from the pandemic is unknown, though rough estimates put mortality in the range of 50 to 100 million.

Sources: Barry, J. (2004). *The great influenza: The epic story of the 1918 pandemic*. New York, NY: Viking Publications; PBS film series: The American experience. (1998). *Influenza 1918*. Retrieved from http://www.pbs.org/wgbh/amex/influenza/

TABLE 2 Nationally Notifiable Infectious Conditions in the United States, 2014

- Anthrax
- Arboviral diseases, neuroinvasive and non-neuroinvasive
- Babesiosis
- Botulism
- Brucellosis
- Chancroid
- Chlamydia trachomatis infection
- Cholera
- Coccidioidomycosis
- Congenital syphilis*
- Cryptosporidiosis
- Cyclosporiasis
- Dengue virus infections
- Diphtheria
- Ehrlichiosis and anaplasmosis
- Giardiasis
- Gonorrhea
- Haemophilus influenzae, invasive disease
- Hansen's disease
- Hantavirus pulmonary syndrome
- Hemolytic uremic syndrome, post-diarrheal
- Hepatitis A, acute
- Hepatitis B, acute
- Hepatitis B, chronic
- Hepatitis B, perinatal infection
- Hepatitis C, acute
- Hepatitis C, past or present
- HIV infection (AIDS has been reclassified as HIV Stage III)
- Influenza-associated pediatric mortality
- Invasive pneumococcal disease
- Legionellosis
- Leptospirosis
- Listeriosis
- Lyme disease
- Malaria
- Measles
- Meningococcal disease
- Mumps
- Novel influenza A virus infections
- Pertussis
- Plague
- Poliomyelitis, paralytic
- Poliovirus infection, nonparalytic
- Psittacosis
- Q fever
- Rabies, animal
- Rabies, human
- Rubella
- Rubella, congenital syndrome
- Salmonellosis
- Severe acute respiratory syndrome–associated coronavirus disease
- Shiga toxin-producing *Escherichia coli*
- Shigellosis
- Smallpox
- Spotted fever rickettsiosis
- Streptococcal toxic-shock syndrome
- Syphilis*
- Tetanus
- Toxic shock syndrome (other than streptococcal)
- Trichinellosis
- Tuberculosis
- Tularemia
- Typhoid fever
- Vancomycin-intermediate *Staphylococcus aureus* and vancomycin-resistant *Staphylococcus aureus*
- Varicella
- Varicella deaths
- Vibriosis
- Viral hemorrhagic fever
- Yellow fever

*Beginning January 1, 2014, Congenital Syphilis and Syphilis appear as separate categories of conditions, whereas previously they were combined within the Syphilis category.

Source: Data from CDC. (2014b). National Notifiable Diseases Surveillance System (NNDSS): 2014 National notifiable infectious conditions. Retrieved from http://wwwn.cdc.gov/NNDSS/script/ConditionList.aspx?Type=0&Yr=2014

Tertiary Prevention

Tertiary prevention limits the progression of disability (Merrill & Timmreck, 2013; Merill & Timmreck, 1998). Hearing impairment from frequent ear infections, paralyzed limbs from polio, impaired vision from severe conjunctivitis, and shingles are just a few of the possible disabilities resulting from infectious disease. Treatment of symptoms and rehabilitation vary with each specific disease. Also, interventions focused on individuals and populations living with blindness from congenital rubella, the status of chronic disease of AIDS, and the effects of post-polio syndrome are considered tertiary prevention.

Control of Diseases

Vaccine-Preventable Diseases

Immunization is one of the most accepted and cost-effective preventive health practices in the United States. Since the 1950s, vaccines have prevented countless days of illness and hundreds of thousands of deaths. Most healthcare providers take for granted the rarity of vaccine-preventable diseases; many healthcare providers will never see a child with diphtheria, measles, or polio. This chapter focuses on the vaccine-preventable diseases of adults and the need for adults to be immunized against them.

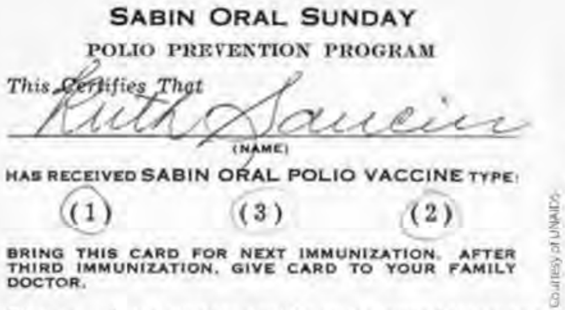
Adult immunization is extremely important. Each year in the United States alone, at least 45,000 adults die from complications resulting from influenza, pneumonia, or hepatitis B, despite the availability of safe and effective vaccines to prevent these diseases. Vaccine coverage depends, in some respects, upon which vaccine is being discussed for which age group. For example, in 2012, 56% of adults in the United States were immunized against influenza, while only 41.5% of children under 17 received a flu shot; in contrast, 55% of adults had a tetanus vaccine (Williams et al., 2014), compared to 85% of infants and 75% of school-age children.

Hepatitis

Viral hepatitis encompasses several distinct infections. All are hepatatrophic and have similar clinical presentations. However, they differ in their cause and in some clinical, pathological, immunological, and epidemiological characteristics. Their prevention and control also vary (Benenson, 1995; CDC, 2012b, 2013c, 2013d, 2013e; Heymann, 2004). See **Figure 1** and **Figure 2**.

Hepatitis A virus (HAV) HAV is a highly contagious viral infection of the liver. In the 1990s, an average of 27,000 cases annually were reported in the United States (Atkinson & Wolfe, 2003). In 2010, a change was noted in the recorded cases of acute symptomatic HAV, with 1,670 cases reported and an incidence rate of 0.6/100,000. This reflects the lowest recorded rate. An estimated annual number of new infections, including underreporting and asymptomatic infections for 2010, was 17,000 (CDC, 2013c). See **Table 3**.

HAV is the most common vaccine-preventable disease in travelers (National Foundation for Infectious Diseases, 2002b). HAV is found in the stool of infected people. The mode of transmission is person to person by the fecal–oral route. The infection is passed on by infected persons who do not wash their hands after having a bowel movement and contaminate everything they touch. Outbreaks have been related to contaminated water and to food prepared by food handlers who are infected with HAV. People can also become infected with HAV by eating contaminated raw shellfish, fruits, or vegetables (Heymann, 2004). See **Figure 3**, **Figure 4**, and **Figure 5**.



SABIN ORAL SUNDAY

POLIO PREVENTION PROGRAM

This Certifies That Ruth Saucier

(NAME)

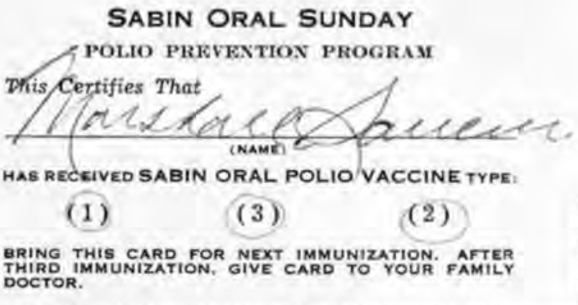
HAS RECEIVED SABIN ORAL POLIO VACCINE TYPE:

[✓ (1)] [✓ (3)] [✓ (2)]

BRING THIS CARD FOR NEXT IMMUNIZATION. AFTER THIRD IMMUNIZATION, GIVE CARD TO YOUR FAMILY DOCTOR.

Courtesy of UNAIDS

Figure 1 Vaccination card for polio prevention program, circa 1956.



SABIN ORAL SUNDAY

POLIO PREVENTION PROGRAM

This Certifies That Marshall Saucier

(NAME)

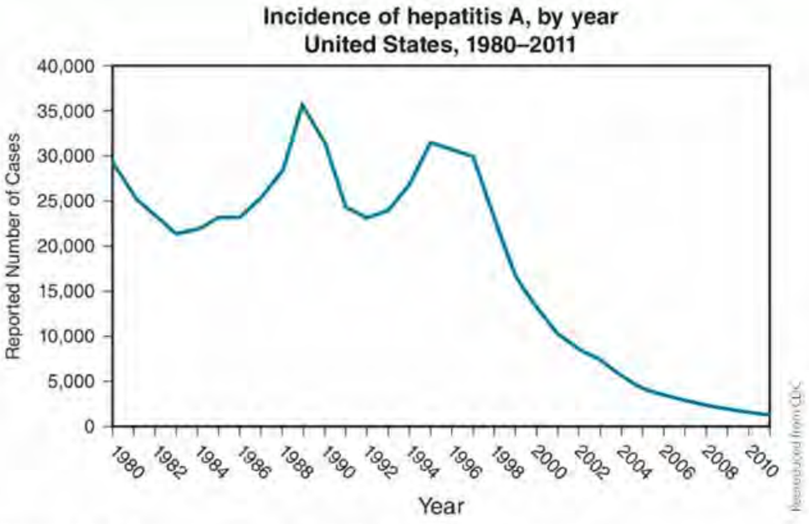
HAS RECEIVED SABIN ORAL POLIO VACCINE TYPE:

[✓ (1)] [✓ (3)] [✓ (2)]

BRING THIS CARD FOR NEXT IMMUNIZATION. AFTER THIRD IMMUNIZATION, GIVE CARD TO YOUR FAMILY DOCTOR.

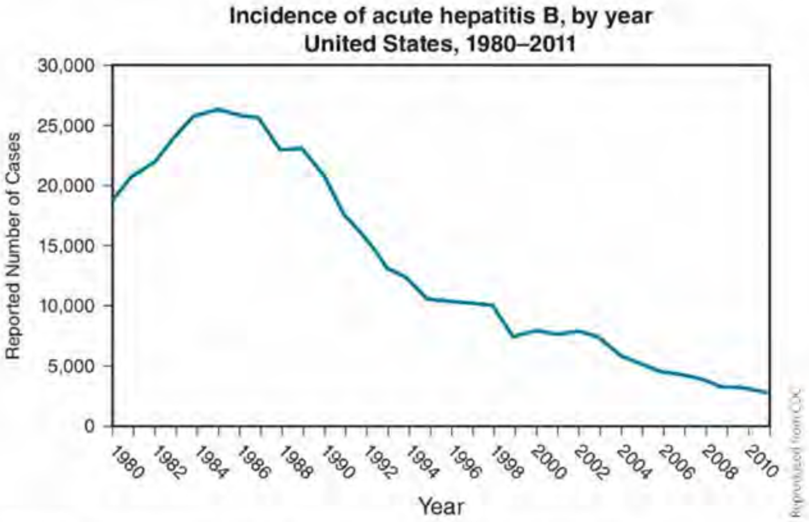
Courtesy of UNAIDS

Figure 2 Vaccination card for polio prevention program, circa 1956.



Reproduced from CDC

Figure **3** Disease burden from viral hepatitis A in the United States.



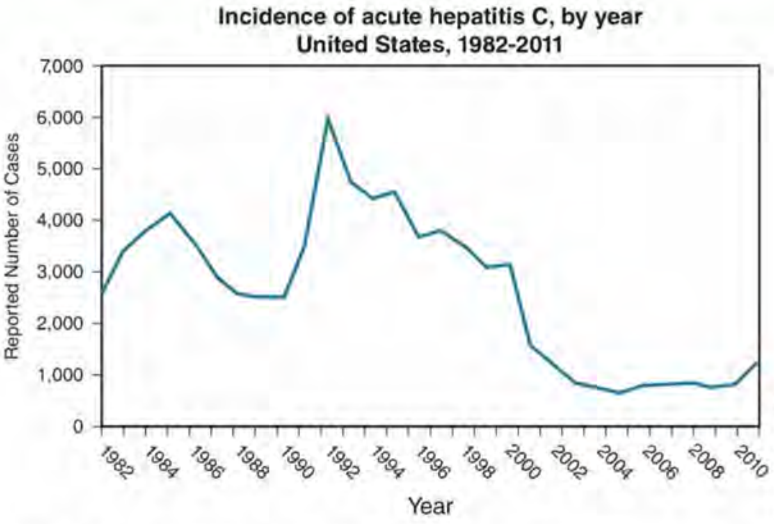
Reproduced from CDC

Figure **4** Disease burden from viral hepatitis B in the United States.

People at risk for being infected with HAV include the following (Abbott Diagnostics, 2008):

- Those who share a household with someone who is infected with HAV
- Individuals in a daycare center (adult employees or children) where a child or employee is infected with HAV
- Those who travel to countries such as Africa, Asia (other than Japan), the Caribbean, Central and South America, Eastern Europe, the Mediterranean basin, and the Middle East
- Residents or staff of custodial institutions
- Men who have sex with men (MSM)
- Those who use recreational drugs

The symptoms of hepatitis A differ from person to person. Although many people infected with hepatitis A have no symptoms (particularly children), those with symptoms usually have an identifiable pattern. These symptoms include fever, nausea, vomiting, jaundice, diarrhea, fatigue, abdominal pain, dark urine, gray stools, and loss of appetite. Respiratory symptoms, joint pain, and rash occasionally occur (CDC, 2012c).



Reproduced from CDC

Figure 5 Disease burden from viral hepatitis C in the United States.

The incubation period is from 15 to 50 days, with the average time being approximately 28 days. The period of infectivity is during the last half of the incubation period, up to and including a few days after the onset of jaundice (Benenson, 1995; Heymann, 2004).

Hepatitis A is prevented through the following means (Benenson, 1995; CDC, 2013c; Heymann, 2004):

- Vaccination with the hepatitis A vaccine (with an initial injection providing protection for up to 1 year, with a booster dose [6 to 12 months after the first dose] providing prolonged protection)
- Education of the public about good sanitation and proper hygiene, with careful emphasis on handwashing
- Proper water and sewage treatment
- Education of employees in child daycare centers about the need for thorough handwashing after every diaper change and before feeding children or eating
- Immunization of child daycare employees
- Cooking shellfish to the proper temperature (85–90°C, or 185–190°F)
- Immunization with the hepatitis A vaccine of all travelers going to developing countries

NOTE THIS!

In the 10-state outbreak of hepatitis A in May 2013, 162 people were confirmed ill after eating a product containing pomegranates exported from Turkey. There were no reported deaths (CDC, 2013d).

Hepatitis B (HBV) Hepatitis B is also a highly contagious virus that infects the liver. It is caused by the hepatitis B virus (HBV), which infects approximately 300,000 Americans annually. In the United States, more than 1 million people are chronically infected with HBV. In 2009, there were an estimated 38,000 new cases of HBV (CDC, 2012b). Globally, there are an estimated 350 million chronic HBV carriers (Abbott Diagnostics, 2008). WHO estimates that more than 2 billion people have been infected with HBV worldwide. Each year about 600,000 people die from HBV-related causes (WHO, 2013b). In 1990, routine HBV vaccination was implemented in the United States. Since that time, rates of HBV infection have decreased by approximately 82% in the United States (CDC, 2012b).

The virus is found in the blood and body fluids of infected people. All persons who test positive for the hepatitis B antigen are potentially infectious. The mode of transmission can be person to person through sexual contact, through direct contact with blood or blood products resulting from sharing of needles or razors, and from infected mother to infant during the birthing process. Hepatitis B is often described as a silent disease because it infects many people without making them feel ill. Infants are usually asymptomatic, and small children usually have a milder case of the disease. When symptoms do occur, the infected person will often complain of flulike symptoms, with loss of appetite, nausea and vomiting, stomach cramps, and extreme fatigue, which may progress to jaundice. Hepatitis B can progress to fulminating hepatic necrosis and death (Atkinson & Wolfe, 2003; CDC, 2012b; Heymann, 2004).

The incubation period for hepatitis B is 45 to 180 days, with an average of 60 to 90 days. This disease occurs worldwide with little seasonal variation. Hepatitis B is prevented by the hepatitis B vaccine, which consists of a series of three intramuscular (IM) injections of the hepatitis B vaccine over 6 months. This vaccine is used to protect everyone, from newborn infants to older adults (Heymann, 2004; National Foundation for Infectious Diseases, 2002c).

Hepatitis C (HCV) Hepatitis C is also a viral infection of the liver. It has been referred to as *parenterally transmitted hepatitis*, and before blood donor screening it was the most common cause of post-transfusion hepatitis worldwide. Ninety percent of hepatitis C occurrence in Japan, the United States, and Western Europe is a result of exposure to blood or other body fluids (Holtzman, 2014).

Hepatitis C virus (HCV) is found worldwide. WHO estimates that up to 3% of the world's population is infected with HCV (Holtzman, 2014). In the United States, hepatitis C has infected an estimated 3.2 million people (1.8% of the U.S. population) with incidence in 2010 of 17,000 new cases (CDC, 2012c). Its occurrence is highest in IV drug users and hemophilia patients; moderate in hemodialysis patients; low in heterosexuals with multiple partners, homosexual men, healthcare workers, and family members of HCV patients; and lowest in volunteer blood donors (Benenson, 1995; CDC, 2010). The reservoir for the virus is humans. The mode of transmission is indirect, spread through contaminated needles and syringes; however, this accounts for fewer than 50% of the infected cases in the United States. Transmission rates through household contact and sexual activity appear to be low, and perinatal transmission is uncommon. The route of transmission cannot be identified in more than 40% of infected patients (Benenson, 1995).

The incubation period of hepatitis C is from 2 weeks to 6 months, with most cases occurring within 6 to 9 weeks after infection. Most infected individuals with hepatitis C are asymptomatic (up to 90%); this includes even those with chronic disease (CDC, 2013e; Heymann, 2004). The most common symptoms are fatigue, nausea, vague abdominal discomfort, and jaundice. Severity ranges from inapparent cases (approximately 75%) to rare fulminating, fatal cases (Benenson, 1995).

Prevention measures for hepatitis C include the following (Abbott Diagnostics 2008; CDC, 2010; CDC, 2013e):

- Universal screening of blood and blood products
- Effective use of standard precautions and barrier techniques
- Sterilization of reusable equipment and destruction of disposable equipment
- Public health education regarding the risks of using unsterilized equipment
- Adults born from 1945–1965 should be tested once for Hepatitis C

Because there is no vaccine against hepatitis C, prevention is the primary strategy against the virus. New secondary interventions have been recommended for screening for Hepatitis C for those persons born from 1945–1960 (CDC, 2013e). In the United States, approximately three-fourths of all chronic HCV infections among adults are noted in the population born from 1945–1960 (Smith et al., 2012).

Hepatitis D (HDV) Hepatitis D virus (HDV), first noted in 1977 and also known as "delta," is a defective, single-stranded RNA virus that requires the helper function of HBV to replicate. HDV is found worldwide, but its prevalence varies. Because it requires the HBV to replicate and to infect cells, it occurs either epidemically or endemically in populations with high rates of HBV infection (Benenson, 1995; Heymann, 2004). Places where HDV is found to be endemic are Africa, southern Italy, Romania, parts of Russia, and South America. Populations that have high rates of hepatitis D include hemophiliacs, drug addicts, people with frequent blood exposures, residents in homes for the developmentally disabled, and male homosexuals.

Humans serve as the reservoir for hepatitis D. The modes of transmission are similar to those of hepatitis B, with direct contact with blood or blood products the most efficient. Sexual transmission is less efficient than that of hepatitis B, and perinatal transmission is rare.

The onset of hepatitis D is usually abrupt, with signs and symptoms similar to those of hepatitis B. Hepatitis D varies from being self-limiting to progressing to chronic hepatitis. It can be acquired either as a co-infection with hepatitis B or as a superinfection in persons with chronic HBV infection (CDC, 2004). When it is acquired as a co-infection, the person has a greater risk of severe acute disease, with a 2% to 20% chance of fulminant hepatitis. Chronic HBV carriers who acquire hepatitis D as a superinfection have a greater chance of developing chronic HDV infection. The superinfection with HDV has been found to increase the development of chronic liver disease with cirrhosis in 70% to 80% compared with 15% to 30% of patients with HBV alone (Abbott Diagnostics, 2008).

The incubation period is approximately 2 to 8 weeks. Peak infectivity is thought to occur just before the onset of the illness. Symptoms are similar to those of hepatitis

B and are identified as joint pain, abdominal pain, loss of appetite, nausea and vomiting, fatigue, and jaundice. No vaccine exists for HDV. The method of control is immunization with the hepatitis B vaccine; however, this is effective only in persons who are not already infected with HBV. For those infected with HBV, avoidance of any possible exposure to HDV is the only preventive measure (Abbott Diagnostics, 2008; Heymann, 2004).

Hepatitis E Hepatitis E is similar to hepatitis A in that there is no evidence of a chronic form. The fatality rate for hepatitis E is also similar to that of hepatitis A, except in pregnant women during the third trimester, when the fatality rate may reach 20% (CDC, 2012d). Hepatitis E virus (HEV) is transmitted by the fecal–oral route. Transmission may also (rarely) occur with infected blood products and from pregnant woman to the fetus. Globally, of all HEV-related deaths, 65% occur in East and South Asia. Half of the population in Egypt over age 5 is serologically positive for HEV (WHO, 2014a).

Contaminated water from feces of infected humans is the most commonly documented vehicle of transmission. Person-to-person transmission (seen in hepatitis A) does not appear to be a mode of transmission in hepatitis E, because secondary household cases are not common during outbreaks. The attack rate is highest in young adults; cases are uncommon in children and the elderly (Benenson, 1995; CDC, 2012d).

The reservoir is human beings, although an animal reservoir is possible. In the United States, as well as in most other industrialized countries, hepatitis E cases have been documented only among travelers returning from HEV-endemic areas (Benenson, 1995). HEV is endemic in Mexico, Central America, Asia, North Africa, the Middle East, and a few sub-Saharan African countries along the western coast (Abbott Diagnostics, 2008).

The incubation period is 15 to 64 days, with the mean incubation period ranging between 26 and 42 days (Benenson, 1995; Heymann, 2004). Symptoms of hepatitis E include loss of appetite, nausea and vomiting, fever, fatigue, and abdominal pain. Many people who contract HEV have no symptoms. Prevention of hepatitis E relies primarily on the provision of clean water. Hygiene practice must be strict among travelers to prevent contracting hepatitis E when traveling in developing countries, such as avoiding drinking water and beverages with ice, uncooked shellfish, and uncooked fruits and vegetables (Abbott Diagnostics, 2008; CDC, 2012d). There is no vaccine and no identified treatment at this time; thus, prevention is very important. System-level interventions include developing policies and maintaining standards for public water supplies and proper disposal of sanitary waste. World Hepatitis Day is observed annually on July 28.

Influenza

Influenza is another vaccine-preventable disease important in adults. "The flu" is an extremely contagious viral infection of the nose, throat, and lungs. In temperate zones, epidemics occur in the winter season, and in tropical zones, they occur during the rainy season. Influenza derives its importance from the rapidity with which epidemics occur, the high morbidity rate, and the severity of the complications that result from the infection. Annual influenza epidemics account for 3 to 5 million cases of severe illness and 250,000 to 500,000 deaths worldwide each year (WHO, 2014b). During major epidemics, the most severe illnesses and deaths occur in the elderly population and in those with debilitating diseases.

In fact, influenza deaths in the United States increased substantially in the last few decades partly because of the general aging of the population (Thompson et al., 2003). On average, 114,000 people are hospitalized and 36,000 deaths occur from influenza annually in the United States (Goldrick, 2004).

MEDIA MOMENT

Contagion (2011)

When a businesswoman traveling from overseas contracts a deadly virus, her family and medical researchers race against time to identify the cause of the disease and isolate a vaccine. Meanwhile, the social repercussions of the rapidly spreading mystery illness lead to chaos in the sick woman's community—and social breakdown proves as contagious as the disease.

Contagion Movie: Fact and Fiction in Film http://www.cdc.gov/features/contagionmovie/

CDC's Disease Detectives: Contagion, the Movie: Hollywood's Take on Disease Detectives http://www.cdc.gov/24-7/savinglives/disease_detectives/contagion_hollywood.html

Contagion The Movie: A NewPublicHealth Q&ampl; A with Barbara Reynolds http://www.rwjf.org/en/blogs/new-public-health/2011/09/contagion-the-movie-a-newpublichealth-qa-with-barbara-reynolds.html

There are three types of influenza viruses: A, B, and C. Type A, associated with widespread epidemics and pandemics, causes moderate to severe illness and affects all age groups; type B, associated with regional or widespread epidemics, generally causes milder disease than type A

APPLICATION TO PRACTICE

You are a nurse in a neighborhood-based clinic. In October, Mrs. Clark, a 75-year-old woman, comes into the clinic for her regular yearly physical examination. Mrs. Clark is in good health overall, with relatively few minor complaints. Last year, as part of her yearly visit, Mrs. Clark had been given an influenza vaccination. During this visit, however, Mrs. Clark tells you that she does not need to be vaccinated against influenza because she had gotten her "flu shot" last year. She also said, "I don't want the flu shot this year because I know somebody who got sick from it. I don't want to get sick."

1. Should you convince Mrs. Clark to get the influenza vaccination this year? Why or why not?
2. What other vaccines should you consider offering to Mrs. Clark?
3. What are the patient education considerations for Mrs. Clark?
4. What influenza-focused information can you offer Mrs. Clark?

and primarily affects children; and type C, associated with sporadic and minor localized outbreaks, is rare and has not been associated with epidemic disease (Atkinson & Wolfe, 2003; Benenson, 1995). Occurrence is worldwide. The United States has an epidemic almost every year with type A, type B, or sometimes with both A and B.

Influenza symptoms are fever, myalgia, headache, sore throat, dry cough, and some gastrointestinal symptoms, such as nausea, vomiting, and diarrhea. Humans are the primary reservoir, with swine and avian reservoirs as likely breeding grounds for new strains. Avian influenza (H5N1) is discussed further under zoonoses later in this chapter. The mode of transmission is airborne, which is aerosolized or droplet material from the respiratory tract. The incubation period is very short, ranging from 1 to 3 days. People are infectious from 1 to 2 days before onset of symptoms to 4 to 5 days after onset (CDC, 2013g; Heymann, 2004).

Most cases of influenza are preventable through a vaccine. Because the virus changes from year to year, it is necessary to be vaccinated yearly. The following people should receive a yearly vaccine: people 65 years and older, people with chronic disease (cardiac and/or respiratory), people who are immunocompromised, pregnant women who will be in their second or third trimester during the flu season, residents in long-term care facilities, healthcare workers, persons who are morbidly obese, and adolescents receiving long-term aspirin therapy (CDC, 2013g).

GLOBAL CONNECTION

Although clean water is taken for granted in the United States, most of the world's population does not have access to sanitary water. This poses a formidable challenge in the control of water-borne diseases—especially dysentery, which is a major cause of high morbidity and mortality rates throughout the world.

Pneumococcal Disease

Pneumococcal disease is an acute bacterial infection. It is characterized by a rapid onset with shaking chills, fever, pleural pain, a productive cough, dyspnea, tachycardia, anorexia, malaise, and extreme weakness. Its onset is not as rapid in the elderly, and the first evidence is usually by x-ray examination. In infants and young children, the onset may be characterized by fever, vomiting, and convulsions. Pneumococcal disease is most severe in infants and elders, with higher death rates in both groups. The mortality rate is 5% to 10% with antibiotic therapy but can be as high as 60% for infants in developing countries where antibiotics are unavailable. The infectious agent is *Streptococcus pneumoniae* (pneumococcus). Its occurrence is worldwide, with peaks in the winter and early spring in temperate zones. However, it occurs in all climates and in all seasons (Benenson, 1995; Heymann, 2004).

The reservoir for pneumococcal disease is humans, and pneumococci are often found in the lungs of healthy people worldwide. The mode of transmission is airborne through droplets spread either by direct transfer or by indirect transfer when droplets have recently contaminated articles of clothing or bedding with discharge from the respiratory track. Person-to-person transmission is common. The incubation period may be as short as 1 to 3 days.

Pneumococcal disease can be prevented in children and adults through vaccination with polyvalent vaccine. One immunization lasts most adults a lifetime against almost all the bacteria that cause pneumococcal disease. The following adults should be vaccinated: people 65 and older, because risk of infection and fatality rates increase with age; people with chronic diseases; people who are immunosuppressed; and residents of long-term care facilities.

Routine Vaccinations Indicated for Adults

All adults should be protected against many of the same diseases as adolescents and children. The tetanus and diphtheria (Td) vaccine should be given to all adults (**Table 4**).

TABLE 4 Recommended Adult Immunization Schedule, All, by Vaccine and Age Group, 2013

Vaccine Type	20–26 Years	27–59 Years	60–64 Years	65 Years and older
Human papillomavirus (HPV) women	3 doses age 20–26	------------	------------	------------
Human papillomavirus (HPV) men	3 doses age 20–21	------------	------------	------------
Meningococcal	1 or more doses lifetime	1 or more doses lifetime	1 or more doses lifetime	1 or more doses lifetime
Influenza	Every year	Every year	Every year	Every year
Pneumococcal (polysaccharide)	------------	------------	------------	1 dose
Tetanus, diphtheria, pertussis (Tdap)	Get Tdap once, Td booster every 10 years	Get Tdap once, Td booster every 10 years	Get Tdap once, Td booster every 10 years	Get Tdap once, Td booster every 10 years
Measles, mumps, rubella (MMR)	1–2 doses lifetime	1–2 doses lifetime to age 55	------------	------------
Varicella (chickenpox)	2 doses lifetime	2 doses lifetime	2 doses lifetime	2 doses lifetime
Zoster (shingles)	------------	------------	1 dose lifetime	1 dose lifetime
Hepatitis A	2 doses lifetime	2 doses lifetime	2 doses lifetime	2 doses lifetime
Hepatitis B	3 doses lifetime	3 doses lifetime	3 doses lifetime	3 doses lifetime

Source: Data from CDC. (2013f). Recommended immunizations for adults by age. Retrieved from http://www.cdc.gov/vaccines/schedules/easy-to-read/adult.html

It is important for adults to be immunized against diphtheria and tetanus because 1 of every 10 people who get diphtheria will die from it (Heymann, 2004), and 40 to 60 cases of tetanus occur each year, resulting in at least 10 deaths. Almost all reported cases of tetanus occur in people who are inadequately immunized (Atkinson & Wolfe, 2003).

Adults born before 1957 do not usually require the measles, mumps, and rubella vaccine because most of these adults have acquired immunity as a result of having the diseases during childhood. However, all adults born after 1957 should be immunized (see Table 4). Women of childbearing age should be given the rubella vaccine unless they have documentation of immunization after their first birthday. Currently, approximately 12 million women of childbearing age are susceptible to rubella. If rubella occurs during pregnancy, severe birth defects, miscarriages, and stillbirths can result (Atkinson & Wolfe, 2003; National Foundation for Infectious Diseases, 2002a). Although laboratory evidence of rubella immunity is acceptable, a stated previous history of rubella is unreliable and should not be accepted as proof of immunity. Before giving rubella immunization, the nurse should determine the likelihood of pregnancy during the next 3 months. The nurse should discuss with the woman her plans for reliable birth control during the following 3 months. Although there is no evidence that the rubella vaccine or other live viruses cause birth defects, the possibility exists. Thus, healthcare providers should not give any live vaccine to women known to be pregnant (Atkinson & Wolfe, 2003).

All adults without a reliable history of varicella disease (chickenpox) should receive the varicella vaccine. Adults who are either at highest risk for susceptibility or at high risk for exposing people to varicella should be targeted for varicella immunization (see Table 4). These adults include teachers, college students, military personnel, healthcare workers, and family members of immunocompromised persons. Although varicella is not considered a serious disease of childhood, adults

GOT AN ALTERNATIVE?

Many complementary health practices, such as yoga and meditation, can reduce stress and anxiety, thereby enhancing the immune system and reducing the risk of contracting an infectious disease.

are 25 times more likely to die from the disease. Adolescents and adults who develop varicella are 10 times more likely to require hospitalization and/or develop pneumonia, bacterial infections, and encephalitis (Atkinson & Wolfe, 2003; National Coalition for Adult Immunization, 2009).

Emerging and Reemerging Infectious Diseases

Infectious diseases continue to be a problem for all people, regardless of age, gender, lifestyle, ethnicity, or socioeconomic status. New and mutated infectious diseases that have the potential to cause suffering and death and impose an enormous financial burden on individuals and society are always emerging. Two examples occurred in 1997, when a new strain of influenza that had never been seen in humans began to kill previously healthy people in Hong Kong and strains of *S. aureus* with diminished susceptibility to vancomycin were reported in both Japan and the United States. If scientists cannot replace antibiotics that are losing their effectiveness, some diseases may become untreatable, as they were in the pre-antibiotic era (CDC, 1998).

Emerging infectious diseases are diseases that have appeared for the first time or that have occurred before but are appearing in populations where they had not previously been reported. Reemerging infectious diseases are familiar diseases caused by well understood organisms that were once under control or declining but are now resistant to common antimicrobial drugs or are gaining new footholds in the population and increasing in incidence (Dzenowagis, 1997; National Institute for Allergy and Infectious Diseases, 2010).

Concern about emerging and reemerging infectious diseases prompted a 1992 report issued by the Institute of Medicine (IOM) of the National Academy of Sciences (NAS). The report, *Emerging Infections: Microbial Threats to Health in the United States,* concluded that emerging and reemerging infectious diseases are a major threat to the health of Americans and challenged the U.S. government to take action. The IOM (1992) report defined emerging or reemerging infectious diseases as those diseases whose incidence had increased within the last 2 decades of the 20th century or threatened to increase in the near future. Modern conditions that favor the spread of disease are listed in the Environmental Connection feature.

As a result of the IOM (1992) report, in 1994 the CDC and other healthcare groups launched a national effort to support public health efforts to control the negative impact of infectious diseases. As funds became available, the CDC, in partnership with the IOM, state and local health departments, medical and public health professional associations, and international organizations, implemented a plan of prevention strategies to address these disease threats. The four major goals of the plan and the implications for nursing are surveillance, applied research, prevention and control, and infrastructure (CDC, 1994).

ENVIRONMENTAL CONNECTION

Modern Demographic and Environmental Conditions That Favor the Spread of Infectious Diseases

- Global travel
- Globalization of the food supply and centralized processing of food
- Population growth and increased urbanization and overcrowding
- Migration due to wars, famines, and other artificial or natural disasters
- Political refugees and war
- Irrigation, deforestation, and reforestation projects that alter the habitats of disease-carrying insects and animals
- Human behaviors, such as intravenous drug use and risky sexual behavior
- Increased use of antimicrobial agents and pesticides, hastening the development of resistance
- Increased human contact with tropical rain forests and other wilderness habitats that are reservoirs for insects and animals that harbor unknown infectious agents

Source: CDC. (1998). *Preventing infectious diseases: A strategy for the twenty-first century*. Atlanta: U.S. Department of Health and Human Services.

Healthcare-Associated Infections

Healthcare-associated infections (HAIs), also known as nosocomial infections, are acquired by patients while being treated for other conditions in a healthcare setting. According to the CDC, an estimated 2 million HAIs occur annually, resulting in 90,000 deaths. The number of HAIs is steadily increasing with a financial burden of $4.5 billion per year (Kestel, 2006). CDC (2013h) released a landmark report, *Antibiotic Resistance Threats in the United States, 2013*, which "gives a first-ever snapshot of the burden and threats posed by the antibiotic-resistant germs having the most impact on human health." Included are antibiotic-resistant categories for microorganisms with threat levels as urgent, serious, and concerning. Nurses should be aware of these threats and active in prompt reporting.

Staphylococcus aureus, often referred to as "staph," is one of the leading causes of nosocomial (hospital-acquired) infections and is the most common cause of skin infections in the United States. Most of these skin infections are minor and can often be treated without antibiotics. Staph bacteria are commonly carried on the skin or in the noses of healthy people. At any given time 25% to 30% of the population can be colonized with *Staphylococcus aureus* without showing any signs of illness. However, staph bacteria can also cause severe illness (such as surgical wound infections, bloodstream infections, catheter-associated urinary tract infections, and pneumonia) in people who have weakened immune systems (CDC, 2014c).

MRSA

MRSA is a type of staph that is resistant to antibiotics called beta-lactams, which include methicillin and other more common antibiotics such as oxacillin, penicillin, and amoxicillin. Over the years, the number of staph infections caused by MRSA has grown steadily from 2% in 1974 to 63% in 2004 (CDC, 2014c) making it one of the most common nosocomial infections. Vancomycin has been successful in treating MRSA until the last few years. Increasing numbers of vancomycin-intermediate *S. aureus* (VISA) with partial resistance to vancomycin and vancomycin-resistant *S. aureus* (VRSA) have been reported. Before the advent of antibiotics, *Staphylococcus aureus* infections were often fatal. Healthcare providers are concerned that increasing antibiotic resistance may again make staph a leading cause of death (CDC, 2011a; Todd, 2006). Persons at risk for vancomycin-resistant enterococcal (VRE) infections include those with recent vancomycin therapy, comorbidities of diabetes or renal disease, previous infections with MRSA, and those with urinary catheters.

Until the late 1990s, MRSA was confined to patients with weakened immune systems who were being treated for other illnesses in hospitals or other healthcare settings. A new form of MRSA, known as community-acquired MRSA, began occurring in otherwise healthy people in the community (CDC, 2014c; Krisberg, 2006). Community-acquired MRSA, genetically different from hospital-acquired MRSA, accounts for about 10% of all MRSA infections and is still treatable with a variety of antibiotics, although antibiotic-resistant strains are being identified (Gorwitz et al., 2006). While most community-acquired MRSA infections are mild, severe invasive conditions such as necrotizing pneumonia and empyema, osteomyelitis, and necrotizing fasciitis have occurred (Gorwitz et al., 2006; Krisberg, 2006). Community-acquired MRSA has been reported in a variety of populations, groups, and environmental settings. Its genetic distinction indicates that the organism is mutating and evolving rapidly (Krisberg, 2006), which may make it more virulent, more able to affect people with healthy immune systems, and more easily transmitted (CDC, 2014c). These infections may occur in the community, but most deaths are in the nursing home and hospital settings. In addressing tracking and prevention strategies and estimating HAIs in 2013, an "estimated 30,800 fewer MRSA infections occurred in the United States compared with 2005" (Dantes et al., 2013, p. 1970). Another emerging HAI is carbapenem-resistant Enterobacteriaceae (CRE), which have high levels of resistance to antibiotics. Examples of Enterobacteriaceae include *Klebsiella* species and *E. coli* that can become carbapenem resistant. With the increased antibiotic resistance, these are more difficult to treat and have increased mortality rates by up to 50% (CDC, 2013i). One type of CRE infection has been reported in medical facilities in 42 states since the early 2000s. CRE quality improvement staff education includes dedicated staff, patient rooms, and equipment and improved use of gown and gloves (CDC, 2013j).

Primary prevention is the best form of defense against all forms of MRSA. Good handwashing is critical in both hospital and community settings. As always, nurses in all healthcare settings should use standard precautions when exposed to any open skin lesions or wounds. People in the community with skin infections need to be monitored for MRSA and all community members should be informed of the potential risk for MRSA and taught proper handwashing techniques and good general hygiene (CDC, 2014c).

Food-Borne Diseases

Infections caused by food-borne parasites or viruses are common. In 2011, in the United States, 49 million people got sick from food-borne diseases, and more than 3,000 died. In recent years, food-borne illness has become one of the fastest growing threats to community health in the United States (CDC, 2013k; Hoffman et al., 2005; Mahon et al., 1999; NAS, 2005). Much of the reason for this is that enormous quantities of food are being produced in central locations and then being widely distributed to all parts of the country (Mahon et al., 1999). There have also been sharp increases in the number and types of food being imported from other countries (NAS, 2005). In response to these factors, the National Food Safety Initiative

(NFSI) was created in 1997 to improve the safety of the nation's food supply (CDC, 2013l). The NFSI ended in 2001, but the CDC has institutionalized its funding and activities as an ongoing food safety program (Hoffman et al., 2005), which is known as the Foodborne Diseases Active Surveillance Networks, or FoodNet. The health care for people with food-borne illnesses can be very expensive. The yearly cost for food-borne illnesses in the United States is $6.9 billion in medical costs and lost productivity (NAS, 2005).

Foods can serve as a medium for growing bacterial pathogens or as a passive vehicle for transferring parasitic or viral pathogens. Although most food-borne infections are directly related to foods of animal origin such as meat, fish, shellfish, poultry, eggs, and dairy products (Kaferstein & Meslin, 1998), foods of plant origin can also be contaminated. Many food-borne bacterial diseases have emerged or increased since the 1990s. Some of the factors that bring about the multiplication and distribution of these bacteria in food are poor hygienic practices at the animal husbandry, slaughterhouse, and food-processing levels as well as poor food preparation practices.

Prevention

There are three measures of protection against food-borne pathogens (Kaferstein & Meslin, 1998):

Prevention of contamination of food
Prevention of growth of pathogens
Prevention of the spread and survival of pathogens

First, the quality of food at the production level must be improved. The environmental conditions under which food animals are raised and the use of fertilizers and pesticides for food plants must be monitored and controlled.

Second, food-processing technology must be improved and used to prevent the survival and spread of food pathogens. Pasteurization, sterilization, and irradiation contribute significantly to food safety by reducing or eliminating disease-causing organisms.

Third, all food handlers must be educated in the principles of safe food preparation. This is probably the most critical line of defense, because most food-borne diseases are a result of one or more of the following (Kaferstein & Meslin, 1998):

- Insufficient cooking of food
- Preparation of food too many hours before it is eaten, along with improper storage
- Use of contaminated raw food
- Cross-contamination where food is prepared
- Food preparation by infected persons

From a systems approach, FoodNet reports annually on the changes in the number of people sickened with food-borne infections that have been confirmed by laboratory tests. Food-borne diseases monitored through FoodNet include infections caused by the bacteria *Campylobacter*, *Listeria*, *Salmonella*, Shiga toxin–producing *E. coli* O157 and non-O157, *Shigella*, *Vibrio*, and *Yersinia*, and the parasites *Cryptosporidium* and *Cyclospora*. Reporting may be found on the CDC website (CDC, 2013l).

Nurses' Roles in Prevention Because many cases of food-borne diseases are a result of mishandling food in the home, community health nurses who visit families in their homes are in an excellent position to provide education for the persons in a family who are responsible for food handling and preparation (Kaferstein & Meslin, 1998). It is important to stress safety in all stages of food handling. This includes: (1) what to look for when purchasing food at the store or market, (2) how to store food in the home, (3) the importance of good handwashing and clean utensils and surfaces for food preparation, and (4) proper cooking techniques (CDC, 2011c; Dols, Bowers, & Copfer, 2001). School nurses can be successful in reducing the incidence of food-borne infections by educating children in the schools about the concepts of food safety. Educating children is not only an effective way to communicate safe food-handling procedures to parents, but also a way to implant the principles of safe food preparation in the minds of future adults (Kaferstein & Meslin, 1998). School nurses should monitor school food programs and educate school food services personnel about proper handling and storage of foods. Educational programs should also be provided for teachers because of the amount of "food treats" that are served in the classrooms, especially in elementary schools.

Common Food-Borne Diseases in the United States

The top three pathogens contributing to food-borne illness are, in order of highest estimates, norovirus, *Salmonella*, and *Clostridium perfringens*. These three pathogens have been noted in illnesses resulting in hospitalization. *Salmonella*, *Toxoplasma gondii*, and *Listeria monocytogenes* are most frequently noted in fatal food-borne illnesses (CDC, 2011c; CDC, 2013l; Scallan et al., 2011).

Campylobacteriosis Campylobacteriosis, caused by bacteria of the genus *Campylobacter*, is one of the most common diarrheal diseases in the United States. The symptoms (diarrhea, abdominal pain, fever, nausea, and vomiting) usually develop within 2 to 5 days after exposure and typically last 1 week. Most people infected with *Campylobacter* will recover with no treatment except for drinking plenty of fluids for the diarrhea. However, in more severe cases, an antibiotic such as azithromycin or fluoroquinolones can be used. Most cases of campylobacteriosis are a result of handling or eating raw or undercooked poultry. Most cases occur as isolated, sporadic events, although small outbreaks have been reported. More than 10,000 cases are reported to the CDC each year. However, because many cases are undiagnosed or unreported, campylobacteriosis is estimated to affect more than 1.3 million people every year (CDC, 2013m; Potter, Kaneene, & Hall, 2003). Rarely, some persons, after experiencing illness with *Campylobacter*, may have long-term consequences of arthritis or Guillain-Barré syndrome—approximately 1 in 1,000 (CDC, 2013m).

Listeriosis Listeriosis, caused by the bacterium *Listeria monocytogenes*, has been recognized as a serious public health problem in the United States. The symptoms are fever, muscle aches, and sometimes nausea or diarrhea. If the infection spreads to the nervous system, headache, stiff neck, confusion, loss of balance, or seizures can occur. *L. monocytogenes* is found in a variety of raw food, such as uncooked meats and vegetables, as well as in processed foods that become contaminated after processing. The disease primarily affects pregnant women, newborns, and adults with weakened immune systems. An estimated 1,600 people become ill from listeriosis each year, and 260 of them die. Most deaths occur among immunocompromised and elderly patients. Infected persons are treated with antibiotics. However, even with prompt treatment some infections can result in death (CDC, 2013n, 2013o; Scallan et al., 2011).

Salmonellosis Salmonellosis, caused by many different kinds of *Salmonella* bacteria, is a diarrheal disease that has been known for more than 100 years. The symptoms (diarrhea, fever, and abdominal cramps) usually develop within 12 to 72 hours after exposure and usually last 4 to 7 days. Salmonellosis usually does not require any treatment, but if the patient becomes severely dehydrated or the infection spreads from the intestines to other body parts, rehydration with IV fluids and antibiotic therapy may be necessary. *Salmonella* can be transmitted to humans by eating foods contaminated with animal feces. Many raw foods of animal origin are frequently contaminated, but fortunately, thorough cooking kills *Salmonella*. Foods may also be contaminated by the unwashed hands of an infected food handler. Approximately 40,000 cases of salmonellosis are reported in the United States each year, but the actual number of cases may be 30 or more times greater (CDC, 2013p). Most recent outbreaks in 2011 to 2013 can be traced to poultry farms and handling of small turtles (CDC, 2013q, 2013r). Also, an outbreak in 473 persons infected in 41 states (with no deaths) was traced to small turtles with shell size less than 4 inches, which originated from two turtle farms in Louisiana. Pet owner alerts were issued and farms monitored.

***Escherichia coli* O157:H7** *Escherichia coli* O157:H7 is a leading cause of food-borne illness. *E. coli* O157:H7 is one of the hundreds of strains of the bacterium *E. coli*. Most strains of *E. coli* are harmless and live in the intestines of healthy humans and animals, but *E. coli* O157:H7 produces a powerful toxin that can cause severe illness. The combination of letters and numbers in the name refers to specific markers on the surface of the bacterium that distinguish it from other types of *E. coli*. The symptoms of *E. coli* O157:H7 are bloody diarrhea and abdominal cramps, although sometimes there are no symptoms. Most people recover in 5 to 10 days without antibiotics or other specific treatment. In about 8% of infections, particularly among young children and elders, hemolytic uremic syndrome (HUS) develops. This complication causes destruction of the red blood cells and kidney failure. HUS is a life-threatening condition usually treated with blood transfusions and kidney dialysis. With intensive care treatment, the death rate for HUS is 3% to 5%. Many persons with HUS have permanent abnormal kidney function and may require long-term dialysis. Most cases of *E. coli* O157:H7 are associated with eating undercooked, contaminated ground beef; drinking raw milk; or swimming in or drinking sewage-contaminated water (CDC, 2013s).

Three recent major *E. coli* outbreaks in the United States were traced to a variety of food sources: raw sprouts, frozen prepared food products such as pizzas and quesadillas, and ready-to-eat packaged salads. The first of these occurred in early 2012, in which 29 persons in 11 states with confirmed *E. coli* illness reported eating raw sprouts at a specific restaurant chain in the week prior to illness (CDC, 2013t). The second case, which occurred in May 2013 (CDC, 2013u), was traced to a Georgia food-processing plant; the subsequent recall extended to products produced over a nearly 2-year period. That outbreak involved 35 persons from 19 states, with 31% of ill persons hospitalized; there were no deaths, but two victims experienced HUS. The final episode, in November 2013, was an outbreak in which 33 people reported illness in four states (CDC, 2013v). All confirmed consuming ready-to-eat salads produced by a California company. Of those affected, 32% were hospitalized but no deaths were reported. HUS was reported in two victims.

Vector-Borne Diseases

A **vector** is an "animal, particularly an insect, that transmits a disease-producing organism from a host to a noninfected animal" (Agnus, 2004). Vector-borne diseases were responsible for more human disease and death from the 17th century through the early 20th century than all other causes combined (Gubler, 1998). In the late 1800s, mosquitoes were discovered to transmit such diseases as malaria, yellow fever, and dengue from human to human. By 1910, other major vector-borne diseases, such as African sleeping sickness, plague, Rocky Mountain spotted fever, Chagas disease, sandfly fever, and louse-borne typhus, had been shown to be transmitted by bloodsucking arthropods (Gubler, 1998).

Primary prevention interventions are focused on personal protection and vector controls. They include wearing of long sleeves and long pants, DEET-treated bed nets, use of insect repellant; having intact screens on doors and windows, limiting outdoors exposure from dusk to dawn, and emptying sources of standing water outside. Through a global effort during the 20th century, most of the vector-borne diseases in the world had been effectively controlled, primarily by the elimination of arthropod breeding sites and limited use of chemical insecticides.

However, the benefits of vector-borne disease control programs were short lived. Vector-borne diseases such as Lyme disease and malaria began to emerge and reemerge in different parts of the world during the 1970s, and the numbers of cases have greatly increased since then. Although the reasons for the resurgence are complex and poorly understood, two factors have been identified: (1) the diversion of financial support and subsequent loss of public health infrastructure and (2) reliance on quick-fix solutions such as insecticides and drugs (Gubler, 1998).

Malaria

Malaria is one of the oldest known diseases, with the first recorded case appearing in 1700 b.c. in China. In ancient Chinese, it was called "the mother of fevers" ("The mother of fevers," 1998). Malaria is the most important of all vector-borne diseases because of its global distribution, the numbers of people affected, and the large numbers of deaths (CDC, 2012e; Gubler, 1998). Worldwide, 8% of all deaths of children younger than 5 years of age are attributed to malaria. Each year, approximately 350–500 million people are infected by it, and as many as 1 million children (WHO, 2005a).

Today, cases of malaria are reported in 107 countries throughout the world. Although more than 60% of cases and 80% of deaths occur in sub-Saharan Africa, the disease is also found in parts of Asia, the western Pacific, and Central and South America. An estimated 3.3 billion people live in areas at risk of malaria transmission (CDC, 2012e). Air travel has brought the disease to the doorsteps of industrialized countries, resulting in increased illness and death among travelers to areas with endemic disease (Nchinda, 1998). (See **Box 4**.) Although malaria is not endemic to the United States, it is the most common imported disease in the United States. Although malaria is not a widespread problem in the United States, nurses should be alert for imported malaria infection in their patients who travel abroad. In 2011, approximately 2,000 cases of malaria were diagnosed and treated in the United States. The majority of persons had traveled to regions with malaria transmission, with the most having visited sub-Saharan Africa (CDC, 2012e).

Malaria in humans is caused by a protozoon of the genus *Plasmodium* and the four subspecies, *falciparum, vivax, malariae,* and *ovale* (Nchinda, 1998). *P. falciparum* causes the most severe form of the disease in humans (Molyneux, 1998; Yin, 2006). The disease is transmitted through the bite of *Anopheles* mosquitoes (CDC, 2012e; Marsh & Waruiru, 1998; Nchinda, 1998). Once inside the human host, the malaria organism enters the bloodstream and travels directly to the liver, where it hides and multiplies. After about 2 weeks, the newly produced organisms burst out of the liver into the bloodstream, where they attack red blood cells. These new malaria organisms rapidly reproduce in the bloodstream over the next few days until there are tens of millions of them. It is at this point that

BOX 4 Factors Contributing to the Resurgence of Malaria

- Increased resistance of malaria organisms to drugs currently used for treatment
- Civil wars in many countries, forcing large populations to relocate to different geographic regions
- Changing rainfall patterns and water development projects (e.g., dams, irrigation systems), which create new mosquito breeding places
- Poor economic conditions resulting in reduced health budgets and inadequate funding for drugs
- Changes in mosquito biting patterns, from indoor to outdoor biters

Source: Nchinda, T. C. (1998). Malaria: A reemerging disease in Africa. *Emerging Infectious Diseases, 4*(3), 398–403.

the human host begins to feel symptoms of illness (CDC, 2012e; Marsh & Waruiru, 1998).

The first signs of illness are usually fever and malaise, often accompanied by a severe headache. At this stage of the illness, many people think they are experiencing the flu. Other malaria symptoms, such as vomiting, diarrhea, or coughing, might lead nurses or other healthcare providers to suspect gastric upset or respiratory infection. Malaria is a great imitator, making it important for nurses to suspect any fever as a potential case of malaria for patients who have recently traveled to a country where the disease is known to exist. Early diagnosis and rapid treatment are the keys to the secondary prevention efforts necessary to keep the disease from progressing to a complicated or severe state (CDC, 2011b; Marsh & Waruiru, 1998). No malaria vaccine is available at this time; instead, those traveling to areas where malaria is endemic are encouraged to take the recommended drug prophylaxis. Drug choices include atovaquone/proguanil (Malarone), chloroquine, doxycycline, mefloquine, or primaquine, but the choice is influenced by the country destination, personal health status, and frequency of dosage (CDC, 2011b).

Lyme Disease

In the 1990s, Lyme disease was listed as the most important emerging infection in the United States, accounting for 90% of vector-borne illness (Herrington et al., 1997). First identified in 1975, when unusually high numbers of children living in Lyme, Connecticut, were diagnosed with juvenile arthritis, the annual number of reported cases of Lyme disease increased to 23,305 cases reported in 2005 for a national average of 7.9 cases per 100,000 population. In the 10 states where Lyme disease is most common, the average was 31.6 per 100,000 (CDC, 2013w). In the United States in 2012, Lyme disease was the seventh most commonly reported disease in the Nationally Notifiable Disease database and the most commonly reported of all of the vector-borne illnesses. Reporting is noted in 13 of the 50 states. Reported confirmed cases of Lyme disease in 2003–2012 ranged yearly from a low of 19,804 in 2004 to a high of 29,959 confirmed cases in 2009 (CDC, 2013w).

The disease is caused by infection with the spirochete *Borrelia burgdorferi*, transmitted by infected *Ixodes scapularis* ticks in Northeastern, Midwestern, and Southern states and *I. pacificus* on the West Coast (CDC, 2013x). (See **Box 5**.) These ticks generally feed on white-tailed deer and the white-footed mouse. Most cases of human illness occur in late spring and summer when ticks are most active and people spend more time outdoors (CDC, 2013x).

BOX 5 States with the Highest Incidence of Lyme Disease, 2012

	Cases per 100,000
New Hampshire	75.9
Maine	66.6
Vermont	61.7
Delaware	55.3
Massachusetts	51.1
Connecticut	46.0
Pennsylvania	32.5
New Jersey	30.8
Wisconsin	23.9

Source: Data from CDC. (2013w). Lyme disease: Statistics. Retrieved from http://www.cdc.gov/lyme/stats/index.html

The symptoms of Lyme disease are multistage and multisystem. Early disease symptoms include a red rash resembling a bull's eye forming over the tick bite and systemic flulike symptoms such as headache, muscular aches and pains, and fatigue. If untreated, symptoms can progress to include heart problems such as an irregular heart rate, shortness of breath, or dizziness; neurological problems such as meningitis, Bell's palsy, numbness, pain, weakness in the limbs, or poor muscle coordination; and arthritis that shifts from joint to joint, with the knee being most commonly affected. About 60% of untreated patients develop chronic arthritis (CDC, 2013x).

Most cases of Lyme disease can be treated with antibiotic therapy. The earlier the treatment is begun, the more successful the treatment will be. However, early diagnosis is difficult because many of the disease symptoms mimic those of other disorders, and the distinctive bull's-eye rash is absent in 20–30% of those infected (CDC, 2013x). It is important for the nurse to interview patients presenting with flu symptoms thoroughly to determine whether possible exposure to deer ticks could have occurred, particularly in warm weather months. After the initial 2–4 week antibiotic therapy for Lyme disease, 10–20% of patients experience post-treatment Lyme disease syndrome. They may report lingering muscle aches, joint aches, pain, and fatigue. Some of these symptoms may last longer than 6 months. Ongoing research is being conducted to further evaluate this condition (Barbour, 2012; CDC, 2013y).

RESEARCH ALERT

Campylobacter jejuni is one of the most common causes of bacterial gastroenteritis in the United States. Including undiagnosed and unreported cases, it is estimated to affect more than 2 million people annually, with its costs estimated to be between $1.3 billion and $6.2 billion.

This prospective, matched case-control study was implemented to determine the risk factors for *C. jejuni* enteritis in rural communities. It was hypothesized that exposure to food animals is a major risk and that the odds of infection change with exposure to different species. Study participants were selected from among all new cases of *C. jejuni* reported to the Michigan Department of Community Health during the 1-year period from October 2000 to October 2001. Each case subject was matched with two control subjects according to specified criteria. All participants completed a self-administered postal questionnaire.

The results of the data analysis indicated that contact with farm animals was a significant risk factor. Specifically, the caring for and raising of poultry increased the odds for the disease seven times more than the odds associated with husbandry of other species known to be reservoirs of *C. jejuni*. The study concluded that an estimated 18% of *C. jejuni* cases occurring in rural areas are attributable to poultry husbandry.

Source: Potter, R. C., Kaneene, J. B., & Hall, W. N. (2003). Risk factors for sporadic *Campylobacter jejuni* infections in rural Michigan: A prospective case-control study. *American Journal of Public Health, 93*(12), 2118–2123.

West Nile Virus (WNV)

WNV is a *Flavivirus* commonly found in Africa, West Asia, and the Middle East. The first case of West Nile virus was discovered in the West Nile District of Uganda, Africa, in 1937. It first appeared in Egypt and Israel in the 1950s, where it was recognized as a cause of severe human meningoencephalitis. In recent years, it has emerged in the temperate regions of Europe and North America, with the first case in the United States occurring in 1999. In 2013, there were 2,318 cases of WNV infections including 105 deaths, which occurred in 48 states and the District of Columbia (CDC, 2013z).

The virus is spread by infected mosquitoes and can infect humans, horses, many types of birds, and a few other kinds of animals (CDC, 2013aa).

Humans generally experience a mild form of the disease, characterized by flu-like symptoms that typically last only a few days and do not appear to cause any long-term negative effects. However, in less than 1% of cases, humans can develop severe neurological diseases—West Nile encephalitis, West Nile meningitis, or West Nile meningoencephalitis. Among those with severe illness, case fatality rates range between 3% and 15% and are highest among elderly patients (CDC, 2013aa; Petersen & Marfin, 2002).

Zoonoses

Many of the infectious diseases that have emerged or reemerged in the past few years have been zoonotic. Zoonoses are diseases that are caused by infectious agents that can jump from species to species—jumping from vertebrate animals to humans (Agnus, 2004; Murphy, 1998). Vector-borne diseases can also be considered zoonotic because they are indirectly transmitted from animal reservoirs to human reservoirs via another living source, usually insects. Throughout time, humans have interacted with the other animals that share the Earth. Whether domesticated work animals, animals raised or hunted for food, family pets, or unwanted household pests, animals and their products are an integral part of our daily lives (Meslin & Stohr, 1998). A variety of both domestic and wild animals carries viruses, bacteria, or parasites that can be transferred to humans either through direct contact with the animals and their waste products or through food products of animal origin (Heymann, 1998). About half of all microorganisms known to infect humans come from animals. Since the 1980s, scientists have identified more than 40 new infectious diseases, most of which have come from animals (Baylor College of Medicine, 2014; WHO International Health Regulations (n.d.). Zoonotic diseases seem to be increasing at a rapid pace for several reasons: Global human populations are increasingly bringing people into closer contact with animal populations; modern air travel has made it possible to travel to the other side of the world in a matter of hours; enormous environmental changes have been brought about by human activity; and bioterroristic activities are increasing, and the infectious agents of choice are usually zoonotic (CDC, 2007; Murphy, 1998).

Hantavirus

Hantavirus pulmonary syndrome was first recognized in the southwestern United States in 1993 when several deaths occurred from acute respiratory distress syndrome (CDC, 2012f).

Initial symptoms include fever plus muscle aches and pains, and may include gastrointestinal upset and headache. Late symptoms occur 4–10 days after initial symptoms and include respiratory difficulty as the lungs fill with fluid. As of January 2007, 460 cases were reported in 30 states, with 35% of cases resulting in death (CDC, 2012f).

Deer mice are the primary reservoir hosts for the southwestern states, along with cotton rats and rice rats in the Southeast and white-footed mice in the Northeast. Infection can occur when saliva or feces particles are inhaled in aerosol form during direct contact with the rodents or when dried materials contaminated by rodent excreta are loosened, directly introduced into open wounds or eyes, or ingested in contaminated food or water. Humans can also become infected through rodent bites (CDC, 2012f). Avoidance of contact with most rodent populations is the best way to prevent infection and control disease. Risks can be controlled through environmental hygiene practices that deter rodents from inhabiting home and work environments (CDC, 2012f). In 2012, there were 10 confirmed cases of hantavirus infection in Yosemite National Park; nine with persons staying at the Signature Tents Cabins in Curry Village in the park and probable exposure of one person while hiking nearby (CDC, 2012f).There is no specific treatment, cure, or vaccine for hantavirus. If infected individuals are diagnosed early, they can be intubated and receive oxygen therapy. However, if the individual experiences full respiratory distress without being treated, it is too late to begin oxygen therapy and the infected person usually dies (CDC, 2012f).

Avian Influenza

Since 2003, the WHO has been monitoring the progress of avian influenza, also known as bird flu, a highly pathogenic influenza virus found in parts of eastern Asia that has the potential to cause a major pandemic. As of early 2007 only a few cases had been reported in humans, with transmission occurring primarily from birds to humans. However, the high mortality rate and lack of effective treatment or vaccines for avian influenza have health professionals concerned that the virus could mutate and become transmissible from human to human. As more and more migratory birds carry the infection to western Asia, Africa, and other parts of the world, it could prove to be a serious threat to human health and wreak the kind of worldwide devastation caused by the 1918 Spanish influenza epidemic that killed more than 50 million people and created social, economic, and political havoc (CDC, 2014d; Schwartz, 2006).

Pet Diseases

Pets, especially cats and dogs, are considered members of the family by many people worldwide. People give their pets names, share their food, and sometimes even share their beds with them, all in exchange for unconditional love (De Menezes Brandao & Anselmo Viana da Silva Berzins, 1998). Unfortunately, pets can be a source for zoonotic diseases. However, if pets are well nourished, properly vaccinated, and regularly examined by a veterinarian, there is little to fear (CDC, 2013bb; Chomel, 1998).

Cat-scratch fever, caused by *Bartonella henselae*, is generally a benign local inflammation of the lymph nodes transmitted through a break in the skin caused by a cat scratch. However, in people with weakened immune systems, it causes bacillary angiomatosis, a life-threatening vascular disease in which tumors are formed from blood cells. The organism is transmitted from cat to cat primarily by fleas (CDC, 2013bb; Chomel, 1998).

In American households, pets are members of the family. Children are especially vulnerable for exposure to infectious agents carried by pets.

In countries where plague is endemic, cats can become infected or carry fleas from infected rodents they may have killed. Several cases of bubonic and pneumonic plague in humans in the United States have been associated with pet cats (CDC, 2013bb; Chomel, 1998).

Pets can carry infectious agents such as *Campylobacter* or *Salmonella*, which can cause diarrheal and gastrointestinal illness. Puppies and kittens with diarrhea pose the greatest risk. Reptiles are also carriers of a wide variety of *Salmonella* species. Pet turtles and iguanas have been linked to several severe, and even fatal, cases of *Salmonella* among young children worldwide. It is easy to see why handwashing is extremely important after handling pets and before eating (CDC, 2013r; Chomel, 1998).

Rabies

Rabies is probably the best known and most feared of the zoonoses because the disease is almost always fatal in humans once symptoms occur. WHO estimates that more than 55,000 deaths from rabies occur a year, but the figure may actually be higher because of the large number of deaths worldwide that go unreported. In the United States, the number of rabies-related deaths has declined from more than 100 annually in 1900 to only one or two per year in the 1990s. Modern prevention efforts have proven almost 100% effective, with U.S. deaths occurring only in people who do not recognize their risk and fail to seek medical treatment (CDC, 2013cc).

The virus is usually transmitted through bites from infected animals, but in rare cases, it can also be transmitted through infected licks on mucous membranes, inhaled infected bat secretions, and corneal transplants from undiagnosed human donors. Reservoirs for infection are domestic dogs and cats as well as many wild animals such as skunks, raccoons, foxes, wolves, and bats (Wilde & Mitmoonpitak, 1998). Before 1960, most rabies cases were in domestic animals, but now, more than 90% of cases occur in wild animals (CDC, 2013cc). Efforts by U.S. wildlife agencies have helped control rabies in wild animal populations in recent years.

Although human rabies deaths in the United States are rare, the public health costs to prevent and control rabies exceed $300 million a year. These costs include vaccinations for pets and other domestic animals, animal control programs, maintenance of rabies laboratories, and medical costs related to rabies post-exposure prophylaxis (RPEP) treatment for humans bitten by at-risk animals (CDC, 2013cc).

After entering the host, the rabies virus multiplies slowly at the portal of entry. It then invades the surrounding nerve tissue and slowly migrates to the spinal cord and brain. Once there, it multiplies, causing a rapid death. The incubation period can range from a few days to many years (CDC, 2013cc; Wilde & Mitmoonpitak, 1998). Rabies in humans is preventable by immediately cleansing all animal bites with soap and water and using rabies immune globulin and vaccine as indicated (Benenson, 1995; Heymann, 2004; Wilde & Mitmoonpitak, 1998). Current rabies vaccinations are the best protection for pets and other domestic animals, thus significantly reducing the risk of exposure for humans. In 2013, one death was confirmed from rabies, which was contracted through organ transplantation done more than a year prior. The CDC reports only one other person to have died from the same raccoon-type rabies virus in the last 50 years (CDC, 2013dd).

Parasitic Diseases

Parasitic diseases, although more common in developing countries, have been on the rise in recent years in the United States. According to *Webster's Dictionary* (Agnus, 2004), a *parasite* is an animal that lives on or in an organism of another species, from which it derives sustenance or protection without benefit to, and usually with harmful effects on, the host. The most common parasites are helminths (worms and flukes) and one-celled protozoans.

Helminths

Pinworm infection (enterobiasis) occurs worldwide and is the most common helminth intestinal infection in the United States, with the highest prevalence in school-aged children, followed by preschoolers. The prevalence is low in adults except for mothers of infected children. Pinworm infection often results in no symptoms, but in some persons, there may be perianal itching and disturbed sleep. Diagnosis can be made by applying cellophane tape to the perianal region early in the morning before bathing or defecating. Transmission occurs by direct transfer of infective eggs from the anus to the mouth or indirect transfer through contaminated clothing, bedding, food, or other fomites. Treatment with oral vermicides and disinfection of clothing and bedding are usually effective (Benenson, 1995; Heymann, 2004).

Roundworm infection (ascariasis) occurs worldwide, with the highest prevalence in children between 3 and 8 years of age living in moist, tropical countries. Typically, no symptoms occur. Live worms, passed in stools or occasionally through the mouth or nose, are often the first sign of roundworm infection. Transmission occurs by ingestion of infective eggs from soil contaminated with human feces or from uncooked produce contaminated with soil containing infective eggs; it is not transmitted directly from person to person. Treatment with oral vermicides is usually effective (Benenson, 1995; Heymann, 2004).

Hookworm infection (ancylostomiasis) is widely endemic in tropical and subtropical climates but can also occur in temperate climates. Approximately 2 billion people are estimated to be infected with hookworms (WHO, 2014c). In persons with heavy infections, there is severe iron deficiency, which leads to severe anemia. Children with heavy, long-term infection may have hypoproteinemia and may be delayed in physical and mental development. Light hookworm infections generally produce no clinical symptoms. Diagnosis is made by finding hookworm eggs in feces. Transmission occurs by larvae in the soil penetrating the skin, usually of the foot. The larvae then enter the bloodstream and travel to the lungs, where they enter the alveoli and migrate up the trachea to the pharynx. They are swallowed and reach the small intestine, where they develop into mature half-inch worms in 6 to 7 weeks. They attach to the intestinal wall and suck blood. Treatment with vermicides is usually effective (Benenson, 1995; CDC, 2008a; Heymann, 2004).

Protozoans

Giardiasis Giardiasis is a disease caused by *Giardia lamblia*, a microscopic, one-celled parasite that lives in the intestines of humans and animals. This parasite is found in every part of the United States and every region of the world. In recent years, giardiasis has become one of the most common water-borne diseases in the United States. Transmission is through the fecal–oral route or through ingestion of contaminated food or water from swimming pools, lakes, rivers, springs, ponds, or streams. The most common symptoms of giardiasis are diarrhea, abdominal cramps, nausea, fatigue, and weight loss. Symptoms usually appear within 1 to 2 weeks after exposure and generally last 2 to 6 weeks, but they can last longer (CDC, 2008b; Heymann, 2004).

Persons at risk for giardiasis are childcare workers, children in diapers who attend daycare centers, international travelers, hikers, campers, or anyone who drinks untreated water from a contaminated source. Because chlorine does not kill *G. lamblia*, several community outbreaks have been linked to contaminated community water supplies (CDC, 2008b; Heymann, 2004).

RESEARCH ALERT

Government-sponsored research from 2006 found that the mutated, drug-resistant "superbugs" that are causing an increasing number of hospital infections and deaths can live for weeks on bed linens, on computer keyboard covers, and under acrylic fingernails. *Staphylococcus aureus*, a methicillin-resistant strain, is usually harmless and very common, found on skin or in the noses of about 30% of all people. In hospitals, methicillin-resistant *S. aureus* (MRSA) can cause serious and sometimes deadly infections, including necrotizing fasciitis or "flesh-eating" disease. Only vancomycin administered intravenously can treat MRSA. Computer keyboards can contaminate the fingers, bare or gloved, of a nurse or physician, who could then transfer bacteria to patients.

Source: Centers for Disease Control and Prevention. (2007). *MRSA in healthcare settings*. Retrieved from http://www.cdc.gov/mrsa/healthcare/

Giardiasis is difficult to diagnose and may require examination of several stool specimens over several days. The pharmacological treatment for giardiasis is metronidazole (Flagyl). Nurses can help prevent giardiasis outbreaks in their communities by teaching patients in community settings to wash their hands after using the bathroom and before handling food, to wash and peel all raw vegetables and fruits, and to avoid drinking water from any source unless it has been filtered or chemically treated (Benenson, 1995; CDC, 2008b; Heymann, 2004).

Cryptosporidiosis Cryptosporidiosis, often called *crypto*, is a disease caused by *Cryptosporidium parvum*, a microscopic, one-celled parasite. Although not a new disease in the developing world, cryptosporidiosis made its first major appearance in the United States in 1993 when 400,000 people became ill with diarrhea after drinking contaminated water. Today, crypto is still a major threat to the U.S. water supply. Transmission is through the fecal–oral route or through ingestion of food or water contaminated with stool, including water in recreational parks or swimming pools (CDC, 2008c; Heymann, 2004).

Immunocompromised persons are most at risk for crypto infection, particularly HIV-positive persons or persons receiving chemotherapy for cancer treatment. Other persons at risk for infection are childcare workers, children in diapers who attend daycare centers, persons exposed to human feces by sexual contact, and caregivers of persons infected with crypto. The most common symptoms are watery diarrhea and cramps, which in some cases can be severe. Weight loss, nausea, vomiting, and fever may also occur (CDC, 2008c; Guerrant, 1997; Heymann, 2004).

Currently, no cure exists for crypto, but some drugs (e.g., paromomycin) may reduce the severity of the symptoms. Oral rehydration powders and sports drinks can help prevent dehydration. Nurses can help at-risk populations reduce their risk by teaching them to wash their hands often with soap and water; to avoid sex that involves contact with stool; to avoid touching farm animals; to avoid touching the stool of pets; to wash and/or cook food; to be careful when swimming in lakes, rivers, pools, or hot tubs; to drink safe water; and to take extra precautions when traveling, particularly to developing countries (CDC, 2008c; Heymann, 2004).

Bioterrorism

A bioterrorism attack occurs when viruses, bacteria, and other infectious agents are used to deliberately cause illness or death in people, animals, or plants. Infectious agents make perfect instruments of destruction. They self-propagate, adapt easily, jump international borders effortlessly, and it takes only a small amount to wreak havoc on a nation's healthcare system. Agents used for biowarfare are living organisms or toxins secreted by living organisms (Drexler, 2002). The anthrax outbreaks in the United States during the fall of 2001 proved that bioterrorism could be a significant threat to public health (CDC, 2006).

Many infectious agents found in nature can be used even more effectively as biological weapons when altered to increase their ability to cause disease, resist current medications, and spread more rapidly in the environment (CDC, 2006). In a bioterrorist attack, health officials might not notice until too late. Pathogens require an incubation period to multiply in the body before triggering symptoms. It could be days or weeks before the first signs of disease are apparent and even longer to identify outbreaks as an epidemic. By the time an epidemic situation is established, it may be impossible to determine the triggering event or events (Drexler, 2002).

Bioterrorism agents kill by causing suffocating pneumonia, septic shock, massive bleeding, or paralysis. The CDC divides bioterrorism agents into three categories, depending on how easily they can spread and the severity of the illness they can cause. Category A agents include organisms or toxins that are considered the highest risk to public and national security because they can be easily spread or transmitted from person to person and result in high death rates. They have the greatest potential for major public health impact, because they can cause public panic and social disruption and require special action for public health preparedness (CDC, 2006; Drexler, 2002). Category B agents are the second highest priority because they are moderately easy to spread, result in moderate illness and low death rates, and require specific enhancements of the CDC's laboratory capacity and enhanced disease monitoring. Category C agents are the third highest priority because they are easily available, easily produced and spread, and have the potential for high morbidity and mortality rates and major public health impact. The agents include emerging pathogens that could be engineered for mass spread in the future (CDC, 2006). See **Box 6** for the diseases listed under each category.

BOX 6 Categories of Bioterrorism Agents/Diseases

Category A

- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum* toxin)
- Plague (*Yersinia pestis*)
- Smallpox (*Variola major*)
- Tularemia (*Francisella tularensis*)
- Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g., Lassa, Machupo])

Category B

- Brucellosis (*Brucella* species)
- Epsilon (toxin of *Clostridium perfringens*)
- Food safety threats (e.g., *Salmonella* species, *Escherichia coli* O157:H7, *Shigella*)
- Glanders (*Burkholderia mallei*)
- Melioidosis (*Burkholderia pseudomallei*)
- Psittacosis (*Chlamydia psittaci*)
- Q fever (*Coxiella burnetii*)
- Ricin toxin (from *Ricinus communis* [castor beans])
- Staphylococcal enterotoxin B
- Typhus fever (*Rickettsia prowazekii*)
- Viral encephalitis (alphaviruses [e.g., Venezuelan equine encephalitis, eastern equine encephalitis, western equine encephalitis])
- Water safety threats (e.g., *Vibrio cholerae, Cryptosporidium parvum*)

Category C

- Emerging infectious diseases such as Nipah virus and hantavirus

Source: CDC. (2014e). Bioterrorism Agents/Diseases. Retrieved from http://www.bt.cdc.gov/agent/agentlist-category.asp

Response to a bioterrorism event will require a rapid deployment of limited public health resources. The health of America's communities will depend on the nation's public health workforce. This workforce includes physicians, nurses, environmental health scientists, health educators, laboratory personnel, and managers, supplemented by other professionals, first responders, and volunteers who will form the public health frontline of defense. Preparation in the core competencies of bioterrorism and emergency preparedness is essential for agencies and communities to respond appropriately. The most common agents for nurses to have a working knowledge of include anthrax, botulism, plague, smallpox, and tularemia (CDC, 2014e). Nurses should be familiar with the aspects of drug administration for the following commonly prescribed medications in the event of an act of bioterrorism: tetracycline, doxycycline, streptomycin, gentamycin, chloramphenicol, and ciprofloxacin. Factors such as the exposed person's age and weight, pregnancy status, drug allergies, and the agent exposed are evaluated to determine the appropriate medications and possible routes of administration (oral [PO], intramuscular, or IV). Anthrax, botulism, and tularemia have no person-to-person transmission. The vaccine for anthrax is available for high-risk populations such as lab and mortuary workers, first responders, and the military. Extensive partnerships are required among federal, state, and local agencies; educational institutions; and professional organizations to ensure a systematic approach to education and training (CDC, 2002). The CDC (2012g) Strategic National Stockpile (SNS) has stockpiled medications for the American public in the event of a public health emergency or bioterrorism attack. Medication may be delivered by open or closed "points of distribution" (PODs). The public should be encouraged to prepare for such circumstances as they would for any other disaster—by getting a kit, making a plan, and staying informed.

HIV/AIDS

The most significant emerging disease in the world since the 1980s is HIV/AIDS. AIDS is the life-threatening, late clinical stage of infection with HIV. The disease was first recognized as a distinct syndrome in 1981, and the virus was first isolated in 1983 (Benenson, 1995; Heymann, 2004).

As of December 2013, the number of people currently infected with HIV was about 1.1 million. Cumulatively, about the same number of people have been diagnosed with AIDS (the immunodeficiency disorder that is caused by HIV infection) since the disease was first identified. The rate of infection has stabilized at about 50,000 new cases per year. The total number of deaths from AIDS in the United States was 636,000 at the end of 2013 (CDC, 2013ee). Worldwide, the number of adults and children estimated to be living with HIV is about 35.3 million (UNAIDS, 2013), but new infections have declined since 2001. In 2012, approximately 260,000 children were newly infected with HIV—a decline of nearly 50% since 2001—and an overall decrease of 33% in new HIV infections (from about 3.4 million in 2001 to about 2.3 million in 2012) has been observed as well (UNAIDS, 2013). An estimated 1.6 million deaths occurred in 2012, a decrease of about 31% since 2005 (UNAIDS, 2013).

HIV can be transmitted from person to person through unprotected sexual contact, through direct contact with blood or blood products through sharing needles or razors, and from mother to baby during gestation or the birthing process (Benenson, 1995; Heymann, 2004).

Tuberculosis

TB is one of the leading causes of death worldwide from an infectious agent. Approximately 2 billion people to one-third of the world's population are infected with TB, with about 860,000 new cases and 1.3 million deaths occurring in 2012 (WHO, 2014d).

Historically, TB has been one of the great scourges of humankind. It was a leading killer in the United States until the advent of antibiotics in the 1950s. For the next 30 years, TB was on a steady decline, at least in the developed countries (American Association for World Health [AAWH], 1998; CDC, 2005). The 1980s, however, saw a sharp increase in TB cases, which has been primarily the result of the development of multidrug-resistant (MDR) strains of the disease (AAWH, 1998; CDC, 2005). Other reasons for the upsurge include the spread of TB in institutional living facilities such as shelters and correctional facilities, a declining public health infrastructure, increased immigration from regions where TB is endemic, and the HIV/AIDS pandemic (Clark, Cegielski, & Hassell, 1997).

The number of reported TB cases in the United States has shown a steady decline, with fewer than 10,000 cases reported in 2012 (CDC, 2013ff), but the rate of decline has been slowing each year since 2000. The greatest concern now is that various strains of TB are showing resistance to multiple antibiotic drugs (multidrug-resistant or MDR-TB). Cases are still high among high-risk groups such as the incarcerated, the homeless, elders, and HIV-infected persons, as well as underrepresented racial and ethnic groups and immigrants from countries with high TB rates and inadequate control measures (AAWH, 1998; CDC, 2013ff).

TB is caused by *Mycobacterium tuberculosis* and is transmitted by droplets in the air. It usually affects the lungs (pulmonary), which accounts for 75% of all cases, although other body organs may be involved (extrapulmonary) about 25% of the time. TB can live in an infected person's body and not cause illness. This is called *inactive* TB or latent TB. Approximately 5% of people with inactive TB develop active TB or TB disease later in life. Only about 10% of all persons infected with TB actually develop active TB. Symptoms of active TB include fatigue, weight loss, fever, chills, and night sweats. Symptoms of pulmonary TB also include a persistent cough, chest pain, and bloody sputum (CDC, 2013ff).

TB is both preventable and curable. Prevention is focused on treating persons with inactive TB infection prophylactically with anti-TB medications such as isoniazid (INH) for 6 to 12 months. It is extremely important for infected persons to complete the preventive therapy treatment both to prevent progression to active disease and to prevent the development of drug-resistant organisms (CDC, 2013ff).

Treatment for persons with active TB disease commonly includes such drugs as INH, rifampin, pyrazinamide, ethambutol, and streptomycin. These drugs are usually prescribed in various combinations. It is important that persons with active TB take the medication therapy prescribed for at least 6 months (CDC, 2013ff).

MDR-TB may occur when medications are not taken consistently for the 6 to 12 months necessary to completely destroy the *M. tuberculosis* organism. In some U.S. cities, more than 50% of TB patients fail to complete their prescribed course of therapy. Many of these patients are homeless persons, drug addicts, or other persons living in poverty, who may not be reliable about taking their medications. Many individuals with TB may feel better after only a few weeks of therapy and stop taking their medications because of unpleasant side effects. MDR-TB is difficult and complicated to treat. Inappropriate treatment can have life-threatening results. Depending on the combination of alternative drugs needed, treatment can last as long as 2 years and be very costly (CDC, 2013ff). Globally in 2012, WHO reported that 450,000 persons developed MDR-TB (WHO, 2014d).

The best method of treatment for persons in high-risk circumstances is directly observed therapy (DOT). DOT is a community-based prevention program in which a nurse or other healthcare provider is paired with a person infected with TB to ensure that the patient follows the prescribed treatment plan. DOT programs have been successful in curing 95% of patients with pulmonary TB (Torres, 1998) and have the potential to save millions of lives worldwide ("DOTS: A breakthrough," 1998).

> If I were going to imagine a real terror it would be a deadly virus that kills 100% of its victims, but incubates so slowly, say a decade, that millions of people are infected before they know it. It would be a virus that is transmitted sexually, attacking young adults while it takes advantage of our social inhibitions and bigotry about sex.
>
> *—Dr. Joe McCormick, Chairman, Community Health Sciences Department, Aga Khan University, Pakistan*

THINK ABOUT THIS

The CDC's most important achievements in 2013 were the outbreaks that didn't happen, the diseases that were stopped before they crossed our borders, and the countless lives saved from preventable chronic diseases and injuries.

> While our biggest successes may be the bad things that did not happen, careful assessment of what we did well—and what we might do better—is essential for continued success,
>
> *—CDC Director Tom Frieden, MD, MPH*

The HIV/TB Connection

WHO estimates that globally about 13 million people of the 35.3 million people living with HIV are co-infected with HIV and latent TB. In countries with high HIV prevalence, up to 80% of people with TB test positive for HIV (WHO, 2005b). Worldwide, TB is the leading killer among people infected with HIV. TB is listed as an AIDS-defining opportunistic infection for people who are infected with HIV. TB often occurs early in the course of HIV infection and may be the first indication that a person has HIV ("HIV-Related Conditions," 1999; CDC, 2012h; WHO, 2013c).

Early diagnosis and treatment of TB are critical for HIV-infected patients because the risk for drug-resistant TB is higher among people with HIV infection compared with other groups (Moore, McCray, & Onorato, 1999; "Prevention and Treatment of Tuberculosis," 1998; WHO, 2013c). For people with HIV infection, the death rate for MDR-TB is as high as 80%. Because TB symptoms are the same as the symptoms for many other HIV-related opportunistic infections, TB is easy to overlook initially. HIV-infected patients may not react to tuberculin skin testing because their immune systems are suppressed ("HIV-Related Conditions," 1999). The three "I"s for HIV/TB are intensified case finding, isoniazid, and infection control. A comprehensive health history is an essential tool for assisting nurses and other healthcare providers to identify TB exposure risks in HIV-infected patients.

The Bill and Melinda Gates Foundation partners with WHO in supporting many targeted health prevention, control, and eradication programs (WHO, 2013d). Some of the global programs focused on health are HIV/TB; poliomyelitis; human African trypanosomiasis; rabies; maternal, newborn, and child health; clean water; and global vaccines.

Global Disease Eradication Efforts

Despite the emergence and reemergence of infectious diseases in recent years, significant advancements in the elimination or eradication of some diseases that have existed for centuries have occurred through a united global effort. The eradication of smallpox by 1979 is thought to be the greatest triumph of modern public health (Garrett, 1994). WHO, in collaboration with other international public and private health organizations, has targeted six other communicable diseases for eradication in the beginning of the 21st century. These diseases are polio, maternal and neonatal tetanus, measles, leprosy, guinea worm disease, and lymphatic filariasis. According to WHO, these crippling and sometimes deadly diseases can be eliminated in parts of the world and even completely eradicated worldwide within a generation. The methods being used to accomplish this goal are immunization and vaccination, drug therapy, community training, health education, and national disease surveillance efforts (Wittenberg, 1998).

Conclusion

Community health nurses have played a significant role in the prevention, control, and treatment of communicable disease throughout recent history. Nurses' skills and knowledge will continue to be a vital part of global eradication efforts well into the 21st century.

AFFORDABLE CARE ACT (ACA)

Medicare payments to acute care and other facilities will be based on quality measures, not number of patients served. Payments will be reduced for hospital-acquired infections or excessive readmissions.

LEVELS OF PREVENTION

Primary: Appropriate handwashing

Secondary: Use of isolation for patients with communicable diseases

Tertiary: Rehabilitation for patients with AIDS

Critical Thinking Activities

1. As a nurse working with WHO, what actions would you take to eliminate the reservoir for a vector-borne disease such as malaria? What kind of actions would you take to eliminate the reservoir for an airborne disease such as legionellosis?
2. Discuss the differences between active immunity and passive immunity. Give two examples of each kind of immunity. How long does immunity last for each example?
3. Identify one infectious disease and discuss primary, secondary, and tertiary prevention methods appropriate for that disease at the community level.
4. Compare and contrast the five viral types of hepatitis. Identify similarities and differences regarding the following:
   - Occurrence in the world
   - Infectious agent
   - Reservoir
   - Incubation period
   - Methods of control

HEALTHY ME

Don't get sick on cruise ships: Protect yourself. Over the past few years, outbreaks of gastroenteritis or Noroviruses have afflicted hundreds of people, especially aboard cruise ships where confined living conditions allow the virus to spread rapidly.

Whether you're at home or traveling, you can fend off Norovirus with these tips:

- Wash your hands frequently with soap and water, particularly before and after meals, and keep your hands away from your face and mouth.
- Every so often, use alcohol-based hand sanitizers.
- Don't share eating utensils or drinking glasses.
- Avoid eating uncooked food.
- Wash fruit and vegetables before consumption.
- If you're traveling, drink only bottled water.
- If you're planning a trip and are older than 65 or have a weakened immune system, your healthcare provider can suggest additional precautions.

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CHAPTER FOCUS

Issues and Public Policies Affecting Individuals with Chronic Illnesses and Disabilities

Chronic Illness and Disabilities in the United States

Defining Disability and Chronic Illness

- International Classification of Functioning, Disability, and Health (ICF)
- Understanding the Differences Between Disability and Chronic Illness
- Needs of Those with Chronic Illness and Disability

Caregivers for Individuals with Chronic Conditions

- Prevention Measures

Vulnerable Populations

- Disability
- Experiences of Populations with Chronic Illnesses and Disabilities

Caring for Persons with Long-Term Health Problems

Quality of Life in Disability and Chronic Illness

The Chronic Care Model

Stages of Adjusting to a New Form of Disability

- People with Disabilities
- The Experience of a New Disability
- Disability Diversity in Society

Roles for Community Health Nurses

- Change Agent
- Advocate
- Professional Caregiver

Role Models

- Interdisciplinary Roles and Responsibilities

Financing Costs of Chronic Illness

- The Future of Managed Care for People with Disabilities
- Racial Disparities in Health Care in Chronic Illness and Disability

Self-Determination: The Patient as Partner

Sensitivity in Community-Based Caring

- Gender-Specific Considerations

Issues Community Health Nurses Encounter

- Supporting Community-Based Caregivers
- Palliative and Hospice Care
- Institutionalization
- Health Promotion in Chronic Illness and Disability

Community Living Needs of People Who Have Disabilities

- Homes of Their Own
- An Accessible Community
- Meaningful Work
- Relationships
- Recreation
- Transition from Education to Work and Living in the Community
- Rehabilitation
- Medical Technology
- Nonmedical Assistive Technology
- Assistance Animals

Ethical Issues Related to Disabilities

The Role of Community Health in Chronic Illness and Disability Care in the Future

QUESTIONS TO CONSIDER

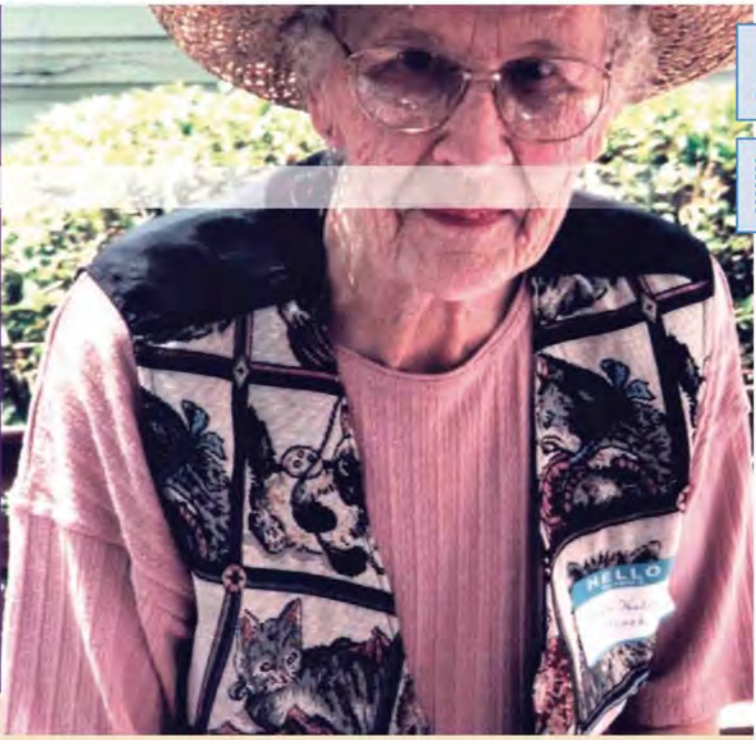
After reading this chapter, you will know the answers to the following questions:

1. What are the reasons for the increase in chronic and disabling conditions in the United States?
2. Which population groups are most vulnerable in regard to chronic illness and disabilities?
3. How do chronic illness and disability differ?
4. How do the concepts of paradox and loss relate to the experience of chronic and disabling illnesses?
5. What are current and future roles of the community health nurse in caring for persons with chronic and disabling illnesses?
6. How does the financing of chronic illness and disabilities affect persons with chronic illness?
7. What are specific challenges in caring for diverse groups with chronic illness and disabilities?
8. How are the health issues of caregivers of the chronically ill and those with disabilities related to nursing management?
9. What is hospice care?
10. What role do institutions play in the management of chronically ill and individuals with disabilities?
11. What are the legal protections for a person with chronic illness or disabilities?
12. How should we communicate with a person with chronic illness or disabilities?
13. What are community living needs related to caring for a population with chronic illness or disabilities?
14. Which services are available for persons with chronic illness or disabilities?
15. Are there ethical issues that influence the care of persons with chronic illness or disabilities?

Chronic illness and disabilities are among the most important issues within our healthcare system in the 21st century. With the population of the United States growing older, combined with advances in care, more people are living longer with chronic and disabling conditions. The move toward comprehensive community services for individuals with chronic and disabling health issues has greatly expanded the role of the community health nurse serving these populations.

Chronic Illness and Disability

Edith Hilton and Valerie Rachal



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KEY TERMS

- adjustment and acceptance
- anger and depression
- assistive technology device
- case management
- chronic care model
- chronic illness
- chronic sorrow
- congregate housing
- denial
- developmental disability
- disability
- geriatric depression
- handicap
- home health care
- impairment
- informed consent
- medical assistive devices
- mental impairment
- people-first language
- person-centered planning
- personal care attendant
- physical impairment
- power
- rehabilitation
- respite care
- shock
- sick role

CHRONIC ILLNESS AND DISABLING conditions are among today's most pressing challenges. In 2012, 117 million adults, almost half of all Americans, lived with at least one chronic illness, and this does not include the roughly 32 million children with chronic illnesses ranging from asthma (nearly 7 million) to developmental disabilities (nearly 10 million) to less common conditions like type 1 diabetes (around 200,000) (Centers for Disease Control and Prevention [CDC], 2014). Chronic disease accounts for 70% of all deaths in the United States (CDC, 2008a). As our society ages and the number of individuals with chronic illness increases, growing demands on existing healthcare infrastructures and resources will challenge long-standing values that have been shifting during the past century. The magnitude of human suffering that chronic illness and disability cause is difficult to grasp or describe. Because of the complexity of the experiential component of living with an incurable state or condition, and because recent medical and technological advances have extended the life expectancy of many persons with these conditions, research into chronic illness and disability is drawing broader interest. Since the beginning of the 2000s, there has been an upsurge in interdisciplinary research focused on quality of life. Much attention is currently directed at improving the life quality of individuals with chronic conditions and helping others to modify current health practices that contribute to the onset of chronic illness and disability. Once these conditions develop, they require daily self-care and management (Improving Chronic Illness Care [ICIC], 2008). The number of individuals with chronic conditions and disability is projected to increase substantially during the first half of the 21st century.

Many people with disabilities and chronic illnesses face difficulties accessing health care. In recent years, several key public policy initiatives have been undertaken to reduce such barriers. Implementation of the Affordable Care Act (ACA) has offered an opportunity for millions of uninsured or underinsured persons to obtain healthcare coverage they can afford without facing the prospect of denials due to preexisting conditions. In addition, policymakers have sought to increase access to Medicare and Medicaid health insurance for disability income recipients who return to work, with the goal of reducing disincentives to find employment. Community health nursing is poised as the key healthcare profession to integrate knowledge of the healthcare needs of people with disabilities and chronic conditions with the challenging needs related to full inclusion into society. This chapter considers chronic illness and disability with a global lens that highlights individuals and groups for the purpose of improving health and health care and identifying areas of future research. Roles and activities of community health nurses are explored in this context as well.

Issues and Public Policies Affecting Individuals with Chronic Illnesses and Disabilities

In the 1950s, chronic illness and disabling conditions were identified as the major challenge of the era (Mayo, 1956). Now, in the 21st century, new challenges are confronting society and community health nurses. In great measure, new immigration patterns, sophisticated emerging technological applications, utilization of increasingly scarce healthcare resources, and increases in healthcare knowledge are all affecting the outcomes of those with chronic illness and disability. Increased public awareness of and interest in quality-of-life research provide affected individuals with reference points wherein they can make informed decisions about treatment options that reflect their experiences as patients and as consumers.

Changing societal expectations of chronic illnesses and disability have provided the impetus for the broad expansion of community health nursing services since the beginning of the 21st century. Since 2000, new populations have developed from survivor groups—that is, groups comprising those who lived through previously untreatable illnesses. The driving forces for this change include social, technological, economic, political, and environmental factors (Wilson & Satterfield, 2007). The prevalence of chronic illness will only increase as the population ages. In response to the Americans with Disabilities Act (ADA), the American public has fewer reservations and clearer expectations about chronically ill or disabled individuals remaining at or returning to employment, given that the ability to manage symptoms associated with chronic processes improves constantly. Disease management including "broad, long-term approaches that encompass a diverse array of programs and services designed to promote the wellbeing of individuals, families, and communities" is a clearly articulated goal in many states (Klein, Cruz, O'Donnell, Scully, & Birkhead, 2005).

NOTE THIS!

President George H. W. Bush signed the Americans with Disabilities Act on July 26, 1990, the landmark law that advanced the rights of persons with disabilities.

One example of this emerging trend is human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS), which are now considered chronic diseases. Health departments are intensely involved in prevention efforts aimed at limiting the spread of HIV and AIDS; they are also involved in extensive management of human services including hospice care, nursing homes, AIDS adult day care, and home health care for those affected by HIV/AIDS (Klein et al., 2005). Currently, the public's concern about HIV/AIDS is falling due in part to the powerful multi-drug regimens of antiretroviral therapies (Jaffe, 2004). Disease management is increasingly important to community health nurses who are focusing their efforts on outcomes, maintenance, and reinforcing the importance of individuals knowing their HIV status.

Local and global efforts to address preventive, acute, and chronic health problems are facing increasing scrutiny from many quarters. Old ways of thinking are being discarded, while more workable solutions to conditions not previously identified are increasingly sought. Researchers from various continents face both similar and different issues that urgently demand their attention, consideration, and resolution. Old, unresolved health problems such as malnutrition, contagious diseases such as tuberculosis and pertussis, and newer diseases including severe acute respiratory syndrome (SARS) pose challenges for globally scattered populations as well as those found locally. Paradoxically, existing travel has opened the world to far-reaching advances and has fostered information sharing but, because of numerous sources of contagion worldwide, has catapulted the traveling public into harm's way.

When considering the present and future health needs of the public, chronic diseases are of utmost importance. Many stem from acute processes, others from lifestyle choices, and still others from genetic disorders or entrenched poverty, both in the United States and globally. Nurses working in the community are in prime positions to positively affect the quality of life of those whom they serve. Nurses working in the local and global communities must be aware of problems whose solutions lie within the environment and existing systems. They must also be aware of their important role as advocates for the nation's health and equip themselves with reliable information and critical thinking abilities. To identify barriers to change that affect access to health care and disparities within and among various racial, ethnic, gender, and age-specific groups, community health nurses must think in different ways and seek new solutions to persistent problems.

CULTURAL CONNECTION

Cultural differences exist regarding the family's role in managing chronic disease. For example, some Native American tribes seek the authority of the tribal healer prior to using Western medications or interventions. The community health nurse should determine how these influences will affect the patient's management of his or her chronic disease based on the totality of the patient's life and family.

Community health nurses have an important role in present and future efforts to curtail such potential chronic and disability conditions, such as childhood obesity, and supporting an active lifestyle through education and increasing public awareness of the risks and comorbidities associated with this condition. According to Meadows (2009), community health nurses are valued for their adaptability and willingness to provide care in many settings, including community health clinics, churches, homeless shelters, and schools. These nurses provide comprehensive care to patients within their homes, at organized events such as health fairs, and at agencies and institutions serving people who have particular health needs.

Advanced practice nurses in communities improve access to care and lower costs at nurse-managed clinics on college campuses and at primary and secondary schools. They develop and implement corporate wellness programs, thereby supporting the health and productivity of employees and their organizations. In industry, they identify, assess, and manage risk to provide a balance between workplace hazards and employee behaviors, helping to develop policies and procedures to enhance safety. In a systematic review of the literature published in the *British Medical Journal* (2002), Horrocks, Anderson, and Salisbury found no differences in the quality of care between physicians and nurse practitioners (NPs) and noted that NPs spent more time with their patients and had higher patient-satisfaction ratings.

Nurse-run clinics have cared for the poor since social reformer Lillian Wald established the Henry Street settlement in 1893. Nurse-managed health centers are especially important to those with chronic illnesses and disability by providing affordable health care that is critical to the target population. Quality of care is an important value in the vision of care in the clinics and has been found to provide care of excellent quality to underserved patients.

Using education as a vehicle to empower community health initiatives, collaborative efforts between community members, faith-based initiatives, and healthcare professionals have proven valuable in assessing participants' knowledge of modifiable risk factors in leading to chronic disease in African Americans (Lewis-Washington & Holcomb, 2010). According to the CDC (2014), chronic illnesses present three major health problems in the United States: cardiovascular disease, stroke, and diabetes. Nonmodifiable risk factors such as age, race, gender, family history, and genetic predisposition leading to these diseases were considered. In a study assessing participants' knowledge of modifiable risk factors, including smoking, hypertension, obesity, high cholesterol, physical inactivity, and unhealthy eating habits, Lewis-Washington and Holcomb (2010) were able to assess the effect of knowledge gained on lifestyle practices from population-specific educational program development in religious institutions inside underserved communities.

Nurses in community health work with diverse partners and providers to address complex challenges in the community. Nowhere is this more evident than in current efforts to identify, reach, treat, and help the elderly effectively manage their chronic and disabling conditions and health problems while remaining at home. "Aging in place" has taken on new importance as older adults seek ways to maintain their independence, autonomy, and optimal health. Nurses in this specialty area of practice must highlight not only their clinical skills but also their critical thinking, advocacy, and analytical abilities to best address the health needs of the communities they serve. As the needs of individuals within the community change, community health nurses must adapt to provide responsive, appropriate care. The care is typically provided within the residence of the individual or in a combined residence of several elderly people who reside together for the purpose of companionship, shared expenses, fellowship, similar tastes and lifestyles, and to pool resources and avoid some of the issues commonly associated with nursing home living. Services are made available to those who are homebound or for whom mobility may be difficult.

Home health care is a community-based nursing service offered in the client's home or assisted living residence that provides both acute and chronic care. The homebound clients may be experiencing an exacerbation in chronic illness, may be extremely debilitated by age or illness, or may be dying. According to Gerber (2012), care is individualized for the client, and teaching family and friends who are caregivers is an important part of the care plan. Those with chronic illnesses such as diabetes, mobility impairments, or vascular disease will require assistance with drawing blood, changing urinary catheters, and filling medication boxes and insulin syringes. Home health nurses can also help by providing supervision to home healthcare aides. Care focuses on managing diseases or wellness such as nutrition, exercise, aging, family developmental tasks, spirituality, sexuality, and stresses associated with disability, aging, and chronic illness. Teaching health promotion to those with chronic illness is an important emphasis, because health promotion is essential to building on existing strengths and maintaining optimal functional abilities.

This chapter considers chronic illness and disability with a global lens that highlights individuals and groups for the purpose of improving health and health care and identifying areas of future research. Roles and activities of community health nurses are explored in this context as well.

> The world is full of suffering. Birth is suffering, decrepitude is suffering, sickness and death are sufferings. To face a man of hatred is suffering, to be separated from a beloved one is suffering, to be vainly struggling to satisfy one's needs is suffering. In fact, life that is not free from desire and passion is always involved with suffering.
>
> *—Buddha*

Chronic Illness and Disabilities in the United States

Chronic diseases and disabling conditions form the cornerstone of anticipated healthcare needs for this century (see **Box 1**). Until prevention becomes universally accepted and incorporated into the daily practices of all, nursing practice in the community will continue to involve caring for those in whom chronic diseases developed from unresolved acute processes. The health burden of chronic disease is staggering, not only in physical and emotional loss, but also in its economic costs. Chronic diseases account for more than three-fourths of all healthcare expenditures, or in excess of $1 trillion annually.

Chronic diseases have replaced many of the devastating epidemics of the 18th, 19th, and 20th centuries. Because contagion and disease transmission routes and vectors for many illnesses are known, the mystery of their occurrence is diminished. However, epidemics persist; tropical, viral, bacterial, and parasitic infections continue to affect destitute populations in poorly developed countries. Some disabling diseases for which effective prevention exists have re-emerged in recent years, often as a result of local or regional conflicts that make vaccination difficult or impossible; this situation has been seen, for example, in Syria, where the civil war that erupted in 2011 has produced a large-scale polio outbreak (World Health Organization [WHO], 2013). Worldwide, HIV/AIDS, malaria, and tuberculosis are acknowledged as paramount health concerns and have been aggressively attacked on many fronts with sustained efforts (Molyneux, 2004). The H1N1 pandemic, or "swine flu," which killed more than 18,000 people in 214 countries in 2009–2010,

BOX 1 Conditions Included in Chronic Illness and Disability

The following frequently encountered conditions are included in the expanding list of chronic illnesses and disabilities:

- Alzheimer's disease
- Amyotrophic lateral sclerosis (ALS)
- Arthritis
- Asperger's syndrome
- Asthma
- Attention deficit hyperactivity disorder (ADHD)
- Autism and autism spectrum disorders
- Bipolar disorder
- Blindness
- Cancer
- Cerebral palsy
- Childhood obesity
- Chronic kidney disease
- Chronic obstructive pulmonary disease
- Congestive heart failure
- Deafness and hard-of-hearing
- Depression
- Developmental disability
- Diabetes mellitus
- Down syndrome
- Epilepsy
- Fetal alcohol spectrum disorder (FASD)
- Glaucoma
- HIV/AIDS
- Hypercholesterolemia
- Hypertension
- Learning disability
- Macular degeneration
- Mental illness
- Multiple sclerosis
- Muscular dystrophy
- Nicotine addiction
- Obesity
- Osteoporosis
- Posttraumatic stress disorder (PTSD)
- Spina bifida
- Spinal cord injury
- Traumatic brain injury and stroke

demonstrates that health emergencies may arise without warning (WHO, 2010). Most of these conditions produce chronic illness or disabled states after the acute phase is past, so the long-term consequences of present-day contagion are enduringly evident and, in many cases, catastrophic.

THINK ABOUT THIS

Migraine headaches affect an estimated 6 million Americans and are believed to afflict from 5% to 10% of the world's population. The Greek physician Hippocrates (460–357 B.C.) described the pains of a migraine episode. Pliny the Elder (A.D. 23–79), the Roman medical writer, refers to the symptoms we now know as migraine. The term *migraine* is originally derived from the Greek word *hemicrania*, which means "half of the head." The head pains of migraine are attributed to biochemical changes causing nausea, vomiting, irritability, visual impairment, and unsteady gait.

Millions of dollars are wasted and needless suffering is experienced by patients who are misdiagnosed or who resort to jaw reconstruction, neck surgery, hormonal manipulation, and sinus surgery in an effort to "cure" the migraine headache. Too often migraine headaches are lumped together with other forms of head pain. Also, patients often seek relief from nontraditional forms of intervention.

Migraine headaches are often labeled as psychological disorders; in actuality, they are the result of a chronic condition that can be controlled and effectively treated when considered the result of a chronic neurological disorder, influenced by hereditary factors, hormones, and particular "trigger" influences in diet and the environment. Although migraine is one of the most painful and frustrating disorders known, it is relatively benign and not life-threatening. Most migraineurs (migraine sufferers) function well even while the symptoms are coming on. Not until they are overcome by the fatigue, head pain, and nausea do they become functionally "disabled."

Effective prevention and early-intervention, nonnarcotic treatments are available now that allow the migraine sufferer to live a normal life. Complementary and self-care environmental management focusing on a holistic approach to migraine prevention offers the best control for this debilitating chronic condition.

Among those who have been tormented by the disorder in history are Joan of Arc, Charles Darwin, Sigmund Freud, Thomas Jefferson, Frederic Chopin, Saint Paul, Julius Caesar, Immanuel Kant, Lewis Carroll, Ulysses S. Grant, Edgar Allan Poe, Leo Tolstoy, Charles Dickens, Virginia Woolf, and Peter Ilich Tchaikovsky. More contemporary personalities with this problem include Whoopi Goldberg, Star Jones, Lisa Kudrow, Carly Simon, Loretta Lynn, Scotty Pippin, and Kareem Abdul-Jabbar.

Other global challenges including hunger, weather-related phenomena such as devastating hurricanes and earthquakes, military conflicts in many regions of the Middle East and Africa, disease control, education, financial instability in underdeveloped countries, widespread corruption within the global business community, migration, trade barriers, and access to water are putting pressures on the resources of both communities and the world as a whole. Domestic violence, also a widespread phenomenon, is so prevalent in the United States that its burden exceeds the toll of some epidemics caused by contagion and adversely affects 1.5 million individuals (mostly women) annually (Sorenson & Wiebe, 2004).

CULTURAL CONNECTION

A patient's culture and meaning of pain can influence the management of chronic illness. Think of how different cultures express pain or discomfort and how these variations will affect the community health nurse's interventions.

Individuals with chronic illnesses whose lives are affected by these overarching issues may find fewer resources available to them to address their health problems and to provide preventive care aimed at increasing their lifespan and quality of life. It is increasingly important that community health nurses become involved in future planning for management of chronic illness care so they are able to advocate for those affected by changing local and global resource allocation. Age has long been recognized as a source of stigma in health care. The aged, chronically ill, or disabled are frequently unwelcome consumers in the current healthcare system, which has been designed around the episodic, acute care needs of middle-aged and younger persons. In many cases, caring for these individuals has been relegated to the least experienced, least educated, and, occasionally, least desirable segments of the healthcare community.

Ethnic and racial disparities in health constitute a persistent and formidable challenge to those in the United States with chronic illnesses and disability (see **Box 2**). Cardiovascular disease, in particular, is problematic in this regard. Despite the fact that it is the most frequent killer worldwide, this disease affects some groups more frequently than others. Rates of death from diseases of the heart are 30% higher among African Americans than among whites, and mortality resulting from stroke is 41% higher in African Americans (National Center for Chronic Disease Prevention and Health Promotion, 2010). It is well recognized that the proportion of African Americans who are hypertensive exceeds the proportions of other population groups with high blood pressure. In many cases, Type 2 diabetes disproportionately affects American Indians and Alaska Natives, who develop this disease 2.3 times more frequently than do whites. African Americans experience type 2 diabetes 1.6 times more frequently than whites, and Hispanic Americans are 1.5 times more likely to have diagnosed diabetes. HIV/AIDS disproportionately affects these groups, which account for 75% of both AIDS and new HIV infections among U.S. adults and 62% of all people living with HIV/AIDS in the United States. Rates of pediatric AIDS cases are similarly disproportionate in the United States, with such cases being composed of 82% minority individuals.

BOX 2 Ethnicity and Disability

Ethnicity plays an important role in quality of life for the disabled. According to the CDC (2011), reports of fair or poor health among adults with a disability by race and ethnicity were:

- Hispanic, 55.2%
- American Indian or Alaska Native, 50.5%
- Non-Hispanic Black or African American, 46.6%
- Non-Hispanic White, 36.9%
- Native Hawaiian or Other Pacific Islander, 36.5%
- Asian, 24.9%

We have learned a great deal about infectious disease epidemics globally during the past 2 centuries. The burden of chronic illness has been less well documented, because large numbers of those persons with acute diseases perished before their diseases became chronic. During the 19th century, immigration from Europe taxed sanitation and housing resources in many East Coast cities in the United States. With repeated epidemics, poor health conditions among established and relocated populations dwindled. Chronic conditions such as heart disease, diabetes, neurological problems, and blood disorders are identified in literature of that time. Because drugs and therapeutic regimens were scarce, overall survival rates for these diseases were poor in those eras, especially in vulnerable populations.

Major inroads into treatment, management, and prevention were made worldwide during the 20th century. Because of improved sanitation, widespread use of antibiotics and technology, rapid advances in research and communication, and comprehensive, nurse-driven health initiatives and education, the standard of living for many Americans has improved. However, these relatively recent developments have fostered trends of developing chronic illnesses that have become more prevalent in the 21st century in the United States. Aging baby boomers and their predicted healthcare needs are bringing these nursing specialty areas to the forefront.

An example of this trend can be seen with chronic renal failure. Until dialysis became available in the 1960s, renal failure was essentially untreatable and, therefore, fatal. Dialysis is now a common intervention for both acute and chronic phases of treatment. Additionally, organ transplantation is now considered a routine surgical procedure aimed at restoring renal function and improving the associated quality of life.

This consideration is especially important to community health nurses, because they are often involved with encouraging follow-up appointments and monitoring patients who experience uremic symptoms. Chronic renal insufficiency may present early in the disease trajectory with symptoms of sleep disturbance, muscle spasms/stiffness, excessive fatigue, and bone pain in addition to altered lab values (Pugh-Clarke, 2004). In this predialysis phase, patients often report that the intrusiveness of disease symptoms adversely affects their quality of life.

Another example of the development of a chronic condition from a formerly fatal condition is HIV/AIDS. Initially, few patients survived the opportunistic infections that manifested with disease progression. The discovery of multiple targeted therapies to suppress the virus and limit its impact on the immune system has changed HIV into a chronic illness that can be managed medically over years and even decades. Although it is still an extremely serious condition, HIV/AIDS is no longer synonymous with rapid progression, unmitigated suffering, and certain death (Mitchell & Linsk, 2004). Many infected individuals now survive for years with HIV and AIDS thanks to newly formulated medications and combination antiretroviral drug regimens. They are living highly productive and satisfying lives for many years. With effective prophylaxis and treatment, many are able to return to their jobs on a full-time basis and remain largely self-sufficient and autonomous. As a chronic, long-term illness, HIV/AIDS can affect patients, families, and communities in numerous and complex ways. Understanding the context in which those individuals are living with the condition will assist community health nurses to assess and intervene by supporting their initiation of medical treatment, suggesting coping strategies, and teaching and reinforcing understanding of the complex and challenging medical regimen.

Defining Disability and Chronic Illness

Disability is a permanent condition or constellation of related symptoms that result in impairment or diminished ability to do a job or live independently (see **Box 3**). According to the CDC (2014), those with disabilities face many barriers to good health. Studies show that individuals with disabilities are more likely than people without disabilities to experience having poorer overall health, having limited access to adequate health care, and engaging in risky health behaviors including smoking and physical inactivity. Those with disabilities are frequently more susceptible to preventable health problems that decrease their overall health and quality of life. Secondary conditions such as pain, fatigue, obesity, and depression may result from having a disabling condition. Health-related quality of life (HRQoL) is a multidimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life. A related concept of HRQoL is wellbeing, which assesses the positive aspects of a person's life, such as positive emotions and life satisfaction. Public health efforts, from the individual to the national level, can affect the health and wellbeing of people with disabilities. These efforts must respond to known determinants of disability and health (CDC, 2012).

BOX 3 WHO Definition of Disability

WHO, the United Nations' public health arm, published its new framework for disability and health in 2001 called the International Classification of Functioning, Disability and Health, known as the ICF. WHO's new definition of disability did the following:

- Established parity between "mental" and "physical" reasons for disability
- Mainstreamed the experience of disability and recognized it as a universal human experience
- Called for the identification of "facilitators" that not only eliminate barriers but enhance experience and performance

There are many social and physical factors that influence the health of people with disabilities. The following three areas for public health action have been identified,

RESEARCH ALERT

The objective of this study was to evaluate general and hearing-specific HRQoL in elderly Chinese speakers with hearing impairment.

Sixty-four Chinese speakers older than 65 years who did not use hearing aids were evaluated using Chinese versions

(continues)

RESEARCH ALERT (*continued*)

of the Short-Form 36 health survey (SF-36) and the Hearing Handicap Inventory for the Elderly (Screening Version) (HHIE-S). Results on the SF-36 were compared to norms obtained in a general elderly Chinese population. The relationships between HRQoL and degree of hearing impairment and between SF-36 and HHIE-S were evaluated.

Elderly Chinese speakers with hearing impairment rated six of the eight scales of the SF-36 poorer, compared to a general elderly Chinese population. When average hearing impairment in the better ear exceeded 40 dB HL, SF-36 ratings were poorer than for those with better hearing. Poorer better ear hearing was significantly related to poorer ratings on the vitality scale of the SF-36 and the three scales of the HHIE-S, after controlling for age, gender, and number of coexisting chronic health problems. Ratings on SF-36 and HHIE-S did not correlate.

Elderly Chinese who are hearing impaired experienced poorer general and hearing-specific HRQoL, and HRQoL was further reduced among those with greater hearing impairment.

Source: Wong, L. L., & Cheng, L. K. (2012). Quality of life in older Chinese-speaking adults with hearing impairment. *Disability & Rehabilitation, 34*(8), 655–664.

using the International Classification of Functioning, Disability, and Health (ICF) and the three WHO principles of action for addressing health determinants.

Disability is defined by the ADA as having a three-part meaning: An individual with a disability is a person who has a physical or **mental impairment** that (1) substantially limits one or more major life activities, (2) has a history or a record of such an impairment, or (3) is regarded by others as having such an impairment (U.S. Department of Justice, 2014). The ADA itself does not define what qualifies as a disabling condition. This rather broad definition is refined into several subareas. A **developmental disability** is defined as a severe, lifelong disability attributable to mental and/or **physical impairments** that manifest themselves before age 22 and are likely to continue indefinitely. Developmental disabilities result in substantial limitations in three or more of the following areas: self-care, comprehension and language skills (receptive and expressive language), learning, mobility, self-direction, and the capacity for independent living, economic self-sufficiency, and ability to function independently without coordinated services (National Council on Disability, 2011).

According to the WHO Family of International Classifications (WHO, 2014a), the following statements regarding health, disease, and classification are commonly used and understood in order to provide a baseline understanding of language and purpose enabling ease in communication of terms:

> The WHO constitution mandates the production of international classifications on health so that there is a consensual, meaningful and useful framework which governments, providers and consumers can use as a common language. Internationally endorsed classifications facilitate the storage, retrieval, analysis, and interpretation of data. They also permit the comparison of data within populations over time and between populations at the same point in time as well as the compilation of nationally consistent specifics based on data.

International Classification of Functioning, Disability, and Health (ICF)

The International Classification of Functioning, Disability, and Health, known more commonly as ICF, is a classification of health and health-related topics. These topics or domains are classified from body, individual, and societal perspectives by means of two lists: a list of body functions and structure (physiology and anatomy), and a list of topics of activity and sharing. Because an individual's functioning and disability occur within a context, the ICF also includes a list of environmental factors. The ICF is WHO's framework for measuring health and disability at both individual and population levels. The ICF was officially endorsed by all 191 WHO Member States in the 54th World Health Assembly in 2001. Unlike its predecessor, which was endorsed for field trial purposes only, the ICF was endorsed for use in Member States as the international standard to describe and measure health and disability.

The ICF situates the ideas of "health" and "disability" in a distinctive manner. It concedes that each individual may undergo a variance or change in health and may therefore confront some degree of disability. The manifestation of disability may affect many more than a minority population, rendering disability a frequently encountered phenomenon rather than the exception. By providing the commonly held idea of this experience of disability, the ICF acknowledges it as a collective human experience. Shifting the focus from reason to influence, it positions all health conditions on a uniform standpoint enabling comparison using a common metric—the ruler of health and disability. Additionally, ICF takes into account the social aspects of disability and does not see disability only as a "medical" or "biological" dysfunction. By including contextual factors, in which environmental factors are listed, ICF allows the impact of the environment on the person's functioning.

The disability prevalence rate increases with age. First, about one-fifth of the non-institutionalized population or 49.7 million people report disabilities. According to Iezonni & O'Day (2006), among those of working age, about 21.5 million or 13% have some type of disability. Seven percent of people ages 21–29 have a disability compared to 26% of people ages 60–64. These rates increase even more dramatically for the population over age 65: 30% of people ages 65–74 have a disability, and more than two-thirds (69%) of people over age 85 have some type of disability. Undoubtedly, the numbers of elderly will grow substantially in coming decades. Those who acquire significant physical disabilities in early life are living longer than formerly because of medical advancements. Healthy aging with a disability has become an important clinical consideration and research topic, as persons with such conditions as cerebral palsy, polio, and spina bifida increasingly live into their 7th decade and beyond (see **Table 1**).

TABLE 1 Examples of Disability, Etiology, Incidence, and Effects

Disability	Etiology	Incidence	Effects (Selected)
• Amputation	Trauma, bone cancer, diabetes	Not available	Impaired mobility
• Autism	Brain damage, abnormality in brain development, genetic predisposition	10/10,000 live births[1]	Impaired reciprocal social interaction, impaired communication and imaginative activity, markedly restricted repertoire of interests and activities
• Cerebral palsy	Perinatal anoxia, trauma, intraventricular hemorrhage, or stroke; trauma, meningitis in early childhood	1.4–2.4/1,000 births[1]	Difficulty with balance, coordination, and movement, hypertonicity; associated with sensory impairments, seizures, mental retardation
• Down syndrome	Genetic; extra chromosome 21	1/700–1/1,000 live births[1]	Mental retardation, hypotonia, physical characteristics, sensory impairments, decreased immunity, frequent respiratory infections and otitis media, increased incidence of leukemia, thyroid problems, early onset Alzheimer's-type dementia
• Duchenne's muscular dystrophy (MD)	Genetic, inherited as a sex-linked trait, affects males	1/3,500 males[1]	Increasing muscle weakness beginning with waddling gait and resulting in need for crutches or wheelchair; eventually heart and diaphragm are affected; usually causes death before adulthood
• Fetal alcohol syndrome (FAS)	Maternal alcohol ingestion resulting in prenatal exposure (leading known cause of mental retardation)	1–2/1,000 births[1]	Mental retardation, decreased height and weight, facial characteristics, behavior problems including hyperactivity and noncompliance
• Fragile X syndrome	Genetic; inherited as a sex-linked trait	1/1,500 males 1/500 females[1]	Mental retardation, hypotonia, physical characteristics, behavior problems such as self-stimulatory behavior, self-injurious -behavior, and aggression
• Hearing impairment	Otitis media (middle ear infections), congenital malformation, genetic, exposure to maternal virus or drug, meningitis, head trauma	1/1,000 infants born with severe to profound hearing loss[1]	Ranges from mild hearing impairment to deafness; developmental delay, language impairment, need for prenatal hearing aid, FM trainer, speech-language therapy, sign language

(continues)

TABLE 1 *(continued)*

Disability	Etiology	Incidence	Effects (Selected)
• Polio	Polio virus causes paralysis below part of spinal column damaged by virus	Eliminated since 1991 but 16,316 cases of paralytic polio occurred during the period 1951–1954[2]	Paralysis, complications related to immobility (decubiti, fractures), postpolio syndrome in mid to late adulthood causing increased severity of symptoms
• Spina bifida (myelomeningocele)	Multifactorial etiology; environmental causes including folic acid deficiency and genetic influences	60/100,000 births[1]	Paralysis below level of defect, impaired ambulation requiring crutches and walker or wheelchair, lack of bowel and bladder control, hydrocephalus requiring shunt, seizures, vision problems, mental retardation, complications related to immobility
• Spinal cord injury (SCI)	Trauma from diving accidents and motor vehicle accidents	250,000 individuals with SCI in the United States[3]	Paralysis, hypotonia and muscle wasting, incontinence, complications related to immobility and repeated catheterization; high-level injuries can also cause inability to breathe without assistance
• Traumatic brain injury (TBI)	Trauma from motor vehicle accidents, gunshots, child abuse	71–125/100,000 (22% of those died)[3]	Motor, communication, cognitive, sensory, and behavioral deficits
• Vision impairment	Prenatal exposure to viruses or bacteria, prematurity and oxygen treatment, eye trauma, chemical burns, diabetes, glaucoma, cataracts	1/3,000 children are blind[1]; vision impairment increases significantly in older adults	Ranges from poor sight to total blindness

1. Batshaw, M. L., Pellegrino, M. D., & Roizen, M. D. (2007). Children with disabilities (6th ed.). Baltimore, MD: Brookes Publishing Company.
2. Centers for Disease Control and Prevention. (2010).
3. Marino, M. J. (1999). CDC report shows prevalence of brain injury. *TBI Challenge, 3*(3).

Disabled individuals are generally unable to initiate or complete self-care activities alone because of physical impairments. To achieve independence or optimal levels of self-care, focused rehabilitative efforts are usually required. In some cases, rehabilitation is also useful in maintaining established progress in self-care activities. Likewise, rehabilitation is employed in conditions of disability associated with chronic health problems and degenerative diseases such as Parkinson's disease, amyotrophic lateral sclerosis, and multiple sclerosis (Hickey, 2003).

Understanding the Differences Between Disability and Chronic Illness

The terms *disability* and *disabled* are not used to diminish or label persons or groups for the purpose of undermining their individual rights or freedoms; rather, they are meant only to provide a context in which needs may be addressed from a position of specificity. An example of this notion may be found in professional literature discussing and describing assistive devices and equipment that are fabricated to meet specific needs and possess specific functions (Dewsbury, Clarke, Randall, Rouncefield, & Somerville, 2004).

Chronic illness differs from disability in that disability does not necessarily imply sickness or less-than-optimal health, whereas chronic illness is always related to a permanent decrease in health status that will not, in all likelihood, result in restoration of former or normal health status. Chronic illness is contrasted to disability in the following three examples: (1) type 1 diabetes results in chronic illness but not disability in every individual (Klang & Clyne, 1997); (2) a hip fracture may result in disability but not necessarily in chronic illness; and (3) a spinal cord injury may result in both conditions, because disability immediately develops as a consequence of spinal cord damage, and chronic illness may ensue if prolonged immobility causes development of decubitus ulcers, urinary tract infections, or muscle spasms unrelieved by medications. Disability resulting from spinal cord injury may, for example, cause numerous problems of chronic illness that relate to development of decubitus ulcers. Patients may require surgical interventions to enable healing. Because of inadequate sensory innervation, necessary position changes may be overlooked while individuals are in wheelchair-sitting positions.

Patients with chronic disability often define themselves in terms of their illness role and diagnosis. Definitions of this type may be limiting. When individuals with disabilities are viewed as striving toward higher level wellness, they may be supported by interacting with their environment in an integrated manner, thereby promoting their personhood and emphasizing their human qualities, instead of their disabilities (Davidhizar & Shearer, 1997).

NOTE THIS!

Stable, chronic conditions affect as much as 30% of the U.S. adult population.

RESEARCH ALERT

Many home health agencies are actively recruiting new home health nurses while trying to retain qualified home health nurses. According to a survey of home health administrators, 82% of them reported difficulty attracting nurses, and 63% reported difficulty retaining nurses. Due to rising healthcare costs and the desire of patients and families to receive care in their home environment, more and more health care is being provided outside the typical acute care setting. Because of the unique demands of the home healthcare setting, nurses must have a strong clinical background, usually with at least 1 year of acute care experience. Homecare nurses need a wide variety of clinical and technical skills to provide care safely in a patient's home. Nurses with a high degree of self-efficacy and varied clinical experience tend to be more successful and satisfied in homecare positions. Nurse autonomy and control over the practice environment are two factors attracting and retaining homecare nurses. Nurses go into community health nursing (CHN) because of the level of the independence and autonomy that this career allows, and because of the flexibility associated with the community setting.

Although healthcare delivery is moving away from institutions toward a variety of community settings, nursing education continues to concentrate on acute care settings, and most prelicensure bachelor of science in nursing (BSN) students do not perceive themselves as pursuing a career in community or public health nursing.

In one study, students' attitudes changed somewhat after they had a positive clinical experience in CHN, although CHN did not rank as the students' first choice for a career in nursing. This may have been due to the students' awareness that nurses are required to have at least 1 year of experience before being employed in CHN.

Source: Prestia, M. (2008). Nursing students' attitudes about home health nursing. *Home Healthcare Nurse, 28*(8), 496.

Needs of Those with Chronic Illness and Disability

Overall, people with disabilities have lower employment rates, lower annual earnings, lower educational attainment and achievement; lack adequate access to housing, transportation, technology, and health care; and are more likely to live in poverty. According to the U.S. Department of Labor's (2012) Bureau of Labor Statistics, disability employment statistics for January 2012 show that the percentage of people with disabilities participating in the labor force was (compared to 68.9% for people without disabilities). The unemployment rate of people with disabilities was 12.9%, compared to 8.7% for people without disabilities. The unemployment rate for people with disabilities has been steadily improving (it was 13.6% previously), but the number of unemployed was still disproportionately high in comparison to persons without disabilities. The number may be actually higher considering that many people with disabilities may have given up looking for work.

Because the incidence of disability increases with age, we can anticipate that the numbers of people with disabilities and chronic diseases will climb as the baby-boomer generation ages and as life expectancy increases with the further development and refinement of medical, surgical, and genetic technology. Quality of life for individuals with disabilities has not increased as rapidly as strides in technology; however, expectations of living a sustained, satisfying, and rewarding life have risen. Full inclusion in community living is an important dimension of a rewarding quality of life.

Community health nurses' knowledge of the healthcare needs of those with disabilities provide pivotal integration into community services and programs; employment; leisure and recreational activities; advocacy; accessible housing and transportation; current disability legislation; awareness, understanding, and use of technology for adaptive and mainstreamed activities; and a resource for the provision of care.

The community presents a myriad of challenges in the sometimes patchwork availability of resources and client care needs of those disabled moving within and among facilities and providers. The ADA has had limited impact on the ways health care is delivered for those with disabilities. Significant architectural and programmatic accessibility barriers still remain, and healthcare providers continue to lack awareness about steps they are required to take to ensure that patients with disabilities have access to appropriate, culturally competent care. Further, although many with disabilities have some type of health insurance, a significant number of individuals with chronic health conditions remain uninsured.

According to the CDC, the uninsured have a higher risk of death when compared to the privately insured, even after taking into account socioeconomics, health behaviors, and baseline health. In a 2009 study by Wilper and Woolhandler, nearly 45,000 excess deaths were linked annually to a lack of health coverage. The study found that deaths associated with lack of health insurance now exceed those caused by many common killers such as kidney disease. Of those lacking the ability to pay for their medications, nearly half of all uninsured, nonelderly adults report having a chronic condition, and almost half of these individuals report forgoing medical care or prescription drugs because of the cost or their lack of insurance. Nonelderly adults who lack health insurance include those with hypertension (14% uninsured), high cholesterol (11% uninsured), heart disease (13% uninsured), asthma (18% uninsured), diabetes (15% uninsured), and arthritis-related conditions (12% uninsured). Case/care management strategies may uncover funding and other resource inconsistencies necessitating critical thinking abilities and flexibilities. Knowledge and understanding are essential to successful navigation of community health nursing roles to enable crucial care. At the time of this writing, it is unclear how, if at all, the changes initiated by the ACA will impact this issue.

BOX 4 Janet Reno: A Public Experience with Parkinson's Disease

From 1993–2001, Janet Reno served as the Attorney General, the United States' top law enforcer, with the longest tenure in the history of the office. Since 1995, she has also lived with Parkinson's disease, with little self-acknowledgment of the affects it had on her demanding professional role as U.S. Attorney General. Reno made no effort to hide her tremors and continued to embrace her responsibility with the same vigor and tenacity. By being public with a disease that has in the past been hidden and restrictive, she moved forward for all persons who have such a chronic illness.

Caregivers for Individuals with Chronic Conditions

Because increasing numbers of those with chronic illness and disability remain in community-based care settings, including their homes, swelling numbers of caregivers—many of them unpaid family members—face a new role for which they are poorly prepared. In particular, caregivers for those with neurological impairments, including Parkinson's disease, multiple sclerosis, neuropathy, spinal cord diseases, amyotrophic lateral sclerosis, cerebrovascular disease, Alzheimer's disease, and chronic pain from arthritis, osteoporosis, or back problems, may experience problems with their own health associated with caregiving activities (Hilton & Henderson, 2003). Osteoporosis, in particular, is of great concern because the volume of cases is increasing at an astonishing pace; 30% of all women older than age 65 are estimated to have this painful and debilitating disease (U.S. Department of Health and Human Services [HHS], 2011). This condition of bone demineralization places those affected at increased risk for vertebral, pelvic, and hip fractures. For those who are family caregivers, osteoporosis adds a component of silent deterioration that may be aggravated by the lifting, turning, bending, stooping, and walking that are inherent in many caregiving activities.

RESEARCH ALERT

Chronically ill persons in communities may include those with chemical dependency, chronic mental illness, tuberculosis, and hepatitis C. Stable chronic conditions, affecting as much as 30% of the U.S. adult population, include cardiovascular disease, neurological diseases such as Alzheimer's disease, some slow-developing forms of cancer, emphysema, diabetes, fetal alcohol syndrome, learning disabilities, adjustment disorders, genetically linked diseases such as Down syndrome (trisomy 18 and 21), sickle cell disease, cystic fibrosis, Tay-Sachs disease, and schizophrenia. New medications are enabling individuals with these and other chronic diseases to live longer than ever before. Many chronically ill individuals remain in community settings and depend on others to render all or part of their physical and/or mental care. Despite our attention to the acute outbreak of SARS, the continuing threat of bioterrorism, and the effect of overseas wars, the most costly health problems in the United States are still the result of chronic diseases. We have come a long way, yet sadly, we also have not gone far. Attacking the problem of chronic illness in the United States presents us with a set of challenges that is complex and difficult to disentangle, especially when we focus on improving outcomes for populations. Chronic health problems provide ample opportunity to engage in primary, secondary, and tertiary preventive measures that use our nursing strengths.

Source: Abrams, S. E. (2003). Chronic illness: "Chronic" boredom. *Public Health Nursing, 20*(4), 250.

> Cancer didn't bring me to my knees, it brought me to my feet.
>
> —*Michael Douglas*

Care of individuals in the United States with the previously mentioned neurological diagnoses may include activities such as supervision, assistance with the execution of various tasks, and decision making about aspects of care (Lopes, Piementa, Kurita, & Oliveira, 2003). Caregivers for individuals with such diagnoses may feel the care they provide constitutes a burden. Because caregivers may have few or no resources to share the tasks and responsibility necessary to maintain or restore the chronically ill or disabled individual, and because caring activities may persist for an undetermined length of time, caregivers may experience fatigue, depression, emotional distress, sadness, loss of leisure activities, difficulties in their sexual activities, future planning, personal grooming, and disrupted family relationships.

Perhaps not unexpectedly, caregivers in Japan and in Brazil experience nearly identical issues while in the caregiving role, suggesting caregiver role strain is not unique to the U.S. population. Cultural differences may affect the perceived value of the caregiving role in which the individual is dependent upon a caregiver while sick, however. In the case of chronicity for an indeterminate interval, this caregiving role is recognized as essential in both Japan and Brazil. For those individuals experiencing chronic pain, caregivers may provide extensive psychological support aimed at promoting successful coping and restoring the locus of control for analgesic modalities and relaxation interventions. This type of care may be extremely taxing to caregivers because of the frequency of interventions required and because of the inherent discouragement that may accompany the recurrence of symptoms as the patient and the caregiver seek to establish order out of chaos (Bullington, Nordemar, Nordemar, & Sjöström-Flanagan, 2003).

The importance of family caregiver issues related to the challenging and difficult work of caring for an individual with chronic conditions cannot be overemphasized (Grey, Knaft, & McCorkle, 2006). Supports including respite care services and social workers are useful and important in providing long-term care. In caring for the caregivers, however, it is also important to recognize the nurse and his or her contributions to the therapeutic relationship (Hickey, 2003). Both conscious and unconscious responses of the community health nurse should be considered. Nurses may also experience caregiver burden if they go unrelieved in dealing with the consistent demands of care necessitated by individuals with disabilities and chronic illnesses. If possible, this problem should be anticipated and addressed by a "break" in the assignments of this population so the nurse is able to attend to his or her own self-care and spiritual renewal.

ETHICAL CONNECTION

What are the ethical implications of a healthcare system that focuses on acute care interventions while the majority of patients in the system suffer from chronic and debilitating health issues?

Prevention Measures

Recent data indicate that increasing numbers of Americans believe their physical and mental HRQoL is deteriorating and that they are less able to engage in their usual activities (Zack, Moriarity, Stroup, Ford, & Mokdad, 2004). Given that disability and chronic illness contribute overwhelmingly to these factors, prevention and management are increasingly important to individuals and health agencies.

According to the CDC (2009), chronic health conditions affect both individuals and the larger society. U.S. healthcare costs are greatly affected by chronic illness. As a nation, more than 75% of our healthcare spending is on people with chronic conditions.

Vulnerable Populations

Some populations are more likely than others to develop chronic illnesses. Chronic illnesses affect various ethnic and racial groups, and some disease processes are gender preferential. Examples of this relate to all types of cancer. Cancer incidence rates for men are highest among blacks, followed by whites, Hispanics, Asian/Pacific Islanders, and American Indian/Alaska Natives. However, the cancer incidence rates for women are highest among whites, followed by blacks, Hispanics, Asian/Pacific Islanders, and American Indian/Alaska Natives. Cancer death rates for men are highest among blacks, followed by whites, Hispanics, American/Indians/Alaska Natives, and Asian/Pacific Islanders. Among women, the cancer death rates are highest among blacks, followed by whites, American Indian/Alaska Natives, Hispanics, and Asian/Pacific Islanders. Cancer incidence rates and cancer death rates do not match according to gender and ethnicity. American Indian/Alaska Native men have the lowest incidence rates of cancer; however, Asian/Pacific Islander men have the lowest death rates. White women have the highest incidence rates of cancer; however, black women have the highest death rates. American Indian/Alaska Native women have the lowest incidence rates of cancer and the third highest death rates (U.S. Cancer Statistics Working Group, 2007). Population-specific vulnerability is especially important to consider when projecting needs for development of community resources.

ENVIRONMENTAL CONNECTION

For patients with asthma and allergies, any change in household products or household items, such as rugs and furniture, can result in a severe allergic reaction.

Because of their limited defense mechanisms, such as diminished or slowed reflexes, people with chronic illness are more susceptible to environmental sources of pollution. The destruction of the World Trade Center on September 11, 2001, created the largest acute environmental disaster that ever has befallen New York (Landrigan et al., 2004). In addition to experiencing severe posttraumatic stress disorder, those individuals with asthma and emphysema living in the area most closely affected by the buildings' collapse experienced exposure-related exacerbations of their diseases.

Disability

The composition of disability is intricate. It is embedded in societal values of mind–body functioning that separate mental and physical impairments (Imrie, 2004). According to Kaplan (2008), disability policy scholars identify four distinctive social and historical models of disability: a moral model that regards disability as the result of sin; a medical model that considers disability as a sickness or defect that must be cured; a rehabilitation model that regards disability as a deficiency that must be fixed; and the disability model under which the problem is defined as a dominating attitude toward the person with a disability by professionals and others.

WHO's ICF (2001; see also WHO, 2014b) employs performance-based contexts as a vehicle for delimiting disabilities based on individual attributes and societal values ascribed to limitations. WHO defines *disability* as any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being. **Impairment** is defined as any loss or abnormality of psychological or anatomical structure or function; **handicap** is defined as a disadvantage for a given individual, resulting from an impairment or disability that limits or prevents the fulfillment of a role that is normal, depending on age, sex, and social and cultural factors, for that individual (WHO, 2001).

The original purpose of the ADA was to protect individuals from discrimination. Current thinking reflects a trend in public policy to regard disability as a functional status, not a list of physical impairments. Unfortunately, stigmatization and stereotyping accompany the delineation of disabled, so many choose not to identify themselves as disabled (Kaplan, 2008). Disability is viewed by some as social prejudice, and by others as a physical condition affecting life quality (Koch, 2001). The nature of disability may be linked to social variables such as class, ethnicity, gender, and geographical location (Morgan, 1996). According to Hurst (2000), disability may be construed as "something that happens to you, not something you have."

ETHICAL CONNECTION

Chronic illness is not typically a focus of public health services in a community. This bias may result in persons with chronic illnesses having few resources for drug and medical expenses. Why do you think chronic illness has not typically been considered a public health "problem" until very recently?

HEALTHY PEOPLE 2020

Objectives Related to Chronic Illness

Access to Health Services

- AHS-1 Increase the proportion of persons with health insurance
- AHS-5 Increase the proportion of persons who have a specific source of ongoing care

Arthritis, Osteoporosis, and Chronic Back Conditions

Arthritis

- AOCBC-1 Reduce the mean level of joint pain among adults with doctor-diagnosed arthritis
- AOCBC-2 Reduce the proportion of adults with doctor-diagnosed arthritis who experience a limitation in activity due to arthritis or joint symptoms

- AOCBC-3 Reduce the proportion of adults with doctor-diagnosed arthritis who find it "very difficult" to perform specific joint-related activities
- AOCBC-4 Reduce the proportion of adults with doctor-diagnosed arthritis who have difficulty performing two or more personal care activities, thereby preserving independence
- AOCBC-5 Reduce the proportion of adults with doctor-diagnosed arthritis who report serious psychological distress
- AOCBC-6 Reduce the impact of doctor-diagnosed arthritis on employment in the working-age population
- AOCBC-7 Increase the proportion of adults with doctor-diagnosed arthritis who receive healthcare provider counseling
- AOCBC-8 Increase the proportion of adults with doctor-diagnosed arthritis who have had effective, evidence-based arthritis education as an integral part of the management of their condition
- AOCBC-9 Increase the proportion of adults with chronic joint symptoms who have seen a healthcare provider for their symptoms

Osteoporosis

- AOCBC-10 Reduce the proportion of adults with osteoporosis
- AOCBC-11 Reduce hip fractures among older adults

Chronic Back Conditions

- AOCBC-12 Reduce activity limitation due to chronic back conditions.

Cancer

- C-13 Increase the proportion of cancer survivors who are living 5 years or longer after diagnosis
- C-14 Increase the mental and physical health-related quality of life of cancer survivors

Chronic Kidney Disease

- CKD-1 Reduce the proportion of the U.S. population with chronic kidney disease
- CKD-2 Increase the proportion of persons with chronic kidney disease (CKD) who know they have impaired renal function
- CKD-4 Increase the proportion of persons with diabetes and chronic kidney disease who receive recommended medical evaluation
- CKD-5 Increase the proportion of persons with diabetes and chronic kidney disease who receive recommended medical treatment with angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs)
- CKD-6 Improve cardiovascular care in persons with chronic kidney disease
- CKD-7 Reduce the number of deaths among persons with chronic kidney disease
- CKD-8 Reduce the number of new cases of end-stage renal disease (ESRD)
- CKD-9 Reduce kidney failure due to diabetes
- CKD-10 Increase the proportion of chronic kidney disease patients receiving care from a nephrologist at least 12 months before the start of renal replacement therapy

Diabetes

- D-1 Reduce the annual number of new cases of diagnosed diabetes in the population
- D-4 Reduce the rate of lower extremity amputations in persons with diagnosed diabetes
- D-5 Improve glycemic control among persons with diabetes
- D-6 Improve lipid control among persons with diagnosed diabetes
- D-7 Increase the proportion of persons with diagnosed diabetes whose blood pressure is under control
- D-8 Increase the proportion of persons with diagnosed diabetes who have at least an annual dental examination
- D-9 Increase the proportion of adults with diabetes who have at least an annual foot examination
- D-10 Increase the proportion of adults with diabetes who have an annual dilated eye examination
- D-11 Increase the proportion of adults with diabetes who have a glycosylated hemoglobin measurement at least twice a year
- D-12 Increase the proportion of persons with diagnosed diabetes who obtain an annual urinary microalbumin measurement
- D-13 Increase the proportion of adults with diabetes who perform self–blood glucose monitoring at least once daily
- D-14 Increase the proportion of persons with diagnosed diabetes who receive formal diabetes education
- D-15 Increase the proportion of persons with diabetes whose condition has been diagnosed
- D-16 Increase prevention behaviors in persons at high risk for diabetes with prediabetes

Disability and Health

Systems and Policies

- DH-1 Increase the number of population-based data systems used to monitor *Healthy People 2020* objectives that include in their core a standardized set of questions that identify people with disabilities
- DH-2 Increase the number of tribes, states, and the District of Columbia that have public health surveillance and health promotion programs for people with disabilities and caregivers
- DH-3 Increase the proportion of U.S. master of public health (MPH) programs that offer graduate-level courses in disability and health

Barriers to Health Care

- DH-4 Reduce the proportion of people with disabilities who report delays in receiving primary and periodic preventive care due to specific barriers

(continues)

HEALTHY PEOPLE 2020 (*continued*)

- DH-5 Increase the proportion of youth with special healthcare needs whose healthcare providers have discussed transition planning from pediatric to adult health care
- DH-6 Increase the proportion of people with epilepsy and uncontrolled seizures who receive appropriate medical care

Heart Disease and Stroke

- HDS-5 Reduce the proportion of persons in the population with hypertension
- HDS-6 Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years
- HDS-7 Reduce the proportion of adults with high total blood cholesterol levels
- HDS-8 Reduce the mean total blood cholesterol levels among adults
- HDS-12 Increase the proportion of adults with hypertension whose blood pressure is under control
- HDS-22 Increase the proportion of adult heart attack survivors who are referred to a cardiac rehabilitation program at discharge
- HDS-23 Increase the proportion of adult stroke survivors who are referred to a stroke rehabilitation program at discharge

Hearing and Other Sensory Communication Disorders

Newborn Hearing Screening

- ENT-VSL-1 Increase the proportion of newborns who are screened for hearing loss by no later than age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services no later than age 6 months

Hearing

- ENT-VSL-3 Increase the proportion of persons with hearing impairments who have ever used a hearing aid or assistive listening devices or who have cochlear implants
- ENT-VSL-4 Increase the proportion of persons who have had a hearing examination on schedule
- ENT-VSL-5 Increase the number of persons who are referred by their primary care physician or other healthcare provider for hearing evaluation and treatment

Tinnitus (Ringing in the Ears or Head)

- ENT-VSL-9 Increase the proportion of adults bothered by tinnitus who have seen a doctor or other healthcare professional
- ENT-VSL-10 Increase the proportion of adults for whom tinnitus is a moderate to severe problem who have tried appropriate treatments

Balance and Dizziness

- ENT-VSL-11 Increase the proportion of adults with balance or dizziness problems in the past 12 months who have ever seen a healthcare provider about their balance or dizziness problems
- ENT-VSL-12 Increase the proportion of adults with moderate to severe balance or dizziness problems who have seen or been referred to a healthcare specialist for evaluation or treatment
- ENT-VSL-13 Increase the proportion of persons who have tried recommended methods for treating their balance or dizziness problems
- ENT-VSL-14 Reduce the proportion of adults with balance and dizziness problems who experienced negative or adverse outcomes in the past 12 months
- ENT-VSL-15 Reduce the proportion of adults with balance and dizziness problems who have fallen and been injured

Voice, Speech, and Language

- ENT-VSL-19 Increase the proportion of persons with communication disorders of voice, swallowing, speech, or language who have seen a speech-language pathologist (SLP) for evaluation or treatment
- ENT-VSL-20 Increase the proportion of persons with communication disorders of voice, swallowing, speech, or language who have participated in rehabilitation services
- ENT-VSL-21 Increase the proportion of young children with phonological disorders, language delay, or other developmental language problems who have participated in speech-language or other intervention services
- ENT-VSL-22 Increase the proportion of persons with communication disorders of voice, swallowing, speech, or language in the past 12 months whose personal or social functioning at home, school, or work improved after participation in speech-language therapy or other rehabilitative or intervention services

Internet Healthcare Resources for ENT-VSL

- ENT-VSL-23 Increase the proportion of persons with hearing loss and other sensory or communication disorders who have used Internet resources for healthcare information, guidance, or advice in the past 12 months

Medical Product Safety

- MPS-2 Increase the safe and effective treatment of pain
- MPS-5 Reduce emergency department (ED) visits for common, preventable adverse events from medications

Nutrition and Weight Status

- NWS-8 Increase the proportion of adults who are at a healthy weight
- NWS-9 Reduce the proportion of adults who are obese
- NWS-10 Reduce the proportion of children and adolescents who are considered obese
- NWS-11 Prevent inappropriate weight gain in youth and adults

Respiratory Diseases

Asthma

- RD-2 Reduce hospitalizations for asthma
- RD-3 Reduce ED visits for asthma

- RD-4 Reduce activity limitations among persons with current asthma
- RD-5 Reduce the proportion of persons with asthma who miss school or work days
- RD-6 Increase the proportion of persons with current asthma who receive formal patient education
- RD-7 Increase the proportion of persons with current asthma who receive appropriate asthma care according to National Asthma Education and Prevention Program (NAEPP) guidelines

Chronic Obstructive Pulmonary Disease

- RD-9 Reduce activity limitations among adults with chronic obstructive pulmonary disease (COPD)
- RD-10 Reduce deaths from COPD among adults
- RD-11 Reduce hospitalizations for COPD
- RD-12 Reduce ED visits for COPD
- RD-13 Increase the proportion of adults with abnormal lung function whose underlying obstructive disease has been diagnosed

Source: U.S. Department of Health and Human Services. (2014b). 2020 Topics and Objectives. Retrieved from http://www.healthypeople.gov/2020/topicsobjectives2020/default.aspx

As defined in 1956 by the Commission on Chronic Illness (cited in Strauss, 1975), impairments or deviations from normal have one or more of the following characteristics: (1) They are permanent; (2) they leave residual disability; (3) they are caused by nonreversible pathological alterations; (4) they require special training of the patient for rehabilitation; and (5) they may be expected to require a long period of supervision, observation, or care. In addition to chronic illness, multiple chronic conditions in the same person are frequently noted (Strauss, 1975). For example, diabetes may affect nerve tissue, causing damage to sensory nerve pathways, leading to diabetic-induced visual loss from retinal disease, and coexisting with hypertension.

Acute illness is defined as a disease (or process) with a sudden, dynamic onset with signs and symptoms related to the disease process itself, which either resolves shortly with complete recovery or results in death. Differences between acute and chronic illness are notable in terms of their treatment, duration, and perceived significance. Another important difference between acute and chronic illness relates to coping abilities taxed during severe and sustained illness.

Acute and chronic illnesses also occur together. Examples of this phenomenon include asthma and diabetes, in which acute manifestations emerge from chronic problems in regulating the diseases. One challenge presented by chronic illness is that of keeping patients motivated to achieve and maintain optimal levels of health. Supporting patients' efforts to learn to manage their chronic illness requires skill, creativity, and persistence to keep each patient's entire life pattern in focus.

Experiences of Populations with Chronic Illnesses and Disabilities

Chronic illness may assume many forms. Psychiatric and mental illness including dysthymia, major depression, and unipolar depression are typically considered more chronic than other forms of depression (Antai-Otong, 1995). Women's health was studied across the United States, and the results were reported in the *American Journal of Public Health* (Bromberger, Harlow, Kravitz, & Cordal, 2004). Data indicated that 22% of middle-aged women residing in the community reported clinically significant depressive symptoms. Furthermore, women who had previous depressive episodes were at increased risk for recurrences. Middle-aged women were examined for racial/ethnic differences in significant depressive symptoms. The researchers reported Hispanic and African American women had the highest risk of developing severe symptoms, and Chinese and Japanese women the lowest. Contributing factors included low socioeconomic status, financial strain, physical inactivity, low social support, stress, and poor physical health. Social support is of particular importance to individuals whose chronic illness waxes and wanes, such as is seen in depression.

RESEARCH ALERT

Although medical illness and physical disability are strongly associated with depression, the majority of older adults who experience medical illness or disability at any given time are not depressed. The aim of these analyses was to identify risk factors for new-onset depression in a sample of medically ill, disabled older adults.

The authors used data from a representative sample of homebound older adults who recently started receiving Medicare home healthcare services for medical or surgical problems ($n = 539$). The authors reported on the rate and baseline predictors of new-onset major or minor depression using the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) criteria and made assessments at 1-year follow up with the Structured Clinical Interview for *DSM-IV* Axis I Disorders. The analyses were conducted with a subsample of older adults ($n = 268$) who did not meet criteria for major or minor depression and were not on an antidepressant medication at the time of baseline interviews.

(*continues*)

RESEARCH ALERT *(continued)*

At 1-year follow up, 10% (28 out of 268) of patients met criteria for either major (3%; 9 out of 268) or minor depression (7%; 19 out of 268). In multivariate analyses, the authors found that worse self-rated health (odds ratio [OR] = 0.53, $p = 0.042$), more somatic depressive symptoms (OR = 1.19, $p = 0.015$), greater number of activities of daily living (ADL) limitations at baseline (OR = 1.63, $p = 0.014$), and greater decline in ADL functioning from baseline to 1 year (OR = 1.59, $p = 0.022$) were all independently associated with onset of depression.

These findings underscore the significant fluctuations in depression and disability in high-risk older adults and suggest that persistent and new-onset disability increase the risk of depression. They may also help in designing preventive strategies to promote the ongoing good mental health of these high-risk patients over time.

Source: Weinberger, M., Raue, P., Meyers, B., & Bruce, M. (2011). Predictors of new onset depression in medically ill disabled older adults at 1 year follow-up. White Plains, NY: Department of Psychiatry, Weill Cornell Medical College.

Paradox and Loss

In each chronic illness, disease forms a path through lives that is not always apparent at outset and may not be clearly understood. Wellness and optimal health are subjectively described by each person experiencing those conditions, and chronic illness is best described and experienced by those living the phenomenon. A seeming contradiction associated with chronic illness is that patients often present with minor or mysterious symptoms. An example of this paradox is described by a woman with chronic asthma:

> I didn't have a fever and my doctor said all my blood tests and x-rays were fine. At first my friends were sympathetic, but then they began asking whether I was really taking care of myself. Even my doctor seemed exasperated, and so I began to think I was crazy and had made all this up. Little did I know when this happened two years ago that I was heading for chronic asthma. My asthma finally got so bad that I had to stop teaching. (Wilson, 1992, p. 42)

Paradox is present in many chronic disease processes and contributes to feelings of loss, fear, and frustration. Johnson (1991) explains the paradoxical nature of myocardial infarction:

> The signs and symptoms of a heart attack often begin insidiously and escalate over a period of hours. Heart attacks have a paradoxical nature. Although potentially fatal, the early signs of a heart attack mimic minor and trivial complaints. Unless the heart attack is extensive, the early symptoms may be interpreted as indigestion, the flu, a pulled muscle, or food poisoning. The irony of delaying treatment is caused in part by the mixed messages given to the public. On the one hand, the signs and symptoms of heart attack are well publicized because it is assumed that people will ... seek help early. On the other hand, people are reluctant to go to the hospital emergency room or "bother" their physicians with seemingly minor complaints. (p. 33)

Losses may be the first awareness of chronic disease processes "taking hold." Fear of loss sets in quickly and is accompanied by awareness and understanding of chronic disease processes (Schaefer, 1995). Losses associated with chronic illness may include fear, social status, self-concept, self-esteem, role, family support, recognition by the healthcare community, and loss of independence related to financial and personal issues. Losses may also relate to insufficiency of status or stigmatization by feelings of imperfection; by being different, some feel as though they fall short of cultural norms relating to identity (Scambler, 2004).

This perception of loss is especially important in hidden conditions in which no visual validation is apparent. The paradox of lived disability that presents with no outward signs may compel the individual to conceal the disabling condition in an effort to preserve social acceptance. Secondary gains may enhance the "invisible" sick role such as that seen in diabetes, in which marginal control of blood glucose may prompt individuals to abandon their careers. Children may experience paradox when their developmental tasks conflict with limitations imposed by their chronic illness. For example, a child with asthma may find his or her medication regimen leaves the child unprepared to engage in the rigorous activities of many of his or her peers unless medications are adjusted (Agius, 2003).

Uncertainty coupled with numerous losses makes chronic illness particularly devastating for patients who also face challenges of an evolving disease process. Those with chronic heart failure, for example, describe feelings of physical incapacity that adversely affect the whole life situation. Those with chronicity identify with feelings of fear, anxiety, fatigue, pain, grief, astonishment, anger, dependence, loss, and hopelessness. A diagnosis of heart failure is associated with high morbidity and mortality and is being increasingly identified in the aging population (Dosh, 2004). Despite well-recognized symptom manifestation of heart failure, onset of progressive changes heralds a downward spiral that results in mortality in 59% of men and 45% of women at 5 years. Losses associated with heart failure include uncertainty and lessened endurance, because symptoms may be silent yet contribute to overall fatigue related to an inability of the heart to deliver sufficient oxygenated blood to meet the needs of organs and tissues during rest or exercise.

Fatigue associated with ADLs may promote discouragement, depression, and contribute to social isolation.

Individuals with chronic kidney disease face some similar challenges in that the disease process unfolds in a predictable manner and is associated with significant mortality and morbidity. However, the disease differs from heart failure in several important ways. Most notably, early in the disease process, renal disease (which currently affects nearly 20 million Americans) involves nearly all body systems. The incidence and prevalence of renal failure doubled from the late 1990s to the early 2000s, and associated causal conditions of renal failure—including diabetes mellitus, hypertension, ischemia, increased susceptibility to infections, obstructions, toxins, and autoimmune and infiltrative diseases—have also been on the rise (Snively & Gutierrez, 2004). The prospects of additional numbers of aging individuals developing this disease, and the implications of such a trend, are staggering.

Disease progression is frequently discussed in terms of treatment response. However, actions to slow progression of the disease—maintaining glycemic control, in particular—can slow the progression of associated nephropathy and, therefore, enhance quality of life. Maintaining excellent glycemic control is a daily struggle for many with chronic renal disease. The renal diet is generally low in protein, and many patients find this and other stringent dietary restrictions burdensome to comply with and difficult to remember. Frequently, renal disease leads to malnutrition and hypoalbuminemia. These conditions may result in fatigue, decreased endurance, and poor stamina, all of which may worsen as the disease inevitably progresses. Community health nurses can play a major role in helping patients to understand the effects of their behaviors. Assistance with dietary planning to better suit the tastes and budgets of patients can have a great influence on compliance with dietary restrictions and improved outcomes for diabetes management.

In chronic hepatitis C, diagnostic testing sensitivity and specificity are as high as 99%, yet diagnosis remains elusive in those who are not screened or tested for previous exposure or current, active infection. Because the symptoms of fatigue and nausea are commonly seen in other chronic processes, carriers may not seek or receive appropriate treatment until symptoms of cirrhosis develop (Ward, Kugelmas, & Libsch, 2004). Although 3.2 million persons in the United States are estimated to have this condition, most remain undiagnosed. Highly successful treatment modalities exist and afford relief in 50% to 80% of all persons who receive medications for hepatitis C. Disease progression is of great concern, because cirrhosis is essentially irreversible and progression accelerates in the presence of increased age, male gender, and use of alcohol. Nurses can make a huge difference in hepatitis C outcomes by encouraging high-risk patients to be tested so that hepatitis C infection can be diagnosed early and treated before cirrhosis develops.

In the United States, back pain accounts for nearly 25% of all workers' compensation claims and is the most frequent type of claim filed (Strunin & Boden, 2004). The social and personal aspects of back pain are substantial and interfere with personal integrity and role functioning. The following statements reflect these concerns: "You feel a lot of times that you are half a person," "I don't think I'm as good as I was," and "It kind of made me feel like an invalid." Family responsibilities may have to be assumed by others if back pain persists and becomes chronic.

Because the etiology of back pain is often unclear and damage is obscure in many cases, persons with back pain may have no defined path to symptom relief or cure. They may visit a variety of healthcare providers seeking both validation and relief of their symptoms. "Individuals who experience bodily suffering but who fail to gain acceptance for this suffering find themselves with illness but without sickness and can be described as inhabiting a liminal space, being both well and sick, and being neither" (Dumit, 1998). This statement tacitly refers to the importance of the sick role in which individuals seek relief from particular duties in acknowledgment of their suffering for a stipulated period of time. In the **sick role** in Western society, the physician functions as a "gatekeeper" and is responsible for monitoring signs of disease, worsening of the condition, or improvement. The patient is expected to "act sick," cooperate with physicians and their designees, and be cared for until able to resume his or her productive place in society. Because of the nature of back pain and the current state of the science and its limited ability to provide relief, individuals may experience loss and burden related to the chronic pain experience. However, because the individual is increasingly responsible for his or her improvement and ultimate recovery, the person may be challenged to use support groups, alternative and complementary strategies, and coping behaviors including courage, empowerment, and partnership with the healthcare community to master this situation.

Losses and resulting sorrow may lead to development of **chronic sorrow** that develops from grief emerging from continual loss during the trajectory of an illness or disability. For example, persons with Parkinson's disease—a slowly developing, progressive neurological disorder—and their spouses often experience chronic sorrow. Losses triggering sorrow include loss of future plans, restrictions on social life, inability to travel, and decreased ability to participate in hobbies (Lindgren, 1996).

The meaning of chronic illness to individuals and to society varies widely. Individuals may undertake to control chronic physical or psychiatric illnesses using strict adherence to treatment regimens, or they may eschew traditional healthcare practices in favor of nontraditional methods. Control of healthcare behaviors, however, does not always relate to successful outcomes, and some chronic diseases remain difficult to manage with current therapy options.

Adjustment to losses becomes a recurrent theme in many chronic illnesses, but each loss may represent a singular and significant experience that must be grieved. Diagnosis of chronic illness may result in releases of powerful emotions, including denial, shock, depression, and suicidal ideation. Consider the following example of a woman with chronic illness:

> I wanted to go jump in front of a car, and I can remember one day staying home. I was just so depressed that my husband got very alarmed and took off a day of work to stay with me because he was concerned about what I might do. As I thought about jumping in front of a car, I thought it would be my luck just to be maimed. (Wolf, 1994, p. 372)

By trying to protect herself from facing the reality that something is wrong, this woman pretends not to be ill and hopes that people will not notice her intrusive symptoms (Wolf, 1994).

Suffering

The socialization process ensures that adults will be able to assume roles in society recognized as necessary for members of society and for continuation of society. Socialization in children and adolescents with chronic illness can also present problems. Adolescents with cancer, for example, believe that hopefulness is essential to their successful coping with the cancer experience (Hinds, 2004). Celiac disease and the ensuing dietary control essential for maintenance of health have many far-reaching effects on both the ill child and family. Children with asthma or bronchitis related to environmental sources experience interference with socialization and with developmental tasks. Children who spend more time outdoors and who engage in team sports in areas with excessive ozone levels associated with automobile exhaust have more respiratory symptoms, including increased respiratory rate, persistent mucus production, increased respiratory illness, and decreased endurance. Long-term consequences of these problems are being identified with increasing frequency in urban areas.

> We are healed of a suffering only by experiencing it in full.
>
> —*Marcel Proust, 1871–1922*

Not all chronic illnesses are physical in nature. For instance, abilities and determinations that are aspects of personality may also be compromised in cases of chronic mental illness. Additionally, mental illness carries a social stigma that is not commonly encountered with physical problems, such that supports that are readily available to some chronically ill persons are not universally available to individuals with mental illness. **Geriatric depression**—a frequently noted condition in elders with chronic illness—is associated with lower quality of life (Small et al., 1996). Geriatric depression has been found to respond well to treatment, when it is instituted. Specifically, medication provided relief to elders with depression as frequently as younger patients in a comparison group without chronic illness (Small et al., 1996).

Younger individuals also face stigma with chronic physical or mental illness. A woman with asthma shares the following story:

> I was really embarrassed so I was trying to pretend that I wasn't short of breath. So I'd get up and turn around for a minute so that they wouldn't see. When I finally caught my breath, I'd start lecturing again. . . . I hid the inhaler in my pocket and went to the ladies room; I always hid it from my employer and my teachers. (Wolf, 1994)

Another woman with ulcerative colitis recalls her feelings:

> I never wanted to be stigmatized as someone who has a chronic problem or who is labeled as a chronic disease-type person. I've known people who just call out sick. I've never wanted to be stigmatized as one who abused sick time in that way. (Wolf, 1994)

ETHICAL CONNECTION

What do you think?

"Either he didn't take his medication or he's acting," said radio host Rush Limbaugh, on October 23, 2006, accusing actor Michael J. Fox, who has Parkinson's disease, of exaggerating his disease in democratic political ads. Fox, who supported democratic candidates nationwide in midterm elections through a series of political ads, was instrumental in moving the stem cell research debate into the public arena.

Did Limbaugh have the right to criticize Michael J. Fox for exercising his "freedom of speech"? What do you think of celebrities who advocate for scientific research simply based on their own personal experiences with disease? What are some of the influences, in addition to celebrity involvement, that contribute to changes in policies regarding people with disabilities and their future?

Power and Powerlessness

Power can be equated to individual possession of adequate resources enabling chronically ill people to be in control of their lives, or in substantial control of important aspects of their lives (Miller, 1992). Resources include perceptions of power that unfold with other inner attributes and coping strategies that emerge as a consequence of diminished health capacity and confronting of adversity (Miller, 1992).

Powerlessness is a nonadaptive coping mechanism resulting from loss of self, loss of self-esteem, loss of autonomy, and loss of hope. Chronic illness may result in additional losses without appropriate healthcare interventions that are sensitive to needs of individuals with ongoing challenges, uncertainty, and suffering for prolonged intervals. During illness, it is the fear of loss of the whole or a part of the body that is a focus of great psychological concern (Smith, 1974).

Survival of chronically ill individuals depends, in some measure, on individual ability and determination to endure aspects of suffering for long periods of time that must be endured if they cannot be altered or avoided. Community nurses may help to alleviate powerlessness by providing both physical and emotional support and by providing education related to self-care skills and the availability of community resources.

Caring for Persons with Long-Term Health Problems

Knowledge of patient perceptions of care is essential to community health nurses who plan, coordinate, manage, and evaluate community-based care. Maintaining an optimal quality of life becomes a paramount consideration when the future is uncertain and when limitations are both recognized and anticipated. Limitations and permanent disability can be daunting prospects to those who never considered themselves to be vulnerable to long-term health issues.

Facing devastating physical limitations may cause individuals to question their future and to wonder if they will be able to tolerate rigors of chronicity (Johnson, 1991). A challenging example is chronic pain resulting from development or deterioration of many conditions related to aging. Management of chronic pain is essential to avoid debilitating physical limitations. Another common problem is hypertension, which is a major risk factor for heart disease, stroke, and renal failure, among other serious conditions. Because this condition is "silent," many affected individuals do not seek care from their primary providers or adhere to necessary regimens once the condition has been diagnosed. Given that the risk of cardiovascular disease increases substantially in women after menopause, follow up with community health nurses is essential to optimal blood pressure management and will result in decreased mortality and morbidity, especially in women who are age 50 or older (Hirao-Try, 2003).

Nurses can be instrumental in facilitating adaptation to chronic disease processes and promote optimal health within a framework of disease-imposed limitations. Nurses can also support patient-generated activities that sustain endurance and alleviate suffering. Community-based nurses are in an optimal position to identify and promote adaptation to chronic disease processes resulting in diminished limitations.

MEDIA MOMENT

Persons with chronic health conditions are seldom portrayed on network television and in movies. Conversely, many advertisements for products and drugs to treat chronic illnesses appear on a daily basis. How would you explain this dichotomy?

Quality of Life in Disability and Chronic Illness

Acute phases of many chronic illnesses are managed in a hospital or nursing home by healthcare professionals, but the majority of ongoing care takes place in the home. Because the needs of chronically ill persons often outstrip the resources available to them, community health nurses must seek out solutions to care for chronically ill individuals in the most cost-effective manner using available resources of the extended family. This situation is especially relevant in older adult populations; increased longevity and aging of the baby boomers will result in not only a larger population of older adults, but also a higher prevalence of disability (Spillman, 2004). Medical interventions must be designed and implemented not only to prolong life, but also to promote health and independence.

APPLICATION TO PRACTICE

Osteoporosis

Mrs. A. was discharged to her home 3 weeks after having her right hip replaced. She was in a long-term care facility for 2 weeks after she was released from the hospital and was happy to be home again, among familiar surroundings. Mrs. A. had just passed her 77th birthday

(continues)

APPLICATION TO PRACTICE (*continued*)

when she fell getting out of her bathtub at home. She managed to reach the telephone and called a neighbor, who came over and helped get Mrs. A. to the hospital in an ambulance. Although always ambulatory, Mrs. A. spent the next week recovering in bed from hip replacement surgery. She had physical therapy twice daily and ambulated with assistance in her room. She was surprised to learn from her physician that she had experienced a significant overall loss of bone.

Factors contributing to loss of bone density include small bones, smoking, low calcium intake, early menopause without estrogen replacement, amenorrhea, lack of exercise, excessive cola intake, and a familial history of osteoporosis. Other factors related to osteoporosis include chronic diseases, excessive alcohol consumption, and eating disorders (Dowd & Cavalieri, 1999).

After sustaining the fracture, suspicions that Mrs. A. had weakened and fragile bones were confirmed by bone densitometry that was arranged by her community health nurse. Medicare recently added bone mass measurements to its benefits for those fitting risk criteria, so Mrs. A.'s bone density scan was covered. Her osteoporosis could have been diagnosed much earlier if she had known the risks associated with its development. Her community health nurse explained symptoms and factors contributing to development of osteoporosis. Looking back, Mrs. A. recalled one symptom in particular: losing her height. She had been 5'5" and was now just over 5'1". The community health nurse also explained how to prevent falls and directed Mrs. A. to an equipment supply store, where she ordered a metal grab-bar for her bathtub, which would reduce the possibility of future falls while bathing. Now home, Mrs. A. continued the calcium and Vitamin D supplements and bisphosphonates therapy initiated in the hospital and planned to start a walking program at the senior center near her house. Her progress will be monitored for the next few weeks by her community health nurse.

Bone density is also important in those with chronic HIV. They are at increased risk for loss of bone density as a consequence of continued use of antiretrovirals.A baseline DXA scan should be performed initially and every 2–3 years based on the results. The community health nurse is well situated to initiate discussions with the client and physician about this important screening test. Alterations in bone strength predispose to fragility fractures, which are associated with increased morbidity and mortality in the HIV-negative population.

Source: Adapted from Dowd, R. & Cavalieri, J. (1999). Help your patient live with osteoporosis: Identifying risk, managing pain, overseeing treatment. *American Journal of Nursing, 99*(4), 55–60.

RESEARCH ALERT

This study described community-dwelling women's knowledge of heredity, familial, and sporadic breast cancer risk factors and identified characteristics associated with this knowledge. Using a descriptive, cross-sectional design and survey methods, women between 30 and 85 years of age ($n = 184$) from diverse racial and ethnic backgrounds and with no previous diagnoses of cancer were included in the study sample. Findings of the study indicated that most women recognized heredity as a risk factor but did not recognize the impact of paternal family history on risk. Some women did not identify the importance of aging in terms of risk factors, or were unfamiliar with known relationships between breast and ovarian cancers. Education was identified as the most important characteristic associated with knowledge of risk factors.

Interestingly, 49% of those surveyed in the study were college graduates. Despite this demographic, knowledge of breast cancer risk factors was incomplete. Implications for nursing relate to the need for women to receive education about the three types of breast cancer: hereditary, familial, and sporadic. Additionally, advanced practice nurses should provide individualized counseling to women seeking information about their risk factors.

Source: Katapodi, M. C., & Aouizerat, B. E. (2005). Do women in the community recognize heredity and sporadic breast cancer risk factors? *Oncology Nursing Forum, 32*(3), 617–623.

RESEARCH ALERT

This study sought to assess patterns of medical consultation, diagnosis, and medication use in representative samples of adults with migraine in England and the United States. Validated computer-assisted telephone interviews were conducted in the United Kingdom ($n = 4{,}007$) and the United States ($n = 4{,}376$). Individuals who reported six or more headaches per year meeting the criteria for migraine were interviewed.

Patients with migraine in the United Kingdom were more likely to have consulted a doctor for headache at least once in their lifetime (86% versus 69%, $p < 0.0001$), but also were more likely to have lapsed from medical care (37% versus 21%, $p < 0.001$). In the United States, patients with migraine who had consulted physicians made more office visits for headache and were more likely to see a specialist. In the United States but not in the United Kingdom, women with migraine were more likely than men to consult doctors for headache. Patients with migraine in the United Kingdom were more likely to receive a medical diagnosis of migraine (United

Kingdom, 67%; United States, 56%; $p < 0.05$). Patterns of medication use were similar in both countries, with most people treating the headaches with over-the-counter (OTC) medications. Substantial disability occurred in a high proportion of those who never consulted physicians (United Kingdom, 60%; United States, 68%), never received a correct medical diagnosis (United Kingdom, 64%; United States, 77%), and treated only with OTC medication (United Kingdom, 72%; United States, 70%).

Implications for community health nurses are that medically unrecognized migraine remains an important health problem both in the United States and the United Kingdom. Furthermore, there may be barriers to consultation for men in the United States that do not operate in the United Kingdom. While effective treatment exists for preventing and treating migraines, patterns of OTC treatment and lack of follow up exist in both countries, which indicates a need for greater emphasis on population-focused education.

Source: Lipton, R. B., Scher, A. I., Steiner, T. J., Bigal, M. E., Kolodner, K., Liberman, J. N., & Stewart, W. F. (2003). Patterns of health care utilization for migraine in England and in the United States. *Neurology, 60*(3), 441–448.

Many times, chronic illnesses are not immediately fatal but are disabling by virtue of their progression and side effects of social isolation and fatigue. Despite the nonfatal nature of some chronic diseases, they erode quality of life and diminish individual, family, and community resources. Part of the suffering that accompanies chronic health problems is increased by uncertainty, by remissions and exacerbations, by depleted or inadequate coping mechanisms, and by fatigue, which is a factor to consider while planning appropriate activities. The most predictable outcome of chronic illness is unpredictability (Schaefer, 1995). Patient autonomy characterizes the current era of health care, which is safeguarded by nursing (Miller, 1992). Patient quality of life is an appropriate consideration in chronic illness. Assessment of quality of life is directly related to the goals of nursing care, including promotion of health and restoration of maximal functioning of the patient.

These nursing goals become increasingly important when thinking about cancer as an acute event shifts to consideration of cancer as a chronic condition. Increasing numbers of adult cancer survivors have indicated to the healthcare community that, when it comes to treatment choice, quality of life is as important as overall therapeutic effect. Patients are concerned with the impact of cancer therapy on their daily lives. Chemotherapy-induced nausea and vomiting is one of the most devastating adverse effects of cancer treatment and adversely affects quality of life (Wickham, Goodin, & Lynch, 2004). Abandonment of chemotherapy owing to this problem is common. Improving control of this distressing side effect of cancer treatment greatly enhances the patient's ability to tolerate the full dose of chemotherapy. Serotonin-receptor antagonists, neurokinin, and steroids are part of current treatment protocols that accomplish this useful goal (Wickham et al., 2004). By mitigating side effects, chemotherapies are more easily tolerated; hence improved outcomes become possible.

Age alone is not the sole determinant of enhanced or diminished quality of life. The specific condition or disease process may adversely affect individuals differently at different points during their lives. Consider the chronic illness and disability associated with Parkinson's disease. Although related to age, Parkinson's disease also affects some persons who are younger (21–40 years) and may alter their quality of life because of the earlier onset of motor complications and disease progression (Jung, 2004). As expected, older adults with Parkinson's disease also face issues related to quality of life. They may encounter daily issues associated with disease onset and progression including tremor, bradykinesia, postural instability, cognitive changes, and depression (Whitney, 2004). Worsening symptoms that indicate deterioration, although more gradual than in younger adults, may adversely affect quality of life. Maintaining their usual activities, modifying their physical environment to enable maximal autonomy, accepting their limitations, and modifying the daily routine to make the most of their functional capabilities help preserve quality of life for individuals with this disease (Whitney, 2004).

Not surprisingly, racial and ethnic variations in household dynamics may produce differing perceptions of health-related issues including quality of life. Accordingly, because older African Americans are disproportionately more likely to acquire caregiving responsibilities for family members with chronic illness or disability, they may distinguish quality of life in different ways than whites with similar responsibilities.

The Chronic Care Model

In the United States, the federally funded National Institute on Disability and Rehabilitation Research (NIDRR), the most significant funder of disability research in our nation, has also participated in this historical evolution. According to the NIDRR Long Range Plan (2005–2009):

> The disability paradigm that undergirds NIDRR's research strategy for the future maintains that disability is a product of an interaction between characteristics

> (e.g., conditions or impairments, functional status, or personal and social qualities) of the individual and characteristics of the natural, built, cultural, and social environments. The construct of disability is located on a continuum from enablement to disablement. Personal characteristics, as well as environmental ones, may be enabling or disabling.

Broadly defined, models are illustrative representations of the interrelations that exist within a system or process (*Mosby's Dictionary,* 2007). They are frequently used in nursing to explain phenomena and to make predictions about patients or outcomes. Prediction and control of outcomes are highly desirable when managing chronic illness and disability on a case-by-case basis and in contemplating future needs and settings. The model of chronic care discussed here was developed by E. H. Wagner and refined and further developed by a group supported by the Robert Wood Johnson Foundation (2010). The model was tested nationally and revised accordingly. Discussion of this model provides information about advancements in chronic care gleaned from research and numerous clinical applications and offers insights into innovative programs that have been identified by leading experts in the United States (ICIC, 2008).

The **chronic care model** identifies the essential elements of a healthcare system that promotes high-quality chronic disease care (see **Figure 1**). High-quality chronic disease care encompasses several interrelated elements, including the community, the health system, self-management support, delivery system design, decision support, and clinical information systems (ICIC, 2008). When informed patients interact with these elements and have access to providers with resources and expertise, the result is healthier patients, more satisfied providers, and cost savings.

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Figure 1 The Chronic Care Model.

According to this model (ICIC, 2008), community resources must be mobilized to meet the needs of patients and avoid costly duplication of services. Shared services such as mobile clinics or meals-on-wheels programs are examples of this idea. Self-help strategies may be promoted by partnering with national patient organizations such as the American Diabetes Association. Additionally, local and state health policies, insurance benefits, and civil rights for those with disabilities should be emphasized by patient advocates.

A culture, organization, and mechanisms that promote safe, high-quality treatment must be created if chronic illness care is to be improved. According to the ICIC (2008), care improvement goals must be clearly articulated by senior management and implemented through the use of incentives. Prevention of errors through reporting mechanisms and analysis of problem areas with corrective action must be incorporated into the working plans of system management. Communication should be facilitated and data sharing should be optimized as patients navigate across settings and providers.

The ICIC (2008) model emphasizes empowerment of patients to enable them to effectively manage their own health and health care. By acknowledging the central role of the patient in chronic illness care, self-management support strategies provided by the community health nurse and others lay the foundation for better disease control and desirable outcomes. By fostering a sense of responsibility for their individual health, patients and providers work collaboratively to prioritize goals, define problems, and monitor for progress throughout the process.

In the chronic care model, the delivery of effective and efficient clinical care and self-management support are essential. Because the current healthcare system is reactive and responds primarily to those who are ill, it provides few opportunities for keeping people healthy. The chronic care model emphasizes the importance of keeping in close communication with all patients to facilitate aftercare and proposes the implementation of **case management** or care management, depending on the complexity of each case. To facilitate efforts to reach this goal, tasks and responsibilities should be distributed among community-based health team members. The role of prevention is especially emphasized to enable optimal health for chronically ill individuals. Intensive management of those with complicated or multiple chronic processes is articulated. Finally, the model stresses the need for cultural sensitivity and health literacy in the health professionals who support those with chronic illnesses.

The model supports the use of evidenced-based care and consideration of patient preferences. Treatments should be based solely on explicit proven guidelines that are supported by clinical research. Providers must stay up to date on trends, and supportive specialists are considered an essential part of the treatment team that provides expert guidance. Changes to the treatment plan should result from the application of timely reminders, feedback, and standing orders. Finally, the performance of the practice team and care system should be monitored.

The model of chronic care has unique utility for community health nurses in that it can be applied to a broad, diverse cross-section of patients. Those who are permanently disabled *and* chronically ill, in particular, may identify strengths in the enduring nature of the evaluation component and note the ongoing advocacy built into the model. A further strength of this model is its ability to adapt to changing needs and changing characteristics of specific disease states as progression or improvement of symptoms develops. Finally, the use of functional and clinical outcomes ensures standard measures are applied to persons with disabilities and chronic, progressive diseases.

Stages of Adjusting to a New Form of Disability

Adjusting to a new form of disability follows four basic stages: shock, denial, anger/depression, and adjustment/acceptance. People progress through these stages at their own pace. **Shock** involves a state of both emotional and physical numbness that can last from a few hours to several days. **Denial** may last anywhere from 3 weeks to 2 months and is a defense mechanism that allows the implications of the new disability the person has experienced to be gradually introduced or taken in. Denial becomes an issue only when it interferes with the person's life, forms of treatment, or rehabilitation efforts. **Anger and depression** are reactions to loss and the person's change in social treatment and status. The person may experience a number of different emotions during this stage and grieve for the changes in body image, function, loss of future expectations, or former satisfaction based upon any function that has vanished.

The stage of **adjustment and acceptance** does not necessarily mean the person is happy about the disability now experienced, although it does allow for the relinquishment of any false hopes, as well as the successful adaptation of new roles based upon realistic potentials and limitations (Taormina-Weiss, 2012). At this stage, persons might benefit from interactions with others who experience forms of disabilities, which can help them become comfortable with who they have become.

Emotional aspects associated with a new form of disability may be a major factor in determining the person's outcome and the benefits related to rehabilitative efforts. Effective psychological intervention is beneficial when ensuring recovery from an injury resulting in a disability. Many people experience more than four stages of adjustment to a physical disability; in fact, people might experience as many as 12 stages that include shock, anxiety, bargaining, denial, mourning, depression, withdrawal, internalized anger, externalized aggression, acknowledgment, acceptance, and adjustment. As with all adjustment activities, times and tasks of each activity are individualized and variable.

People with Disabilities

According to Taormina-Weiss (2012), in every single way that matters, disability does not change a person. Instead, disability threatens concepts persons hold about who they are. People bring to their disability whatever mix of beliefs, attitudes, talents, charisma, fears, or social skills they have or have the capacity to develop. Who a person is impacts the ability to adjust to disability.

One of the common questions people with disabilities are asked by those who are not disabled is, "What can be done to help?" Perhaps the first thing someone can do is to understand that persons with disabilities are the same persons they were before experiencing their form of disability. It is important not to treat them differently simply because they have a form of disability. Do not expect them to be any weaker or stronger, and do not be surprised if they have found new qualities within themselves that have not surfaced before.

The experience of a form of disability forces the issue of "finding one's self." Some people take pride in the things they learn about themselves through the experience of a form of disability. They may appreciate the way disability helps to define their values (Taormina-Weiss, 2012). A number of psychological adjustments have little to do with the disability a person experiences; they are issues everyone encounters. It is important for people with disabilities to avoid making disability a scapegoat for issues that might have emerged nonetheless. For the majority of people with disabilities, disability does not define who they are; it is something they manage when it becomes necessary to do so.

The Experience of a New Disability

Most able-bodied individuals who have no or very few physical challenges envision the experience of disability as far more demanding and complicated than it is in reality. A person may have no concept of how someone functions with a wheelchair, for example, and it might seem that life for a person who uses a wheelchair is completely helpless, reliant, and complicated—yet the reality is very different. When a person suddenly experiences a form of disability due to an injury or a diagnosis of a form of degenerative disease, he or she brings prior notions of disabilities to it. It is not surprising that a number of people find themselves experiencing anger, depression, fear, anxiety, and a deep sense of loss during the early stages of their disability experience. Despite how well adjusted, emotionally strong, or mature a person may be, the experience of a new form of disability is an event that shakes many persons' basic beliefs about their life. A new form of disability also demands the individual draw upon his or her coping skills—possibly using skills the person may not have needed previously (Taormina-Weiss, 2012).

A person's experience with a new form of disability may be marked by fatigue, negative emotions, or a sense of powerlessness or confusion. It is important to remember that there is also the chance to experience confidence and hope as the person witnesses new abilities to cope with what is often a challenging situation. The majority of people who experience a new form of disability adjust in ways they never believed possible. With positive social support from family members, friends, and society at large, the vast majority of people who experience a new form of disability adapt and adjust.

Disability Diversity in Society

Those with disabilities are the nation's largest minority—the only minority group that any person can join at any time for any reason. For those who are able-bodied, there is about a 20% chance of becoming disabled at some point during the normally expected work life. Those with disabilities cross all racial, gender, educational, socioeconomic, and organizational lines. Discussion regarding diversity has often focused on gender and race. In contrast, limited attention has been given to people with disabilities as the world's largest minority group.

According to the Office of Diversity Employment, those companies that include people with disabilities in their diversity programs increase their competitive advantage. People with disabilities add to the variety of viewpoints needed to be successful and bring effective solutions to today's business challenges. The American economy is made stronger when all segments of the population are included in the workforce and in the customer base. The federal government realizes that opportunity for employment is an important way to give people with disabilities the means to provide for themselves, while lowering federal support costs. There are several unique programs, such as the Work Incentives Planning and Assistance (WIPA) program, the Plan to Achieve Self-Support (PASS), and the Ticket to Work, that have been set up to help people with disabilities succeed at work while maintaining their benefits. The disability employment benefits system can assist with housing, jobs, medical costs, and career security.

BOX 5 Diversity, Chronic Illness, and Disabilities

The concept of diversity encompasses acceptance and respect. It means understanding that each individual is unique, and recognizing our individual similarities and differences. These can be along the dimensions of race, ethnicity, gender, sexual orientation, socioeconomic status, age, physical abilities, or religious or political beliefs or other ideologies. The concept of diversity is best explored in a safe, positive, and nurturing environment. The concept of diversity embraces understanding and acceptance while moving beyond simple tolerance to comprehending differences and celebrating the rich dimensions of variety and multiplicity held within each individual (Disability World, 2012).

GLOBAL CONNECTION

In addition to the immediate devastating effects of war, chronic disease and disabilities are long-term consequences that persist for decades in countries where conflicts occur. Conditions such as cancer from chemical warfare, stress-related illnesses, and injuries to the musculoskeletal system are just a few of the chronic, debilitating conditions that plague countries even after war ends.

GOT AN ALTERNATIVE?

Persons with chronic illness are more likely to embrace nontraditional interventions than other patients. Why do you think this is true? What is the role of the community health nurse in educating persons with chronic illness related to complementary and alternative health choices?

Roles for Community Health Nurses

Community health nurses caring for individuals with chronic illness attempt to mitigate effects of chronic, disabling conditions for individuals and communities by functioning in many roles in established and nontraditional settings. Settings in which they work include free-standing clinics, homeless shelters, shopping malls, schools, apartments, hospitals, churches, rural settings, urban residences, and wherever healthcare needs occur.

Nurses identify risk factors associated with chronic diseases, and they anticipate complications arising from acute illnesses superimposed on chronicity. Further, nurses provide direction for modification of current health policy to reflect changing priorities and identify silent and underserved groups of chronically ill persons.

Community health nurses may intervene to facilitate use of adaptive coping mechanisms. Coping enhancement involves incorporation of social support—for example—which is believed to mediate and buffer effects of stressors associated with chronic illness. Another coping mechanism that may mitigate feelings of hopelessness and loss is spiritual support, which is also identified as a helpful mechanism of coping by chronically ill populations (Miller, 1992). Use of spiritual support may provide comfort and alleviate prolonged grieving.

Nurses function as change agents, advocates, professional caregivers, and role models. The role of prevention grows more important every year. Nursing interventions help delineate areas in which nurses have specialty knowledge and expertise. Some nursing interventions that have had limited applications in research may be explicated further in future clinical investigations, thereby providing additional support for practice.

Change Agent

As the number of NPs and family practice physicians entering primary care within the community multiply, community health nurses will have increasing opportunities to identify changing needs that require immediate attention. Long waiting periods to access primary care will be shortened, and turnaround times for maintenance care activities will decrease. Nurses will be an important source of support, facilitating better and faster follow-up care, and more in-depth prevention activities for all disabled and chronically ill persons.

Nurse Life-Care Planners are a relatively new addition to community-based health care. According to the American Association of Nurse Life Care Planners (AANLCP), nurse care planning is defined as the specialty practice in which the planner utilizes the nursing process in the collection and analysis of comprehensive client-specific data in the preparation of a dynamic document. Developed for individuals who have experienced an injury or have chronic healthcare issues, this document provides an organized, concise plan stipulating estimates for reasonable and necessary current and future healthcare needs with the associated costs and frequencies for goods and services. The plan may be updated as needed. Nurse life-care planners engage in a specialty nursing practice that encompasses many roles that directly and indirectly influence patient outcomes. In addition, the nurse life-care planner serving as a testifying expert provides testimony on the facts of nursing care needs, projecting reasonable and necessary future care needs and costs for the injured or chronically ill individual. Nurse life-care planner roles cross into testifying as expert witnesses, case management, medical-legal advisers, insurance, and private industries. They also may work with trust administrators, health workers' compensation insurance carriers, the federal government's national vaccine program, and private families to assist them with planning future healthcare needs for their loved ones, both young and old. They also develop medical cost projections.

> Every time I think that I'm getting old, and gradually going to the grave, something else happens.
>
> *—Lillian Carter, nurse and mother of President Jimmy Carter*

Advocate

Advocating for chronically ill patients may result in provision and expansion of services where they are either currently unavailable or are of limited availability. By increasing necessary services, additional supports and effective interventions may be identified in the future that capitalize on use of extended familial caregivers and community-based volunteers. Political activity associated with enabling increased access to health-promoting activities may be of increasing importance in the future, as populations of the chronically ill increase in the new millennium.

Professional Caregiver

An area of great need will be that of professional caregivers who assist chronically ill persons to cope over the long term. Coping with chronic illness may mean development of personal and societal resources as a means of enhancing quality of life and survival. Development of personal resources may include increasing coping abilities so as to endure painful or prolonged aspects of disease. Adjustment to losses associated with chronic diseases becomes essential. Adjustment entails coping with physical symptoms and uncertainty. Facilitating adjustment may include use of nursing interventions such as family integrity promotion, decision-making support, and mutual goal setting (Luckmann, 1997).

Role Models

Role-modeling behaviors of the community health nurse will include smoking cessation, weight control, and physical fitness to encourage preventive behaviors in the chronically ill. Health teaching will increase in importance, and nurses in community settings will be sought to initiate effective educational programs specifically designed to address the needs of the chronically ill population.

Interdisciplinary Roles and Responsibilities

As care providers, change agents, and advocates, community health nurses work as an integral part of interdisciplinary healthcare teams. Other team members include both paraprofessional and professional individuals. Some of these individuals will have no direct contact with, or knowledge of, the chronically ill patient. Others will have day-to-day contact with the patient and will depend on the community health nurse for essential information and opinions.

CULTURAL CONNECTION

A patient's culture and meaning of pain can influence the management of chronic illness and disabilities. Think of how different cultures express pain or discomfort and how this will affect the public health nurse's interventions.

ENVIRONMENTAL CONNECTION

For patients with asthma and allergies, any change in new household products or household items, such as rugs and furniture, can result in a severe allergic reaction.

Use of the rehabilitation interdisciplinary model frequently adds to the team concept of care that has long been in place and effectively used by healthcare personnel (Hickey, 2003). Rehabilitative treatments of patients depend on the efforts of many healthcare specialists and demand that patients be actively engaged in their treatment protocols. Community health nurses will continue to have an active role in supporting rehabilitation efforts in chronically ill populations to optimize these patients' functional independence and self-reliance.

Financing Costs of Chronic Illness

By 2020, nearly 157 million Americans are expected to have at least one chronic condition (about 80 million will have multiple chronic illnesses). Direct medical costs for these conditions are expected to be more than $685 billion annually; adding in the indirect costs, it is estimated that the total cost of just seven chronic illnesses will top $4 trillion by 2023, accounting for more than 20% of total U.S. gross domestic product (GDP) (Fahey, 2008). Despite the encouraging impact of recent healthcare reforms, thousands of Americans and immigrants residing in the United States lack health insurance or have inadequate access to healthcare services.

Fees for health care are generally set by formulas put forth by federal and state governments (Hickey, 2003). Medicare, Medicaid, and third-party payers are involved in establishment of fee schedules and cost-management efforts that determine "who gets what" in terms of services. Both direct and indirect healthcare costs are considered when estimating the magnitude of chronic illness. Chronic illness costs society millions of dollars annually and results in massive productivity losses. Treatments for chronic illnesses are rising in cost as more people survive longer because of earlier and more accurate diagnostics. Cancer and heart disease are examples of these phenomena, with heart disease alone affecting an estimated 80 million people in the United States (CDC, 2008a).

Age and chronic illness are positively related. Persons older than age 65 represent a rapidly growing segment of the world's population. Elderly have the highest rates of hospitalizations and visits to physicians in the United States, even though they experience the lowest rates of acute illnesses (CDC, 2008a, 2008b). The cost of caring for such individuals is a substantial concern, as chronically ill elders may experience a long-term financial burden related to their needed care.

Funding initiatives for community-based supports vary. Some private funds are available through service organizations, religious, and secular groups. Public funds for community supports for home-based caregivers vary widely from region to region. Use and availability of supports affect the indirect costs of caring for chronically ill persons. Additional or indirect costs of caring for the chronically ill population include time lost from work in the case of home-based caregivers, resulting in lost productivity. The cost of hospitalizations secondary to exacerbations of symptoms and medications, supplies, and treatments are other indirect costs. For example, diabetic supplies can cost hundreds of dollars monthly; this cost is often offset, at least in part, by federal tax dollars. Prioritizing these issues has engendered fierce debate in political arenas, as rising healthcare costs and increasing numbers of chronically ill require new funding sources.

ETHICAL CONNECTION

Chronic illness is not typically a focus of public health services in a community. This may result in persons with chronic illnesses having few resources for drug and medical expenses. Why do you think chronic illness has not typically been considered a public health "problem" until very recently?

President Obama placed comprehensive health reform at the top of his domestic policy agenda. The president signed into law the ACA, which provides many benefits for disabled persons who previously were unable to procure health insurance due to prior existing conditions. The ACA's provisions include the following:

- Discrimination on the basis of pre-existing condition is banned, as are caps on lifetime benefits.
- Starting in 2015, insurance companies are barred from discrimination on the basis of medical history or genetic information.
- Establishment of the Community Living Assistance Services and Supports (CLASS) program, a self-funded and voluntary long-term care insurance choice that would help people with disabilities remain in their homes, communities, and jobs through cash benefits to pay for community support services.
- Extension of the Money Follows the Person program, improving the Medicaid home-and-community-based services (HCBS) option.
- Establishment of the Community First Choice Option covering community-based attendant services and supports to help Medicaid beneficiaries with daily activities and health-related tasks.
- Establishment of standards for medical diagnostic equipment so people with disabilities can access vital preventive care.

Chronically ill individuals are particularly vulnerable to reforms in healthcare policy that decrease or eliminate essential services, including home-based nursing care, needed to improve and maintain their health status. These patients are often unable to effectively advocate for themselves, so they rely on healthcare professionals to secure needed services for them. If fragmentation of health care continues, the chronically ill population will experience increased difficulties in accessing adequate health care. According to the National Council on Disability (2013), many Medicaid enrollees with disabilities are difficult and costly to serve, primarily because of the wide-ranging needs within the target population; hence the importance of coordinating and synchronizing services and supports across multiple service-delivery systems. The fact that Medicaid recipients with disabilities frequently require healthcare services and long-term supports adds to the complexity of the service-delivery equation, because the latter services, historically, have been provided through networks that operate outside the healthcare delivery system.

The Future of Managed Care for People with Disabilities

Three factors are driving states to expand managed care enrollments: (1) the severe budget constraints under which most states presently operate and predictions that budget shortfalls will continue to plague states for at least the next few years, (2) the expansion of Medicaid roles in 2014 under the ACA, and (3) a growing consensus among health experts and government officials that high-cost Medicaid recipients—including frail seniors and people with disabilities and chronic diseases—can be served more effectively and at lower costs through managed care plans.

Viewed from a disability perspective, federal and state Medicaid officials see Medicaid as a key device for accomplishing all of the discussed delivery reforms, and state officials also hope to significantly improve the cost-effectiveness of health services provided to high-cost beneficiaries by enrolling more people with chronic illnesses and disabilities in Medicaid managed care programs. Moreover, a growing number of states see managed care as a more effective and less costly approach to (1) delivering behavioral health services to people with serious mental illnesses and substance use disorders; (2) providing long-term services and support to people with physical, sensory, and developmental disabilities; and (3) providing a coordinated array of health services and long-term supports to those with dual eligibilities.

All of the signs indicate that Medicaid services to beneficiaries with disabilities are on the edge of a major transformation, driven primarily by the introduction of managed care principles to the financing and delivery of such services. The changes inherent in a managed care approach pose both opportunities and challenges in providing services for people with disabilities, whether they are eligible for Medicaid services only or for both Medicare and Medicaid services.

Racial Disparities in Health Care in Chronic Illness and Disability

According to the Center to Reduce Cancer Health Disparities, an agency of the National Cancer Institute (2013), poor people are at greatest risk of being diagnosed and treated for cancer at late stages of disease. Death rates from lung cancer are four to five times higher in the least educated than in the most educated individuals. African American males have the highest incidence and mortality rates for colon, prostate, and lung cancers. Treatment delays encountered by minorities contribute to poorer outcomes in cancer treatment. Stokes et al. (2013) found African American patients with prostate cancer experienced longer time from diagnosis to treatment than Caucasian patients with prostate cancer. The authors further concluded that African American patients appear to experience disparities across all aspects of this disease process, and together these factors in receipt of care plausibly contribute to the observed differences in rates of recurrence and mortality among African American and Caucasian patients with prostate cancer.

Self-Determination: The Patient as Partner

Chronically ill patients frequently experience perceptions of life quality that are not shared by physicians. Elderly, chronically ill outpatients may perceive their lives to have acceptable quality, despite the physician's perceptions to the contrary. Research suggests patients' perceived emotional, socioeconomic, intellectual, and physical functioning affect their perceptions of quality of life (Wilson & Satterfield, 2007). Quality of care may directly affect quality of life. Those who experience adequate management of symptoms and undesirable side effects may rate their quality of life as acceptable or better. In cases characterized by uncontrolled relief from chronic symptoms that result in reduced or unbearable daily symptoms, quality of life will decrease markedly.

Sensitivity in Community-Based Caring

More than 50 million Americans are currently involved in assisting chronically ill or elderly persons with either personal or household management issues (National Family Caregivers Association, 2008). All ethnic, racial, and gender groups are involved in caring for chronically ill individuals. Community health nurses are in the unique position of entering private homes to render or assist in care provision. Each of these groups and each individual have issues and expectations that may present unique challenges to healthcare workers in provision of gender-, ethnic-, and racially sensitive care. Care rendered in ethnic- and culturally sensitive ways will enhance the nurse's efforts to individualize important interventions.

Gender-Specific Considerations

Overall, women live longer than men. In addition, women tend to rely more on daughters, sisters, mothers, and female friends than on male children or spouses when chronic illnesses occur. Men tend to rely on these same groups of caregivers but most often rely on female spouses. Consequently, there are many more women functioning as caregivers than men. For many reasons, including societal expectations, women tend to put the needs of others before their own needs. Many women, especially older women, may have difficulty articulating their needs and preferences in aspects of care, and need to be reassured, offered options, and consulted about all aspects of care as both patients and caregivers.

Chronically ill women may use a variety of coping strategies to handle the effects of their disease or illness. Effective coping strategies will underscore their desire to maintain normalcy to the greatest extent possible. Women with early-onset disability may strive to prevent secondary complications from developing (Goodwin & Compton, 2004). Consequently, many more women are invested in health promotion to improve their day-to-day experiences and to extend their life expectancy. An example of this idea is controlling the fatigue associated with cancer: Scheduled exercises may be carefully planned around levels of least fatigue in an effort to promote a sense of normalcy and encourage women to take control of their physical symptoms (Coon & Coleman, 2004). The role of motivation and engagement in rehabilitation makes a strong case for those with disability to achieve and maintain high-level wellness.

One issue of increasing concern is women's increasing mortality rate compared to men. An example of this problem is the rapidly rising rate of lung cancer from cigarette smoking in women. Nicotine addiction, in particular, has increased among women since the late 1980s and greatly hampers their ability to achieve high-level wellness. This particular form of addiction results from a distinct, routine, and harmful social behavior that reflects the changing role and status of women (Pampel, 2003). This disturbing trend has been documented in nine high-income industrialized nations—the United States, the United Kingdom, Ireland, Australia, Austria, Canada, Denmark, New Zealand, and Sweden. Not surprisingly, the United Kingdom and the United States have the highest rates of mortality from smoking and lung cancer in women (Pampel, 2003). Activities of the community health nurse should include leading by example, repeatedly encouraging patients to quit smoking, and discouraging women from starting smoking, with the knowledge that prevention is far easier to promote than cessation.

APPLICATION TO PRACTICE

Arthritis

Rose is an 87-year-old woman who has been dependent on others for many years for her daily care. She is unable to ambulate and is in a wheelchair. She lives in a long-term care facility and experiences chronic pain from arthritis in nearly all her joints. She has been in arthritic pain for many years and has used different drugs at intervals, but she continues to experience severe pain that interrupts all other activities. Rose grimaces as she moves in her wheelchair, and speaks about her pain:

> The pain is always there. I would like to be without it just for a day, now and then. I've really forgotten how it is to just get up and do for yourself. I never wanted to have to ask other people to help me all the time, but lately, that's how it is. I'm so tired all the time. The pain keeps me awake, and when I fall asleep, if I try to turn over, it reminds me right away by waking me up! I have the pain all the time, more or less. I take some of the arthritis medicine for it, and it helps a good bit, but it always wears off, and then it feels like the pain comes back real strong. Either sittin' or standin' it bothers me, and I can't walk any distance at all. My niece comes to take me out some, but I don't always feel like going. 'Course, it's real nice to have her come, it's just that I can't go like I used to. We both miss getting out together, but then, at my age, I'm expecting to have pain. They all tell me you don't die from it, but it sure keeps you from doing like you want to.

Issues Community Health Nurses Encounter

Professional issues encountered in providing and managing community-based care for chronically ill individuals include understanding long- and short-term goals, patterns of disease progression, resource allocation, development of support systems, education, and home-based caregiver roles. In daily care, routines provide a framework and format for use of the nursing process. Continuous supervision by nurses is generally not needed by all chronically ill individuals, but ADLs may be supported by home-based caregivers. These caregivers, who are frequently relatives or close friends of the individual with chronic illness, provide valuable services that enable chronically ill persons to retain autonomy in their homes. Paraprofessional caregivers who work in the community and function with a great deal of autonomy include nurse aides, therapy assistants, and transport staff, all of whom facilitate ADLs, maximal independence, and travel within the community. The home setting is desirable for many chronically ill patients and supports self-identity and self-determination, whereas institutional settings may depersonalize and socially isolate some chronically ill individuals from familiar surroundings, personal belongings, and cherished supports. Institutional settings may be desirable in situations in which home-based caregiving is not realistic.

RESEARCH ALERT

A qualitative study was undertaken to detect differences in the way caregivers in three ethnic groups (African American, Puerto Rican, and Caucasian) describe their reactions to caregiving. An ethnographic method was appropriately used to focus on scientific descriptions of cultural groups. The stratified, random sample consisted of 18 caregivers who were selected from a sample of 409 caregivers. All interviews were conducted in informants' homes, with one exception. Informed consent was ensured, and data were collected through use of CES-D and guided, unstructured conversations. The CES-D scale is a short self-report scale designed to measure depressive symptomatology in the general population. Data were analyzed using content analysis to discover themes and meanings expressed by caregivers.

Findings revealed differences in expression of burden, both by ethnicity and gender within ethnicity groups. Generally, caregiving was associated with negative feelings and situations. Almost all Caucasians described their situations negatively. African Americans described their situations as demanding and time-consuming. Puerto Rican caregivers reported that it was difficult to meet the demands of the care required. Several reported caregiving to be a rewarding and satisfying experience. These individuals had an extended network of support in which there were other people involved in the care and assistance of the disabled. Level of outside support was key in decreasing caregiver burden. The authors state that their findings can assist practitioners to better understand the cultural idiosyncrasies that are important in developing a culturally sensitive plan.

Source: Calderon, V., & Tennstedt, S. L. (1998). Ethnic differences in the expression of caregiver burden: Results of a qualitative study. *Journal of Gerontological Social Work, 30*(1–2), 159–178.

Supporting Community-Based Caregivers

In addition to provision and direction of care, another role of importance for community health nurses is providing support to home-based caregivers. Daily provision of care to chronically ill persons can be both challenging and rewarding for home-based caregivers, and support systems, both formal and informal, may be necessary for a positive experience. Their anticipation of needs and understanding of disease progression make nurses invaluable assets to home-based caregivers who may have unrealistic or unachievable goals. For example, home-based caregivers for persons with chronic obstructive pulmonary disease need to understand that perceived quality of life and use of coping mechanisms may contribute more to comfort and adaptation than does use of oxygen and medications (Herbert & Gregor, 1997).

Respite services are urgently needed by family caregivers who provide care to homebound elders with chronic illness and/or disability. Because of the nature of chronic illness and disability, home care may be provided for extended periods and may challenge the resources of the caregiver. Respite involves four elements: (1) purpose, (2) time, (3) activities, and (4) place; it may occur in the home or elsewhere (Lubkin & Larsen, 2013). In addition to home-based care, sites of respite care include senior centers, daycare centers, long-term care facilities, and group living facilities. Respite care has the unique purpose of relieving caregivers so as to provide them with time for themselves so they are able to resume their caregiving role. The community health nurse may underscore these efforts by devising flexible schedules and interventions to address the needs of both care recipient and caregiver.

Support groups have become popular since the late 1990s as a means of facilitating coping with illness and/or disability. They may offer concrete assistance with adjustment to illness and associated role changes in addition to providing a neutral "sounding board" and informational services. Larger cities tend to have more support groups for specific needs, but because the Internet has eliminated many communication barriers, numerous support groups may be accessed online. Group leaders are frequently health professionals who have expertise in topical areas related to disabilities identified by potential group members. Some groups may be particularly helpful to individuals who are returning home from a hospitalization or who are working through illness-related issues. By taking advantage of the link to an empathetic community, individuals may feel better connected to others with similar issues and will reintegrate more easily. For those who live in rural areas, an Internet group may be especially useful if social contacts are limited by distance.

In addition to the Internet, the postal service and the telephone are excellent tools to encourage connectedness and engagement. Handwritten letters may provide a continuing source of enjoyment to the recipient. Those with memory loss are often comforted and reassured by "hard-copy" or tangible reminders of others. Similarly, phone calls are frequently welcome reminders of social connections and common interests. Each of these modalities may provide indispensable links and social support that is instrumental in preventing social isolation and loneliness.

Nonnursing caregivers provide care and services for chronically ill individuals in numerous community and institutional settings. Familial caretakers most frequently include women in the roles of wife, mother, daughter, sibling, or grandparent. Often, these female caregivers have chronic or unmet health needs themselves, and must subordinate their own needs to render care to their relative on a continuing basis. Continuing care can be extremely demanding and exhausting, if the familial caregiver is unrelieved. Neglect of self may develop in these circumstances, and depression, decreased overall health, and exhaustion may follow.

It is important to anticipate caregiver burnout and to suggest alternatives to prevent it from developing. Community-based programs and resources have been developed in some areas to help familial caregivers to take care of themselves. Respite and episodic care of chronically ill programs enable these caregivers to receive physical and psychological support at periodic intervals, while nurses and other members of the healthcare team assume responsibility for care of the chronically ill individual. Both of these options are available through some Veterans Administration (VA) hospitals, nursing homes, public hospitals, and community health agencies. These services are available only to provide temporary relief to community-based, familial caregivers. If the burdens of giving full-time care exceed the abilities and resources of the familial or home-based caregiver over the long term, institutionalization becomes the primary source of care.

Issues encountered by familial caregivers include other family commitments, personal physical health, recreational needs, fear of using needed equipment, stress, loss of independence, role change, loss of privacy, decreased wellbeing, depression, negative feelings, physical strain, anxiety, anger, guilt, loss of self, and caregiver burnout. Effects of chronic illness on families are a major problem for some parental caregivers of children, who often attempt to cope with illness by adapting. Parental caregivers who lack professional help and support in care of their children may feel burdened and overwhelmed. These feelings may lead to development of abusive behaviors. Home-based caregivers of chronically ill children and adults may perpetrate abuse because of feelings of overwhelming frustration, social isolation, and powerlessness. Some family systems may have characteristics that promote abuse, including lack of family support, familial caregiver reluctance, overcrowding, isolation, family burdens, marital conflict, or differing opinions about institutionalization (Lubkin & Larsen, 2013).

In chronic illness, abuse may be obvious or covert. If neglect, self-neglect, exploitation, and coercion are not readily apparent, the community health nurse needs to be sensitive to suspected cases of abuse (Luckmann, 1997). Use of several familial caregivers may relieve the frustration and feelings of isolation that underlie abuse. Another important factor in diminishing burdens of familial caregiving is engagement in social interaction, fun, and recreation, which may enhance the caregiver's sense of wellbeing (Thompson, Futterman, Gallagher-Thompson, Rose, & Lovett, 1993). Caregiver burnout has been linked with lack of assistance in day-to-day activities and should be examined proactively to incorporate supports necessary to benefit both the familial or home-based caregiver and the patient.

BOX 6 Social Security Announces New Compassionate Allowances Conditions: Fast-Track Disability Process Will Now Include 200 Conditions

Michael J. Astrue, Commissioner of Social Security, today announced 35 additional Compassionate Allowances are in effect, bringing the total number of conditions in the expedited disability process to 200. Compassionate Allowances are a way to quickly identify diseases and other medical conditions that, by definition, meet Social Security's standards for disability benefits. The program fast-tracks disability decisions to ensure that Americans with the most serious disabilities receive their benefit decisions within days instead of months or years. These conditions primarily include certain cancers, adult brain disorders, and a number of rare disorders that affect children.

"We have achieved another milestone for the Compassionate Allowances program, reaching 200 conditions," Commissioner Astrue said. "Nearly 200,000 people with severe disabilities nationwide have been quickly approved, usually in less than 2 weeks, through the program since it began in October 2008."

By definition, these conditions are so severe that Social Security does not need to fully develop the applicant's work history to make a decision. As a result, Social Security eliminated this part of the application process for people who have a condition on the list.

Social Security has held seven public hearings and worked with experts to develop the list of conditions considered to be Compassionate Allowances. The hearings also have helped the agency identify ways to improve the disability process for applicants with conditions classified as Compassionate Allowances.

For more information on the Compassionate Allowances initiative, visit http://www.ssa.gov/pressoffice/pr//compassionateallowances200conditions-pr.html

New Compassionate Allowances Conditions

1. Adult non-Hodgkin's lymphoma
2. Adult-onset Huntington disease
3. Allan-Herndon-Dudley syndrome
4. Alveolar soft part sarcoma
5. Aplastic anemia
6. Beta thalassemia major
7. Bilateral optic atrophy—infantile
8. Caudal regression syndrome—Types III and IV
9. Child T-cell lymphoblastic lymphoma
10. Congenital lymphedema
11. DeSanctis cacchione syndrome
12. Dravet syndrome
13. Endometrial stromal sarcoma
14. Erdheim-Chester disease
15. Fatal familial insomnia
16. Fryns syndrome
17. Fulminant giant cell myocarditis
18. Hepatopulmonary syndrome
19. Hepatorenal syndrome
20. Jervell and Lange-Nielsen syndrome
21. Leiomyosarcoma
22. Malignant gastrointestinal stromal tumor
23. Malignant germ cell tumor
24. MECP 2 duplication syndrome
25. Menkes disease—classic or infantile onset form
26. NFU-1 mitochondrial disease
27. Non-ketotic hyperglycemia
28. Peritoneal mucinous carcinomatosis
29. Phelan-McDermid syndrome
30. Retinopathy of prematurity—Stage V
31. Roberts syndrome
32. Severe combined immunodeficiency—childhood
33. Sinonasal cancer
34. Transplant coronary artery vasculopathy
35. Usher syndrome—type

Palliative and Hospice Care

Hospice or palliative services provide care and support to terminally ill individuals and their families in the final stages of life, and support death with respect and dignity. For those with chronic illnesses, great comfort may be obtained by having hospice services provided within the home. This allows the familial caregiver to have a rest from caring activities and to have an opportunity to consider relevant quality-of-life issues. The role of community health nurses in hospice care varies but usually includes referral through the attending physician, facilitation of transfer of care of the chronically ill patient, and consultation as needed. Community-based hospice nurses may also provide education, coordination, and support services. Although palliative and hospice services had their roots in oncology, the principles underlying that field have been applied to care for those with other diseases such as HIV/AIDS. Since the advent of highly effective antiretroviral therapies, the disease trajectory of HIV/AIDS has been altered, such that it is not always predictable. Community health nurses may be involved in caring for HIV/AIDS patients who have an uncertain future and who may not fit in the traditional paradigm of palliative or hospice care (Cochrane, 2003).

Congregate housing is another option for care that maximizes resources while carefully considering quality of life. *Congregate housing* and *assisted living* are considered interchangeable terms. Those who qualify for this type of living arrangement characteristically have a stable chronic condition and require assistance with three or more functional ADLs. Bringing needed services into individuals' homes, whether private or congregate, is an effective way to reduce institutionalization in those with chronic conditions (Sheehan & Oakes, 2003). Congregate housing services typically include the following core services: three meals daily, housekeeping and laundry services, transportation, social programs, and 24-hour security. Additionally, nursing supervision is available 20 hours per week, and emergency services are always available. Community health nurses may be involved with planning and supervision of care in these dwellings, which emphasize autonomy.

THINK ABOUT THIS

Sometimes I look at the sarcoidosis as a mean monkey on my back. In a way, I tried to mourn for the person who I was and figure out who I am now. I did as much research as I could and I took ownership of this illness, because if you don't take care of your body, where are you going to live?

—Karen Duffy

Institutionalization

Chronically ill persons who elect to receive institutional-based care are relatively few in number; however, they may be frail and require care that is not available in the community. The population requiring institutional provision of care, which currently includes fewer than 2 million individuals in the United States, is expected to increase rapidly over the next 40 years as baby boomers age and experience health problems.

Physical restraints actually increase injuries. Restraints also have the effect of reducing mobility, inhibiting communication, preventing individual reorientation, and restricting patterns of socialization within and outside of the facility. In facilities with decreased use of physical restraints, security and safety of residents may be enhanced by use of cameras, alarm systems, and staff surveillance. Unfortunately, falls and patient injuries continue to be a major problem encountered in institutional settings due to staffing levels and the age and physical condition of patients. Many are frail and require frequent assistance with all ADLs. Other problematic issues related to long-term care include loss of privacy, decreased choices in routines, diminished autonomy, and adverse relocation consequences.

Facility selection is an important decision, and community health nurses should support consultation of the chronically ill patient with family members who may assist in the process. The physical environment, accessibility, nurse-to-patient ratio, friendliness of the staff, availability of medical and support services, cost, and location will all be of concern to patients and families considering placement.

Both private and publicly funded facilities for long-term care of chronically ill patients exist. Long-term care facilities with religious affiliations are available in many geographic areas and may be Medicare certified for reimbursement purposes. Nonsectarian facilities are also available and may be affiliated with state or local governments. Both public and private institutions must adhere to standards of care that are put forth and monitored by local, state, and federal agencies. Areas subject to regulation in all long-term care facilities include resident rights; admission, transfer, and discharge rights; resident behavior and facility practice; administration; physical environment; infection control; quality of life; resident assessment; quality of care; nursing; rehabilitation; and medical services.

Nursing home selection may cause emotional distress to chronically ill individuals, who may have decreased coping skills and decreased endurance to withstand a major lifestyle change. Often, the community health nurse is aware of plans to move an individual to a nursing home. Elderly persons with chronic health problems may experience severe adjustment issues related to perceived and actual losses, feelings of powerlessness, and despair. Coping with these changes will require sensitive support and time to process changes. Rapid adjustment to lifestyle changes should not be expected.

Health Promotion in Chronic Illness and Disability

Health-promotion activities that focus on improving function across a spectrum of diagnoses and a range of age groups are effective in reducing secondary conditions experienced by, and outpatient physician visits made by, people with disabilities. Health-promotion strategies for persons with chronic illnesses and/or disability may be adapted from those activities already identified for the mainstream population. An example of this idea is maintenance of normal weight. Obesity—once stigmatized as an unfortunate and undesirable condition—has dramatically increased in frequency and now adversely affects American adults and children in record numbers. Considered the worst health problem in the United States, obesity affects those living in poverty much more frequently than the affluent (Colvin, 2004). Obesity is associated with a 50% to 100% increased risk of death from all causes. Persons with chronic conditions are at even greater risk for mortality and increased morbidity if they develop obesity.

Health-promotion strategies, including encouragement of a regular exercise program and patient education teaching healthy eating practices, will benefit both healthy and chronically ill populations. Those with disabilities also must strive to achieve or maintain normal weight. Those with mobility or endurance challenges will be adversely affected if they develop obesity, so prevention is a top priority with this population. Meal replacements may warrant consideration for those with difficulty in limiting portions, managing food preparation, or maintaining weight in a normal range (Noakes, Foster, Keogh, & Clifton, 2004).

Indeed, health-promotion activities for all groups are increasingly important. Preventing the development of secondary complications related to risk behaviors is essential. Complications are far more costly to treat than health-promoting behaviors are to adopt. This is surely the case for the chronically ill and disabled. Many persons with disability have no additional health problems and are well; these individuals may benefit substantially from health-promotion activities. Structural changes associated with normal aging may also be mitigated by health-promoting behaviors. With the projected growth in the number of aging individuals worldwide, health promotion must soon move to the top of the health agenda for all providers as resources are stretched to accommodate greater-than-ever-numbers. Complications associated with preventable cardiovascular disease alone consume astonishing quantities of resources that could be beneficially directed in numerous other ways. Historically, nurses have optimized all available resources to promote healing and health (Phillips, 2005). Because of their proximity to the patient base, community health nurses are ideally positioned to provide leadership in the area of health promotion for their disabled and chronically ill patients.

Community Living Needs of People Who Have Disabilities

Legislation has been passed to ensure that environments in which people with disabilities live and work follow the patterns of life and conditions that most people experience. Children and adults with disabilities have the right to live in homes and attend school or work within integrated settings with their peers without disabilities. For example, most adults live in settings of their choosing, with people of their choice, getting up and going to bed at "normal" times, eating three meals a day about 5 hours apart, going to work, and choosing their own recreational activities and friends. Social movements (e.g., "normalization" and now "inclusion") have urged the provision of opportunities and supports for individuals with disabilities to enable them to live and work in their communities (DiLeo, 2007; Wehman, 2006).

Similar to individualized family services plans and individualized education plans, which are discussed later in this chapter as plans of service for children, individual service plans of assistance and skill enhancement can be written for adolescents and adults to identify the supports needed to transition to work, further education, or other living arrangements. These plans are written with the individual with a disability and/or family members as the most important members of the team.

Person-centered planning is an approach whose goals are to reduce social isolation and segregation, establish friendships, increase opportunities to engage in preferred activities, develop competencies, and promote respect. Person-centered planning brings together the most important people in the life of a person, envisions a better life for the person, and discovers ways to achieve the vision. Participation is voluntary and the group is typically diverse, not consisting solely of service providers. The views of the family members, friends, and the focus person are foremost, instead of the professional authority hierarchy of a clinical team meeting, with an orientation toward the deficiencies of the individual. The process is guided by a facilitator who keeps the group focused on creating a lifestyle based on the aspirations of the focus person. The facilitator typically partners with a recorder or maps what people say on large sheets of paper, under categories such as history, preferences, dreams, and fears; these items then become the basis for developing a vision for the future. The group continues to meet periodically to reflect on successes and setbacks and adjusts strategies to accommodate changing circumstances and sometimes changing aspirations (Holburn, 2002).

Unfortunately, service plans are still being written that segregate individuals with disabilities. Segregated situations are often established under the premise that people need to "get ready" for living and working in the community. Work and living skills, however, are best learned in real jobs, homes, and communities. Program activities with self-contained groups of people with disabilities in perpetual preparation for the real world by traveling, recreating, working, and living together do not promote the uniqueness and value of each individual with a disability, nor do they prepare individuals for life in the community (DiLeo, 2007; Wehman, 2006).

Our society, with cultural values of productivity, skill, attractiveness, and affluence, still views people with disabilities as different in a negative way, perceived as incompetent or as children who never grew up, "funny looking," or even dangerous. The most powerful way to change negative societal attitudes is for individuals with disabilities to participate successfully in their communities, as skilled and productive workers and managers of their own homes (with the right supports). As neighbors, coworkers, and friends, people with disabilities demonstrate their adult needs for expression of personal accomplishment, responsibility, interdependence, privacy, and sexuality. The more opportunities for choice and the more competencies an individual possesses, the more self-esteem and status he or she will have in the community. Community health nurses who provide assistance should show care in interactions, choosing moments to teach and methods of support provision that are professionally appropriate and demonstrate personal respect. For example, the community health nurse should use minimal cues, gestures, and words (the less assistance the better, to counteract dependency), watching tone and volume, to promote the dignity of the individual and not convey an attitude of pity or assume a parental role.

The movement away from a focus on an individual's deficits to a focus on self-determination and inclusion has influenced decisions on which supports are needed for individuals to participate in their communities, assume valued social roles, and experience greater satisfaction and fulfillment. Supports are defined as resources and strategies that promote the interests and welfare of individuals and result in enhanced personal independence and productivity, greater participation in an interdependent society, increased community integration, and an improved quality of life. Types of supports should be tailored to individual needs and preferences and be provided in a flexible manner. Supports are more important to some individuals than to others. Systematic assessments of support needs should consider multiple factors and guide the development and revision of individual support plans. Assessment and planning should begin with identifying an individual's desirable life experiences and goals. After determining the intensity of support needs, an individual support plan should be developed that will be monitored for progress (Thompson et al., 2002).

Homes of Their Own

Historically, people with significant disabilities, particularly those with mental impairments, had two living options. Either the family could care for the individual at home indefinitely, with little, if any, public assistance, or the family could place the individual in a state residential facility. Current beliefs about the rights of people with disabilities support that (1) all children, including those with severe disabilities, have the right to live at home with their family; and (2) adults with disabilities have the right to the supports necessary to live in a home in the community, either alone or with another adult of their choosing.

Living options for people with disabilities are often presented on a continuum from large, segregated facilities at one end to group homes or homes of their own at the other. Such a continuum reinforces the past belief that large residential institutions or large group homes can be legitimate options as places to live. Most professionals believe that "the people who were most often viewed as needing to live in larger, specialized facilities, such as institutions and group homes, were often the very people who most benefited from the opportunities a smaller place offered" (Racino & Taylor, 1993, p. 36). When these smaller group homes are managed based on the same model of services as the large facilities, however, people with disabilities are still shortchanged. The pseudo-home can be highly routinized, "run" by service providers, and while "homelike" in atmosphere, not truly a home.

Living arrangements can vary from a home of one's own, a semi-independent or supported apartment (with staff available to assist), a home with one's family, a foster home, or a group home (Kirk, Gallagher, Anastasiow, & Coleman, 2006; Wehman, 2006). Regardless of the type of living arrangement a person wants, needs, and can reasonably afford, there should be opportunity for choice, ownership of personal property, and privacy. For example, the individual should choose the type of neighborhood, style of home, landscaping, furnishings, and decorations—all choices demonstrating the individual is a competent adult. Also, a person should own his or her possessions, make choices in how to spend his or her own money, and choose activities he or she wishes to participate in. If there is a roommate (by choice of the individual), arrangements should be made for privacy, such as providing personal space and securing private items.

Housing must be accessible for the individual with a disability. Contractors and builders may be unaware of modifications or regulations involving accessibility, and few accessible houses or apartments are available, particularly in rural areas. The community health nurse can educate community members and leaders regarding housing needs of adults with disabilities, which in many ways overlap the needs of older adults in the community: the need for safe, affordable, and accessible housing choices. Information related to accessibility is available through each state's Department of Rehabilitation Services or Office of Vocational Rehabilitation Services, along with ample information available on the Internet.

A person with a disability may require assistance in the home to carry out ADLs such as bathing, dressing, cooking, eating, and toileting (LaPlante, Harrington, & Kang, 2002). It is estimated that about 9 million individuals in the United States need personal assistance to carry out typical daily activities. Although most of these helpers are relatives (80%), in many cases the individual with a disability must hire a helper to come into the home (U.S. Census Bureau, 2006). A **personal care attendant** can be employed to assist with ADLs, transportation, pet care, and household chores and maintenance. Personal assistant services also include interpreting, mobility assistance, social support, medical assistance, reading, and recreation. Unfortunately, availability of attendants, coordinating agencies, and public funding options vary greatly from state to state.

GLOBAL CONNECTION

Disabling conditions throughout the world are often the result of war and conflict. When governments in other developing countries are unable to assume responsibility for the rehabilitation of the population's veterans and war victims, how do these people recover? How does this differ from U.S. policy related to veterans?

Families who may be caring for a child or adult with a significant disability 24 hours a day need the option of **respite care** to prevent caregiver burnout. Respite care provides another caregiver to assume the round-the-clock care of the family member with a disability, allowing the caretaker a vacation, a mental health break, time to recover from illness, or merely time to oneself. Because of the significant medical problems that individuals with severe disabilities may have, the respite provider (e.g., church, civic group, the Association for the Rights of Citizens with Developmental Disabilities) often will recruit nurses in the community to serve as respite caregivers. Respite may be provided in the patient's home, at a group home, in a private home, or at an organization's facility.

An Accessible Community

Accessibility to all that a community offers is critical if persons with disabilities are to participate to the fullest extent possible in community life. Many individuals with disabilities cannot afford to own customized vehicles to drive or may be physically or mentally unable to drive. Accessible public transportation is needed by many persons who are disabled so that they may work, recreate, worship, seek medical attention, socialize, and so on, as we all do on a daily basis. Inadequate transportation was cited as a problem by 30% of adults with disabilities in a 2000 Harris poll. Many areas are lacking adequate public transportation, particularly in rural areas of the country. By the year 2002, all public buses were required to be accessible. Facility accessibility is also necessary and required by the ADA. It is accomplished by accommodations such as curb cuts, ramps, large doorways with easily opened doors, elevators, and wide hallways. The community health nurse can educate community leaders about these needs for access and may become involved in advocating for individuals with disabilities or working with legislators for policy reform. Individuals who use wheelchairs for mobility are often frustrated with the inadequate involvement of people with disabilities in the development of facilities that comply with ADA accessibility requirements (Pierce, 2012). Ideally, a person who uses a wheelchair should serve on committees involved in designing buildings to ensure that they not only meet ADA requirements, but also are functional for those who use wheelchairs or who have other types of disabilities.

Meaningful Work

Work is highly valued in our society. Society often judges an individual's worth by his or her productivity; thus performing real work and paying taxes can enhance a person's dignity. The stigma associated with disability decreases when individuals are seen as productive and competent workers (Wehman, 2003). Work that includes regular coworker contact and shared common experience offers opportunities for development of personal relationships, arranged social activities after work hours, and a network of social support in the community that is often lacking in the life of individuals with developmental disabilities (Green & Schleien, 1991). The wages and fringe benefits earned at work can also offer increased financial security, greater independence and mobility in the community, control over life choices, and greater personal satisfaction (Wehman, 2003b).

Vocational options for individuals with mild to severe disabilities range from day treatment programs and sheltered workshops to supportive employment and competitive employment in community businesses. Each of the options represents less and less supervision and assistance for the individual with disabilities in a work setting. For many years, the only vocational option for individuals with mental retardation or developmental disabilities was training in segregated work settings (e.g., adult activity centers, sheltered workshops, nursing homes, and institutions). Maintaining an individual who can be productive on the Social Security disability rolls is not an efficient use of human resources or public funds. Individuals with developmental disabilities can and should work in competitive community employment settings (Revell, Kregel, Wehman, & Bond, 2000).

Competitive employment as a possibility for individuals with significant developmental disabilities has grown with the use of trained employment specialists, informed coworkers, mentors, technology supports, and legislation such as the ADA. Supported employment, with its focus on valuing the abilities of individuals with disabilities and their productivity in the workplace, has given these individuals an opportunity to be included in community business environments. The goal of supported employment is to help individuals with the most significant disabilities be successful in paid employment in the integrated work setting of their choice. Supported employment emphasizes the benefits of competitive employment for all involved. Community employment provides the individual with a disability with a real job plus the benefits and dignity that come with contribution. The employer gets a good worker and receives specialized support to train and maintain the individual. The family is able to see its family member in a competent role in the workplace. Taxpayers spend less money than they would to support the individual in a segregated program (Wehman, Revell, & Brooke, 2003; Wehman, Targett, & Cifi, 2006).

There are a number of factors that facilitate beginning or continuing employment for people with disabilities. According to the National Organization on Disability (2004), three major factors identified as helpful were assistance from vocational rehabilitation (23%); getting equipment or a device that they needed to do their work, talk with other workers, or get around at work (21%); and getting an interpreter or personal care attendant (7%). For those individuals with disabilities who did not work full-time, reasons given included the following: employers do not recognize they are capable of doing the job (42%); they lack skills, education, or training needed to get the job (33%); they need a personal assistant to help get to work or to do the job (32%); they risk losing benefits or insurance (31%); no work is available in the line of work respondent could do (29%); and special equipment or devices are needed to do the work, talk to or hear other workers, or get around at work (28%) (Toldrá & Santos, 2013). However, a recent study suggested that older adults in general, and older adults with disabilities in particular, face a greater level of workplace discrimination (Bjelland et al., 2010).

Many businesses have made changes in how they think and act about hiring individuals with disabilities since the signing of the ADA. Supervisors are indicating they are satisfied at the same or even a higher level compared to workers without disabilities regarding the performance of workers with disabilities in the areas of timeliness of arrival and departure, punctuality, attendance, and consistency in task. The business community appears to be increasingly embracing the employment of individuals with disabilities as a sound business strategy, investing in appropriate supports to ensure these employees' success. Businesses are changing their procedures for hiring new employees to better accommodate job applicants and new hires with disabilities. Written return-to-work policies for workers with disabilities are also becoming more popular. Accommodations for workers with disabilities (and without) are including job carving, job restructuring and schedule modifications, transitional work, telework, and use of assistive technology (Wehman, 2003a).

Innovations in natural supports, coworker training, and employer leadership within the business community have helped increase the capacity of service providers to include people with disabilities in the workforce. New methods of job development, modern marketing techniques, assistive technology, transition services from school to work, expansion of choice and self-determination, and person-centered planning have all contributed to the increase in integrated employment. Today segregated employment of activity centers and sheltered workshops are giving way to alternatives such as work crews and enclaves and now individual placements in community businesses, although these jobs are largely entry-level positions in the service industry (Lubkin & Larsen, 2013). Years of research have confirmed that individuals with disabilities who need long-term employment assistance fare better in supported employment than in sheltered workshops. To assist individuals with severe disabilities to succeed in employment, professionals must identify suitable opportunities within community businesses and develop the supports that those individuals need. Inclusive employment within the community is the right of all people, including those with significant disabilities (Wehman, Brooke, Green, Hewett, & Tipton, 2008).

GOT AN ALTERNATIVE?

Persons with chronic, disabling conditions often use complementary and alternative interventions. What is the role of the community health nurse as patients seek alternative treatments?

Relationships

All people experience sexual feelings, and individuals with disabilities are no exception. Sexual activity is one of the most controversial issues pertaining to the lives of individuals with disabilities, particularly mental retardation. Sexual development for individuals with mental retardation is for the most part similar to persons without mental retardation. Many professionals argue that individuals have the right to socially appropriate sexual expression. Others disagree and are concerned about outcomes, including unwanted advances (e.g., rape, incest) and sexually transmitted diseases. Appropriate sexual expression is more difficult for individuals with mental retardation who have higher levels of supervision and support. They may not have information about sexual development and functioning and typically have fewer socialization opportunities in which to practice appropriate behaviors, roles, and expectations (Beirne-Smith, Patton, & Kim, 2006).

Individuals with physical disabilities such as spinal cord injuries or cerebral palsy also may need education regarding sexuality. The community health nurse and other professionals assisting individuals with disabilities may have to set aside their own sexual values so as not to deny, limit, or inhibit an individual's interest in romance and sex. People with disabilities should receive sex education, sexual healthcare information, and opportunities for socializing, sexual expression, and intimacy.

Recreation

Participating in recreational activities is an important aspect of life for individuals with disabilities, just as it is for others in our society. Individuals with disabilities usually participate in sedentary leisure, commonly watching television or listening to the radio with family or possibly a few friends. This pattern of leisure does not help them maintain their health or fitness level. Without coordinated preventive health care for increasing fitness, secondary health conditions often result for individuals with disabilities, such as high blood pressure and high cholesterol levels, heart disease, diabetes, obesity, chronic skin problems, and hygiene-related issues. With inclusive community recreation programs for individuals with disabilities, not only will there be increased opportunity for improved health and fitness, but individuals also have increased opportunities for social contact—an additional critical variable for improved quality of life (Carter & Van Andel, 2002). Recreation may take the form of individual or team games, athletic programs in schools, college-sponsored recreational sports, employer-sponsored activities, church-sponsored activities, and family recreation. Specific activities include outdoor recreation (e.g., birding, hiking, bike riding, canoeing, softball) and indoor activities (e.g., ceramics, painting, aerobics, weight lifting, racquetball). Ideally, recreational activities in the community serve to promote physical health and conditioning, improve social skills, facilitate friendships, and develop specific skills. Although achieving a balance between work and leisure is important for everyone, it is especially critical for people with disabilities. Many individuals with disabilities who work do not have recreational outlets for evenings and weekends. Community recreation programs have been slow to accept responsibility for offering programming that includes people with disabilities:

> It is not enough merely to open programs to people with disabilities; the professionals in charge of the programs must go further and actively recruit and encourage the participation of people with disabilities and provide them with successful and ongoing mechanisms of support. (Schleien, Ray, & Green, 1997, p. 19)

Community recreational opportunities ranging from individual skill building to competitive international competition are becoming increasingly available to people with disabilities and are supported by recreational specialists and special equipment (e.g., modified bowling balls, walkers for ice skating, sit-skis for snow skiing). In addition to group participation in community-based opportunities for recreation, home-centered hobbies such as card games, board games, collections, and other leisure interests should be encouraged.

The camp movement for children with disabilities is on the rise. Currently there are hundreds of camps for children with diabetes, cancer, HIV/AIDS, multiple sclerosis, muscular dystrophy, cystic fibrosis, cerebral palsy, spina bifida, blindness, and hearing impairments. Camps may be sponsored on a national basis or supported by local chapters of national charitable organizations (Mayo, 2002). Children and youth with developmental disabilities usually attend separate recreation and leisure activities and need additional options to participate in community activities with other children and youth. With assistance and accommodation recommendations from knowledgeable personnel, all participants can benefit from inclusive recreation programs created by community recreation agencies, nonprofit sports organizations, schools, parks and recreation departments, universities, local governments, religious organizations, and private activity providers. Some children will need one-on-one assistance for safety or other very individualized accommodations to meet their unique learning or equipment needs and communication styles (Fennick & James, 2003).

Adults with disabilities may attend fewer social and cultural activities than adults without disabilities. Although they attend a place of worship almost as often as individuals without disabilities (54% as compared with 57%), their participation in other social events is typically less.

Transition from Education to Work and Living in the Community

Students with disabilities are now placed in regular education programs as much as possible because the best preparation for living and working in an integrated environment is to be taught in an inclusive school setting. Educational programming available to students with disabilities includes four major areas: (1) general education academic content, (2) basic academic skills and social skills, (3) learning strategies, and (4) vocational and life skills. A balance of these instructional areas should also address relevant adolescent issues such as biological changes and sexuality; social values and behavioral competence; identification of personal interests, talents, and areas of need; and a desire for emotional independence (Patton, Blackbourn, & Fad, 2004; Wehman, 2006).

Educational systems are expanding their roles in preparing students for transition to work and living in the community (Dolyniuk et al., 2002). Employers and employees of industries and businesses should be invited to address school systems about their workforce needs. Business connections and alliances offering students opportunities for work experiences and employment before graduation are having success. Many students with disabilities are staying employed upon graduation and are not remaining dependent on their families or the social service system.

To facilitate successful transition from the school environment to more independent living and work environments, key connections should be built with community businesses, community colleges, recreation centers, and adult supports for living. Appropriate planning focusing on student/family choice is also critical. Major options for students with disabilities include (1) employment (full-time or part-time, supported or non-supported), (2) further education (2- and 4-year colleges, technical schools, trade schools, adult education), (3) military service, (4) volunteer work, (5) "domestic engineering" (house husband/wife), or (6) absence of gainful employment or purposeful activity (Patton et al., 2004).

Transition planning is shifting the decision making to individuals with disabilities and their families. Students are now learning to make choices, be more self-determined, and be self-advocates assuming control and management responsibilities for their own lives. Professionals are shifting away from "curing" individuals with disabilities to supporting them for improved quality of life. Before students leave the school environment, they and their family members must learn how to access the supports (informal and unpaid or formal and paid) they need and want in the communities. Person-centered planning focuses on the desires of the individuals and their families and identifies the formal and informal supports the individuals will need to achieve their future dreams. A planning meeting focuses on the individual's abilities and preferences and identifies possible resources needed to provide desired assistance and support for adult living and work.

Rehabilitation

Rehabilitation is a term used for interventions aimed at restoring or optimizing functioning after an injury or significant medical problem. Rehabilitation nurses work to reduce the stigma associated with disabilities, restore maximum levels of independent functioning, advocate for optimal quality of life, help the individual and family adapt to an altered lifestyle, and improve the overall outcome for the individual with disabilities. Individuals having experienced spinal cord injuries or cerebrovascular accidents are examples of types of persons who would be involved in rehabilitation. Initially, after a significant injury, the individual with disabilities is involved in inpatient rehabilitation, which may use nursing, physical therapy (PT), occupational therapy (OT), speech language therapy, recreation therapy, music therapy, and counseling. Later, after discharge from the facility, the individual may receive home visits from a home health nurse and PT or

OT sessions at an outpatient rehabilitation facility. Both the length of the initial hospital stay and the number of outpatient rehabilitation visits permitted after discharge have been severely curtailed in recent years by insurance providers.

Medical Technology

Many individuals with disabilities require technology assistance, nonmedical or medical, immediately after an injury, during rehabilitation, and/or throughout their lives. **Medical assistive devices** assist or replace necessary body functions and are necessary to keep the individual alive or prevent further disability. Persons using medical technologies also typically require daily skilled nursing care. Medical technology is used to assist with respiration, nutrition, excretion, and surveillance of vital functions and oxygen levels.

Individuals with chronic respiratory failure may require oxygen supplementation by nasal cannula, face mask, oxygen tent or hood, or a tracheostomy. These individuals often may require chest physiotherapy and suctioning several times a day to clear pulmonary secretions. When assistance is needed to replace or augment the individual's own breathing, mechanical ventilation and tracheostomy are used. Training nurses in rehabilitation facilities about ventilators can expedite the discharge of ventilator-dependent individuals from the hospital acute care unit to rehabilitation facilities.

> There are two kinds of 'disabled' persons. Those who dwell on what they have lost and those who concentrate on what they have left.
>
> —*Thomas S. Szasz*

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Faculty member with disability uses service dog to function more independently.

According to King (2012), patients requiring prolonged mechanical ventilation are rapidly increasing in number. Improved intensive care unit (ICU) care has resulted in many patients surviving acute respiratory failure to require prolonged mechanical ventilation during convalescence. Also, mechanical ventilation is increasingly used as a therapeutic option for patients with symptomatic chronic hypoventilation, with an increased effort to predict nocturnal hypoventilation to initiate ventilation earlier. There are continued efforts by ventilator manufacturers to improve home ventilators. These factors point to a likely increase in the number of patients receiving home mechanical ventilation in the United States. Unfortunately, there are no comprehensive databases or national registry of home ventilator patients—therefore the number of home ventilator patients is unknown.

King also states, "There are real challenges to providing mechanical ventilation in the home, which include caregiver training, adequacy of respiratory care, and reimbursement." Technology, expertise, and funding were now available to support ventilator-dependent patients outside of the hospital. The door was now open for many chronic ventilator patients, both children and adults, to live at home.

Why Is Home the Preferred Location for Long-Term Mechanical Ventilation?

Ideally, the preferred location for long-term mechanical ventilation is in the home, because costs are reduced (hospital costs $21,570, homecare costs $7,050, dollar savings per patient, per month $14,520 (Bach, Intola, Alba, & Holland, 2000). Quality of life is enhanced, and integration into the community is maximized (Marchese, Coco, & Coco, 2008). For the pediatric ventilator patient, the advantages of home ventilation also include being reunited with parents and family, which greatly enhances normal development and relationships. Home mechanical ventilation also reduces exposure to hospital-borne infections and frees hospital ICU beds for other acutely ill patients (Downes, Boroughs, Doughterty, & Parra, 2007).

Recent research suggests long-held beliefs about preterm children having dyscalculia from invasive ventilation may be incorrect. Dyscalculia is a lack of ability to perform math operations including addition, subtraction, multiplication and division. Jäkel found children in the study had no specific math deficits if their general IQ was factored in. However, they do have math difficulties that may go unrecognized if parents are not aware of their children's problems. Also, Jäkel found that schools lacked ways to deliver specific support to affected children (Jäkel, 2014). This is important for community health nurses to be aware of since these children may experience frustration and discouragement in math classes and lack the ability to express their problems.

Medical technology or equipment may be necessary to promote excretion of wastes. Indwelling urinary catheters may be used to empty the bladder and keep the individual dry. Two main problems with long-term indwelling catheters are frequent urinary tract infections, which can cause permanent kidney damage, and the bulkiness and unsightliness of the urine collection bag. Many persons with spina bifida (accompanied by paralysis below the level of the defect) or spinal cord injuries prefer to perform clean intermittent self-catheterization throughout the day, eliminating the need for the urine collection bag and indwelling catheter. An ostomy or opening in the abdominal wall may also be used, either to empty the bladder or to allow evacuation of the bowel contents through the abdominal wall. In the past, adults with kidney failure could receive hemodialysis at home, and now children with kidney failure can receive peritoneal dialysis at home and avoid hospitalization. Peritoneal dialysis, in which fluid is passed into the abdominal cavity via an abdominal catheter and allowed to drain back out, takes several hours to complete and may be needed up to 3 to 5 days per week (Batshaw, Pellegrino, & Roizen, 2007).

Another category of medical technology commonly used at home or in rehabilitation settings includes monitoring devices such as left ventricular assist devices, cardiorespiratory monitors, and pulse oximeters. Monitors are important for alerting caregivers to problems requiring prompt intervention, such as a kink in the oxygen tubing or an occluded airway, but the beeping and alarms of the monitors can unfortunately compete with the patient as the focus of the caregiver.

Nonmedical Assistive Technology

Nonmedical assistive technology is often a critical part of the continuum of services needed by a person with a disability. Areas in which assistive technology is helpful include employment tasks, ADLs, environmental control, communication, mobility, transportation, and recreation. Within each of these areas, technology can be either low tech (easy to make and inexpensive) or high tech (more difficult to make, often computerized or electronic, and expensive).

Technology for everyday living, or those adaptations and devices that will enable the individual to perform ADLs, are the first needs of consumers. Examples of technology to help with ADLs include "grabbers," adapted eating utensils, shower chairs, and Braille or large-print labels on appliances. Environmental control can be achieved through the use of switch extenders to place light switches within reach of a person in a wheelchair, adapters to convert lamps into "touch" lamps, or voice-controlled lights and heating/cooling. Voice recognition software is available that enables a person with vision, motor, or coordination problems to use a computer strictly by voice commands and dictation, without ever having to touch the keyboard. The ability to communicate is a basic need of all individuals, regardless of disability or age. Communication systems (which may be based on sign language, gesturing, or Braille) may require low-tech devices such as simple communication boards at which to point or gaze, or high-tech computers that "talk" for the person such as the Liberator. Telecommunication devices for the deaf (TDDs) allow individuals with severe hearing impairments to transmit and receive typed messages over the telephone. Text messaging and social media platforms such as Facebook and Twitter, accessed via computers, smart phones, tablets, and other mobile devices, have increased communication opportunities for persons with a wide range of disabilities. Mobility devices include the traditional walkers, canes, and crutches along with scooters and wheelchairs. Scooters and wheelchairs have become costly and highly technical pieces of equipment that are custom-made to fit the size, posture, and lifestyle of the person with a disability. In addition to manual wheelchairs, power wheelchairs with joystick control and tilt and recline options are available. For persons without upper-extremity control, sip and puff or breath-controlled power chairs are available. Specialized wheelchairs have also been developed for rough outdoor terrain and for specific sports such as wheelchair basketball, track, or rugby. Technological adaptations for vehicles include wheelchair lifts for vans, mechanical or electronic hand controls, and steering devices.

Ideally, evaluations for assistive technology devices should be conducted by appropriate individuals. Team members may include physical therapists, occupational therapists, and technology suppliers. Although many of the low-tech devices can be made or purchased for a moderate price, other pieces of technology such as computerized communication devices, specialized wheelchairs, and customized vans require significant financial resources.

Advances in technology are enhancing the possibilities for individuals with disabilities to communicate and move more effectively. With the advances in technology, service providers can plan solutions to everyday problems in social and personal spaces.

Adaptive/assistive devices have moved some individuals from dependence to independence but include sometimes costly equipment such as customized electric wheelchairs and electronic communication systems. Technology, both low and high tech, has made the difference for many people with disabilities between a life of dependency and limited options and an independent, productive life in which the person is included in all aspects of community life. According to Sprayberry (2014), a disabled person and an advocate for persons with muscular dystrophy, about 40 million people with disabilities currently live in the United States. Technology that would provide relief of the many problems and conditions imposed by various disorders is expensive and therefore unavailable to many disabled persons.

The Assistive Technology Act of 1998 was not reauthorized when it expired in 2010, and a substantial number of disabled individuals still lack assistive technology access. *Healthy People 2020* (HHS, 2014a) includes the following objective under the category of Disability and Health: "Reduce the proportion of people with disabilities who report barriers to obtaining the assistive devices, service animals, technology services, and accessible technologies that they need" (DH-10).

Assistance Animals

In addition to technological assistance, individuals with disabilities and chronic illnesses may benefit from animal assistance. Using pets to enhance health status dates back to the 18th and 19th centuries, when pets were used in Great Britain to give institutionalized people with mental retardation a sense of purpose and meaning. Caring for pets has been shown to help individuals improve mood, lower blood pressure, overcome physical limitations, and increase social skills (DeLaune & Ladner, 2006). A variety of animals can be used to provide companionship and give purpose to daily living (e.g., cats, dogs, rabbits, guinea pigs, birds, and miniature horses) or to assist individuals in daily activities (e.g., dogs, monkeys). Some animals are trained to detect changes in blood glucose, respiration, or other cues and to alert caregivers to assist children with disorders such as type 1 diabetes, epilepsy, and respiratory disorders in a potential crisis.

The most commonly used animal to assist patients with disabilities is the dog (Eames & Eames, 1997). Assistance dogs, although commonly thought to include only guide dogs for people who are blind, actually include several types of dogs serving a variety of purposes. Guide dogs are specially trained dogs who, when working, stay at their owner's side and provide behavioral cues about the environment. Examples would be warnings of steps, streets, or other obstacles in the path of movement. Hearing dogs, also specially trained, may be used by individuals with significant hearing impairments to cue the individual about meaningful sounds in the environment such as a doorbell, telephone, smoke detector, or an approaching person. Service dogs for persons with physical disabilities are especially useful to persons using wheelchairs. These dogs are trained to be helpful by picking up dropped objects (e.g., a pen, car keys, a wallet), carrying items in a dog backpack, and retrieving objects (e.g., a telephone) for the owner. For an individual who can walk short distances between a chair and a nearby bathroom, for instance, a large dog can help the person balance and provide stability for the short walk. A lesser-known type of assistance dog is the seizure detection dog. Certain dogs seem to have an innate ability to sense an impending seizure. Dogs with this ability can be trained to warn the owner that a seizure is about to begin, enabling the owner to position himself or herself in a safe position away from sharp and hard objects and to summon help. Once the seizure begins, if no one else is present, the dog is trained to bark to get help. Diabetes service dogs, similar to seizure detection dogs, detect hypoglycemia and sound an alert in much the same manner. All of the aforementioned types of assistance dogs require specialized training for both the dog and the prospective owner, funds to purchase the dog (often available through a civic organization), and owner commitment.

The ADA protects the rights of a person with a disability who uses an assistance dog to have full access to any public facility, including hospitals and outpatient rehabilitation facilities. The community health nurse may be involved in developing or revising a healthcare agency's policies regarding service animals to ensure that the facility is in compliance with ADA guidelines (Eames & Eames, 1997). Questions about access to places of public accommodation can be directed to the U.S. Department of Justice's ADA hotline (800-514-0301).

NOTE THIS!

Theresa Uchytil, as former Miss Iowa, was born without a left hand and adopted as her slogan for the 2000 Miss America contest: "Americans with disabilities, think ability."

Ethical Issues Related to Disabilities

A number of ethical issues exist in the disability field. Newborn screening for diseases such as phenylketonuria (PKU) is one area of question. Presently, in many states, newborn screening is conducted without parental consent. This screening detects several diseases, including PKU, which respond profoundly to early treatment. It is more economical for states to detect and treat a disease such as PKU early rather than provide lifelong support for an untreated child who will develop severe mental retardation. Does this law violate parents' rights to give informed consent? Would it be ethical to expand mandatory screening of newborns for other genetic diseases such as cystic fibrosis when the disease course will not be significantly improved by newborn diagnosis?

ETHICAL CONNECTION

Recent disasters in the United States, including the September 11, 2001 terrorist attacks and Hurricane Katrina, exposed the lack of awareness of the need for plans to accommodate those persons with disabilities in all evacuation and disaster plans. For most of the people with disabilities who were affected by these two disasters, there were virtually no plans to manage the special needs of this vulnerable population. What can be done at the local, state, and national levels to provide safe, appropriate prevention and intervention in the workplace, homes, and communities for people with disabilities? What role does the community health nurse play in promoting disaster preparation for this vulnerable population?

Historically, another ethical debate centered on the relatively common occurrence of withholding lifesaving surgical treatment of newborns with obvious disabilities such as Down syndrome, hydrocephalus, or spina bifida. Although withholding treatment from infants with disabilities had been common, the 1982 birth of "Baby Doe" in Indiana brought this practice under public scrutiny. An infant was born with Down syndrome and tracheoesophageal fistula, a connection between the trachea and esophagus. Without corrective surgery, oral feedings would be routed into the baby's lungs via the fistula. Following the advice of their obstetrician, the parents refused to consent to the corrective surgery and the infant was not given food or water. A consulting pediatrician tried to stop the starvation of the infant, but the courts upheld the parents' decision and the infant died a number of days later. In response to the public outrage resulting from the death of this infant, the federal government enacted the "Baby Doe" ruling and notified all hospitals that such activity would be penalized. Since 1982, it has been unlawful to withhold treatment from a baby born with a disability; however, violation of this "Baby Doe" ruling carries minor penalties such as loss of federal dollars, rather than criminal or civil action.

Sexual and reproductive rights of individuals with disabilities have been another area of ethical debate. Not only have people with disabilities reported feeling violated by the personnel caring for them, but in individuals with mental retardation the person may not learn appropriate physical boundaries. In the past, programs for individuals with mental retardation separated males and females and punished sexual behavior such as masturbation. These methods are being questioned because they forbid individuals to express their autonomy through activities that are pleasurable and potentially harmless to others. Individuals with mental retardation or other mental disabilities should receive instruction in using judgment in choosing when and with whom to engage in sexual activity, in the use of birth control, and in the prevention of sexually transmitted diseases. Sterilization is considered in some cases in which the individual is unable to learn to use birth control, would be unable to competently raise a child, or would experience a serious health risk if pregnant. Sterilization should not be done, however, strictly for the convenience of family members, caretakers, schools, or institutions. If it is determined that sterilization is necessary, informed consent should be obtained from the individual to the fullest extent possible.

Informed consent means that the individual understands the risks and benefits of the procedure, is presented with alternatives, and is given the opportunity to express a choice. Acquiring informed consent from an individual with mental retardation can be time-consuming, requiring simplification of information and multiple meetings. Informed consent is a sensitive issue in the United States because of the eugenics policies of the 1920s and 1930s. These policies were in some cases a model for the eugenics programs in Nazi Germany and required compulsory, involuntary sterilization of individuals who were "feebleminded" or "mental defectives" in an effort to improve public health and the gene pool. A 1927 U.S. Supreme

Court ruling defending sterilization resulted in more than 60,000 persons with mental retardation being sterilized without their consent. Before sterilization is performed, the motives of those in favor of the procedure along with documented efforts to use a less restrictive alternative must be examined (Batshaw et al., 2007).

The Role of Community Health in Chronic Illness and Disability Care in the Future

According to Brown and Brown (2003), disability is a challenge of considerable magnitude throughout the world. These authors are concerned with the practice of disability therapy and research. They believe that in the future, we may face increasing numbers of challenges. Genetic, medical, and social advances are resulting in the detection of new disabilities. New health and social conditions such as HIV are emerging that present with new disabilities. People are increasingly living longer and with a scale of incapacity unknown in previous generations. Today, between 40 million and 50 million people in the United States report some kind of disability. That number will likely grow significantly over the next few decades as the baby boom generation enters late life, when the risk of disability is the highest. If one considers people who now have disabilities (at least one in seven Americans), people who are likely to develop disabilities in the future, and people who are or who will be affected by the disabilities of family members and others close to them, then disability affects today or will affect tomorrow the lives of most Americans. Clearly, disability is not a minority issue.

Surveillance in chronic disease may monitor the current epidemics of diabetes and obesity, the array of cardiovascular diseases, and smoking cessation. Cancer surveillance may be aimed at tracking prevention efforts, stage at diagnosis, and treatment effectiveness community-wide, not merely detailing occurrences. Surveillance is currently being used to monitor chronic disease development in communities with the highest acuity of smoking, diabetes, hypertension, hypercholesterolemia, depression, and obesity (Friedan, 2004).

MEDIA MOMENT

My Left Foot (1989)

Physical disability: The story of Christy Brown, who was born with cerebral palsy. He learned to paint and write with his only controllable limb, his left foot.

Brother's Keeper (1992)

Mental retardation: This documentary by Joe Berlinger and Bruce Sinofsky details the murder trial of Delbert Ward.

Scent of a Woman (1992)

Physical disability: A blind retired army officer hires a young man to be his guide as he seeks out a few final pleasures in life before his planned suicide.

Girl, Interrupted (1999)

Mental illness: Based on writer Susanna Kaysen's account of her 18-month stay at a mental hospital in the 1960s.

Prozac Nation (2001)

Mental illness and treatment issues: Based on a novel by Elizabeth Wurtzel, a young woman struggles with depression during her first year at Harvard.

A Beautiful Mind (2002)

Mental illness: After a brilliant but asocial mathematician accepts secret work in cryptography, his life takes a turn to the nightmarish as he develops paranoid schizophrenia.

I Am Sam (2002)

Mental retardation: A mentally retarded man fights for custody of his 7-year-old daughter, and in the process teaches his cold-hearted lawyer the value of love and family.

Murderball (2005)

Physical disability: A documentary film about quadriplegic athletes who play wheelchair rugby and the rivalries that precede the Paralympics.

The King's Speech (2010)

Developmental disability: This film is based on the true story of Britain's Prince Albert, who suffered from a severe speech impediment that was not addressed until he was on the verge of unexpectedly ascending to the throne as King George VI. The film chronicles his relationship with speech therapist Lionel Logue.

The Sessions (2012)

Physical disability: Based on a true story, the film recounts the relationship between a man paralyzed by polio and living in an iron lung and the sex surrogate he hires so that he can lose his virginity before he dies.

NOTE THIS!

Runner Marla Runyan became the first blind athlete in history to qualify for the 2000 U.S. Olympic team.

In communities in which this type of monitoring is ongoing, definitive, community-specific data are being generated to guide local action. Disease registries and those used to track local treatment progress and outcomes have great potential to improve chronic disease management.

Environmental interventions might be used to encourage and promote more active lifestyles and to eliminate architectural barriers. Preventive services may be placed at points of contact to encourage their use.

Clinical care efforts may lead to provision of smoking-cessation clinics and cancer screening areas as well as supplement local efforts in hypertension control, diabetes management, and cholesterol monitoring. These initiatives will extend local efforts aimed at achieving optimal control, not eliminating primary care sites. Use of public health efforts will require increased funding but will result in improved chronic disease prevention and control (Friedan, 2004).

Conclusion

Traditionally, community health nurses have cared for many chronically ill patients and patients with disabilities. By assessing the severity of the illness as well as the person's barriers, resources, self-efficacy, acceptance, current health-promoting behaviors, and current quality of life, the community health nurse will formulate a plan of care that will enable achievement of both long- and short-term wellness goals (Secrest, 2005). The current climate in healthcare services and distribution of healthcare resources make continued provision of care to chronically ill members of the community a challenge. As advocates and leaders in health care, community health nurses must ensure that appropriate and effective provision of services to chronically ill individuals expands by engaging in education, participating in political activity, and becoming involved in healthcare policy and research. Persons with disabilities are living longer and more productive lives than ever. Community health nurses are in settings where the opportunity to promote the health of persons, families, and populations with disabilities and chronic health issues are ample. Using knowledge gained from this chapter, community health nurses can assist these populations with preventing health problems and enhancing their ability to make informed health decisions.

HEALTHY ME

How can you prevent any acute health problems you might be experiencing in nursing school from becoming a chronic or disabling condition?

Critical Thinking Activities

1. Discuss power and powerlessness. What aspects of each are essential to consider in planning care for the chronically ill? Consider how the same chronic disease may affect perceptions of power and powerlessness differently in children and adults.
2. Think of an image that would help you forget about the unpleasant sensation of nausea. Describe an image that might help you to focus on positive thoughts about disease outcomes like gaining strength or taking control.
3. Analyze health teaching strategies that enhance retention of new material. Think of two specific techniques you can use to involve chronically ill children in prevention activities. Contrast these activities with those of an elderly adult. Develop a teaching plan that incorporates use of visual aids for each population.
4. How does having a disability or a chronic illness affect a person's self-concept?
5. Can a person with a disability ever be autonomous? Why or why not?
6. When community health nurses assist patients with disabilities in areas of health promotion, what are the most difficult challenges in regard to self-care and independence?
7. How can community health nurses promote positive self-regard for persons with disabilities and chronic conditions in the media? Give some examples of projects that could enhance the perception of "abilities" rather than disabilities for this vulnerable population group.

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Appendix: Appropriate Language for Communicating About Persons with Disabilities

Dr. Valerie Rachal

The community health nurse should use language that is current and endorsed by the disability community when speaking or writing about people with disabilities. The words we choose and the way we structure sentences can create a clear, positive view of persons with disabilities or a negative, discriminatory portrayal that reinforces common stereotypes. One of the best known guidelines is that of **people-first language**, with which the speaker puts the person first, not the disability. For example, the community health nurse should refer to "the child with mental retardation" or "a man with Down syndrome." One exception to the people-first language guideline is when speaking about deaf people. Many deaf people do not consider themselves disabled and prefer to be called a "deaf person" rather than a "person who is deaf" or a "person with a hearing impairment." When in doubt, the community health nurse should ask persons with disabilities how they wish to be described.

The community health nurse must avoid using language that characterizes the person with a disability as pitiable. Do not say "afflicted with," "crippled with," or "suffers from." Rather, say, "the person *has* a spinal cord injury" or speak about "the person *with* spina bifida." Words such as *crippled* or *deformed* are never acceptable. The word *handicapped*, which was once used to refer to a person with a disability, has been redefined. *Handicap* now refers to a functional limitation that varies based on the conditions in the environment of the individual. For example, although a person with a spinal cord injury has a disability, whether or not that individual has a handicap in a certain situation would depend on conditions such as lack of a ramp to a building entrance. Finally, emphasize abilities, not limitations.

Creating Change for Positive Health Behaviors, Including Ethical Practice

Gerald P. Koocher

INTRODUCTION

Creating change in human behavior involves a complex interplay of information and motivation. People's beliefs, habits, and preferences all play important roles that influence the choices they make. The roots of these choices may involve biological, cultural, economic, environmental, and social forces, as well as education and understanding of scientific facts. Simply giving people scientific data about their health or telling them what to do will rarely lead to sustained changes in behavior and does not take account of their values and needs as unique individuals. Similarly, we know some strategies that grab people's attention can also provoke anxiety that will not sustain change while inducing personal discomfort (e.g., "you're going to die if you don't"). Changing people's behavior toward improving health behavior also has significant economic importance. Poor adherence to medical regimens accounts for substantial worsening of disease, increased mortality, and increased healthcare costs.

Looking only at medication-related hospital admissions in the United States, one estimate holds that from 33% to 69% result from poor medication adherence, leading to an additional cost of approximately $100 billion a year (Osterberg & Blaschke, 2005). This chapter highlights the factors that make a difference and discusses ethically sensitive strategies for promoting effective healthy change.

HOW CAN WE EFFECTIVELY PROMOTE HEALTH BEHAVIOR?

One of the most successful transtheoretical models for conceptualizing health behavior change originated with the work of Prochaska and his colleagues (Prochaska, DiClemente, & Norcross, 1992; Prochaska et al., 1994; Prochaska, Prochaska, & Johnson, 2006). The first stage, precontemplation, characterizes individuals who have not given significant thought to altering their behavior or who may even deny the significance of the relevant health problem or a need to alter their behavior. The second stage, contemplation, suggests a beginning level of recognition or acknowledgment of a problem without a clear personal commitment to take action. After the person decides that he or she "does something" about the health problem, he or she moves into the preparation stage that involves planning or strategizing about taking action. The next stage involves active efforts to alter prior habits or behavior problems. Once begun, the focus of intervention becomes sustaining the new behaviors. Ultimately, as the new behaviors become routine and solidify as new habits, we reach the termination stage.

Table 1 illustrates the model of six stages of change, along with suggestions for promoting progress at each stage. For example, in attempting to engage someone who seems resistant to considering changing behavior (i.e., precontemplation), one might consider engaging the patient in a discussion about the consequences of doing nothing. Similarly, patients who have begun to take action will benefit significantly from external recognition of their efforts and progress.

From an ethical perspective, such discussions must recognize and respect each patient's personal, social, and environmental context. What may seem an obvious need for change from the perspective of a healthcare provider can easily ignore the realities of patients with compromised ability to take the next step given some critical realities in their lives. The next section of this chapter focuses on stepping into patients' frames of reference and recognizing the potential attributions that may contribute to their not following the change-oriented advice of healthcare practitioners.

Table 1 Stages of Change Model

Stage of Change	*Characteristic Internal Questioning*	*Suggestions for Promoting Progress*
Precontemplation	Who cares? Ignorance is bliss; keep the status quo.	Encourage re-evaluation and self-exploration; recognize risks of doing nothing.
Contemplation	Do I really want to do this? What are the benefits and risks?	Consider the pros and cons of change as potential positive outcomes.
Preparation	Okay, I want to try to do things differently. Now what?	Identify any obstacles, acquire necessary skills, and begin taking small steps.
Action	I want to do it, but can I? Let's try and see how this goes.	Modifying previous behavior, practice the core change skills, improve feelings of self-efficacy, and focus on long-term benefits.
Maintenance	Can I sustain this change? How did I ever do without it?	Sustaining new behavior with social support and coping strategies. Follow-up and document patients' successes, prevent relapse, self-reinforcement assured.
Termination	I have done it?	The new behavior becomes a self-reinforcing habit.

CONCEPTUALIZING THE CASE

Getting a new medical diagnosis or experiencing a progression or exacerbation of symptoms in a chronic health condition often demands adaptation to the change in health circumstances (one's own or a family member's). Such news often involves new or revised treatment plans that require adherence with medical advice to restore or maintain health. One sometimes hears healthcare providers use the term "noncompliant" to refer to patients who fail to follow fully a prescribed course of treatment or recommendation; however, substituting the term "adherence" for "compliance" suggests better collaborative engagement with patients. Compliance suggests going along with or acquiescing to a request or demand with a degree of passivity. Adherence, on the other hand, implies an active process of faithful attachment or devotion with an implicit therapeutic alliance forged between patients and care providers.

Osterberg and Blaschke (2005) note that research reports of adherence rates for individual patients generally cite percentages of prescribed medication doses or treatment actually taken over a specified period. The same measurement approach applies to other therapeutic interventions (e.g., physical therapy or psychotherapy sessions attended), although mere attendance at an appointment does not necessarily betoken full, active engagement in treatment. Some attempt to refine measurement of adherence by focusing on accuracy of dose taking (i.e., prescribed number of pills each day) and sequencing or timing (i.e., taking medication within a specified interval or sequence). Because most reports of adherence rates come from clinical trials, the data can prove misleading. For example, not every patient qualifies for trials, and the nature of the trial itself can lead to recruitment and response biases. One would expect that the adherence rates in research studies may run misleadingly high because of attention focused on participants, but even so, the average adherence rates reported in clinical trials run only 43% to 78% among patients receiving treatment for medical chronic conditions (Osterberg & Blaschke, 2005).

It is not surprising that no uniform consensual standard exists for what constitutes adequate adherence to medical treatment. Some research reports of clinical trials consider rates above 80% acceptable, whereas others require 95% adherence critical (e.g., in treatment studies of HIV infection). In clinical practice, some degree of adherence may prove better than nothing (e.g., I would like my sedentary patient to exercise daily, but getting on the treadmill for 20 minutes twice a week is better than not at all.).

CONSIDERING THE PERSONAL DIMENSIONS OF AN ILLNESS

In order to best motivate our patients, we must understand their perspectives and how they attach meaning to their medical condition. We can begin to frame our grasp of these issues by considering the implications along a set of continua. **Table 2** lists a number of the most salient dimensions. The nature of onset, duration, natural course, predictability, prognosis, route of transmission, burdens of care, obviousness, and social tolerance for the condition can all play important roles in how patients define themselves and respond to their condition. In addition to the actual implications of an illness in terms of treatment realities, the special meaning of the condition to the patient has critical importance that may not be readily apparent.

Consider middle-aged people who are newly diagnosed with diabetes. Apart from the acute medical care associated with events leading to the

Table 2 Dimensions of Illness

Attribute	*Continuum*	*Implications*
Onset	Acute to gradual	Adherence rates typically run higher among patients with acute conditions.
Duration	Brief–intermittent–lifelong	Persistence among patients with chronic conditions often declines dramatically after the first 6 months of therapy.
Course (or natural history of the illness)	Static–progressive–relapsing/remitting	Will anything the patient does (or does not do) stabilize or slow the progress of an illness or sustain remissions?
Predictability	Known and predictable or unknown and unpredictable	Can treatment reduce disruption in the lives of patients or families by unpredictable medical events?
Prognosis	Normal life span to terminal	Can following a prescribed treatment plan extend my life or improve my quality of life?
Transmission	Genetic–traumatic–contagious	Does the manner of transmission or origin of the condition create emotional issues or barriers such as guilt or fear.
Burdens of care	None to extensive	How significant are the burdens placed on the patient or family members by the medical regimen, need for monitoring, required appliances, need for personal assistance, and so forth?
Obviousness	Blatant to invisible	Can others notice the condition or can I keep my privacy?
Societal tolerance	Stigmatizing to acceptable	Does having this condition add a burden of social stigma?

diagnosis, avoiding complications demands lifestyle changes and chronic attention to medical status. Nevertheless, the disease is invisible, the consequences of nonadherence may not become quickly evident, and a family history of the disease may trigger particular meaning, anxiety, or resignation to the patient.

A patient who contracts an HIV infection as the result of unsafe sexual contacts must adhere promptly to an effective medical regimen or face a downward-spiraling course. At the same time, he or she may have strong emotional reactions associated with the person who infected him or her and his or her own relationships to others that he or she may have put at risk. Disclosure of HIV infection status to others will also likely convey a social stigma that would not accompany disclosure of a diabetes diagnosis.

TYPOLOGIES OF NONADHERENCE

The healthcare provider will need to consider how the various attributes of any given medical condition affect a patient's adjustment in terms of the meanings he or she attaches to the illness and the way society (including the healthcare system) responds to them. A critical incident survey focused on teenagers and young adults with cystic fibrosis and suggested three types of medical nonadherence that may generalize across patients and medical conditions (Koocher, McGrath, & Gudas, 1990). The key translational assumption is that identifying the basis for deviating from the prescribed course of treatment is the first step in improving the patient's adherence.

The first type of nonadherence flows out of ignorance or inadequate knowledge about the proper implementation of treatment or the rationale for the components. For example, do the patient and family have access to information about the condition and treatments in comprehensible form? Did they receive both oral and written instructions in the language and at a reading level that they could readily use? Did the information include a rationale for the treatment or simply a list of actions without rationales? Did the information provider(s) encourage the patient or family members to ask questions and make an effort to tailor the presentation to individual needs, or did the information arrive as a one-size-fits-all message?

The second type of nonadherence generally resulted as a form of psychosocial resistance related to patient or family members' attributions, motivations, defense mechanisms, or even (although rarely) frank psychopathology. Are people in denial, hopeless, angry, frightened, or affected by other emotional issues that make a solid working alliance with their caregiver challenging. Such nonadherence can arise as the result of practitioner behaviors, patient issues, or family tensions.

The third and final type of failure to follow medical advice involves educated nonadherence. This refers to situations in which the patient understands the recommended treatment but makes a competent, well-reasoned decision in favor of quality of life, as opposed to the prescribed regimen. In such situations, one must consider whether the patient (or family in the case of minor children) has adequate reasoning capacity to consent, can articulate personal values or preferences, has explored reasonable alternatives, and has made a decision congruent with moral and legally standards.

If the patient does not understand rationales for the treatment regimen, no amount of psychological counseling will improve adherence. Similarly, when a patient feels depressed and hopeless, giving educative information about all the bad result that will flow from nonadherence will only make things worse. When a competent patient chooses quality of life over aggressive medical intervention, those wishes demand respectful attention of medical care providers.

ETHICAL PRIORITIES

Table 3 provides a list of seven fundamental ethical principles often cited from the work of Beauchamp and Childress (2001), along with an expanded set of eleven framed by Koocher and Keith-Spiegel (2008). Although the lists have much in common, Koocher and Keith-Spiegel focus less on the Western value of autonomy drawn from self-government and democratic ideals and more of providing patients with personal choice. They also add the dimensions of compassionate care, pursuit of excellence, and acceptance of accountability as central values.

One illustration drawn from the writings of Arthur Kleinman (1988) helps to make the point of ethical sensitivity across cultures in medical care. He describes the cultural gaps in addressing a patient's illness between the

Table 3 Ethical Fundamentals

Traditional Ethical Fundamentals per Beauchamp and Childress	*Adaptation and Reframing per Koocher and Keith-Spiegel*
Autonomy	Allow people choice
Beneficence	Do good
Nonmaleficence	Do not do bad
Justice	Be fair (equality) in practice
Fidelity and responsibility	Show loyalty
Integrity	Behave in a trustworthy manner
Respect for the rights and dignity of others	Show respect for others
	Accord dignity
	Treat others with caring and compassion
	Pursue excellence
	Accept accountability

Western world and acceptable practice in China and Japan, where traditional values mandate avoiding direct discussion of illness with the patient in many contexts. In the United States, we would traditionally place paramount importance on patients' autonomy. In Japan, for example, great importance would be placed to informing key family members, rather than directly discussing such matters with the patient, particularly in end-of-life matters. In such circumstances, compassionate care would dictate following the cultural values of the patient.

The pursuit of excellence means not only doing good and seeking to avoid harm but going the proverbial extra mile to assist in healing the patient. Similarly, acknowledging personal responsibility and even apologizing when appropriate constitute clear indicators of ethical striving. These principles should cause us to use sensitivity, wisdom, and the forging of thoughtful alliances with our patients, rather than attempting to rely on authoritative pronouncements, threats, or appeals to their worst fears and uncertainties.

INQUIRING ABOUT NONADHERENCE

Sadly, medical care providers generally have little ability to recognize nonadherence, and research interventions aimed at improving their recognition rates have had mixed results. Studies have used pill counts, ascertaining rates of refilling prescriptions, patient questionnaires, electronic medication monitors, and asking patients to keep medication diaries. One can sometimes directly observe treatment in institutional settings, but more often than not we rely of delayed indirect methods of measuring adherence (e.g., hemoglobin A1c measurement in diabetes). Simply asking the patient will often prove inadequate by virtue of memory errors or simply fearing a critical response or loss of approval from the caregiver.

A more productive course of action might involve asking the patient directly in a way that recognizes perfect adherence is not expected. Consider asking this: What has your doctor asked you to do in order to best manage your illness (or to stay healthy)? What are the hardest pieces of medical advice to follow? Which parts do you skip or miss most often? With the answers to such question in hand one can craft an intervention optimally suited to the patient's situation. The solution may involve improved patient education, altered dosing schedules, improved communication between physicians and patients or similar steps that respond the basis for nonadherence. Most strategic plans to improve adherence will likely involve combinations of behavioral interventions, efforts to increase the convenience of care, or providing educational information about the patient's condition and the treatment.

Prochaska, Norcross, and DiClemente (1994) list nine specific behavioral strategies to employ as needed:

1. *Consciousness raising*—helping to increase the information patients have about themselves and their problem.
2. *Social liberation*—increasing social alternatives for behaviors that are not problematic.
3. *Emotional arousal*—recognizing, experiencing, and expressing feelings about one's problems and potential solutions.
4. *Self-re-evaluation*—assessing feelings and thoughts about oneself with respect to the problem at hand.
5. *Commitment*—choosing and committing to act with a belief in ability to change.
6. *Countering*—substituting alternatives for problem behaviors.
7. *Environment control*—avoiding triggers or situations that elicit problem behaviors.
8. *Reward*—rewarding self or earning recognition and reward from others for making changes.
9. *Helping relationships*—enlisting the help of supportive others (including both professionals and components of the patient's social networks).

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CHAPTER FOCUS

The Unique Role and Perspective of Psychiatric–Mental Health Nursing in Caring for the Public's Health

Definitions of Mental Health

History of Mental Health in the Community
- Early Humanitarian Reform in Mental Health
- Community Mental Health Reform in the 1960s
- Legislation Impacting Mental Health

Historical Context for Professional Nursing

History and Spirit of Psychiatric–Mental Health Nursing in the Community
- State of the Science of Psychiatric–Mental Health Nursing
- Levels of Psychiatric–Mental Health Nursing Practice

Individuals and Population Groups Needing Psychiatric–Mental Health Services

Current Assessment of the Public's Mental Health Status
- Ethics of Psychiatric–Mental Health Services

Psychiatric–Mental Health Nursing's Roles and Phenomena of Concern
- Guiding Philosophical and Theoretical Frameworks for Mental Health Nursing

Models for Psychiatric–Mental Health Nursing Practice
- Public Health Model
- Primary Care Model
- Primary Mental Health Care Model
- Using Reflection in Nursing Education and Practice
- Using a Phenomenological Perspective: Understanding the Public's Mental Health Lived Experience, One Person at a Time

The Future of Psychiatric–Mental Health Nursing Practice

QUESTIONS TO CONSIDER

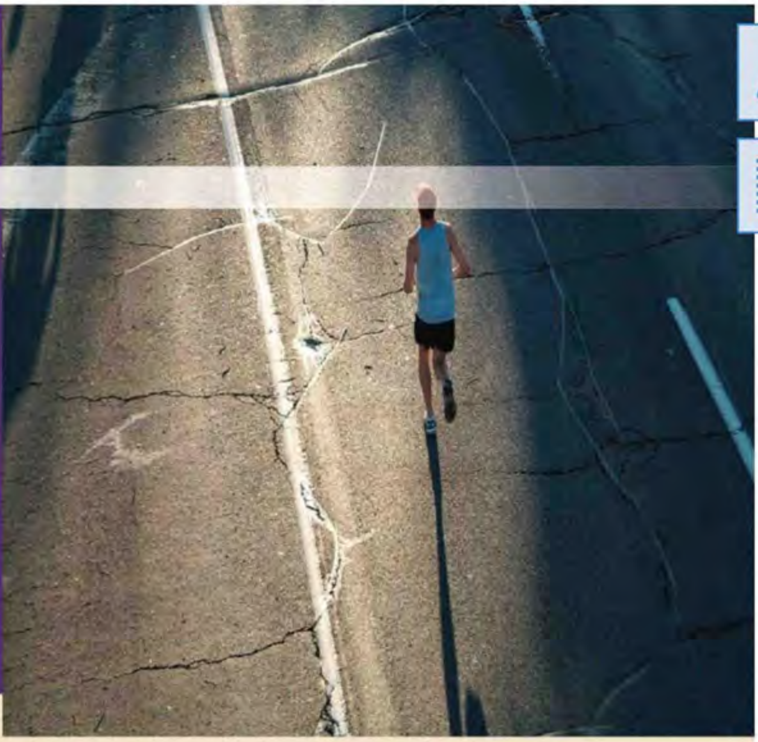
After reading this chapter, you will know the answers to the following questions:

1. What is the definition of *mental health in the community*?
2. What is the history of community mental health nursing?
3. What is the current mental health status of Americans?
4. What are some of the conceptual and theoretical frameworks for psychiatric–mental health nursing?
5. What are some of the models for psychiatric–mental health nursing practice?
6. What will psychiatric–mental health nursing practice be like in the future?

Given contemporary life in society with its constant state of change, it is imperative that nurses in psychiatric–mental health take self-care and caring for one another seriously. Nurses must develop self-care strategies that ensure they enjoy balanced, healthy, meaningful lives.

Psychiatric Care and Mental Health in the Community

Sarah Steen Lauterbach and
John Hodnett



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KEY TERMS

- advocacy
- community mental health centers (CMHCs)
- mental health
- phenomena of concern
- phenomenology
- presence
- prevention
- psychiatric–mental health nursing
- seriously mentally ill
- universal human experiences

REFLECTIONS

Much madness is divinist sense
To a discerning eye;
Much sense the starkest madness.
'Tis the majority
In this, as all, prevails.
Assent, and you are sane;
Demur,—you're straightway dangerous,
And handled with a chain.

—*Emily Dickinson*

Mental health is a neglected area of public health. Community health nurses work within a holistic framework and address the entire spectrum of a community's health. After reading Emily Dickinson's poem, reflect on your own ideas about what contributes to mental wellbeing.

THE IDEA OF MENTAL HEALTH in this chapter is embedded within cultural, social, political, and economic contexts of the time, and within a historical—and contemporary—perspective. The chapter presents psychiatric–mental health (P-MH) conditions and treatment as being contextually bound, and ultimately responding to the state of knowledge and science surrounding mental health. Additionally, the influence of nursing history and professional **psychiatric–mental health nursing** practice are relevant to the idea of mental health. Mental health and illness play a key role in determining the state of the public's health. This chapter examines the American public's mental health and illness continuum, using current information—that is, demographic, population, and epidemiological data.

Although population and numerical data are tremendously useful, it is also important to use qualitative, humanistic perspectives and lenses in assessing and understanding mental health. Conceptual frameworks, interdisciplinary theory, nursing theory, philosophical perspectives, and models for reflective practice are particularly useful in understanding current care and practice.

The central context used for defining the scope of P-MH nursing is the state of knowledge and research and nursing's historic role in social reform and activism. Receiving particular emphasis in the chapter is the unique contribution made by P-MH nursing to professional nursing. Specifically, this contribution lies in articulating for professional nursing a primary role in facilitating and developing therapeutic relationships with persons, families, groups, and populations at risk. It is rooted in Hildegard Peplau's (1952) nursing work and text, *Interpersonal Relations in Nursing*. This classic work established therapeutic relationships as a primary focus, underpinning the entire nursing discipline. Her intent was to involve the patient in actual care, not as a passive recipient, but to actively develop a therapeutic nurse–patient relationship to establish a comfortable place for the patient/client to gain strength and emotional wellbeing. The multiple theoretical perspectives nursing uses contribute to its unique role, which will be discussed in detail in this chapter. The focus on facilitating and developing relationships underpins nursing in every care context and role, and is proposed to serve as a primary task for all nurses. It underlies nursing's potential role in promoting health and wellness, preventing disability and dysfunction, and treating and restoring the mental health of the public.

Public health policy and care provision need to be inclusive of mental health, and P-MH services and treatments need to be mainstreamed into the primary healthcare system. Currently, the private-public split in P-MH care establishes and promotes disparities in the public's mental health. Public programs carry the burden of serving the chronically and **seriously mentally ill** (SMI) with inadequate resources. The inequity and disparities relate to access, quality, and cost of care, and they have direct effects on mental health, especially for vulnerable groups. The dual nature of the P-MH care system serves to further impoverish vulnerable and at-risk populations, such as the homeless, incarcerated SMI, and people with both physical and mental disabilities. It is time for the overarching goals of *Healthy People 2020* of improving mental health through preventive measures and accessible services to be taken seriously. Responsible, ethical, social, and health policy reform continues to be drastically needed. With the passage of the Affordable Care Act (ACA) of 2010, federal healthcare reform now includes mandatory coverage of mental health services.

This chapter includes textual contributions from creative writers, artists, and public figures as reflective of classic struggles that many humans face. Many of the

AFFORDABLE CARE ACT

The ACA, federal healthcare reform, now includes mandatory coverage of mental health services. All marketplace insurance plans cover mental health and substance abuse services as an essential health benefit. Other provisions of the ACA related to mental health and substance abuse include coverage for treatment of preexisting conditions and no lifetime or yearly dollar limits for mental health and substance abuse services.

Source: https://www.healthcare.gov/do-marketplace-insurance-plans-cover-mental-health-and-substance-abuse-services/

most accomplished people who have made tremendous contributions to science, literature, and art have lived with serious mental health conditions. Their contributions and wisdom have been very helpful in articulating what it is like to be human. These sources are especially informative for healthcare professionals and the public in understanding what it is like to live with mental health and/or illness. Additionally, the comments of students are included as they reflect on their growing awareness and understanding of mental health and illness and learn what it is like to provide therapeutic healing care and relationships.

Universal human phenomena are discussed as still in need of research and public policy attention. Many common human conditions and experiences need to be explored by using reflection to explicate the meanings in experiences. These conditions are often involved in the etiology of P-MH problems and dysfunction. Conditions and experiences particularly needing exploration include dealing with loss, death, change, anxiety, stress, crisis, inadequate coping, depression, and disappointment. Reflection offers an opportunity to enhance understanding through reflecting on meanings in experiences. As understanding grows, enhanced care and treatment potentially become better informed and facilitated.

Quiver of Fear

Quiver of fear down the spine
Black towers of
Never ending hallways

Florescent lit
White coated men

Come Daddy,
Why?

There is no merciful prayer,
No merciful answer
Not for me
Not for you.

—*Ann Thedford Lanier*

The Unique Role and Perspective of Psychiatric–Mental Health Nursing in Caring for the Public's Health

The unique and special contribution of psychiatric nursing in caring for the public's mental health comes from the specialty's history, commitment, and expertise in therapeutic communication and relationship development. The P-MH nurse engages in *therapeutic use of self*, a concept that involves the nurse becoming and being an *instrument of care*. Through using self in communication therapeutically, and through using expert relationship-building knowledge, "We can, literally, become the healing environment" (Quinn, 1992).

Becoming the healing environment in caring for the public's mental health often involves providing both very vulnerable people and functional people with basic human needs for trust, support, and security, as well as specialty treatment and care. Many P-MH nurses see the specialty as underpinning all of nursing, with professional nursing literally becoming the healing environment and being the instrument of care in each nursing encounter regardless of specialty or practice arena.

The patient–nurse relationship is developed over time and is cultivated through the development of a trusting rapport. The trusting rapport is evolved through the nurse's ability to understand the client's perspective of his or her issues and feelings. Additionally, the relationship is fostered through the nurse's reflecting the client's feelings and body language (i.e., active listening), thereby gaining complete understanding of the client's present state. The patient is heard and understood with the nurse having a true comprehensive understanding, not merely from supposition. Weger, Castle, and Emmett (2010) describe active listening as having "unconditional acceptance and unbiased reflection" (p. 35) between a client and therapist/nurse.

Nursing's professional commitment to holistic care, providing the public with a holistic, caring presence, is actualized in the P-MH concept of relationship. The focus on providing comfort care—caring for persons in the present as well as in the future—provides a temporal relationship in caring for the public that is unique to nursing. Nursing caring involves *doing for, being with, helping,* and *healing through relationships* when the person is incapable of self-care. The nursing focus is on understanding a person's history using strengths and resources to address areas of needed change.

Presence is another concept used to describe nursing work. *Being fully present for another*, with an intention to facilitate and promote healing and comfort, and *being with* people are nursing intentions and goals. It is critical that the nurse understands the experience from the perspective of the person in need of care. In being fully present, often the nurse must look at and explicate past personal experiences, biases, and attitudes.

Self-reflection is a critical activity and process in P-MH nursing. Reflective education and practice activities are provided throughout this chapter. Through reflection, the nurse is able to become more aware of, and use bracketing to put aside, personal material consciously so that the nursing presence is focused on those in need. Reflection and bracketing become critical in understanding the person. Reflection and bracketing pre-understandings and biases, values, and attitudes make it possible for the nurse to become fully present in caring for the mental health needs of the other.

In P-MH nursing, the nurse is involved with implementing treatment programs, and with facilitating, developing, and using groups and the therapeutic milieu. The context of caring for persons 24/7 puts P-MH nurses in a similar role to nurses in other nursing specialties. Nurses assist people in their activities of daily living (ADLs). P-MH patients often have difficulty in navigating through self-care routines. Similarly, in chronic care, self-care deficits are often the norm.

The nurse is often the point person in case management of mental health patients. The P-MH nurse has a history of accepting responsibility for and demonstrating a long-term commitment for care. P-MH nursing has an ethic of responsibility for caring for persons, especially vulnerable groups and populations over the lifespan. Follow-up care, communication, and partnering with other disciplines and agencies are critical to providing comprehensive, holistic care.

Finally, nursing work is often very private, especially when considering the stigma attached to and attitudes of many people toward people suffering from mental health problems. Just as cancer was once a dreaded, stigmatized condition, mental health problems are often associated with stigma. Education and research, along with improvements in treatment, should eventually eliminate this phenomenon that surrounds mental health care. Further, knowledge and understanding must be consciously implemented and planned.

Nursing often involves body work, up close and personal. In P-MH, the personal aspects of the disease often involve lack of ability to function or problematic behaviors and symptoms. Mental health symptoms are often complex and difficult to manage or control. This unique vantage point taken by the caregiver provides the P-MH nurse with an opportunity to know the person intimately and, therefore, makes the nursing role potentially sensitive and complicated. Nurses are involved with people who experience alterations in health and, in many cases, intolerable suffering.

As stated earlier, in P-MH nursing the therapeutic relationship is the primary instrument of care. It is through

APPLICATION TO PRACTICE

Reflective Education and Practice Exercise 1

Caring for Self

The idea of caring for self was a hard concept for me to undertake. I've always been a person who enjoyed helping others, and often would get so caught up in others that self could be considered a foreign thing at times. It is sometimes easier to avoid looking at myself and my own problems by making other people the focus of my attention.

However, when this assignment began, I wanted to make a legitimate effort to look at my needs, and the areas where I needed improvement. . . . There were several areas that needed to be addressed, including the need for appropriate amounts of sleep, leisure, and relaxation. I found these to be very important, especially when going through the mental health clinical experiences. I was feeling drained and would go home and just sleep for hours and hours, sometimes not waking until the next morning. I recognized that this was an ineffective coping method for the stress I felt. To combat those feelings, I started doing meditation and prayer on the mornings of the clinical or when I knew I would have a challenging day. Doing these activities completely changed my attitude and the experiences that I had. During the rest of my clinicals, I was much more mentally and emotionally prepared to learn what the experience had to teach me, and I slept soundly at night, not during the day.

—BSN nursing student

As we all know, nursing school is no walk in the park. It has to be one of the most difficult, time-consuming things I've ever had to go through in my life. I've never had to work as much or as hard as I have for these classes. I realize, however, that during these trying times, I need to take care of myself as well as working for the grades I am attempting to achieve. . . . In my life after college, I hope to live as much of a holistic life as possible: I want to go to work, exercise regularly, and eat well. I think that when working in health care, it is important to be healthy yourself—otherwise, you might be contradictory. If you tell your patient to do something like exercise a few times a week, and you yourself don't do it, then it makes you look bad. Of course, I want to exercise for my life . . . I want to live a long, happy life so I need to take care of the body I have because it's the only one I'll get.

—BSN nursing student

the development and maintenance of relationships with people over time that nursing P-MH work is accomplished.

Nurses learn from the beginning of the nursing educational experience that therapeutic use of self and communication are critical in intervention and healing. Through the proximity of nursing involved in intimately engaging in patients' lives, the nurse can become a role model for relationships and communication. The P-MH nurse mentors, guides, coaches, and assists persons in becoming more fully functional.

To become a fully functioning P-MH nurse requires that opportunities provided by nursing education and nursing practice for self-reflection are fully embraced. Reflection is a process through which one's awareness of values, perceptions, and meanings in life experience is enhanced. Through reflection, there is an enhanced understanding of self and others, a heightened awareness of meanings in experiences, and potential for taking action.

Knowing, a concept introduced by Parse (1998), is a process through which the nurse–patient relationship evolves. In her Human Becoming Theory, Parse identifies the nurse as a not-knowing stranger and advocates establishing a relationship with the client without judgment or preconceived notions. The nurse enters the role in practice as a stranger to the client and listens to the client's perception of his or her reality, which is the real meaning of reality. The nurse joins the client in true presence of his or her reality and makes no judgments, but makes witness of changing health patterns (Parse, 1998).

Human becoming is lived on a continuum. During the therapeutic relationship, new themes or problems may emerge and the process will adjust to assist the client with those needs. Parse (1998) refers to these newly identified issues as paradoxes and believes these paradoxes are true to human becoming and living (Bunkers, 2002). Surmounting these paradoxes develops synchronized movement and rhythm, which propels the client into human becoming. Entering a therapeutic relationship and experiencing true presence with a client indicates unquestioned trust between the client and nurse.

> No temper could be more cheerful than hers, or possess, to a greater degree, that sanguine expectation of happiness which is happiness itself.
>
> —*Jane Austen, 1775–1817*

To care for others fully, the nurse must first care for self (Lauterbach & Becker, 1996; Lauterbach & Becker Hentz, 1998, 2005). This issue is especially important considering the nursing shortage. Many see nursing as an oppressed profession, with nurses' burnout further threatening the public's health. Given today's stresses, it is imperative that nurses in P-MH take self-care and caring for one another seriously. Nurses—P-MH nurses in particular—must develop self-care strategies that ensure they enjoy balanced, healthy, meaningful lives. Self-care is no longer just a choice or a nice thing to do, but rather a necessity. Otherwise, nurses' and the public's care and safety will suffer, stress and anxiety will be exacerbated, and personal feelings of security will be unattainable for nurses. The reader is referred to the boxes throughout this chapter, which focus on reflection, journaling, and caring for self.

In summary, through interaction and development of relationships, P-MH nursing is committed to caring and facilitating healing for persons, families, groups, communities, populations, nations, and the planet/environment. It is through the context of helping relationships that nurses respond to and care for self and others, interacting with patient systems, other professions, and community partners in a diversity of health and human life contexts.

Definitions of Mental Health

Definitions of mental health in literature range from a focus on the absence of disease to the attainment of one's potential.

> Everything has been figured out, except how to live.
>
> —*Jean Paul Sartre, 1905–1980*

Concepts of mental health and illness have changed drastically over the last few centuries. In the 15th century the mentally ill were thought to be witches "possessed" by demons. Some cultures historically regarded persons with psychiatric conditions as worthy of great respect, as having uncanny abilities and as visionaries. At one time, mental illness was thought to be caused by a lesion or physical injury to the brain. If no objective injury or lesion was found, mental illness was thought to be a defect in morality and character.

Since the early 1900s, identifying the mentally ill has been the focus of psychiatry. Great efforts were made toward the diagnosis and treatment of specific mental disorders and conditions. The development of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*; now in its 5th revision) by the American Psychiatric Association (APA) since the 1950s (APA, 1980, 1987, 1992, 2000, 2013) has contributed to differentiation and research. Designated as "the decade of the brain," the focus of research in the 1990s has contributed to a more comprehensive understanding of biological determinants of behavior (Hedaya, 1996). The major psychiatric milestones of the 20th century included the development of the diagnostic manual and assessment procedures; psychotherapy, including psychoanalysis; developmental theories; behavioral, cognitive, and psychological foci for psychotherapy, including crisis intervention, short-term, group, family, and long-term therapy; psychopharmacology; and knowledge concerning the biological determinants of behavior.

The definition of **mental health** is still in need of our attention and continued thinking in nursing. Many believe that the focus on biology has obscured, once again, the understanding of mental illness or mental health. The view of mental health in this chapter encompasses the notion that mental health involves connection of body, mind, and spirit, in mental and physical wholesomeness. The concept of "balance" is common in holistic literature. Mental health is further viewed as involving a process through which a (w)holistic balance between mind, body, and spirit (of individuals, families, groups, communities, and the public at large) is pursued through meaningful life activities. The mentally healthy person seeks experiences that promote wellbeing, productivity, and happiness as fully as possible given the particular situational contexts and limitations.

This notion of health is consistent with the aim of phenomenological inquiry. The ultimate aim of phenomenology is to assist persons, through understanding, to "become fully human." Nursing has historically embraced a role with caring that has focused on maximizing human potential. A focus on maintaining harmony and balance is needed in many areas of human endeavor and experience: in meaningful work, occupation, or pursuit; in relationships with loved ones, significant others, and in social relationships, friendships, and work relationships; in meaningful relaxation, leisure, balanced nutrition, and fitness activities; and in having a respect and responsibility for the planet and world.

Mental illness or dysfunction, although it exists more in vulnerable population groups, is not wholly a respecter of vulnerability. There have been and currently are many gifted as well as ordinary people who have periodic mental health issues and conditions. The arts and sciences are filled with examples of brilliant and revolutionary contributions from people who had mental health problems. For example, the symbolist artist Edvard Munch, born in 1863, was an alcoholic and experienced depression throughout his life. His work focuses on themes of life and death and his experience with mental illness. The lithograph *The Scream* is one of his most important and popularized pieces. Of particular interest are three other works, *Anxiety*, *The Sick Child*, and *Death in the Sickroom*. As a young child, Munch experienced the death of his mother, and when he was 14, his sister died. *Death in the Sickroom* depicts the family scene years earlier.

History of Mental Health in the Community

Mental disorders are conditions that impair thinking, mood, and/or behaviors and are a leading cause of disability. Mental disorders are often more generically referred to as *mental illness*.

In the United States today, the public community mental health program has been the primary model of care for people with serious mental illness. Beginning in 1963, President John F. Kennedy raised awareness of and attention to mental health with the Community Mental Health Centers Act. Federal funds were committed for the construction and staffing of **community mental health centers (CMHCs)**, using the catchment area concept, which distributed mental health services throughout states all over the country. Today these programs provide access to a range of services that before this legislation were nonexistent.

Community mental health development was closely associated with legislation. **Box 1** describes the major mental health legislative efforts and their influence on the development of mental health services. Understanding that community mental health is a humanitarian reform is seen when considering the early reform history of mental health. It is still in need of reform today.

Early Humanitarian Reform in Mental Health

Early treatment for people with mental illness was both cruel and inhumane. In 1843, Dorothea Dix, a school teacher, started the reform movement for the treatment of criminals, the mentally ill, and later, victims of the Civil War. Her work led to the establishment of asylums dedicated to humane treatment for the mentally ill. States built institutions for housing and treating persons with severe mental disorders. Intended as a humane movement, the establishment of asylums that housed large numbers of patients and were operated with little knowledge and information about either cause or cure of mental illness was, in retrospect, anything but humane. Within a few years, these large state institutions provided the only mental health treatment and grew to be overcrowded. Patients were not discharged to families in communities that had no treatment services. Psychiatric treatment was limited to somatic therapies and did very little to handle difficult symptoms. The asylum population continued to grow as new people were admitted and the long-term residential population grew. It was not uncommon for "back ward" patients to have stays of 20 to 40 years. The asylum became the home.

BOX 1 Mental Health Legislation and Its Influence on Mental Health Services

1935	Social Security Act Shifted care for ill people from state to federal government
1943	National Institute of Mental Health Established as one of the Institutes of Health, where funds for research and development were committed to mental health
1955	Mental Health Study Established Joint Commission on Mental Illness and Health Led to the transformation of state hospitals to establishment of CMHCs
1963	Community Mental Health Centers Act Marked beginning of CMHCs and deinstitutionalization of large psychiatric hospitals
1960s	Funds were committed from federal government for grants for education for mental health disciplines, including nursing; stipends were made available for traineeships for undergraduate and graduate nursing students; gradually these were less frequent and finally were no longer available
1975	Developmental Disabilities Act Addressed rights of developmental disabilities and provided for similar actions for individuals with mental disorders
1977	President's Commission on Mental Health Reinforced importance of community-based services, protection of human rights, and national health insurance for mentally ill persons
1978	Omnibus Reconciliation Act Rescinded much of the 1977 commission's provisions and shifted funds for all health programs from federal to state governments in the form of block grants
1986	Protection and Advocacy for Individuals with Mental Illness Act Legislated advocacy programs for mentally ill persons
1990	Americans with Disabilities Act Prohibited discrimination and promoted employment opportunities for people with disabilities, including mental disorders
1996	Mental Health Parity Act Required that dollar limits on mental health benefits be no lower than dollar limits on medical and surgical benefits of group health insurance plans.
2008	Mental Health Parity and Addiction Equity Act Required group health plans and health insurance providers to ensure that financial requirements and treatment limitations for mental health and substance use disorder benefits were equal to those of medical/surgical benefits.
2010	Affordable Care Act (ACA) The goals of the ACA were to increase the quality and affordability of health insurance, reduce the number of uninsured by expanding public and private insurances, and reduce healthcare costs to individuals and the government.

Source: Adapted from Stanhope, M., & Lancaster, J. (2014). *Public health nursing: Population-centered health care in the community* (8th ed.). Maryland Heights, MO: Mosby.

Community Mental Health Reform in the 1960s

The CMHC movement, a century after Dorothea Dix's reform efforts, was another mental health reform movement. Some progress had been made in mental health science and treatment. The development of psychopharmacology was a milestone in treatment reform. Previously untreatable conditions were opened to the possibility of treatment. Since the early 1900s, psychotherapy had also been the focus of scholarship from several disciplines, including psychiatry, psychology, social work, and nursing. Psychotherapies that developed included long- and short-term and crisis intervention with individuals, groups, and families.

The CMHC movement was short-lived as the ideal solution to mental health care. Currently, large numbers of patients discharged from the state institutions and those who would have required institutional care in years past are residing in communities. A large number of the homeless population in urban centers are chronically mentally ill. They continue to have exacerbating mental conditions

BOX 2 Vulnerable Populations

- Young and old
- Experiencing developmental transitions—adolescence, childbirth, aging, family transitions
- Experiencing work and vocational problems and transitions
- Unemployed
- Part of the growing population of the very old, older than 85, elderly
- Living in poverty
- Single parents of young children
- Adolescent parents
- Grandparents in parenting roles because adult children are suffering with dysfunction
- Uneducated
- Isolated and marginalized
- Dealing with learning and attention deficits, having disabilities
- Minority populations
- Lesbian, gay, bisexual, and transgender
- Depressed
- Angry
- Acutely or chronically ill
- Present and prior incarceration
- Have been victims of human and environmental abuse
- Victims of oppressive political systems seeking asylum
- Populations experiencing stress, crisis, and change
- Immigrants
- Survivors of sexual assault, rape, molestation, and associated violence
- Military veterans and families

and experience environmental stresses, including the stress of meeting basic needs (i.e., food, water, and shelter). This group of homeless, chronically mentally ill is especially vulnerable.

Legislation Impacting Mental Health

> Mental illness is the last great stigma of the twentieth century. Most people treat someone with a mental illness as if it's their fault or as if they can just snap out of it.
>
> —*Tipper Gore*

As individuals were discharged from state mental institutions, private fee-for-service psychiatric services sprang up quickly in communities all over the country. Although care and a full range of treatment services are now more easily accessible within the community, there is inequity in access as a result of economic issues. Often, the families of the SMI are unable to do what is necessary to ensure continuity of care or to get any care.

The inequity in access and economics of mental health care and physical care continues to dominate the environment of mental health care. Within most communities, supportive services have been developed, primarily by the consumer movement, to meet particular support needs of the general population. **Box 2** identifies vulnerable populations who are in need of preventive, health-promotion, and specialized treatment. **Box 3** provides a list of support services and groups available in many communities.

Beginning with the consumer movement of the 1970s, the groups focusing on support and psychoeducational

BOX 3 Support Groups

- Compassionate friends: focus on death, bereavement, and loss (spouses, sudden infant death syndrome, perinatal, sibling)
- Cancer support: focuses on variety of phenomena, including breast cancer and ostomy
- Caregivers support group: for caregivers of elderly, cancer, mentally ill
- Infertility support: for couples experiencing infertility
- Parents Without Partners
- Suicide survivors
- Addictions Anonymous: for alcohol, gambling, exercise, shopping, food
- Smoking cessation: including smokeless tobacco
- Families of murdered victims
- Families of seriously mentally ill
- Medication follow up and education: for patients and families
- Parenting groups: for parents of adolescents, learning disabilities, autism, incarcerated
- Grandparenting
- Homeless mothers
- Diabetes education
- Alzheimer's family support: including Parkinson's
- Fibromyalgia support
- Cardiac: Mended Hearts
- Organ donor support group: families of donors and recipients of organs
- Physical disabilities support
- Homeless mothers and families support
- Survivors of sexual assault, rape, and molestation
- Military veterans groups

APPLICATION TO PRACTICE

Reflective Education and Practice Exercise 2

Therapeutic Use of Self in Nursing Relationships

I could not believe how unsure and anxious I was about my first therapeutic conversation in the mental health nursing course. Never before had I even considered what to say in relationships. And then, all of a sudden I was very uncomfortable. I realized that most of my interactions with patients in the first course were all about me . . . not focused on the patient at all. I talked about my family, being a student, and whatever came into my mind.

Until mental health, I hadn't really thought about the differences in helping or therapeutic relationships. The course came at a good time for all of us, since we are just beginning the really hard nursing clinicals. All of us had made similar mistakes, continually chatted with patients, and unaware of their real needs. The realization that it really matters what you say to mental health patients really hit home. It really made me think. All of a sudden, it seemed important to know and understand something about the condition a mental patient has in order to respond in a helpful therapeutic way. After the class, when we discussed the differences in therapeutic and social relationships, I felt completely like a fish out of water. I realized that therapeutic communication involved more than just having a nice conversation. It demands a thoughtful, careful approach to be used along with very careful listening. I realized that this would be harder than I had expected.

After the first couple of weeks in post-conferences, where much of the discussion was focused on therapeutic interactions, I finally began to be more comfortable. By using active, careful listening and taking time to respond, I realized that if I made mistakes, I could always correct a response. I am confident that my communication with all patients, regardless of where I work, will be much improved by the experience of analyzing interactions with patients in mental health.

—BSN nursing student

issues with particular conditions have grown. These groups are available to the public, are listed in telephone directories, are promoted on the Internet, and are advertised on varying community bulletin boards.

Mental health programs offer many services to the SMI. **Box** 4 lists examples of mental health services available in a CMHC in Mississippi.

Increasingly, community programs are being called to provide consultation to schools and communities in dealing with sensitive issues needing professional mental health attention. See the *Healthy People 2020* feature for a list of the priority areas elsewhere in this chapter. Even though mental health and mental disorders are listed separately, it is clear that mental health underpins many other priority areas, such as those listed in preventive services and health promotion.

Inpatient services for the SMI are still provided by the state hospital system. Patients experiencing acute problems or acute exacerbations of chronic conditions are usually housed within jails in holding facilities, which usually have consultative psychiatric services. Despite attempts to build in continuity and access to care, reforms

BOX 4 Community Mental Health Services

Services

- Seriously mentally ill day treatment
- Acute partial hospitalization for seriously mentally ill
- Children's services
- Adult day care
- Day Treatment Club House: for those with chronic conditions who live in the community
- Alcohol and chemical addictions programs
- Outpatient follow up
- Group living
- Military services

Possible Treatment Modalities Available in These Programs

- Resocialization, remotivation, and life skills assistance
- Social services
- Psychological services, including testing
- Medical services management and referral
- Psychopharmacological management
- Occupational therapy
- Recreational therapy
- Group, family therapy, and individual therapy
- Outreach and home visiting
- 12-step program
- Vocational rehabilitation
- Psychotherapy, long and short term
- Intensive outpatient programs

are needed in all systems that use holding facilities rather than inpatient treatment facilities. Inpatient services for the private system exist within relative geographic access in most communities. However, as cost-containment measures have been instituted, inpatient care is often too brief. Insurance and economics are currently the greatest barriers in gaining access to comprehensive, appropriate, and timely care in both the private and public systems. The expense of mental health services impedes service delivery to those who need it most and are unable to pay out of pocket for the services.

MEDIA MOMENT

A Beautiful Mind (1998)

Sylvia Nasar, New York, NY: Simon & Schuster

This book about the brilliant mathematician and Nobel Laureate John Nash, who lapses into schizophrenic psychosis at the height of his career and remains there for 30 years, gives the reader an impression about what the experience of living with a serious mental illness is like. It also describes the extraordinary effort that returning to his theoretical work requires. At times, Nash thinks he can escape the ravages of time, picking up where he left off. And there are days when he cannot work; other days when he is full of remorse. The film that is based on the text is also informative and gives one a virtual experience of auditory and visual hallucinations. Chronicity and long-term disability accompany schizophrenia. The book also addresses the effects of illness on Nash's family, his community of scholars, and his life's work.

Historically, payment sources for mental health have been limited with higher copayments and stricter limitations, such as limited visits, lifetime limits on outpatient and inpatient days of treatment, and lower percentages of coverage. The Mental Health Parity Act of 1996 was the first legislative attempt to level differences between mental health coverage and medical/surgical coverage. However, it targeted group plans with 50 or more participants (Barry, Huskamp, & Goldman, 2010).

In an effort to further overcome limitations, The Mental Health Parity and Addiction Equity Act (MHPAEA), a component of the Emergency Economic Stabilization Act of 2008, equalized the insurance benefits between medical mental health and addiction treatment and the benefits for medical/surgical coverage (Barlas, 2013; & Barry et al., 2010). Although it provided a starting point for future legislation, the MHPAEA mostly impacted larger group insurance plans.

The most profound legislation, although controversial, was the ACA of 2010. The ACA augmented the MHPAEA by expanding eligibility of Medicaid recipients and by the development of state health insurance exchange plans. Nevertheless, provisions were made within the ACA for either partial or complete compliance with the plan, based on the type of insurance coverage (Cummings, Lucas, & Druss, 2013). Furthermore, the ACA is being implemented incrementally over several years, and the true impact of this legislation is unknown at this time.

Historical Context for Professional Nursing

Nursing as a profession was part of a social reform movement, with professional roots in "women's suffrage, abolition, missionary work, and social reform" (Lynaugh & Brush, 1999, p. xi). Professional nursing represents the emergence of women from a private role to a public, humanitarian role, caring for the public's suffering and illness just as they had traditionally cared for their own families. In a classic study of American nursing during the period 1850–1945, Reverby (1987) stated, "nursing's contemporary difficulties are shaped by the factors that created its historical obligations to care in a society that refuses to value caring" (p. i).

Nightingale (1859) defined nursing as the finest of the fine arts, stating that the role of nursing is to "put the patient in the best possible condition for nature to work upon him." Close to 100 years later, Virginia Henderson declared,

> As a nurse, I try to do for [patients] what they would do for themselves if they had the strength, the will, and the knowledge that a nurse has. And I try to do it in such a way that I don't make them dependent on me, any more than is necessary. (Baer, 1990, interview with Virginia Henderson)

Nursing is defined by the authors of this chapter as an open, caring art, spirit, human science, holistic practice, and discipline that uses a commitment to research, knowledge, humanity, education, the creative arts, and peace to facilitate, transform, actualize human potential, and promote wellness and healing for all people and the planet in the present, future, and beyond. Nursing work, according to Wolf (1988), is work that is both "sacred and profane." It is personal, involves up-close and personal work, is private, and often involves body work. In many cases, it is surrounded by an atmosphere of phenomenological silence (Lauterbach, 2003). Nursing work is very hard and is often physically and mentally challenging, especially in P-MH.

It often involves caring for the most vulnerable, without resources, or using methods that have not been researched, or using untested, reliable treatments. Nursing often involves dealing with tremendous human suffering, as well as hope and opportunity for improving the human condition. In mental health, nursing involves *knowing*, *caring for*, and *being with* persons whose lives have often been dominated and altered forever by acute exacerbations in mental functioning, change, dysfunction, and serious mental illness.

> I come to present the strong claims of suffering humanity. I come to place before the Legislature of Massachusetts the condition of the miserable, the desolate, the outcast. I come as the advocate of helpless, forgotten, insane men and women; of beings sunk to a condition from which the unconcerned world would start with real horror.
>
> —*Dorothea Dix, memorial to the Legislature of Massachusetts, 1843*

History and Spirit of Psychiatric–Mental Health Nursing in the Community

As influenced by the social, political, and economic forces and the tenor of the times, the dilemma faced by modern nursing is highlighted by P-MH nursing. P-MH nurses care for persons and populations suffering from mental conditions that do not resolve readily. They care for those who experience the devastating effects of tormenting, chronic mental conditions, often over the course of a lifetime. The asylum movement actually began and continued as a social reform movement. P-MH nurses care for people who represent a growing "Third World" community residing within America's borders. Mentally ill citizens include many of the United States' vulnerable, oppressed, disenfranchised, ethnic, and often hopeless people.

Box 5 identifies important events in the history of P-MH nursing. Hildegard Peplau is considered the founder of P-MH nursing; she is referred to fondly as "the mother of psychiatric nursing." Interestingly, she was one of the first nursing theorists, and her book *Interpersonal Relations in Nursing* has been translated into more than 50 languages. The text was ready for publication in 1949, but Peplau was unable to find a publisher who would publish it with a female nurse as the sole author. She refused to seek out a first author who was a physician and finally was able to publish the book under her own name in 1952.

Orlando's 1961 text, *The Dynamic Nurse–Patient Relationship*, is another classic work that has been used in nursing education—not only in P-MH nursing, but in foundations and skills courses. Travelbee's (1971) *Intervention in Psychiatric Nursing* continued the work on relationships; her major contribution was in her conceptualization of the *therapeutic use of self*. Other work related to the thesis that the nurse is the primary instrument of nursing and therapeutic care includes Quinn's (1992) conceptualization of the healing environment. The authors of this chapter and many other nursing faculty have used the classic works of Peplau, Orlando, Parse (1998), and Travelbee in developing guidelines for reflection on developing therapeutic relationships in undergraduate and graduate students in nursing. Such therapeutic relationships underpin all of nursing, regardless of specialty or practice level.

The experience of P-MH nurses today is reflective of the struggles of the profession as a whole and of the struggles of women around the world. The nursing profession needs to bring a heightened awareness and consciousness of the phenomenon of misogyny, the hatred of women.

BOX 5 Important Events in Psychiatric Nursing History, 1773–1955

1773	First mental hospital in the United States established in Williamsburg, Virginia
1846	First use of the term *psychiatry* by physicians attempting to upgrade the status of their work with the mentally ill
1882	First school for psychiatric nurses (or mental health nurses) established at the McLean Asylum in Somerville, Massachusetts
1913	Johns Hopkins Hospital included psychiatric nursing in the course of study for general nurses
1920	Publication of the first psychiatric nursing textbook, *Nursing Mental Diseases*, by Harriet Bailey
1946	Passage of the National Mental Health Act, which established the National Institute of Mental Health (NIMH)
1948	Publication of the Brown Report, which recommended that psychiatric nursing be included in general nursing education
1952	Publication of *Interpersonal Relations in Nursing* by nurse theorist Hildegard Peplau
1955	National League for Nursing made psychiatric nursing a requirement for accreditation of basic nursing programs

Source: Adapted from Frisch, H., & Frisch, L. (1998). *Psychiatric mental health nursing*. Albany, NY: Delmar.

This phenomenon demands attention, awareness, and global critical action. Other oppressed marginal people are also worthy of attention. The Research Alerts in the chapter highlight work investigating the experiences of women, oppressed people, and vulnerable groups within society who need attention and mental health intervention.

Though short-lived, the CMHCs established in the mid-1960s through the late 1970s provided P-MH nurses with opportunities to develop significant roles for themselves in **advocacy**, community liaison building, consultation, crisis stabilization, case management, medication management, research, and education, as well as to develop the role of therapist in working with individuals, families, and groups.

Unfortunately, the P-MH nurses and professionals involved with the CMHC reform movement experienced lost hopes and dreams as the needed mental health care revolution and reform failed to materialize. Many nurse researchers who were originally involved in the CMHC movement took other paths as the movement all but disappeared. Through the application of partisan politics in the early 1980s, the U.S. federal government established block grants for states to administer mental health services. With that act, the federal oversight role, along with the CMHC movement, was abolished.

Deinstitutionalization of the large public asylums and state hospitals began with the development of CMHCs and was finally completed by the late 1970s, just in time for the state block grants to take over the public mental health program. In response to this trend, a new group of private psychiatric hospitals sprang up. Mental health care for the private hospitals became a lucrative business, which further motivated privatization of mental health treatment. The state-funded public programs, in turn, began shouldering the primary burden of caring for the SMI, those without financial resources, and/or the uninsured.

The public–private split in mental health care exists today, and P-MH care remains desperately in need of revolution and reform. While the United States is advanced in technology for physical care, there is a gap in research into and knowledge of mental health care. Further, for a large number of state and federal professionals and residential care providers, caring for the nation's most seriously ill and incarcerated population is often considered an undesirable assignment. As a consequence, the most seriously ill are cared for by the least educated, least supported healthcare providers.

State of the Science of Psychiatric–Mental Health Nursing

The 1990s were considered the decade of the brain, during which great strides were made in understanding the biological component of mental disorders and functioning and developing drugs to treat these conditions. Atypical antipsychotic medications have continued to be developed and, although they are not without adverse consequences, have provided some hope for relief of symptoms. Long-term studies of these drugs are still needed. The weight gain associated with use of many antidepressants and antipsychotics has been associated with the development of type 2 diabetes. Clearly, there is a continuing need for research. Complementary and alternative modalities are in great need of research as well.

There is a growing need for public education focused on anxiety, stress and coping with stress, depression, integration of complementary and alternative therapies with traditional approaches, and assisting in people developing balanced lives. Large-scale community violence and terror experiences in the United States in the mid- to late 1990s have continued to be of national concern. The Oklahoma City bombings; school violence in Pearl, Mississippi, and Columbine, Colorado; bombings at the Boston marathon; and continuing community experiences related to sniper and perpetrator violence have produced significant anxiety in the general population. In the aftermath of the threats to national security following the terrorist attacks on September 11, 2001, large-scale community education and intervention programs are needed. The aftermath of the war on terrorism, the Iraq war, and the continuing concern about terrorism and violence have caused great stress for those serving in the U.S. military, their families, the rest of the country, and the world. Further, widespread corporate scandals and unethical practices exposed around the same time as the 2001 terrorist attacks and discoveries in 2013 of inequities in the U.S. Internal Revenue Service have further threatened personal as well as national security for many U.S. residents. The notion of safety in the United States and all over the world, as terrorists' takeover of a Russian elementary school demonstrates, has been altered forever.

There is also a need for further exploration of human and basic sciences and research in the areas of treatment, prevention, and health promotion. Nursing research and the social sciences disciplines have begun to make significant contributions to our understanding of the person and experience of mental illness. A growing body of literature is devoted to evidence-based practice and outcome-focused research. Nevertheless, there is an unmet need for research that identifies qualitative outcomes and qualitative evidence for practice. The growing wealth of research literature delves into both quantitative and qualitative research and studies new methodologies. Both foci add to the knowledge and understanding of the human condition and human experience.

Additionally, there is a growing need for development of and research into integrative complementary alternatives in mental health treatment. Many people suffering with depression, anxiety, or stress use complementary and alternative therapies, often exclusively. In addition, professional groups that face undue stress because of the nature of their work or the state of the profession, such as nursing, need to research the stress related to the practice discipline. Further, research findings related to human phenomena need to be shared directly with the public, as it often has direct practice application, particularly research emerging from qualitative methodologies.

Research carried out using qualitative perspectives offers new understanding of the human experience. Phenomenological research uncovers and discovers meanings in human lived experience and leads to better understanding of the human experience. Ethnography offers an understanding of the culture and mores that surround human experience and phenomena. Grounded theory seeks to explicate the basic human process underlying human experience. Narratives and stories, in "their own words" accounts, and naturalistic settings further inform and serve to fully describe the human experience. Quantitative studies, using large random population samples, have the potential for generalizing findings

RESEARCH ALERT

Using street ethnography while interviewing homeless men in San Francisco and St. Louis, researchers examined the nexus and interaction between homelessness and incarceration. Among the men in the study, crimes of desperation, aggressive policing, and close proximity of homeless men and many ex-cons created a strong likelihood of incarceration and re-incarceration. For incarcerated men, time inside eroded employability, family ties, and other defenses against homelessness. For several men, homelessness had occurred for the first time following release from prison or jail. The following phrase is worthy of close scrutiny: "[the] homelessness/incarceration cycle, more powerful than the sum of its parts, a racialized exclusion/punishment nexus which germinates, isolates, and perpetuates lower-class male marginality" (p. 500).

Where the plight of homeless women is different from that of homeless men, the homeless/incarceration cycle for women is different in that "historically, poor women have been positioned differently vis-á-vis the law" (p. 502).

For the homeless, untreated mentally ill, this phenomenon is in need of continued scrutiny.

Source: Gowan, T. (2002). The nexus: Homelessness and incarceration in two American cities. *Ethnography, 3*(4), 500–534. This special issue of the journal *Ethnography* is entitled "In and Out of the Belly of the Beast: Dissecting the Prison."

APPLICATION TO PRACTICE

Reflective Education and Practice Exercise 3
Constructing a Multigenerational Genogram

Sometimes the things you think you know the most about are the things that can teach you so much. When the family assessment was assigned, I was sure that I already knew everything there was to know about my family. Yet, as I began to talk to my parents, grandparents, aunts, and uncles, I realized that there are many stories, traits, and patterns that run throughout. I learned new things about people I thought I knew everything about. . . . But, most importantly, researching my family allowed me to learn new things that I may have never had the opportunity to learn. I am lucky to have grandparents who know about family medical history and, even better, who know about the traditions that our family is based on. . . . The things I have learned are not only valuable to me personally, but will also be priceless in my career as a nurse. This was an opportunity to see family in a whole new light, to analyze relationships and see patterns among members. I learned the effect that one conflict in a relationship can have on an entire family. I also learned the value of having family close by. This assignment has allowed me to see the big picture . . . to see how much family can impact a person, especially in hard times. This will be precious in helping to treat patients.

—BSN nursing student

The first and most obvious pattern in my family is for men and women on my mother's side to be alcoholics or to marry alcoholics. . . . I mention this because they have impacted me in ways that I myself do not even understand. . . . So, I unwittingly followed the pattern set by my mother and grandmother. I married a recovering alcoholic . . . I love my family. The strength of character, although it may not be obvious from what I have reported, is a predominant theme. Despite their faults, [my family members] have overcome many trials of faith and I have learned from the stories they tell.

—BSN nursing student

Conducting the analysis was pretty simple. It is easy to see the trends that flow through our family. . . . It brought my attention to many of the health issues in my family. Any nurse should be aware of family histories. Creating a genogram can be a good way to give tips on preventing certain diseases that run in a patient's family.

—BSN nursing student

APPLICATION TO PRACTICE

Reflective Education and Practice Exercise 4

Student Reflection: Journaling

The first time I approached journaling was 12 weeks ago. At that point I was still trying to grasp an understanding of what it was I was trying to accomplish through the journaling process. Now, 12 weeks later, I have a greater appreciation of what journaling can do. It has helped me grasp some of the thoughts that fly rapidly through my head, and turn them into something legible that I can view. The whole process has helped me understand my thought processes and turn the abstract into a somewhat tangible reality.

—Nursing student

Journaling has also helped me to express my thoughts and feelings, which is something I have persistently had a problem with. Even to this day, I struggle in sharing with others when I am having trouble either in my personal life or in my life as a student. I tend to keep issues bottled up inside, but those around me can clearly see that something is bothering me. This lack of communication has affected some of my relationships in the past and present, but journaling has provided me with a means of expression.

—Nursing student

to the population at large. Each methodology scrutinizes a slice of human experience and, when combined with other perspectives, plus triangulation of methods and data-collection strategies, presents a fuller understanding of human experience.

Many P-MH phenomena have been investigated by advanced practice nurses to date, including the work of the following authors: Becker (1991); Becker Hentz (1994); Douglas (2004); Frank (1987); Hutchinson (1986); Lauterbach (1992, 1995, 2003); Lesser, Koniak-Griffin, and Anderson (1999); Lesser, Oakes, and Koniak-Griffin (2003); Lesser, Tello, Koniak-Griffin, Kappos, and Rhys (2001); Munhall (2007); Munhall and Boyd (1993); and Swanson-Kaufmann (1983). All of these authors are advanced practice P-MH nurses involved with qualitative inquiry.

Loss, change, and bereavement, along with stress and anxiety, are universal human phenomena that involve human suffering. These conditions often underlie mental health conditions. As examples of **universal human experiences**, they occur throughout the lifespan and require specific and general resources for coping and resolution. Research into these and other universal human experiences is of particular interest to P-MH nursing. Lauterbach's (1992, 1995, 2003) doctoral and follow-up research, for example, focused on perinatal loss—specifically, on uncovering meanings surrounding mothers' experience with having a wished-for baby die.

Levels of Psychiatric–Mental Health Nursing Practice

P-MH nursing practice includes practice at basic and advanced levels. The basic levels included in **Box 6** are registered nurses (RNs) who have associate or baccalaureate degrees. There are still a small number of RNs in practice who were trained in diploma programs. Currently, assistive-level personnel in public institutions provide most of the day-to-day supportive care and assistance for patients. These personnel are called mental health technicians (techs), patient care assistants, or a

BOX 6 Psychiatric–Mental Health Nursing: Areas of Practice

Basic-Level Functions

- Health promotion and health maintenance
- Intake screening and evaluation
- Case management
- Preventive management of a therapeutic environment
- Self-care activities
- Psychobiological interventions
- Health teaching, including psychoeducation
- Crisis intervention
- Counseling
- Community action
- Advocacy

Advanced-Level Functions

- Psychotherapy
- Psychobiological interventions
- Medication management and prescriptive authority (in some states)
- Clinical supervision/consultation
- Consultation/liaison building

Source: Adapted from Nurses for a Healthier Tomorrow. (2008). *Psychiatric-mental health nursing*. Retrieved from http://www.nursesource.org/psychiatric.html

APPLICATION TO PRACTICE

Reflective Education and Practice Exercise 5
Attending a Support Group

I have tried my best to apply some of the steps that I acquired from attending the AA meeting to my eating habits. I have been on Weight Watchers off and on throughout the semester. I find myself feeling so much lighter and healthier when I stay on it. It is hard to eat healthy today when every restaurant is pushing "biggie size." With technological advances, energy expenditures are not promoted. It is much easier to say yes to the food that tempts me than to the food that is good for me. All of my life I have had to watch my weight, but all I seem to watch is it go up! I have found, though, that journaling about it helps me express my feelings instead of eating them away. Hopefully, I will continue to stay motivated and will not allow myself to become a statistic.

—Nursing student

Sitting in on a CA and AA meeting was a quick way to learn about their general purposes, the audience, and group procedures and process. The content of the discussion presented a picture of life as a drug user. Although each person's story was unique, several themes surfaced. The prevailing themes were the bondage to the drug, feelings of total defeat, and enslavement to the drug. Drug use had had a marked impact on their work performance, which usually led to their unemployment. They exploited family and friends to maintain their addiction. Many spoke about how their drug-using friends abandoned them when they faced trouble or prison.

The group process impressed me the most. The meetings seemed to be desperately needed by the members. In both meetings, people were eager to participate and share their lives and situation. Those who were clean offered their experiences and encouragement. Mutual respect for each other was high. When one man picked up his chip, there was applause and encouragement and celebration. . . .

This experience was highly beneficial to me. As a nurse, I can confidently recommend such support groups to drug-abusing patients. As a nursing student, I have a better grasp of mental health concepts. As an FSU [Florida State University] student, the sad stories I heard warn of the horrors of drug and alcohol abuse. As a friend, I have a better understanding of the life and struggles that drug users experience.

—BSN nursing student

similar designation. Private programs and institutions often have technicians who have college degrees. Medication supervision is provided by an RN with an associate or baccalaureate degree, or by a licensed practical nurse (LPN).

Nurses at the advanced practice level have master's degrees in nursing and may also have doctoral degrees. Specialization in the clinical area of P-MH is available at the master's level, with board certification available as a clinical specialist (CS) since the late 1970s and 1980s and for the nurse practitioner (NP) since the early 2000s. The nurse practice act (NPA) of the state determines whether prescriptive privileges and independent practice are available for the advanced-practice-level nurse. Additionally, some P-MH nurses earn multiple degrees and obtain additional credentials, such as nurse practitioner, clinical nurse specialist, licensed clinical social worker, or licensed professional counselor, to provide more advanced levels of care.

An example of a relatively new specialty role, which has emerged from the P-MH specialty, is that of forensic nursing. This specialty area integrates nursing and forensic science in bridging the gap between the healthcare and criminal justice systems. As a response to the increasing epidemic of violence, this specialty attempts to meet care needs of both victims and perpetrators. Although it is quite different in scope and purpose from the P-MH clinical specialty and nurse practitioner role, this specialty is of growing interest to nursing. Board certification is becoming available for advanced practice nurses in forensic roles.

Increasingly, there is a need for primary mental health care within primary care organizations. Many P-MH nurse practitioners work in primary care practice settings, such as college healthcare programs. **Prevention** and early intervention are key to reducing the ultimate societal and human costs in treating mental disorders. Over time, many disorders escalate out of control because they are overlooked and/or undertreated. Providing timely, appropriate, and supportive care for people who experience common human problems such as trauma, loss, or anxiety, or for those who experience intolerable suffering seems to be critical in preventing patterns of dysfunctional and inadequate coping.

Public education remains an area of great unmet need. This need has been partially addressed by the National Alliance for the Mentally Ill (NAMI) and state mental health associations, but much remains to be accomplished. Reducing the resistance to treatment and societal stigma attached to mental health problems through education, research, and knowledge-based treatment should be a *Healthy People* public health goal.

HEALTHY PEOPLE 2020

Objectives Related to Mental Health and Mental Disorders

Mental Health Status Improvement

- MHMD-1 Reduce the suicide rate
- MHMD-2 Reduce suicide attempts by adolescents
- MHMD-3 Reduce the proportion of adolescents who engage in disordered eating behaviors in an attempt to control their weight
- MHMD-4 Reduce the proportion of persons who experience major depression episodes
  - MHMD-4.1 Reduce the proportion of adolescents age 12–17 who experience major depressive episodes
  - MHMD-4.2 Reduce the proportion of adults age 18 years and older who experience major depressive episodes

Treatment Expansion

- MHMD-5 Increase the proportion of primary care facilities that provide mental health treatment on site or by paid referral
- MHMD-6 Increase the proportion of children with mental health problems who receive treatment
- MHMD-7 Increase the proportion of juvenile residential facilities that screen admissions for mental health problems
- MHMD-8 Increase the proportion of persons with serious mental illness who are employed
- MHMD-9 Increase the proportion of adults with mental health disorders who receive treatment
  - MHMD-9.1 Increase the proportion of adults age 18 years and older with serious mental illness who receive treatment
  - MHMD-9.2 Increase the proportion of adults age 18 years and older with major depressive episodes who receive treatment
- MHMD-10 Increase the proportion of persons with co-occurring substance abuse and mental disorders who receive treatment for both disorders
- MHMD-11 Increase depression screening by primary care providers
  - MHMD-11.1 Increase the proportion of primary care physicians who screen adults age 19 years and older for depression during office visits
  - MHMD-11.2 Increase the proportion of primary care physicians who screen youth age 12–18 years for depression during office visits
- MHMD-12 Increase the proportion of homeless adults with mental health problems who receive mental health services

Source: U.S. Department of Health and Human Services. (2014). *Mental health and mental disorders.* Retrieved from http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=28

RESEARCH ALERT

Research has provided us with a better understanding of the experience of obsessive–compulsive disorder (OCD). Using a phenomenological perspective, the author of one study investigated the lived experience of the phenomenon of OCD, a personality disorder according to the *DSM-IV-R*. In its severe form, OCD is similar to the psychoses, in that it completely dominates the conscious experience with obsessive thoughts and compulsions that are directed to lessening the anxiety, and it renders the person unable to function in activities of daily living or work.

This work and the text of which it is a part represent a collection of writings aimed at explicating and understanding the human experience. The researcher author uses subjects' descriptions "in their own words." The beauty of this qualitative method and research is that *knowing about* and *understanding* the condition have direct practice applications.

Source: Haase, M. (2002). Living with "obsessive compulsive disorder." In M. van Manen (Ed.), *Writing in the dark: Phenomenological studies in interpretive inquiry.* London, England: Althouse Press.

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HEALTHY PEOPLE 2020

Highlights of *Healthy People 2010* Progress Review: What did we accomplish in the first decade of the 21st century?

Nearly half of all Americans will meet the criteria for a mental disorder at some time in their lives, with first onset usually in childhood or early adolescence.

More than 25% of adult Americans have at least one mental disorder, and approximately 5% have three or more.

The four most widespread disorders are anxiety disorders, mood disorders, impulse disorders, and substance disorders.

Mental disorders are a leading cause of disability, absenteeism, and lost productivity in the workplace.

Emerging factors contributing to the prevalence of mental illness in the United States include an aging population and the large proportion of veterans returning from Iraq and Afghanistan with posttraumatic stress disorder, depression, and anxiety.

To help address the increased risk of male veterans dying by suicide, a national suicide hotline is being made available to veterans. Options for providing telephone crisis counseling and referrals to active duty military personnel and their families are also being explored.

Advances in research have shown that depression and certain cognitive losses are not an inevitable part of aging. This should lead to improved diagnostic precision and enhance the provision of age-appropriate treatment.

Too few primary care providers are trained to recognize depression and the variety of disabilities associated with it.

Five states have legislated parity in insurance benefits for treatment of mental disorders and physical illnesses.

The provision of mental health services in schools provides an opportunity for early intervention. For example, the city of Baltimore, through collaboration with local universities, is able to offer the services of full-time mental health professionals in more than 60 of its public schools.

Source: Adapted from U.S. Department of Health and Human Services. (1999). *Healthy People 2000: Mental health and mental disorders progress review*. Retrieved from http://www.cdc.gov/nchs/about/otheract/hp2000/mentalhlth.htm

RESEARCH ALERT

This article examines the health-related issues of the spouses of deployed military personnel who are living in community settings. It focuses on increasing the knowledge of healthcare providers regarding the stressors these spouses may experience and providing resources in case they may require extra support and assistance. Suggestions of possible community health nursing interventions in dealing with these spouses and the role of nurse practitioners in their coping strategies are discussed.

Source: Tollefson, T. (2008). Supporting spouses during a military deployment. *Family & Community Health, 31*(4), 281–286.

Individuals and Population Groups Needing Psychiatric–Mental Health Services

Mental health and mental disorders are included in *Healthy People 2020* as part of health promotion; the *Healthy People 2020* features provided in this chapter identify mental health problems and populations in need. Parents with young teens are aware of this growing population of youth who are encountering very serious substance use, including cigarettes, smokeless tobacco, an incredible variety of inhalants, abuse of prescription mood-altering drugs, cocaine, crack, crystal meth, hallucinogens, and daily use of marijuana, coupled with alcohol. In addition, the epidemics of rape, violence, sexual assault, legal entanglements, and pregnancy among school-aged children and teens are, from the perspective of the youth, much greater than statistics demonstrate. The pattern of misuse and abuse that is reflected in the aforementioned behaviors, along with a recognition of problems with anxiety, depression, and attention to school and learning, warrant careful investigation, research, and concurrent social action. Many of the behaviors are seen by professionals as attempts to self-medicate. However, research is needed to identify factors that are associated with and contribute to "using" behaviors. We need to understand more about these human phenomena.

A growing number of individuals and populations is at risk and in need of primary mental health nursing and specialized P-MH. This reflects the growing consumer and public recognition that specialized support is needed to cope with particular human phenomena and experiences. **Box 7** lists universal human experiences that are often in need of special support and crisis or continuing care. The potential direction and roles for P-MH nursing will focus on assisting persons and groups in handling living through difficult human experience.

BOX 7 Common Human Experiences

- Loss, death, separation
- Crisis
- Relationships with significant others—family, friends, work, society
- Anxiety
- Sadness, depression, and mood conditions
- Developmental eras and transitions—individual, family, group, societal
- Illness—acute and chronic
- Stress and coping
- Coping with rapid social changes
- Violence and war

As a focal phenomenon, changes in the American family warrant particular attention. A growing number of children grow up in single-parent homes, usually with the father absent. There are changes in the structure and function of families. Single parents and working women are growing aggregates. This combined with poverty serves to compound vulnerability.

The growing elderly population with cognitive impairments, institutionalized elders, and those with Alzheimer's disease and their families further reflect the concept of compounding vulnerability. More work, more research, and more preventive efforts are needed for serious mental health conditions and diagnoses, such as schizophrenia, which involve exacerbations of acute symptoms of distress and disturbance. This population represents a large number of persons and families who experience periods of acute exacerbation of chronic illness. Other chronic illnesses, such as diabetes, have patterns involving crisis and management and need P-MH nursing attention.

> We are more alike, my friends,
>
> than we are unalike.
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> We are more alike, my friends,
>
> than we are unalike.
>
> —*Maya Angelou*

APPLICATION TO PRACTICE

Reflective Education and Practice Exercise 6

The Shelter Experience

. . . as you looked around, you could see some people with very definite mental illnesses, and there were some whom you couldn't really decide if they had an illness or not. . . . It was interesting because when I looked around at the people there, I didn't see just the people; I saw individual stories . . . stories that I wanted to learn about, but did not want to intrude. . . . Maybe if I volunteered more of my time, they would become able to trust me and then possibly confide in me. One will never know unless the time is dedicated. . . .

—BSN nursing student

Each experience in life presents us with a unique situation to observe and learn from. The Shelter is no exception. Approaching the experience was intimidating, much like the first experience at Florida State Hospital. But, by simply participating, sitting back and watching the people who call this their home offered many insights into a side of life I have never considered before.

As I arrived at The Shelter, I surveyed what was around me: hand-me-down blankets, well-worn clothes, used towels and sheets. I smelled the smells of people who had not bathed in days. I smelled tobacco, so strong that it made my eyes water. I wondered how anyone could live there.

Soon the people who lived there taught me an important lesson. This life was better than sleeping in a cardboard box on the streets, and better than freezing out in cold weather. When they began to file into The Shelter, I realized as they signed in that they were real people. There were women released from jail to find their homes repossessed, women who had nowhere else to go. There were men with families, men who had been kicked out of their homes, men who fought for their country and came home to nothing. I realized that they were thankful to have a place to sleep, to be safe, where they didn't have to worry about someone taking the few things they carried in their bag.

It became obvious that the life they had lived had taken a toll on them. Physically they seemed drained. Their hands showed scars and years of work with no care. Many were sick, coughing, and were grateful for a glass of water. Mentally, many were plagued with illness. One man hid in a corner. Many were alcoholic. Each person who came through the door had a story.

This experience changed my attitude toward the homeless. Many are employed, working long hours and not getting paid enough to get back on their feet. They have hopes and dreams and goals like the rest of us. Perhaps the biggest eye opener for me was the way they interacted with each other. They were careful to see that the older men had extra blankets, or were able to have their special mat, or that everyone got a blanket. They joked and laughed and told stories about their families and experiences. This experience was perhaps one of the most meaningful experiences in my life. Two nights with these people drastically changed my ideas. It made me realize that many are trying their hardest to survive and to make it on their own. In the meantime, they are grateful and appreciative of the care received. I will take away a compassion for those who have been humble enough to admit that they need help and have graciously accepted it.

—BSN nursing student

To be homeless and not to have any place to go is an overwhelming reality to many people in our society. That notion is difficult for me to comprehend. How could someone not have family or friends who would love him or her unconditionally and give [the person] simple shelter? Where can such people go? The Shelter is one place. It is an unconditional place that will accept anyone and only ask the residents to obey limited rules for their own safety and the safety of others. The Shelter provides the basic needs of residents. . . . In this place they can be treated with respect. Some of the new residents were unsure at first, but they quickly felt comfortable. The residents were thankful for everything and they expressed it openly. . . .

My experience at The Shelter was humbling. It made me appreciate my family in many different ways. I also felt like helping at The Shelter made a small difference in the lives of homeless people. Leaving The Shelter, I felt like I needed to do much more, and I plan to volunteer again in the future. They say that most of us are only a couple of paychecks away from living on the streets. What a scary thought!

—BSN nursing student

RESEARCH ALERT

This article reviews literature and data supporting the links between substance abuse and men's violence toward women partners. It also examines critical issues in treatment for men who batter and discusses particular treatment issues for black men who abuse substances and batter women partners.

Common explanations of substance abuse and violence discussed are disinhibition owing to lower brain functioning caused by substance use, cognitive distortion, learned disinhibition, disavowal of responsibility ("It was the alcohol"), and power and control.

Effective treatment needs to involve an integration of services and agencies, and a coordinated effort by all involved, including the community. The following elements were identified as critical in helping black men change their behavior:

- Confront and take ownership of the problem and associated negative behavior
- Challenge the current method of addressing problems in their lives
- Identify other models for life and problem solving
- Develop alternative life codes of conduct
- Build the capacity to problem-solve in challenging situations

Further, it is important to view black men's partner violence not only as a personal problem, but also as a larger social community problem. Women's abuse occurs within the context of the larger society and cultural group. A lower tolerance for partner violence in the community is needed.

When considering a population-focused approach to the problem of substance abuse and violence, this theoretical exploration has implications for other human phenomena. Substance abuse is often related to criminal behavior, and it is a critical component in other relationship problems, health-related conditions, morbidity, and mortality.

Source: Bennett, L., & Williams, Oliver, J. (2003). Substance abuse and men who batter. *Violence Against Women, 9*(5), 558–575.

Current Assessment of the Public's Mental Health Status

Mental disorders occur across the lifespan and affect people from all racial, ethnic, and geographic areas. They affect both genders and cut across all socioeconomic groups. The present scope of the problem of mental health is daunting. In the United States, approximately 26.2% of the population is affected by some type of mental disorder, and 6% of the population is plagued with a serious

RESEARCH ALERT

The purpose of this study was to systematically review qualitative research that addresses how people live with suicidality or recover a desire to live. Suicide is a pressing social and public health problem. Much emphasis in suicide research has been on the epidemiology of suicide and the identification of risk and protective factors. Relatively little emphasis has been given to the subjective experiences of suicidal people, but this is necessary to inform the care and help provided to individuals. A systematic review of the literature and thematic content analysis of findings was conducted. The findings were extracted from selected papers and synthesized by way of content analysis in narrative and tabular form. Twelve studies were identified. Analysis revealed a number of interconnected themes: the experience of suffering, struggle, connection, turning points, and coping. Living with or overcoming suicidality involves various struggles, often existential in nature. Suicide may be seen as both a failure and a means of coping. People may turn away from suicide quite abruptly through experiencing, gaining, or regaining the right kind of connection with others. Nurses working with suicidal individuals should aspire to be identified as people who can turn people's lives around.

Source: Lakeman, R., & FitzGerald, M. (2008). How people live with or get over being suicidal: A review of qualitative studies. *Journal of Advanced Nursing, 64*(2), 114–126.

mental illness (NIMH, n.d.). These population figures show few differences from the results of Leighton, Harding, Macklin, MacMillan, and Leighton's 1963 study, which found that SMI typically affects the impoverished (low-socioeconomic-status) population.

Dr. Sarah Steen Lauterbach, chapter author, in an encounter with an elder patient.

In the United States, more than 57 million people have a diagnosis of mental disorder. Approximately 13% of children and adolescents between ages 9 and 17 years have a diagnosable mental disorder. Serious emotional disturbances in this population often lead to school failure, alcohol or illicit drug use, violence, or suicide.

Casey (2012) reported the worldwide prevalence of dementia in 2000 was 24.3 per million of the population and estimated its growing to 81.1 per million of the population by 2040. Similarly, Dilworth-Anderson, Pierre, and Hilliard (2012) estimated that by 2030, the number of people age 65 years and older in the United States is expected to double, reaching about 71 million individuals or about 20% of the U.S. population. This expected growth of the older population, coupled with the resulting suggestion from Casey's (2012) study that a person's risk of developing dementia doubles every 5 years, will result in the number of those living with dementia proportionately increasing.

There are multiple types of dementia; at times, the exhibited symptoms overlap. The most common form of dementia, Alzheimer's disease (discovered by Dr. Alois Alzheimer in 1906), accounts for 60–80% of dementias and is the sixth leading cause of death in the United States (Alzheimer's Association, 2013a). The remaining 20–40% of dementias consist of less frequently occurring dementia types, including vascular dementia, mixed dementia, dementia with Lewy bodies, Parkinson's disease, frontotemporal dementias (primary progressive aphasia, Pick's disease, and progressive supranuclear palsy), Creutzfeldt-Jakob disease, normal-pressure hydrocephalus, Huntington's disease, and Wernicke-Korsakoff syndrome (Alzheimer's Association, 2013b).

Serious mental illnesses (SMIs) such as schizophrenia, mood disorders (major depression and bipolar disorder), and severe anxiety disorders (obsessive–compulsive disorder and panic disorder) can be, and often are, enormously disabling. Schizophrenia affects 2.4 million people, approximately 1.1% of the population. Affective (mood) disorders affect roughly 9.5% of the population. Major depression affects approximately 6.7%, bipolar disorder affects approximately 2.6%, and dysthymic disorder affects approximately 1.5% of the population, with men and women being equally affected. A high rate of suicide is associated with mood disorders. Anxiety disorders (panic disorder, obsessive–compulsive disorder, posttraumatic stress disorder (PTSD), and phobia) are more common than other disorders and affect as many as 40 million people in the United States annually (NIMH, n.d.).

Rates of the most severe forms of SMI have been estimated to be between 2.6% and 2.8% of adults ages 18 and older during any given year. Only 25% of these individuals obtain help for their condition through the heathcare system. In contrast, 60–80% of all persons with heart disease seek and receive care. More importantly, 40% of people with SMI do not receive help from either general or specialty mental health providers, and most do not receive any help. Of those ages 9–17 years who have a mental disorder, 27% receive help from the health sector, but 20% of children and adolescents with mental disorders use only mental health services in their schools. Comorbidity (more than one mental disorder existing at the same time) is a growing problem and requires specialized treatment and understanding, such as is needed for concomitant depression and substance abuse.

There are great disparities in the occurrence of mental disorders in the population and treatment opportunities. Disparities in P-MH treatment merely serve to increase and compound disparities in the occurrence of mental disorders within a population. Since the early 1980s, with the changes in allocation of funds in block grants and oversight of the federal government to states, private P-MH hospitals have served the insured; state programs have served the SMI population. Additionally, within healthcare systems, there are marked differences in how disorders present themselves, and how they are prevented, diagnosed, and treated by gender, racial, ethnic groups, and age. Depression affects twice as many women as men, but women who are poor, have little formal education, are unemployed or on welfare, and live in rural areas are more likely to experience depression than women in the general population. Many of these women have no access to health care or are underserved. This gender gap in care and disorder is seen from adolescence on.

Suicide is one of the leading causes of death in the population ages 15–24 years. Suicide attempts are more common in females; however, more men die from suicide, with the greatest rate of suicide being in white males 85 years of age and older (NIMH, n.d.). Recently, attention has focused on the increasing suicide rate for returning war veterans of the Middle Eastern conflict. Research has consistently shown that approximately 90% of all people who kill themselves have a mental disorder, a substance abuse problem, or combination of these disorders. Suicide is sometimes associated with a copy-cat phenomenon. This phenomenon is also seen in violent acts involving the taking of hostages, situations of school violence, and terrorism acts. Examples of this phenomenon are threats of violence, and some cases of actual shootings, such as those that followed the 2012 Sandy Hook Elementary School massacre. Although much is known about suicide prevention, it is increasingly evident that violence needs particular research support.

Marginal, oppressed individuals and groups, for example, are at risk of perpetrating violent acts on society. Fundamentalism in politics, religion, and social programs, where only one solution is considered the "right" solution, seems to breed violence. Multicultural and reflective perspectives offer strategies to understand experiences from the perspective of the other. This phenomenon needs particular attention, as terrorism has been an increasingly global problem since the dawn of the 21st century.

Following violent societal acts, such as the September 11, 2001 terrorist attacks, or other large-scale crises, such as the Hurricane Katrina disaster, experiences of severe anxiety and depression increase. PTSD is an acute anxiety disorder that develops as a response to overwhelming anxiety. Following the Vietnam War, PTSD proved debilitating for many returning veterans and their families. In military personnel returning from the Iraq war, approximately 16% have PTSD, although this disorder is probably grossly underreported.

Following the September 11, 2001 terrorist attacks, there was an increase in anxiety and depression in the general population, and a much higher incidence of anxiety and depressive symptoms in survivors, individuals who were relatively close in geographic proximity to the events, and individuals who had family members and friends who lost their lives. For recovery workers, the direct and protracted nature of the rescue and recovery made them especially vulnerable. Data from the Mount Sinai School of Medicine's evaluation of 9/11 rescue and recovery workers and volunteers, many of whom worked 4 months of 8-hour workdays, indicated that 51% met threshold criteria for a clinical mental health evaluation. The top three emotionally related disabilities were in the area of problems with social life, work, and home life. More than a decade after these events, the nation continues to deal with bereavement and coping with change and loss. The feeling of safety, security, and freedom in everyday life seems gone forever (Centers for Disease Control and Prevention, 2004).

Another population group needing special attention and understanding is the homeless population. Approximately 25% of the homeless in the United States have a SMI. Although new approaches and attention have been focused on this group, the population remains especially vulnerable. Treatment is not enough for this population: A complex array of human services, health care, and affordable housing solutions is needed to address their problems. Further, homeless shelters are often very restrictive in who they will serve and how long housing is provided, and they are top heavy with rules about who can gain admission and use services. For example, many refuse to give shelter to a person under the influence of alcohol. For a person in a small city in northern Florida living on minimum wage, it would require 96 hours of work per week to afford a one-bedroom apartment. About one-fourth of shelter residents have jobs and return to the shelter for housing and meals. They see the shelter as a primary group, similar to that of a family. In fact, many refer to the shelter as "home" and as being "family."

Violence in the United States has reached epidemic levels. More than 100,000 youths are placed in U.S. juvenile justice facilities annually. There is an increasing trend in childhood violent deaths, with infant homicides considered to be fatal child abuse. Males are more often perpetrators, and African Americans are more than five times as likely as whites to be murdered. Factors such as low income, racism and discrimination, and lack of education and employment opportunities are associated with greater rates of violence. In addition, substance use and abuse, including use of illicit drugs and alcohol, are often associated with violence.

There is a growing concern about the increase in personality disorders in the general larger population. Of special concern is the growing number of individuals with antisocial personality disorders and their lack of response to psychosocial therapies and treatment. There is a need for research in all disorders, but particularly in personality disorders that are listed under Axis II diagnoses. The person with antisocial personality does not experience anxiety, which is often used as part of therapy and is associated with learning. Such an individual does not experience distress or assume responsibility for his or her acts and behavior. This general lack of anxiety or distress, coupled with feeling no responsibility, is common among forensic residents in prisons and mental health units. These individuals do not experience discomfort or guilt from behaviors that harm or take away the rights and privileges of another. In fact, the pleasure taken in another's suffering is a common feature of their disorders.

Statistics and rates of mental disorders, although impressive on their own, need to be personalized. Numerical data need personalized interpretations. Such figures do not inform alone, nor do they tell the human story behind the condition. Each statistic represents a person, an individual—someone's child, spouse, father or mother, sibling, or friend. Each person represented suffers often unbearable pain and anxiety, along with failed hopes and dreams, as do all of the people connected to that person, such as the family, community, coworkers, or social group.

Ethics of Psychiatric–Mental Health Services

Inequity that exists around mental health care impoverishes a group of people who are already at risk. Furthermore, the cost of services is a factor in access and serves to compound risk in an already vulnerable population. This is in direct conflict with prevention concepts and health promotion, which require delicate timing and appropriate intervention within the least restrictive environment. The right to fair and equal mental health treatment is a human rights issue. Interestingly, the community mental health movement was concurrent with the civil rights movement in the United States and was just about as successful.

MEDIA MOMENT

Portrayal of Mental Illness and Psychiatric Conditions in Media

Embedded within a mental health nursing course can be opportunities for planned, structured reflective exercises. The following films are examples of audiovisual materials that have been used for in-class or outside-class viewing. These films, combined with reflective journaling, dialogue, and class discussion, help develop the skills needed in reflective nursing practice. The following list includes only a few of the many excellent films that can be used to support the development of reflective practice:

American Beauty (1999)
As Good as It Gets (1997)
Asylum (1972)
A Beautiful Mind (2001)
Black Swan (2010)
The Bucket List (2007)
Clean, Shaven (1993)
The Days of Wine and Roses (1962)
Eternal Sunshine of the Spotless Mind (2004)
Extremely Loud and Incredibly Close (2011)
50 First Dates (2004)
Fight Club (1999)
Fried Green Tomatoes (1991)
Garden State (2004)
Girl, Interrupted (1999)
The Girl with the Dragon Tattoo (2011)
The Hours (2002)
House of Cards (1993)
House of Sand and Fog (2003)
Leaving Las Vegas (1995)
Little Miss Sunshine (2006)
The Machinist (2004)
Matchstick Men (2003)
Melancholia (2011)
Memento (2000)
Misery (1990)
Nurse Betty (2000)
One Flew Over the Cuckoo's Nest (1975)
Ordinary People (1980)
Prozac Nation (2001)
Rain Man (1988)
Reign Over Me (2007)
Silver Linings Playbook (2012)
A Single Man (2009)
The Talented Mr. Ripley (1999)
Three Faces of Eve (1957)
Tuesdays with Morrie (1999)
What About Bob? (1991)
What's Eating Gilbert Grape (1993)
When a Man Loves a Woman (1994)

Whose Life is it, Anyway? (1981) *Wit* (2001) Student reflection focused on *The Three Faces of Eve* (1957)

I have always been fascinated with split personalities. This movie helped me see that behind the turmoil of all these personalities vying for control was a suffering young lady in need of help. It is easy in situations where someone is disturbed to want to probe and inspect the mind, forgetting that there is a person who is affected by that mind. The movie gave me a greater understanding of the disorder and the suffering of another human being.

—BSN nursing student

Where civil rights and care are much improved today, there is great need for equity and mainstreaming of mental health services into the healthcare system of services.

Mental health problems, in contrast to physical health problems, are often very complex, involving an interaction of many factors, including heredity, culture, social class, living conditions, lifestyle, family relationships, occupation, and economic and political factors. There are often unrecognized mental health issues surrounding and involved with physical health and illness conditions that, if treated along with the physical illness, would promote a healthier adjustment.

The separation of mental health services from other health services creates problems of access to treatment. Problems occur both for those with major or chronic and debilitating mental health conditions and for those who have symptoms that, if treated appropriately at the time, would contribute to the recovery, health, and wellbeing of the person.

Psychiatric–Mental Health Nursing's Roles and Phenomena of Concern

The preceding discussion is particularly important in understanding the complexities of the art and science of P-MH nursing care. The American Nurses Association (ANA, 1994) identified a list of actual or potential mental health problems, presented in **Box 8**, that comprise **phenomena of concern** for P-MH nursing. These include phenomena presented earlier as universal human experiences in need of attention, care, and research. Basic-level functions of P-MH nursing presented previously are inclusive of both prevention and promotion activities as well as treatment and intervention activities. Advanced-level functions further delineate the specialty and therapist role of the advanced practice P-MH nurse.

The P-MH nursing role includes health promotion, health maintenance, health teaching, community action, and advocacy; however, this area encompasses one of the greatest needs in community mental health program development. Currently, nurses in practice within community programs function primarily as managers of care, overseeing care, administering medication, and maintaining records. Community action and advocacy activities are often limited. Some nurses are involved in developing and maintaining the therapeutic milieu, but staffing issues are prevalent throughout the private and public programs.

Missing from the list of functions is the nurse's key role in providing continuity of care. The nurse's unique role and position with persons and groups over time provide opportunities for support and intervention that others on the treatment team simply do not have. In addition, the commitment to using strengths of people and active involvement of those cared for place nursing in a key position.

Since the beginning of modern nursing, the concept of *prevention as intervention* has been a key concept of public health care. The unique vantage provided by the nursing perspective, nursing presence, and the temporality of this role is often underused in therapeutic relationships with individuals, groups, and communities. This is an area in need of attention in both public and private programs.

The P-MH nurse of the 21st century has assumed more coordinating, collaborative, and case management activities than ever before. At the same time, the role encompasses direct service and therapeutic interventions with

BOX 8 Psychiatric–Mental Health Nursing's Phenomena of Concern

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individual and groups within services and programs in a variety of locations—within community agencies and the home. The role of nursing in the public's mental health needs continued assessment and evaluation.

In primary mental health care environments, basic-level P-MH nurses are key professionals who are ideally positioned to assume a variety of roles in multiple settings ranging from acute inpatient to community settings. They are often the only member of the healthcare team who has knowledge to monitor general health as well as mental health needs and care and who possesses the knowledge of the impact of comorbid illnesses on the clinical presentation of the mental disorder (see **Box 9** for leading health indicators). They are prepared in early identification of problems, including preventive intervention, primary prevention, and health promotion. They possess skills in assessment, social intervention, and psychoeducational processes connected with understanding illness and experience of mental illness, and also have knowledge of symptom management, pharmacology, and rehabilitation. The advanced practice P-MH nurse is prepared to manage the care of persons, including monitoring medications.

Guiding Philosophical and Theoretical Frameworks for Mental Health Nursing

The purposes of theory are description, explanation, prediction, and control of human phenomena. In addition, nursing theory serves the purpose of providing understanding of human experience and phenomena. Nursing, as a practice discipline until the latter part of the 20th century, operated based on theories related to a biological model of health. It also used interdisciplinary theory. In addition, the use of practice experience as described in the discussion of "tacit understanding" provided a basis for nursing intervention. Nurses have always borrowed and "cut and pasted" theory, sometimes without enough concern for the relevance or "fit." Increasingly, with the development of qualitative research that focuses on developing theory and quantitative research, which requires a theoretical structure, clarity, and operationalization of concepts, mid-level nursing theory is being developed. The 1960s and 1970s were the decades for development of nursing grand conceptual models (**Table 1**). In addition, the development of doctoral programs in nursing has provided the impetus for theory analysis, theory derivation, and theory construction. Advanced-level P-MH nurses have been involved in theory development, which can be seen in the dissertations and writings of several qualitative nurse researchers, including Becker (1991), Hutchinson (1986), Lauterbach (1992, 1995), Swanson-Kaufmann (1983), and Swanson (1993). Aguilera's (1998) classic nursing text is in its eighth edition and is almost universally used in nursing education curricula that teach crisis intervention. Aguilera's model of crisis intervention assesses the presence of balancing factors.

More recently, writings from P-MH nurses such as Boyd (1988), Lauterbach and Becker (1996), Lauterbach and Becker Hentz (1998, 2005), Munhall (1994, 2007), Munhall and Boyd (1993), and others also embrace the philosophy of phenomenology. Jean Watson's writings and contributions identify caring as the central focus of nursing (Morrow, 2014). There is need for continuing theory development in P-MH nursing. Researchers and scholars such as Janice Morse and her colleagues' (1997) symposium on the Comfort Project and other qualitative nurse researchers show potential for theory development.

Models for Psychiatric–Mental Health Nursing Practice

The writings of educator John Dewey in the early 1900s, who was a friend and colleague of Isabel Stewart, then Chair of the Department of Nursing at Teachers College, Columbia University, are informative. The 1938 writings of Horace Mann (Cremin, 1957) are appropriate considering his views on the value of universal education as the "great equalizer" of human conditions, the "balance wheel of the social machinery," and the creator of wealth undreamed of. He believed that poverty would disappear as an educated

BOX 9 Leading Health Indicators in *Healthy People 2020*

- Access to health services
- Clinical preventive services
- Environmental quality
- Injury and violence
- Maternal, infant, and child health
- Mental health
- Nutrition, physical activity, and obesity
- Oral health
- Reproductive and sexual health
- Social determinants
- Substance abuse

Source: U.S. Department of Health and Human Services. (2014). Leading Health Indicators. Retrieved from http://www.healthypeople.gov/2020/LHI/default.aspx

TABLE 1 Chronology of Conceptual Models in Nursing, 1950–1986

Year	Author	Key Emphasis, Publication, and/or Model
1952	Hildegard E. Peplau	*Interpersonal Relations in Nursing*
1960	Faye Abdellah	Client's problem is focus of nursing care
1961	Ida Jean Orlando	*The Dynamic Nurse–Patient Relationship*
1964	Ernestine Wiedenbach	*Clinical Nursing: A Helping Art*
1966	Virginia Henderson	*The Nature of Nursing*
1966	Lydia Hall	*Nursing Care—Use of Self*
1967	Myra E. Levine	*Four Conservation Principles of Nursing*
1970	Martha Rogers	*Science of Unitary Human Being*
1971	Imogene King	General Systems Framework
1971	Dorothea Orem	Self-care framework for model
1971	Joyce Travelbee	*Therapeutic Use of Self*
1974	Betty Neuman	Systems Model
1976	Sr. Callista Roy	Adaptation Model
1976	Josephine G. Paterson & Loretta T. Zderad	Existential philosophical foundation of nursing
1978	Madeleine M. Leininger	Caring and transcultural perspectives
1980	Dorothy E. Johnson	Behavioral System Model
1981	Rosemarie Rizzo Parse	*Man-Living–Health*
1985	Jean Watson	*Nursing: Human Science and Human Care*
1986	Margaret Newman	*Health as Expanding Consciousness*
1989	Patricia Benner and Judith Wrubel	Caring is central to the essence of nursing

public discovered new "treasures of natural and material wealth." Mann also stated, "a nation cannot remain ignorant and free." Education is the key to an informed public and underpins P-MH nursing practice at all levels.

Public Health Model

The traditional public health model includes all levels of prevention: primary, secondary, and tertiary. It has been a viable model for P-MH nursing practice. Central to this model is the critical role of public education. This model uses concepts of mental health and illness, epidemiology, and population-focused statistics in assessing mental health needs and risks. Population statistics, when combined with knowledge of mental health issues, are useful in identifying populations vulnerable to experiencing dysfunction.

Currently, the major thrust of U.S. mental health care is toward secondary prevention efforts, providing treatment and minimizing disability. There is a need for research and funding in all areas of prevention, but particularly within primary prevention. The following primary prevention activities are in need of public policy inquiry and research: mental health promotion and dysfunction prevention; holistic, meaningful, mind–body wellness activities; personal and community education; acquisition of effective coping skills; wholesome early attachments and healthy lifelong relationships; facilitating environments conducive to meaningful work and mental and physical health; and finally, self-empowerment. There is a need for large-scale community studies of stress and crisis conditions.

Secondary prevention activities are the major thrust of care and include early diagnosis and intervention, accessible services, and timely, appropriate treatment. One of the most important contributions of the community mental health movement of the 1960s and since has been the development of crisis intervention services. This, combined with the consumer movement of the 1970s, has made a significant contribution to support services for individuals and communities. Still, major primary prevention work is needed to address the conditions and environments that create and perpetuate interpersonal crises. Situational crises, which are superimposed on predicted developmental crises, further create risk, but with proper attention, they can be addressed. Consumer involvement has been helpful in the development of suicide prevention programs, services for rape crisis and victim recovery, and other phenomena needing support and therapeutic intervention. However, more research into crisis prevention, intervention, and impact of crises on life is needed. The phenomenon of human abuse and violence needs to be researched and better understood. Where treatment usually is focused on the victim, more work is needed in addressing the treatment and rehabilitation of the perpetrator, facilitating a violence-free environment. Phenomena need to be reconceptualized and investigated as a community and social phenomenon as well as an individual phenomenon.

Tertiary care has been the focus of community mental health programs and currently provides most of the care for the SMI public, including state hospitalization. The community mental healthcare system includes a range of community-based services addressing a full range of needs and particular groups needing care. These programs address ongoing and acute exacerbations of conditions and chronic care. Activities aimed at rehabilitation and reducing the discomfort and suffering associated with particular mental health problems need research.

Community studies of health have provided information that is potentially useful in articulating nursing's future role in community mental health. Early studies such as Hollingshead and Redlich's (1958) work associated social class and mental health. Studies that also show the promise of stress and education include Folkman and Lazarus's (1980) analysis of coping in a middle-aged community. Antonovsky's (1979, 1987) work on health focuses on "salutogenesis," the origins of health, and "what healthy people have in common." This mid-level theory, along with Selye's (1956, 1974) classic work on the biological model of stress and the work of Benson (1975, 1984), have contributed much to the field. The value of theories such as these comes from the combination of the idea of the connection between mental and physical health and a sociological model for conceptualizing stress.

Primary Care Model

Since the beginning of modern nursing, nursing has offered two different perspectives for the focus of care: caring for the individual and caring for the needs of populations. There is often tension between these two different perspectives. This is especially true for P-MH nursing, where the individual often is seen as the identified patient but in reality reflects dysfunction within a family, community, or larger social system. Taking the example of the state of the mental health care system within the nation, there is dichotomization, stigma, and economic differences within systems providing physical care and mental health care.

CULTURAL CONNECTION

Domestic violence is of concern throughout the world and is present in all economic, racial, and ethnic groups. The status of women and the oppression of women in economic, social, and political roles are underlying causes of such violence. Intimate-partner violence is a major public health issue for all women and for people who are oppressed. There is a great need for healthcare providers to be culturally aware and competent to provide services and intervention. The dual discrimination that black women face predisposes them to black male aggression. Further, the cultural and spiritual conditions trap battered black "women into silence, submission, and continued victimization" (p. 535).

There are also structural, cultural, and situational issues surrounding the violence. The structural context is defined as the macro-level structural arrangements and social conditions that have a direct effect on access to opportunity and the quality of life. Intergenerational exposure to racial and gender oppression is a major feature of many black men's experience. Chronic unemployment and underemployment have profound effects on black women and children.

The cultural-community context provides the socialization that black men have, which instills in them views similar to the white male views about their superiority over women. Subordinated masculinity for black men and other lower class men has prompted many of them to redefine masculinity in a manner consistent with the context of their subordinated status. For all these reasons, black women wives and girlfriends are at increased risk for becoming victims of black men committing violent crimes against them.

The situational context is that most intimate-partner violence occurs close to home, between 6:00 p.m. and midnight. It typically occurs within the normal context of everyday life.

Although no single program can eliminate this violence, successful efforts might include early intervention in the form of school retention programs, high school–based programs providing job readiness, low-interest loans for education, and placement centers for employment in inner cities. When black men are employed, they are less available on the street—organizing their daily activities, rather than hanging out and getting in trouble with their wives or girlfriends, which in turn increases the likelihood of conflict.

Source: Hampton, R., Oliver, W., & Magarian, L. (2003). Domestic violence in the African American community: An analysis of social and structural factors. *Violence Against Women, 9*(5), 533–557.

Privatization of mental health care, reimbursement differences between physical and mental care, and the current contrast with public mental health care's focus on tertiary care are reflective of sentiment and thinking in a society that values economics and physical care over mental health.

Nursing has traditionally been able to provide care to both individuals and groups, using both paradigms for providing care: the public health model and person-focused or family-centered model. Nurses have seen the need for the current "illness care" system to be transformed into a "health care" system.

Primary health care is increasingly being viewed as synonymous with provision of health care (Haber & Billings, 1995). If this concept is to be fully actualized, then primary care will necessarily have to include mental health care. Whether this concept will be fully realized is doubtful. Rather than being a reactive profession, nursing needs to take a position for advocating planned change, advocating for the right for each citizen to have responsive, quality mental health care alongside responsive quality health care. Access to the healthcare system needs to include both.

Primary Mental Health Care Model

Increasingly, the discussion of a primary mental health care model is being proposed as a model for delivering community-based, comprehensive P-MH nursing (Haber & Billings, 1995). It has the potential to integrate the two traditional models of care and positions nursing in a key role to meet the needs of individuals and communities. There is need for continued dialog between psychiatric nurses themselves, represented by the Coalition of Psychiatric Nursing Organizations (COPNO), including the ANA Council on Psychiatric Mental Health Nursing, the American Psychiatric Nursing Association (APNA), and the International Society of Psychiatric–Mental Health Nurses (ISPN), which includes the following divisions:

- Association of Child and Adolescent Psychiatric Nurses (ACAPN)
- International Society of Psychiatric Consultation-Liaison Nurses (ISPCLN)
- Society for Education and Research in Psychiatric–Mental Health Nursing (SERPN)
- Adult and Geropsychiatric–Mental Health Nurses (AGPN)

Primary care roles need to be conceptualized to include providing P-MH care within frontline health care and should include more than case management of the large population of psychiatric patients receiving tertiary and chronic P-MH care.

GLOBAL CONNECTION

The publication of *Nurses of All Nations* marked the 100th anniversary of the International Council of Nurses (ICN). This text is the culmination of more than a decade of scholarly inquiry, research, and planning. The first chapter, entitled "Above All Other Things—Unity," begins by identifying the roots of the ICN in "women's suffrage, abolition, missionary work, and social reform" (p. xi). The text is organized around five perspectives that trace ICN's 100-year history: self-image; race, class, and gender; meaning(s) attached to professional nursing; nursing diplomacy; and friendship. In 1997, the president of ICN, Kirsten Stallknecht (from Denmark), urged nurses to continue to stress "humanity," regardless of whether governments or others do, urging nurses to demonstrate their values (p. 198). In addition to urging nurses to demonstrate concern for public health, ICN has since its inception been concerned about the "special" needs of women around the globe. The history of ICN and professional nursing worldwide reflects the history of women in society.

Unity, as a theme for nursing, is of particular interest for the chapter authors. Nursing's history is also a history of friendships. Unity is a critical phenomenon in past, current, and future nursing work. We acknowledge that often nurses fail to provide individual and collective support to one another, even as care is provided the public. Nursing work is often anxiety provoking, sensitive, and private; involves human suffering; and is often surrounded by a phenomenological silence. It is imperative that nurses value and provide care for themselves and for one another to provide the care the public needs and deserves.

Source: Bush, B. L., Lynaugh, J. E., Boschma, G., Rafferty, A. M., Stuart, M., & Tomes, N. J. (1999). *Nurses of all nations: A history of the International Council of Nurses 1899–1999.* Philadelphia, PA: Lippincott.

NOTE THIS!

Primary Mental Health Care: A Model for Psychiatric–Mental Health Nursing

Haber and Billings (1995) stated that primary care is increasingly becoming synonymous with the provision of health care. In addition to discussing roles of basic- and advanced-level nursing practice in primary mental health care, these authors state that anxiety disorders, depression, and substance abuse are among the most commonly misdiagnosed categories in primary healthcare practice. In addition, they propose that the boundaries of mental health care delivery must be redefined and expanded from a specialty focus to a primary mental healthcare model. Furthermore, they state that nurses are beginning to find their niche in nontraditional settings.

Using Reflection in Nursing Education and Practice

Throughout this chapter are many references to P-MH nursing's use of reflection as a critical activity in nursing education and practice. Becoming a reflective practitioner is especially critical in P-MH nursing. It is imperative that self-reflection be developed early in the educational experience and continued throughout nursing practice.

Reflective practice involves a bending back of attention to self and others and to the therapeutic encounter. Reflection takes place throughout the nursing encounter.

> We do not see things as they are, we see them as we are.
>
> —*Talmud*

It involves carefully attending to and focusing on the other and the experience itself. It includes the unfolding interaction, focusing on the *content* of communication, the possible meanings, and the unfolding communication *process*. By using a reflective and thoughtful, attentive posture, it becomes possible to "see" much more fully the meanings in the experience of another. This practice increases awareness and leads to greater understanding of the other. As a result of this enhanced understanding, the nursing process can be more fully, appropriately, and timely implemented and evaluated.

Many examples of reflective activities have been provided that have been particularly useful in nursing education and in P-MH nursing practice. Reflection on personal attitudes, feelings, and values, as well as reflection on life and educational experience, is a critical process in nursing education; it is a critical process in becoming a nurse.

Using publications and teaching experiences (Lauterbach & Becker, 1996; Lauterbach & Becker Hentz, 1998, 2005), reflection is introduced and used in nursing courses and elective university courses in several nursing programs. Since the early 1990s, reflective practice has been integrated into human sciences disciplines and practice. In nursing education, reflective practice and activities have become critical strategies to enhance learning. The following are examples of the types of reflective education and practice activities used for this purpose. Student reflections are included in the Application to Practice features throughout the chapter.

Journaling to Learn: A Strategy to Develop the Art, Science, and Practice of Reflection in Nursing

Journaling has been used as an educational strategy in P-MH nursing and other nursing and elective courses. Reflective activities have been developed that are geared toward increasing awareness of meanings in self and in others. Through journaling, students become aware of their own attitudes, values, and biases regarding mental illness. Journaling has been used as a critical activity in developing a habit of reflection, using informal yet disciplined writing. It has helped to create a greater depth of awareness and more expansive breadth of understanding. This activity has been especially helpful in developing therapeutic communication and relationships in P-MH nursing courses where students are placed in a variety of settings, including community programs and civil and forensic units in a state mental hospital.

ETHICAL CONNECTION

Costello and Dunaway have focused on "threatened egotism" as a major condition of violent behavior. Where the social sciences in the last several years have attempted to test the hypothesis that low self-esteem is associated with violent behavior, this research addresses the association between inflated self-esteem and violent behavior. The researchers conducted a preliminary test with participants from a small junior and senior high school in a Southern city. Their results showed that egotism is positively associated with violent and nonviolent delinquency and that the relationship holds when a number of important predictors of violent behavior are controlled, including self-control and social control.

Substance use is often associated with a person developing an excessive self-focus, inflated self-esteem, or narcissism. This may be a contributing factor in the development of egotism, where inflated self-esteem and excessive self-focus prevent the person from developing appropriate, reality-based self-esteem.

Are there ethical implications of this research linking inflated self-esteem and delinquency? As nurses we tend to focus on promoting self-esteem in patients. How would you plan nursing intervention in a school setting using these findings?

Source: Costello, B. J., & Dunaway, R. G. (2003). Egotism and delinquent behavior. *Journal of Interpersonal Violence, 18*(5), 572–590.

Self-reflection activities have been and continue to be developed in the following areas: understanding the family as it moves through time, with an emphasis on changing family structures, functionality, family process, patterns of health and illness, and patterns of stress and coping; caring for persons who are residents in The Shelter in a small Southern city, including the homeless SMI residents; and serving as observer-participants in support groups. In addition, class material, films, and other mental health materials were used as focal topics for guided reflection. Students kept a weekly clinical journal and wrote a short reflection and critique of the course experiences at three times during the semester. The written reflective critique was found to be especially helpful in students' continued reflection and processing of experiences.

Reflecting on Experiences with the Homeless

While assisting at The Shelter, the students helped check residents in for the evening, provided supplies for bath and personal care, and assisted with the evening meal. They had brief interactions focused on these activities. Students found this experience to be especially transformative.

Reflecting on Support Group Experiences

Students in the following nursing courses attended and wrote reflective papers on their support group experience: the core P-MH clinical course, an RN/BSN concepts course, an elective university-wide substance abuse course, and a university-wide required communication course. Examples of groups attended were Alcoholics Anonymous, (AA), Al-Anon, Narcotics Anonymous (NA), Alzheimer's Support, Caring for the Caregiver, Hospice and Palliative Care, Cancer Support, Victims of Violent Crimes, Breast Cancer Survivors, and Mothers Against Druck Driving.

Reflecting on Family Experiences: Constructing a Multigenerational Family Genogram

The concept of family has been explored in nursing courses in several nursing programs, including P-MH nursing courses, an RN/BSN concepts course, a communication course, and a substance abuse course. The students were required to construct a multigenerational genogram of their own family going back three generations. They identified issues related to health and illness, stress and coping patterns, family structure, and family process using a family systems theory framework. Through focusing on issues and family process in their own family, students became more self-aware and understanding of the issues in their own lives that needed attention. They also developed an understanding of family processes that was applicable to their nursing practice. Students became more aware of the complexity of issues in working with patients and their families. In working with SMI patients and forensic SMI residents, they understood the care and needs of this population group, who cry out for a revolution in care. They saw the profound impact of SMI on the family.

Self-as-Patient Clinical Reflection: Caring for Self

Self-as-patient clinical activities have been included in several courses in a variety of nursing programs. This activity was used in a professional development course, in the first theory course in the nursing curriculum, in P-MH nursing courses, and in a variety of holistic nursing courses. Students used a personal journal for reflection, and conducted an assessment of and identified priorities for care in the following areas: personal health issues and status, patterns of stress and coping, nutrition, rest and leisure, relaxation, fitness, and family relationships. A plan of care focused on areas of need, priority, and interest. At the end of the semester, students shared their work in several formats, including posters and portfolio, oral presentations, and a written paper about the experience.

Therapeutic Use of Self: Clinical Reflection

Using guidelines developed for a focus on therapeutic use of self (TUS), students in several courses in several nursing curricula have been introduced to the concept of using the self therapeutically. The thesis underlying this approach is that the nurse is an instrument of healing and care. TUS activities have been used in P-MH nursing, communication, and substance abuse courses, for example. Reflecting on interactions with patients has been especially informative to students. Immediately following these interactions, students recalled the verbatim conversation and wrote process recordings. Interactions were processed and analyzed in post-conferences using the readings and theories underlying human development, therapeutic communication, and relationship development. The reflection on conversations with patients helped students identify possible interpretations of the conversation and possible meanings as they reflected on their use of therapeutic communication strategies. Such guided reflective activities help students learn to critically process, evaluate, and identify appropriate, effective communication strategies.

> I always said that mental health got what was left over after everybody else in the health field got what they wanted.
>
> *—Rosalyn Carter, who as first lady served as co-chair of the President's Commission on Mental Health and championed the rights of those with mental illness*

CULTURAL CONNECTION

I could have been dead by now, you know, I was gang related, on drugs, really big time. Like now, I'm not gang related. I have, next month, one year clean with drugs. You just change (as a father) automatically. And when you see your son crying or you see your son smiling at you it's like, oh, I want to be at home with him . . . all the time I have to spend, I spend with my family now.

—Robert, age 19 (fictitious name)

Using a Phenomenological Perspective: Understanding the Public's Mental Health Lived Experience, One Person at a Time

Phenomenology as a philosophical human science and research perspective has been embraced by P-MH nurses as a perspective for understanding human experience. Max van Manen (1990) stated that phenomenology is the "study of the lifeworld—the world as experienced rather than as conceptualized, categorized, or reflected upon" (p. 9). It is the observation and experience of lived experience as it happens, as presented to our consciousness. It involves seeking for meaning in everyday, commonplace experiences. The writings of nurse researcher Munhall (1994) and others have further developed phenomenology as a perspective that provides a vantage point for "knowing" others and as a research methodology. In P-MH nursing, this perspective is especially illuminating. Therefore, personal reflection aids the nurse in becoming a more thorough, comprehensive healthcare provider.

Understanding underpins the nursing process from the beginning assessment, planning, and therapeutic intervention and evaluation. Sartre (1984/1967) asserted that the goal of literature, or the written word, is "to reveal the world and particularly to reveal man to other men so that the latter may assume full responsibility before the object which has been thus laid bare" (p. 18). Likewise, he stated, "If you name the behavior of an individual, you reveal it to him; he sees himself. And since you are at the same time naming it to all others, he knows that he is seen at the moment he sees himself" (p. 16). Insight and understanding in therapeutic encounters are enhanced for both nurse and patient.

Phenomenology as a perspective in P-MH practice offers strategies for uncovering meanings in lived experiences. It reveals meanings and insight to the patient and the nurse about what it is like to be a person with the particular experience. Understanding is the ultimate goal of using a phenomenological perspective. The nurse who uses a phenomenological perspective has a goal of facilitating the patient's personal understanding of behavior, of understanding more fully the patient's experience, and of helping others to understand through better communication and more coordinated and integrated care.

A phenomenological stance in nurse caring and relating involves listening carefully, imagining what it is like to be the other person with the experience, and being open to multiple meanings attributed to experience. It requires listening carefully for themes that emerge in the descriptions and paying attention to their emergence in therapeutic conversations. From a phenomenological perspective, we learn about the meaningful, relevant experiences from the perspective of the person in focus.

To understand the person requires that we listen actively to the patient's experiences and elicit rich descriptions of life experience. Often, the novice nurse fails to fully glean an understanding of the patient because of not taking the time, or hastily jumping to conclusions, or simply not being comfortable with the meanings underlying the descriptions and stories.

This perspective also helps in discovering themes in universal human experiences as well as discovering uniqueness and differences in people and experiences. Further, living through a difficult experience is common to many mental health patients and their families. In developing phenomenologically focused therapeutic relationships, the nurse develops a deeper, broader understanding of persons and differences among and between people. This broadened understanding contributes to the development of consciousness. There is a need for a public consciousness regarding the status of mental health care and the growing disparities in needs and care for particular population groups. For nursing, this recognition could potentially facilitate planning, developing, and participating in social and human advocacy with renewed and fuller understanding.

A quote by the poet T. S. Eliot (1936) describes the temporal nature of human experience: "Time present and time past are contained in time future . . . And time future contained in time past" (p. 175). The understanding and insight gleaned from every therapeutic relationship and encounter are intimately connected to past and future experiences for each nurse and patient. Through the process of caring for and of understanding one person, the nurse affects the experience of all those connected to the person, and the encounter leads to a potentially transformative relationship for many.

The Future of Psychiatric–Mental Health Nursing Practice

Current P-MH nursing practice operates within the managed care, cost-containment drive behind health care. A growing number of persons, groups, and communities are not receiving care, do not have basic needs met, and are being lost between services and programs. Preventive care is still in need of development. P-MH nurses need to be integrated into primary healthcare environments and community-based programs, such as schools, daycare programs, parenting programs, and self-help and support programs. Most importantly, there is need for P-MH advocacy in the area of health policy and healthcare planning.

Increasingly, communities are experiencing acts of violence. Since the September 11, 2001 terrorist attacks, there has been national security anxiety and depression. Following the invasion of Iraq, there has been heightened anxiety, depression, and PTSDs among the population. Grandparents are parenting their dysfunctional adult children's children. The future looks bleak as the future grandparents are today's dysfunctional adults. Within this day of information and technology, the growing Third World vulnerable populations, within the larger affluent American society, are cause for concern. Unless we support and care for all our populations' needs, health, and human rights, including shelter, nutrition, and meaningful life, the health and happiness of the public are threatened. Caring comprehensively for a multicultural population and world is key.

RESEARCH ALERT

An ethnographic approach was selected to generate an explanatory model for minority young offenders in the juvenile justice system receiving mental health services. Thirty (10 female, 20 male) youths between the ages of 13 and 17 years participated. Five themes were identified in the group: a desire for caring and stable families, lack of personal control, a love–hate relationship with school, feeling depressed and hopeless, and "it's better to be tough than sick." These youths felt they had no control over their lives. Reliance on peers (gangs) was commonly used as a means of protecting themselves when they had no reliable family. Expressions of sadness and anxiety were common, and the youths were regressed, appearing very childlike as they expressed themselves. They were secretive about their mental health problems and expressed distrust of counselors even though they needed to talk to someone and indicated that they might use mental health services if they could be assured of confidentiality. This study concluded that further research is needed about this phenomenon.

Source: Shelton, D. (2004). Experiences of detained youth offenders in need of mental health care. *Journal of Nursing Scholarship, 36*(2), 129–133.

MEDIA MOMENT

"Never doubt that a small group of thoughtful, committed citizens can change the world: Indeed, it is the only thing that ever has."

—Margaret Mead

On Civic Responsibility

In his address during *Inequality Matters* on June 3, 2004, at New York University, Bill Moyers ended his broadcast with the following:

"What we need is a mass movement of people like you. Get mad, yes—there's plenty to be mad about. Then get organized and get busy. This is the fight of our lives."

See http://www.inequalitymatters.org

On October 28, 2008, the Mental Health Parity and Addiction Equity Act was passed with bipartisan support. This ensures that more than one-third of all Americans will be able to receive equal coverage for mental and physical illnesses. The law went into effect January 1, 2010. This represents a major accomplishment for mental health coverage for Americans. See http://www.nami.org

Conclusion

"There, but by the grace of God, go I." This phrase is often used when referring to those suffering from mental illness. Often very little separates those with a P-MH condition and those without such a disorder. Accidents of birth, geography, culture, and the tenor of the times are all factors contributing to the distinction between *those who have* and *those who have not*. Mental health epidemiology demonstrates that *those who have not* are also those who have a greater risk of having a mental disorder. Equal opportunity lies in the accident of birth.

Today, as in the past, mental illness, disorder, and dysfunction are surrounded by a pervasive atmosphere of misunderstanding and social stigma. The stigma is fueled by a lack of knowledge, scientific advances, and reliable treatment and cure. Further, little value is assigned to mental health and treatment of P-MH disorders, and an impoverished and universal lack of public understanding is all too common.

Stigma has been attached to many serious illnesses, such as cancer, in the not too distant past. Over time, however, research and scientific advances in physical health have greatly expanded our knowledge base and treatment options, resulting in positive outcomes and ultimately diminishing stigma.

Even though the 1990s were considered the decade of the brain, and many advances were certainly made in treatment modalities, there is still a lack of reliable, tried-and-true treatments for mental health disorders. We know more about the biological basis of many mental conditions, and we have developed many new psychopharmacological agents that target specific symptoms and produce fewer negative side effects. Nevertheless, we have a long way to go in translating the research into effective treatment. We have not invested the time, energy, and intellectual and economic resources needed to do so.

It was not until the 1950s, with the advent of psychiatric medications, that many troublesome mental health symptoms were treated. Until then, the reliance on somatic therapies, such as hydrotherapy, insulin shock, and physical restraints, produced even more fear and stigma in association with these disorders.

Mental health problems are often very complex and have roots in social, economic, and political injustices, as well as in problematic behavior patterns. We have made progress in greatly enhancing the treatment of serious episodes and acute exacerbations of chronic mental conditions. With knowledge and treatment success has come a greater openness and acceptance of mental illness. However, our work has just begun. We must take on the *lack of parity* for mental health care and physical health care for research and treatment. It is only by achieving equity in the research and science underpinning mental disorders that treatment success and understanding will occur.

As members of a specialty, P-MH nurses continue to lead the way in developing reflective practice strategies for nursing and other disciplines. We continue to support the public in experiencing better mental health and self-actualization through developing timely, targeted, and critical interventions. We continue to advocate for the development of therapeutic, facilitative environments and relationships for treatment to thrive. We continue our efforts to revolutionize mental health care and advocate for its status to be equal to physical health care in terms of research support, with affordable, quality, accessible treatment for all people. We hope to ensure the improvement of the public's mental health by caring for people, one person at a time, including self, in families and groups, populations, and nations.

HEALTHY ME

What ways do you 'de-stress' as a student in nursing school? Are these activities healthy or unhealthy? Do they work for you in the long term? What have you learned from this chapter as a way of coping in healthy ways with the mental and emotional strains of being in nursing school?

LEVELS OF PREVENTION

Primary: Teaching a class on how appropriate nutrition and a consistent exercise program can promote mental health

Secondary: Leading a group at a senior center on recognizing the symptoms of depression

Tertiary: Teaching a class for mental health center residents on the necessity of medication and therapeutic compliance

Critical Thinking Activities

1. Consider what is it like to experience the following:
    - Serious mental illness, such as schizophrenia, mania, or depression
    - Paranoid feelings, to the degree that you know that if you do not take medication, you will get sicker and sicker
    - Feeling that the medication dulls your attention, which helps you stay vigilant; feeling that something bad will happen if you let down your guard
2. What is it like to experience the following?
    - Having no one who you feel understands you and likes you just the way you are
    - Having no friends
    - Experiencing your little brother's death after he was sick so long with leukemia
    - Watching your dad begin to drink heavily in the evenings
    - Feeling fat, even though you ate only lettuce today, weigh 105 pounds and are 5 feet, 7 inches tall
    - Wanting and feeling very independent but still being told by your parents what time you must come in
3. What is it like to experience the following?
    - Wanting your parents to stop fighting
    - Wanting your parents to get back together even though you remember how awful it was before they separated
    - Being devastated when your dad moved out
    - Living with your mom, who works too hard and still does not have enough money even though she gets some child support
    - Visiting your dad, who has forgotten what it is like to have anyone, much less a child, around
4. What is it like to experience the following?
    - Being so depressed that you simply are too tired to get out of bed
    - Feeling that you have nothing to live for
    - Feeling that the world and your family would be better off if you just died
    - Being 17 and suddenly discovering that you had lost all your dreams and goals

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Introduction to Drugs and Society

Did You Know?

- The popular use of legal drugs, particularly alcohol and tobacco, has caused far more deaths, sickness, violent crimes, economic loss, and other social problems than the use of all illegal drugs combined.
- The effect a drug has depends on multiple factors: (1) the ingredients of the drug and its effect on the body, (2) the traditional use of the drug, (3) individual motivation, and (4) the social and physical surroundings in which the drug is taken.
- The first attempts to regulate drugs were made as long ago as 2240 BC.
- After marijuana, illicit prescription drugs are now the second leading drug of abuse.
- Drug abuse is an "equal-opportunity affliction." This means that drug consumption is found across all income levels, social classes, genders, races, ethnicities, lifestyles, and age groups.
- Among racial/ethnic groups in the United States, past-month illicit drug use is highest among African Americans and whites and lowest among Asians.
- Approximately 70% of drug users in the United States are employed (18 years or older) either full time or part time, and 76% of full- or part-time employees are heavy drinkers.
- In major industry categories, past-month illicit drug use was highest in accommodations and food services; arts, entertainment, and recreation; and management; the highest amount of heavy alcohol use was found in the mining, construction, and accommodations and food services industries.
- Approximately 60% of individuals arrested for most types of crimes test positive for illegal drugs at the time of their arrest.

Learning Objectives

On completing this chapter you should be able to:

- Explain how drug use is affected by biological, genetic, and pharmacological factors, as well as cultural, social, and contextual factors.
- Develop a basic understanding of drug use and abuse.
- Explain when drugs were first used and under what circumstances.
- Indicate how widespread drug use is and who the potential drug abusers are.
- List four reasons why drugs are used.
- Rank in descending order, from most common to least, the most commonly used licit and illicit drugs.
- Name three types of drug users, and explain how they differ.
- Describe how the mass media promote drug use.
- Explain when drug use leads to abuse.
- List and explain the stages of drug dependence.
- List the major findings regarding drugs and crime.
- Describe employee assistance programs, and explain their role in resolving productivity problems.
- Explain the holistic self-awareness approach.

Introduction

Each year, at an accelerating rate, social change driven by technology not only affects us individually, but also affects our family, community, city, nation, and the world. It can be said that technology is one of the primary forces driving social change at an unprecedented and relentless speed, affecting our everyday lives.

As an example of technological change, let us look at the transformation of the telephone into cellular phone technology. In all likelihood, your great-grandparents had a single black stationary rotary type of landline phone at home to use for communicating with friends and family living at a distance. Your grandparents experienced newer and more stylized versions of the same telephone, with perhaps one or two other telephones installed in another part of their home. While growing up, your parents had the same landline type of telephone, but it came in an array of colors and was more stylized, and there were multiple extensions of this phone throughout their home in bedrooms, hallways, and/or kitchens. Today, your available technology may still include a landline phone[1] with additional features such as voice mail, call waiting, call forwarding, and call blocking, to name a few of many other standard feature options available with landline phones.

An outgrowth of the landline phone and the radio-phone, which was used in the military, is a gadget that most of us carry today without any sense of technological awe. The cell phone, with over 7 billion worldwide subscribers (Nair 2015), and its recent cousin, the smartphone, named as such because it includes additional software functions resembling a computer, are portable warehouses of technological services that connect to a cellular network. Current cell phones can include an array of accessories and services beyond making phone calls, including caller identification; voice messaging; voice memos; an alarm clock; a stopwatch; calendars; appointment scheduling; current times and temperatures in different cities around the world; a calculator; video games; text messaging (or SMS); a camera with photo albums; Internet service; email; infrared; Bluetooth; an MP3 player; storage for downloaded music, movies, and/or podcasts; geographic positioning system (GPS) features; radio broadcasts; maps; stock market quotes; weather; reminders; Skype or FaceTime; and iTunes, to name a few "basic" applications. Literally hundreds of thousands of applications ("apps") offer an array of information, accessories, and services. The completely portable cell phone with its keypad or touchscreen did not exist for the general public 38 years ago. Further, newer generations of cell phones will include unimaginable new applications, accessories, and services.

Consider another example. More than likely, your great-grandparents wrote letters on manual typewriters (or by hand). Your grandparents wrote letters on electric typewriters, whereas your parents started writing letters on electric typewriters and then had to change to computers. Today, you often communicate with family members and friends by email, text messaging, Facebook, Twitter, Google+, Skype, and Pinterest. Although you may perceive many of the electronic devices surrounding your life as normal, a visit to a science and technology museum can offer many surprises and, more than likely, an appreciation for how things were and how much they have changed.

These examples illustrate how technology is in a continuous state of development and how it affects our day-to-day lives. In a sense, the technology we use today will be replaced tomorrow as newer and more advanced forms of innovation give birth to new technology and software.

What does this have to do with drug use and/or abuse? Just as electronics continually evolve, drugs follow similar paths of evolution. Today, there are thousands of new drugs available that are used either legally or illegally. These drugs are used for medicinal purposes, recreational purposes, or to achieve effects that do not include maintaining health. Some people in society use drugs to cope with pressures emanating from social change. Others use and eventually abuse drugs to cope with, delay, or postpone reality. For some, illicit drug use becomes a primary method for instant recreation, a way to avoid anxieties, or a substitute to fulfill human desires and pleasures.

Despite the extensive amount of available information regarding the dangers of drug use and an increasing number of laws prohibiting nonmedical drug use, many people today continue to abuse legal and illegal types of drugs.

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[1] Landline phones continue to disappear from U.S. households; approximately 41% of American homes do not have a landline phone or do not use the ones they have (Luckerson 2014; Stobbe 2014).

Drug Use

Anyone can become dependent on and addicted to a drug. The desire to use a drug before drug dependence and addiction occur is both seductive and indiscriminate of its users. Most people do not realize that drug use causes at least three major simultaneous changes:

1. The social and psychological basis of the attraction to a particular drug can be explained as feeling rewarded or satisfied because social pressures can appear to have become postponed, momentarily rectified, or neutralized and perceived as nonproblematic.
2. Pharmacologically, the nonmedical use of most drugs alters body chemistry largely by interfering with its proper (homeostatic) functioning. Drugs enhance, slow down, accelerate, or distort the reception and transmission of reality.
3. The desire may satisfy an inborn or genetically programmed need or desire.

Many argue that our "reality" would become perilous and unpredictable if people were legally free to dabble in their drugs of choice. Many do not realize, however, that, if abused, even legal drugs can alter our perception of reality, become severely addicting, and destroy our social relationships with loved ones. Before delving into more specific information, we begin by posing some key questions related to drug use that will be discussed in this chapter:

- What constitutes a drug?
- What are the most commonly abused drugs?
- What are designer drugs?
- How widespread is drug abuse?
- What are the extent and frequency of drug use in our society?
- What are the current statistics on and trends in drug use?
- What types of drug users exist?
- How do the media influence drug use?
- What attracts people to drug use
- When does drug use lead to drug dependence?
- When does drug addiction occur?
- What are the costs of drug addiction to society?
- What can be gained by learning about the complexity of drug use and abuse?

Dimensions of Drug Use

To determine the perception of drug use in our country, we asked several of the many people we interviewed for this text, "What do you think of the extent and the amount of drug use in our society?" The following are four of the more typical responses:

> I think it is a huge problem, especially when you think about the fact that there are so many people doing drugs. Even in my own family, my sister's kids have had drug problems. My niece became addicted to cocaine, nearly died one night from overdosing, had to leave college for a year and go into rehab. I cannot emphasize enough how this was one of the most beautiful (physically and mentally sharp) and polite nieces I ever had. The rest of the family had no idea why she left school last year. Then, just last week, my sister tearfully announced during a Christmas gathering that Cindee was heavily into drugs while attending her second year of college. We were all shocked by this information. Now, just think how many other kids are addicted to such junk while the people who really care and love them do not have a clue. If the kids are having to deal with this, just stop and think how many other people in other jobs and professions are battling or have caved into their drugs of choice.
>
> How many workers are there on a daily basis doing jobs that require safety and are "high" on drugs? This is a scary thought. Just think of a surgeon on drugs, or an airline pilot. Yes, we have big monster problems with controlling drug use. *(From Venturelli's research files, female dietician in Chicago, age 43, February 9, 2003)*

A second response to the same question:

> I use drugs, mainly weed and alcohol, and at least once a month I have a night of enjoying coke with several friends. As long as I am not a burden on my family, I think drug use is a personal choice. Locking up people for their drug use is a violation of my rights as a human being. For many years now, our government has not been able to stop recreational drug use, this is despite the millions that have been arrested, and countless numbers of other drug users incarcerated. What's the point of all this? If after so many years of trying to enforce drug

> laws has met with failure, we need to take a long hard look at the small percentage of people like me who are fully employed, have families, pay our taxes regularly and outside of drug use, are fully functioning adults. The funny thing is that the two drugs [referring to alcohol and tobacco] that are legalized are far worse or at least as debilitating as the drugs that are legally prohibitive [sic]. Drug use is a personal choice and unless you are causing problems for other people, it should remain a personal choice. If I am using drugs on a particular night at home either by myself or with friends and we are not outside causing problems, we should not be in violation of any drug law or laws. Substances to get high have been around for hundreds and probably thousands of years, these substances that some of us like should not be any concern to others. Even my pet cat loves his catnip and appears to get a high from it; should I prohibit this little pleasure? I let him occasionally have it even if, for example, my neighbor thinks catnip is affecting the normal nature of my cat. How about if I get a rise from snorting or smoking one of the herbs in my kitchen cabinet? Whose business is it if I like to use herbs in this manner? Maybe we should also outlaw catnip and herbs? Again, drug use for whatever purpose is a personal decision and all the laws against the use of drugs are not going to stop me from using drugs. *(From Venturelli's research files, male residing in a Midwestern town, age 27, May 6, 2010)*

A third response to the same question:

> My drug use? Whose business is it anyway? As long as I don't affect your life when I do drugs, what business is it but my own? We come into the world alone and leave this world alone. I don't bother anyone else about whether or not so and so uses drugs, unless of course, their drug use puts me in jeopardy (like a bus driver or pilot high on drugs). On certain days when things are slow, I even get a little high on cocaine while trading stocks. These are the same clients who I have had for years and who really trust my advice. Ask my clients whether they are happy with my investment advice. I handle accounts with millions of dollars for corporations and even the board of education! Never was my judgment impaired or adversely affected because of too much coke. In fact, I know that I work even better under a little buzz. Now, I know this stuff has the potential to become addictive, but I don't let it. I know how to use it and when to lay off for a few weeks. *(From Venturelli's research files, male investment broker working in a major metropolitan city in California, age 48, June 2, 2000)*

A fourth response, to the same question, from an interviewee who recently moved from Indiana to Colorado:

> Well, things are changing regarding drug use purely for recreational purposes. I am referring to marijuana of course. In Colorado, marijuana is now legalized. I also think this is the way it should be not only in Colorado but also throughout the country. I can now actually see how state after state will eventually legalize marijuana. There will be holdout states, like usually deep southern states, but it's just a matter of time. I think it was Oakland, California, where by taxing the sale of marijuana, the city was collecting a nice amount of tax revenues from marijuana sales. If I am not in error, it was reported as millions of dollars they were collecting. Now, don't you think this alone will attract other cities and states to legalize and tax this drug in order to gain tax revenues, especially when state and city tax revenues are in dire need to increase revenue coming in? It won't be the spread of liberalism that will legalize marijuana; it will be common business sense that will get rid of the ridiculous laws outlawing marijuana use and sales. I have always smoked pot and nothing has ever stopped me. On top of this add the millions who feel the same way. If you don't want to use this drug to relax like others may use alcohol that is fine but leave the users alone and stop making law violators! It is still illegal and you [referring to this interviewer] and I know that all these laws and the millions upon millions spent on trying to stop marijuana drug users have not worked, so why keep this up? Again, why prohibit something that given its history cannot be stopped? *(From Venturelli's research files, male attorney, currently practicing law and residing in the state of Colorado, age 33, January 2, 2013)*

These four interviews reflect vastly contrasting views and attitudes about drug use. The first interview shows the most contrast from the second, third, and fourth interviews. The second, third, and fourth interviews show a similarity of views about drug use, largely from an insider's (the user's) perspective, indicative of a strong determination and belief that drug use should not be legally controlled and should be left to the discretion of users. Although much about these viewpoints can certainly be debated, an interesting finding is that such vastly different views about drug use are not only evident, but, more important, often divide drug users and nonusers. From a more social psychological standpoint, drug users and/or sympathizers of drug use are often considered **insiders** with regard to their drug use, whereas nonusers and/or those who are against drug use are **outsiders**. These two classifications result in very different sets of values and attitudes about drug usage. Such great differences of opinion and views about drugs and drug use often result from the following sources: (1) prior socialization experiences, such as family upbringing, relations with siblings, and types of peer group associations; (2) the amount of exposure to drug use and drug users; (3) the age of initial exposure to drug use; and (4) whether an attitude change has occurred regarding the acceptance or rejection of using drugs. Keep in mind that this text views the following four principal factors as affecting how a drug user experiences a drug:

- *Biological, genetic, and pharmacological factors*: Substance abuse and addiction involve biological and genetic factors. The pharmacology of drug use focuses on how the ingredients of a particular drug affect the body and the nervous system and, in turn, a person's experience with a particular drug.
- *Cultural factors*: Society's views of drug use, as determined by custom and tradition, affect our initial approach to and use of a particular drug.
- *Social factors*: The motivation for taking a particular drug is affected by needs such as diminishing physical pain; curing an illness; providing relaxation; relieving stress or anxiety; trying to escape reality; self-medicating; heightening awareness; wanting to distort and change visual, auditory, or sensory inputs; or strengthening confidence. Included in the category of social factors is the belief that attitudes about drug use develop from the values and attitudes of other drug users; the norms in their communities, subcultures, peer groups, and families; and the drug user's personal experiences with using drugs. (These are also known as influencing social factors.)
- *Contextual factors*: Specific contexts define and determine personal dispositions toward drug use, as demonstrated by moods and attitudes about such activity. Specifically, these factors encompass the drug-taking social behavior that develops from the physical surroundings where the drug is used. For example, drug use may be perceived as more acceptable at fraternity parties, while socializing with drug-using friends, outdoors in a secluded area with other drug users, in private homes, secretly at work, or at music concerts.

Paying attention to the cultural, social, and contextual factors of drug use leads us to explore the sociology and psychology of drug use. Equally important are the biological, genetic, and pharmacological factors and consequences that directly focus on why and how drugs may be appealing and how they affect the body—primarily the central nervous system and brain functions.

Although substances that affect both mind and body functioning are commonly called *drugs*, researchers in the field of drug or substance abuse use a more precise term: **psychoactive drugs (substances)**. Why the preference for using this term as opposed to *drugs*? Because the term *psychoactive drugs* is more precise regarding *how* drugs affect the body. This term focuses on how drugs affect the **central nervous system (CNS)**, the part of the nervous system composed of the spinal cord and brain that is responsible for integrating sensory information and responding accordingly. In particular, the term encompasses how psychoactive drugs alter mood, consciousness, thought processes, perception, and/or behavior. Psychoactive drugs can be used to treat physical, psychological, or mental illness. In addition, with continued use,

KEY TERMS

insiders
people on the inside; those who approve of and/or use drugs

outsiders
people on the outside; those who do not approve of and/or use drugs

psychoactive drugs (substances)
drug compounds (substances) that affect the central nervous system and alter consciousness and/or perceptions

central nervous system (CNS)
part of the nervous system composed of the spinal cord and brain that is responsible for integrating sensory information and responding accordingly

our bodies can tolerate increasingly larger doses of drugs, often resulting in the need for progressively greater amounts to achieve the same level of effect. For many substances, a user is at risk of moving from occasional to regular use or from moderate to heavy use, ultimately culminating in chronic use. A chronic user may then risk **addiction** (a mostly psychological attachment) and experience **withdrawal symptoms** that are physical and/or psychological in nature whenever the drug is not supplied.

Generally speaking, any substance that modifies the nervous system and state of consciousness is a **drug**. Such modification includes one or more of the following: enhancement, inhibition, or distortion of the body, affecting patterns of behavior and social functioning. Psychoactive drugs are classified as either **licit** (legal) or **illicit** (illegal). (See **Table 1** for a list of slang terms used by drug users.) For example, coffee, tea, cocoa, alcohol, tobacco, and **over-the-counter (OTC)** drugs are licit. When licit drugs are used in moderation, they often go unnoticed and are often socially acceptable. Marijuana, cocaine, crack, and all of the hallucinogenic types of drugs are examples of illicit drugs. With the exception of marijuana—which some states allow for medical use and small amounts for personal use—federal law continues to prohibit the possession and use of all of these drugs.


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Examples of illicit drugs that can become costly once drug dependence occurs.

Researchers have made some interesting findings about legal and illegal drug use:

- The use of legal substances such as alcohol and tobacco is much more common than the use of illegal drugs such as marijuana, cocaine, heroin, and hallucinogens (psychedelics). Other legal drugs, such as depressants and stimulants, although less popular than alcohol and tobacco, are still more widely used than heroin and LSD.
- The popular use of licit drugs, particularly alcohol and tobacco, has caused far more deaths, sickness, violent crimes, economic loss, and other social problems than the combined use of all illicit drugs. (See **Figure 1** for an illustrated comparison.)
- Societal reaction to various drugs changes with time and place. Today, opium is an illegal drug and widely condemned as a pan-pathogen (a cause of all ills). In the 18th and 19th centuries, however, it was a legal drug and was popularly praised as a panacea (a cure for all ills). Alcohol use was widespread in the United States in the early 1800s, became illegal during the 1920s, and then was legalized a second time and has been widely used since the 1930s. Cigarette smoking is legal in all countries today. In the 17th century, it was illegal in most countries, and smokers were sometimes harshly punished. For example, in Russia, smokers could lose their noses; in Hindustan (India), they could lose their lips; and in China, they could lose their heads (Thio 1983, 1995, 2000). Today, new emphasis in the United States

KEY TERMS

addiction
generally refers to the psychological attachment to a drug(s); addiction to "harder" drugs such as heroin results in both psychological and physical attachment to the chemical properties of the drug, with the resulting satisfaction (reward) derived from using the drug in question

withdrawal symptoms
psychological and physical symptoms that result when a drug is absent from the body; physical symptoms are generally present in cases of drug dependence to more addictive drugs such as heroin; physical and psychological symptoms of withdrawal include perspiration, nausea, boredom, anxiety, and muscle spasms

drug(s)
any substances that modify (either by enhancing, inhibiting, or distorting) mind and/or body functioning

licit drugs
legalized drugs such as coffee, alcohol, and tobacco

illicit drugs
illegal drugs such as marijuana, cocaine, and LSD

over-the-counter (OTC)
legalized drugs sold without a prescription

TABLE 1 A Sampling of 73,300 Slang Terms Relating to Drugs, Drug Use, and the Drug Trade

Slang Term	What It Means	Slang Term	What It Means
24-7	Crack cocaine	Blunt	Marijuana and/or cocaine inside a cigar
80	OxyContin pill	Boost and shoot	Steal to support a drug habit
714s	Methaqualone	Brain ticklers	Amphetamines
3750	Marijuana and crack rolled in a joint	Brown bombers	LSD
Abolic	Veterinary steroids	Brown sugar	Heroin
A-bomb	Marijuana cigarette with heroin or opium	Buddha	Potent marijuana spiked with opium
AC/DC	Codeine cough syrup	Bull dog	Heroin
Acid, acid cube	LSD, sugar cube with LSD	Bundle	Heroin
Acid freak	Heavy user of LSD	Ditch weed	Inferior quality marijuana
Adam	Methylenedioxymethamphetamine (MDMA)	Dr. Feelgood	Heroin
Air blast	Inhalants	Easy lay	Gamma hydroxybutyrate (GHB)
All star	User of multiple drugs	Fantasy	GHB
Amped	High on amphetamines	Flower flipping	Ecstasy (MDMA) mixed with mushrooms
Angel dust	PCP	Forget-me-drug	Rohypnol
Author	Doctor who writes illegal prescriptions	Fries	Crack cocaine
Baby habit	Occasional use of drugs	Garbage rock	Crack cocaine
Balloon	Heroin supplier; a penny balloon that contains narcotics	Hit the hay	Smoke weed
Bam	Amphetamine; depressants	Hippie crack	Inhalants
Barbies	Depressants	Hot ice	Smokable methamphetamine
Battery acid	LSD	Huff, huffing	Inhalants, to sniff an inhalant
Batu	Smokable methamphetamine	Ice cream habit	Occasional use of a drug
Beam me up, Scottie	Crack dipped in PCP	Idiot pills	Depressants
Beannies	Methamphetamine	Kiddie dope	Prescription drugs
Beast	Heroin, LSD	Lemonade	Heroin; poor quality drugs
Belladonna	PCP	Lunch money drug	Rohypnol
Bender	Drug party	Magic mushroom	Psilocybin/psilocin
Biker's coffee	Methamphetamine and coffee	Monkey dust	PCP
Bin Laden	Heroin (after 9/11)	Moon gas	Inhalants
Black beauties	Amphetamines, depressants	Mother's little helper	Depressants
Blasted	Under the influence of drugs	Nose candy	Cocaine
Blow your mind	Getting high on hallucinogens	Paper boy	Heroin peddler

(continues)

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Blow your mind	Getting high on hallucinogens	Paper boy	Heroin peddler

(*continues*)

TABLE 1 A Sampling of 73,300 Slang Terms Relating to Drugs, Drug Use, and the Drug Trade (*continued*)

Slang Term	What It Means	Slang Term	What It Means
Pepsi habit	Occasional use of drugs	Tornado	Crack cocaine
Pony	Crack cocaine	Totally spent	Hangover after MDMA
Ringer	Good hit of crack, to hear bells	Water-water	Marijuana cigarettes dipped in embalming fluid or laced with PCP
Shot	To inject a drug, an amount of coke	West Coast	Ritalin (ADHD drug)
Soda	Injectable cocaine	Working man's cocaine	Methamphetamine
Special "K"	Ketamine	Zig Zag man	Marijuana rolling papers
Strawberry	LSD; female who trades sex for crack or money to buy crack	Zombie	PCP; heavy user of drugs
The devil	Crack cocaine	Zoom	Marijuana laced with PCP

Reproduced from Office of National Drug Control Policy (ONDCP). *Street Terms: Drugs and the Drug Trade.* Washington, DC: Office of National Drug Control Policy, 2016. Available http://www.streetlightpublications.net/misc/ondcp.htm

FIGURE 1 Cigarette smoking and exposure to tobacco smoke cause approximately 480,000 premature deaths annually in the United States (includes deaths from secondhand smoke; 278,544 deaths annually among men and 201,773 deaths annually among women). In the United States, more than 88,000 deaths each year are caused by excessive alcohol consumption (direct and indirect causes of death include drunk driving, cirrhosis of the liver, falls, cancer, and stroke). The 17,000 yearly death rate due to illicit drug use is significantly lower in comparison to yearly alcohol and tobacco death rates. Moreover, the average American is 25 times more likely to die from tobacco-related illnesses (cardiovascular diseases, respiratory diseases, and cancer) than from illicit drug-related illnesses. More deaths are caused each year by tobacco use than by all deaths from human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders combined. Americans are five times more likely to die from alcohol-related illnesses than from illicit drug use.

Data from Mokdad, A. H., J. S. Marks, D. F. Stroup, and J. L. Gerberding. "Actual Causes of Death in the United States, 2000." *Journal of the American Medical Association (JAMA)*, 291 (10 March 2004):1238–1245; Centers for Disease Control and Prevention (CDC). "Smoking and Tobacco Use: Tobacco-Related Mortality." 2015a. Available http://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/tobacco_related_mortality/; Centers for Disease Control and Prevention (CDC). "Fact Sheets—Alcohol Use and Your Health." 2015b. Available http://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm; Centers for Disease Control and Prevention (CDC). "2013 Mortality Multiple Cause Micro-Data Files." Atlanta, GA: Centers for Disease Control and Prevention, 2014.

on the public health hazards from cigarettes again is leading some people to consider new measures to restrict or even outlaw tobacco smoking.

Table 2 introduces some of the terminology that you will encounter throughout this text. It is important that you understand how the definitions vary.

TABLE 2 Commonly Used Terms

Term	Description
Gateway drugs	The word *gateway* suggests a path or entryway leading to an entrance. Gateway is a theory that the early use of alcohol, tobacco products, and marijuana (the most heavily used illicit type of drug) leads to the use of more powerfully addictive drugs such as cocaine, heroin, and highly addictive prescription medicines.
Medicines	Compounds generally prescribed by a physician that treat, prevent, or alleviate the symptoms of disease. (These can also include over-the-counter [OTC] drugs purchased at pharmacies.)
Prescription medicines	Drugs that are prescribed by a physician. Common examples include antibiotics, antidepressants, and drugs prescribed to relieve pain, induce stimulation, or induce relaxation. These drugs are taken under a physician's recommendation because they are more potent than OTC drugs. In the United States, on a yearly basis, physicians write approximately 4.0 billion prescriptions (The Henry J. Kaiser Family Foundation 2015), with sales totaling $374 billion in 2015 (Chicago Tribune 2015).
Over-the-counter (OTC)	OTC drugs can be purchased at will without seeking medical advice or a prescription. Examples include aspirin, laxatives, diet pills, cough suppressants, and sore throat medicines. Approximately 1000 active ingredients are used in the more than 100,000 OTC products available in the marketplace today (Consumer Healthcare Products Association [CHPA] 2012), and it is estimated that there are more than 300,000 marketed OTC drug products (U.S. Food and Drug Administration 2015). In 2010, $23 billion was spent in the United States on OTC medicines* (CHPA 2012).
Drug misuse	The unintentional or inappropriate use of prescribed or OTC drugs. Misuse includes, but is not limited to, (I) taking more drugs than prescribed; (2) using OTC or psychoactive drugs in excess without medical supervision; (3) mixing drugs with alcohol or other drugs, often to accentuate euphoric effects or simply not caring about the effects of mixing drugs; (4) using old medicines to self-treat new symptoms of an illness or ailment; (5) discontinuing certain prescribed drugs at will or against a physician's recommendation; and (6) administering prescription drugs to family members or friends without medical approval and supervision.
Drug abuse	Also known as *chemical or substance abuse*. The willful misuse of either licit or illicit drugs for recreation, perceived necessity, or convenience. Drug abuse differs from drug use in that drug use is taking or using drugs, whereas drug abuse is a more intense and often willful misuse of drugs, often to the point of becoming addicted.
Drug addiction	Drug addiction involves noncasual or nonrecreational drug use. A frequent symptom is intense psychological preoccupation with obtaining and consuming drugs. Most often psychological and—in some cases, depending on the drug—physiological symptoms of withdrawal are manifested when the craving for the drug is not satisfied. Today, more emphasis is placed on the psychological craving (mental attachment) to the drug than on the more physiologically based withdrawal symptoms of addiction.

*This amount excludes OTC sales by Walmart and does not include vitamins, minerals, and nutritional supplements.

Data from The Henry J. Kaiser Family Foundation. "Total Number of Retail Prescription Drugs Filled at Pharmacies." Kaiser Family Foundations, 2016. Available http://kff.org/other/state-indicator/total-retail-rx-drugs/?currentTimeframe=0&sortModel=%7B"colId": "Location","sort":"asc"%7D;Tribune Wire Reports. "U.S. Prescription Drug Spending Jumps to Record $374 Billion." *Chicago Tribune*, 14 April 2015. Available http://www.chicagotribune.com/business/ct-drug-spending-0415-biz-20150414-story.html; U.S. Food and Drug Administration. "Drug Applications for Over-the-Counter (OTC) Drugs." 2015. Available http://www.fda.gov/drugs/developmentapprovalprocess/howdrugsaredevelopedandapproved/approvalapplications/over-the-counterdrugs/default.htm; Consumer Healthcare Products Association (CHPA). "The Value of OTC Medicine to the United States." Washington, DC: Booz&Co and Consumer Healthcare Productions Association, 2012. Available http://www.yourhealthathand.org/images/uploads/The_Value_of_OTC_Medicine_to_the_United_States_BoozCo.pdf

Major Types of Commonly Abused Drugs

The six types of major drugs in use are (1) prescription drugs, (2) over-the-counter drugs, (3) recreational drugs (e.g., coffee, tea, alcohol, tobacco, and chocolate), (4) illicit drugs, (5) herbal preparations (generally derived from plants), and (6) commercial drugs (paints, glues, pesticides, and household cleaning products).

To begin, we now briefly examine the major drugs of use and often abuse. The drugs examined next are prescription drugs, performance-enhancing drugs, stimulants, bath salts, hallucinogens (psychedelics) and other similar compounds, depressants, alcohol, nicotine, cannabis (marijuana and hashish), synthetic cannabis (Spice and K2), anabolic steroids, inhalants/organic solvents, narcotics/opiates, and designer drugs/synthetic drugs and synthetic opioids. A brief overview of each is provided.

Prescription and Performance-Enhancing Drugs

In the United States, young people frequently abuse prescription drugs; the only illicit drug that is abused more frequently is marijuana (Center for Behavioral Health Statistics and Quality [CBHSQ] 2015). In 2015, 2.5% of illicit drug users, more than 6.5 million people aged 12 or older, used prescription-type psychotherapeutic drugs nonmedically.

> *Misuse and abuse of prescription medicine continues to be the third most prevalent drug abuse behavior measured among teens, following use of marijuana and alcohol. In addition, Hispanic and African American teens are more likely to report misusing or abusing prescription drugs compared to their Caucasian counterparts, with 27% of Hispanics, 29% of African Americans, and 20% of Caucasians reporting use (Partnership for Drug-Free Kids and MetLife Foundation 2013).*

An estimated 655,000 adolescents aged 12 to 17 were current nonmedical users of prescription-type psychotherapeutic drugs in 2014. This number corresponds to 2.6% of adolescents. Similarly, with regard to nonmedical use of prescription-type psychotherapeutic drugs among young adults aged 18 to 25, in 2014 an estimated 1.6 million were current users, which corresponds to 4.4% of young adults (CBHSQ 2015). By comparison, 8.4% of the population aged 12 or older were current users of marijuana.

KEY TERM

opioids
drugs derived from opium

A number of national studies and published reports indicate that the intentional abuse of prescription drugs such as pain relievers, tranquilizers, stimulants, and sedatives to get high is a growing concern—particularly among teens—in the United States. Psychotherapeutic drugs warrant special attention, given that they now make up a significantly larger part of the overall U.S. drug problem than was true 10 to 15 years ago. This is, in part, because use increased for many prescription drugs over that period and because use of a number of street drugs has declined substantially since the middle to late 1990s. It seems likely that young people are less concerned about the dangers of using these prescription drugs outside of a medical regimen because they are widely used for legitimate purposes. (Indeed, the low levels of perceived risk for sedatives and amphetamines observed among 12th graders illustrate this point.) Also, prescription psychotherapeutic drugs are now being advertised directly to the consumer, which implies that they are both widely used and safe to use (Johnston et al. 2016).

In fact, among young people ages 12 to 17 prescription drugs have become the second most abused illegal drug, behind marijuana (CBHSQ 2015). The National Institute on Drug Abuse (NIDA 2014a and CBHSQ 2015) reported that its national survey found that 20% of high school students said they had taken a drug such as Ritalin, Xanax, or OxyContin without having a doctor's prescription, and, according to the Centers for Disease Control and Prevention (CDC 2010), one in five U.S. high school students have taken a prescription drug without a doctor's prescription. In 2014, Adderall and Vicodin were the two prescription drugs abused most often by adolescents (NIDA 2014a).

Three categories of prescription drugs that are currently abused are narcotics, depressants, and stimulants. Narcotics (e.g., OxyContin, Vicodin, Percocet) include analgesics or **opioids** that are generally prescribed for physical pain. Abuse occurs when they are used nonmedically because of their euphoric and numbing effects. Depressants (e.g., Xanax, Valium, Librium) are generally used to treat anxiety and sleep disorders. These drugs are abused because of their sedating properties. Stimulants (e.g., Ritalin, Dexedrine, Meridia) are used to treat attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD), and asthma. These drugs are abused because of their euphoric effects and energizing potential.

The two drugs in the stimulants category that are most often abused are Ritalin (methylphenidate hydrochloride) and Adderall (amphetamine). These prescription drugs are legitimately prescribed for ADHD, ADD, and narcolepsy (a sleep disorder) (Center for Substance Abuse Research [CESAR] 2003). When used nonmedically, they are taken orally as tablets or the tablets are crushed into a powder and snorted (a far more popular method). Students often illegally purchase these tablets for $5 each from other students who have a legal prescription for the medication.

> I feel like Dr. Pill. All these brothers [fraternity brothers] are always looking for me at parties so that I can sell them a few tabs. What the heck, I make extra money selling Ritalin, enough to buy essentials like beer and cigarettes. *(From Venturelli's research files, male undergraduate student at a Midwestern university, age 20, December 9, 2004)*

And,

> Funny how when I go back to the frat house during homecoming there are other undergrads who have taken over my business and continue to sell their prescribed Ritalin mostly for partying. *(A second interview with the same former student, age 26, now employed in real estate, October 2, 2010)*

These drugs often are used in conjunction with alcohol or marijuana to enhance the high or for staying awake to increase comprehension and remain focused while reading or studying for an exam (CESAR 2003). Both prescription drugs (Ritalin and Adderall) are readily available and can be easily obtained by teenagers, who may abuse these drugs to experience a variety of desired effects. Increasingly, younger adolescents are obtaining prescription drugs from classmates, friends, and family members or are stealing the drugs from school medicine dispensaries and from other people for whom the drug has been legitimately prescribed.

Ritalin, Adderall, and other stimulant abusers tend to be late middle school, high school, and college students. Other findings regarding teen abuse of stimulants Ritalin and Adderall include the following (Partnership for Drug-Free Kids 2016):

- One in eight teens (about 2.7 million) report having misused or abused Ritalin or Adderall at least once in their lifetime.
- 9% of teens (about 1.9 million) report having misused or abused Ritalin or Adderall in the past year.
- One in four teens (26%) believe that prescription drugs can be used as a study aid.
- Almost one-third of parents (29%) say they believe that ADHD medication can improve a child's academic or testing performance, even if the teen does not have ADHD.
- One in six parents (16%) believe that using prescription drugs to get high is safer than using street drugs.
- More than half of teens (56%) indicate that it is easy to get prescription drugs from their parents' medicine cabinet. In fact, about half of parents (49%) say anyone can access their medicine cabinet.

In addition, the Partnership for Drug-Free Kids and MetLife Foundation (2013) note that Hispanic and African American teens are more likely to report misusing or abusing prescription drugs compared to their white counterparts, with 27% of Hispanics, 29% of African Americans, and 20% of Caucasians reporting use.

With regard to college students using Adderall, the findings include the following (Muir Wood 2016):

- Full-time college students were twice as likely as non–full-time college students to abuse Adderall.
- About 6.4% of college students admitted to unauthorized Adderall use in 2006–2007.
- College students who abused Adderall were three times as likely to abuse marijuana, eight times as likely to abuse prescription tranquilizers, and five times as likely to abuse prescription painkillers.
- Cocaine use is more common among college students who use Adderall, and students who use both drugs face an increased risk of heart attack, heart problems, and stroke.

Stimulants

Some stimulants can be considered to be **gateway drugs** (see definition in Table 2); these substances act on the CNS by increasing alertness, excitation, euphoria, pulse rate, and blood pressure. Insomnia and loss of appetite are common outcomes. The user initially experiences pleasant effects, such as a sense of increased energy and a state of euphoria, or "high." In addition, users feel restless and talkative and have trouble sleeping. High doses used over the long term can produce personality changes. Some of the psychological risks associated with chronic stimulant use include violent, erratic, or paranoid behavior. Other effects can include confusion, anxiety, and depression and loss of interest in sex or food. *Major stimulants* include amphetamines, cocaine and crack, methamphetamine (meth), and methylphenidate (Ritalin). *Minor stimulants* include, cocoa, theophylline, theobromine, sugar, caffeine, and nicotine (the most addictive minor stimulant).

Bath Salts

Bath salts are a designer drug that contains substituted cathinones; they produce similar effects as amphetamines and cocaine (Coppola and Mondola 2012; Spiller et al. 2011). The usual method of taking this drug is sniffing or snorting, but it can also be taken orally, smoked, or mixed with a solution and then injected into a vein. According to Dr. Mark Ryan, director of the Louisiana Poison Center, bath salts are "the worst drug" he has seen in his 20 years there, noting that "with LSD, you might see pink elephants, but with this drug, you see demons, aliens, extreme paranoia, heart attacks, and superhuman strength like Superman. . . . If you had a reaction, it was a bad reaction" (Vargas-Cooper 2012, p. 60). Other reactions include "very severe paranoia, suicidal thoughts, agitation, combative/violent behavior, confusion, hallucination/psychosis, increased heart rate, hypertension, chest pain, death or serious injury. The speed of onset is 15 minutes, while the length of the high from these drugs is 4–6 hours" (Partnership at DrugFree.Org 2013). In October 2011, these synthetic stimulants were listed as Schedule I substances under the Controlled Substances Act. The Drug Enforcement Administration (DEA) classifies illicit drugs under Schedules I through V, largely depending on their abuse potential. Synthetic stimulants are classified as Schedule I drugs, meaning that they have a high potential for abuse.

Hallucinogens/Psychedelics and Other Similar Drugs

Whether synthetic or grown naturally, hallucinogens and psychedelic drugs produce a very intense alteration of perceptions, thoughts, and feelings. They most certainly influence the complex inner workings of the human mind, causing users to refer to these drugs as psychedelics (because they cause hallucinations or distortion of reality and thinking). In addition to amplifying states of mind, hallucinogens induce a reality that is reported to be qualitatively different from that of ordinary consciousness. For example, while the user is under their influence, these drugs can affect the senses of taste, smell, hearing, and vision. Tolerance to hallucinogens builds very rapidly, which means that increasing amounts of this drug are needed for similar effects. Hallucinogens

Courtesy of DEA.

Packets of bath salts sold in head shops.

KEY TERM

gateway drugs
alcohol, tobacco, and marijuana—types of drugs that when used excessively may lead to using other and more addictive drugs such as cocaine, heroin, or "crack"

Courtesy of DEA.

include LSD, mescaline, **MDMA** (Ecstasy), phencyclidine (PCP), psilocybin or "magic mushrooms," ketamine, and the more potent (hybrid) varieties of marijuana, hashish, and opium that are smoked.

■ Depressants

These drugs depress the CNS. If taken in a high enough quantity, they produce insensibility or stupor. Depressants are also taken for some of the same reasons as hallucinogens, such as to relieve boredom, stress, or anxiety. In addition, the effects of both opioids (drugs that are derived from opium) and morphine derivatives appeal to many people who are struggling with emotional problems and looking for physical and emotional relief, and in some cases to induce sleep. Depressants include alcohol (ethanol), barbiturates, benzodiazepines (such as diazepam [Valium]), and methaqualone (Quaalude).

■ Alcohol

Known as a gateway drug, **ethanol** is a colorless, volatile, and pungent liquid produced through the fermentation of grains, berries, or other fruits and vegetables. Alcohol is a depressant that mainly affects the CNS. Excessive amounts of alcohol often cause a progressive loss of inhibitions, flushing and dizziness, loss of coordination, impaired motor skills, blurred vision, slurred speech, sudden mood swings, vomiting, irregular pulse, and memory impairment. Chronic heavy use may lead to high blood pressure, arrhythmia (irregular heartbeat), and cirrhosis (severe liver deterioration).

■ Nicotine

Nicotine is also considered a gateway drug. It is a very addictive, colorless, highly volatile liquid alkaloid found in all tobacco products, including cigarettes, chewing tobacco, pipe tobacco, and cigars. Because nicotine is highly addictive and tobacco use is still socially acceptable under certain circumstances, smokers often start young and have a very difficult time quitting. Long-term use of tobacco products can lead to several different chronic respiratory ailments and cancers.

■ Cannabis (Marijuana and Hashish)

Cannabis is the most widely used illicit drug[*] in the United States. Marijuana consists of the dried and crushed leaves, flowers, and seeds of the *Cannabis sativa* plant, which readily grows in many parts of the world. Delta-9-tetrahydrocannabinol (THC) is the primary psychoactive, mind-altering ingredient in marijuana that produces euphoria (often referred to as a "high"). Plant parts (mainly the leaves and buds of the plant) are usually dried, crushed, and smoked much like tobacco products. Other ways of ingesting marijuana include finely crushing the leaves and mixing them into the butter or oil that goes into cookie or brownie batter and baking the batter. Another current derivative is **marijuana wax**, also known as wax or ear wax, butter, honey oil, shatter, BHO (which stands for "butane honey oil" or "butane hash oil"), and dabs. To date, this is one of the most powerful and the most potent (80% pure THC) types of marijuana on both the illegal and legal drug markets (in states where marijuana has either been decriminalized or medically sanctioned), with smoking or vaporizing this type of marijuana leading to a "quicker, stronger high" (Kimble 2013). Finally, hashish is a cannabis derivative that contains the purest form of resin and also has very high amounts of THC.

■ Designer Drugs/Synthetic Drugs or Synthetic Opioids

In addition to the most commonly abused illicit drug categories just described, innovations in technology have produced new categories known as **designer drugs/synthetic drugs or synthetic opioids**. These relatively new types of drugs are developed by people who seek to circumvent the

KEY TERMS

MDMA
a type of illicit drug known as Ecstasy or Adam and having stimulant and hallucinogenic properties

ethanol
the pharmacological term for alcohol; a consumable type of alcohol that is the psychoactive ingredient in alcoholic beverages; often called grain alcohol

marijuana wax
a more recent, extremely potent cannabis product with approximately 80% THC levels made by using butane to extract the THC, producing a "waxy" residue that is smoked or vaporized that is highly hallucinogenic, often resulting in high levels of physical and mental impairment

designer drugs/synthetic drugs or synthetic opioids
new drugs that are developed by people intending to circumvent the illegality of a drug by modifying a drug into a new compound; Ecstasy is an example

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[*] Federal law specifies that Cannabis is an illicit drug while state laws in 25+ states have currently legalized this drug.

Courtesy of DEA.

Designer pills made from the illicit drug Ecstasy. This drug has some stimulant properties like amphetamines as well as hallucinogenic properties like LSD.

illegality of a drug by modifying the drug into a new compound. Ecstasy is an example of a designer drug/synthetic drug or synthetic opioid. Such drugs are created as **structural analogs** of substances already scheduled and legally prohibited under the Controlled Substances Act. Structural analogs are the drugs that result from altered chemical structures of already existing illicit drugs. Generally, these drugs are created by an underground chemist whose goal is to make a profit by creating compounds that mimic, change, or intensify the psychoactive effects of controlled substances. The number of designer drugs that are created and sold illegally is very large.

Anyone with knowledge of college-level chemistry can alter the chemical ingredients and produce new designer drugs, although it may be nearly impossible to predict their properties or effects except by trial and error. Currently, three major types of synthetic analog drugs are available through the illicit drug market: analogs of PCP; analogs of fentanyl and meperidine (both synthetic narcotic analgesics), such as Demerol or MPPP (also called MPTP or PEPAP); and analogs of amphetamine and methamphetamine (which have stimulant and hallucinogenic properties), such as MDMA, known as Ecstasy or Adam, which is widely used on college campuses as a euphoriant.

The production of these high-technology psychoactive substances is a sign of the new levels of risk and additional challenge to the criminal justice system. As the production and risk associated with the use of such substances increase, the need for a broader, better-informed view of drug use becomes even more important than in the past.

KEY TERM

structural analogs

a new molecular species created by modifying the basic molecular skeleton of a compound; structural analogs are structurally related to the parent compound

SYNTHETIC CANNABIS: SPICE AND K2

Synthetic marijuana is made by mixing a raw Schedule I drug and analogue powder chemicals with surfactants, acetone, and glue and then spraying it with *damiana*, a dried vegetable matter, to create a product that can be smoked. To manufacture bath salts, Schedule I drugs and analogues are mixed and cut with adulterants and then packaged for snorting or ingesting (U.S. Department of Justice 2016).

Synthetic cannabinoids are substances that are designed to affect the body in a manner similar to marijuana but that are not derived from the marijuana plant (Office of National Drug Control Policy [ONDCP] 2013b). They are most often smoked like marijuana. Street names for synthetic cannabis include Spice, K2, Mr. Smiley, Red X Dawn, and Blaze. "A package of K2, a synthetic marijuana, is a concoction of dried herbs sprayed with chemicals, used in the herbal blends that are sold in head shops on the Internet to a growing number of teens and young adults" (Caldwell 2010, p. 30). Many of the contents are listed as inactive on the product packaging (DEA 2012). A retired organic chemistry researcher from Clemson University reports such medical problems from synthetic cannabis use as "overdoses, cases of addiction, and even suicide" (Caldwell 2010, p. 30).

Courtesy of DEA.

K2 contains synthetic cannabinoids that affect the body in similar fashion as marijuana.

K2 and Spice are generic trademarks that first went on sale in 2000, initially as legal herbs. Several years later, it was discovered that they contained synthetic cannabinoids that affected the body in a similar fashion as marijuana (cannabis). In July 2012, federal law placed this drug under Schedule I, making it an illegal drug with the highest abuse potential. The illegality of this drug removed it from retail sales.

As mentioned, prior to 2012, Spice was sold as a legal herb-based alternative to cannabis. The ingredients list contained only herbs, with no cannabinoid constituents; however, the listed ingredients seemed suspiciously unlikely to produce the drug's reported effects. Herbs listed on packages of Spice included *Nymphaea caerulea, Leonotis leonurus, Zornia latifolia, Canavalia maritima, Scutellaria nana, Pedicularis densiflora, Nelumbo nucifera*, and *Leonurus sibiricus*. A lab in Germany tested for the presence of these ingredients, and they were not found. Numerous other organizations have now tested the material, and three chemicals have been identified in various Spice products, including JWH-018, HU-210, and a homologue of CP-47,497 (Erowid Center 2013). In addition to these three chemicals, which were recently outlawed under the jurisdiction of the Emergency Controlled Substances Act, the following have also been added as controlled substances: AM678, JWH-019, JWH-200, JWH-250, JWH-081, JWH-122, JWH-398, AM2201, AM694, SR-19 and RCS-4, SR-18 and RCS-8, and JWH-203 (Erowid Center 2013).

Another study indicated that the following have been found in samples of Spice (U.S. Department of Justice 2011):

- *CP-47,497*: A synthetic cannabinoid agonist without the classical cannabinoid chemical structure. Although CP-47,497 is likely to have similar effects in humans as delta-9-tetrahydrocannabinol (Δ9-THC), the main active ingredient of marijuana, CP-47,497 and its homologues are now a controlled substance classified as a Schedule I drug in the United States.
- *HU-210 and HU-211*: First synthesized around 1988, these are structurally and pharmacologically similar to Δ9-THC. HU-210 was recently purported to be found in the herbal mixture Spice, sold in European countries mainly via Internet shops. HU-210 is a Schedule I controlled substance in the United States; HU-211 is not a controlled substance in the United States, although it may fall under the federal Analogue Act of outlawed drugs because it is categorized as a THC substance and is similar to those THC substances that occur naturally in marijuana.
- *JWH-018, JWH-073, and JWH-074*: These are synthetic cannabinoid agonists without the classic cannabinoid chemical structure. The substances have been identified in herbal products such as Spice, K2, and others sold via the Internet and head shops. Although JWH-018, JWH-073, and JWH-074 are likely to have the same effects in humans as Δ9-THC, they are not controlled in the United States.

The U.S. Army, U.S. Marines, U.S. Air Force, and U.S. Navy have also outlawed this drug, and violators risk immediate expulsion from service and incarceration. (For information regarding the extent of Spice use, see "Here and Now: Spice/K2: Past and Current Usage Rates.")

HERE AND NOW

Spice/K2: Past and Current Usage Rates

Spice, also known as herbal incense, is dried, shredded plant material treated with a cannabinoid analog. Although labels on spice products will list the ingredients as "natural" psychoactive plant products, chemical analyses show that their active ingredients are primarily synthetic cannabinoids added to the plant material. These synthetic analogs function similarly to the active ingredient in marijuana, delta-9-tetrahydrocannabinol (Δ9-THC) (Substance Abuse and Mental Health Services Administration [SAMHSA] 2014).

K2 and Spice are two names for a more recently created psychoactive designer drug whose dried, leafy, natural herbs are sprayed with a psychoactive chemical; it is then smoked so the user can experience euphoric effects. In 2011, prior to the Synthetic Drug Abuse Prevention Act being signed into law, one in nine U.S. high school seniors reported having used synthetic marijuana. A large sample survey found that annual prevalence was 11.4%, ranking synthetic marijuana as the second most widely used class of illicit drug after marijuana among 12th graders (Johnston et al. 2013). In 2012, use among 12th graders remained virtually unchanged at 11.3%. Eighth, 10th, and 12th graders were asked if they associated a great risk with trying synthetic marijuana once or twice; the results showed that there was quite a low level of perceived

(*continues*)

HERE AND NOW

Spice/K2: Past and Current Usage Rates (*continued*)

risk (only 23% and 25%, respectively, thought there was great risk in using once or twice).

Another study at a large public university in the state of Georgia between November 2011 and March 2012 found that 14% of undergraduate students reported synthetic cannabinoid use, with the highest level of use among male students largely identifying with the lesbian, gay, bisexual, or transgender (LGBT) community (CESAR 2013). This was the first known study to obtain a detailed profile of users of any type of synthetic cannabinoid. Findings indicated the following:

1. The average age of first use was 18 years.
2. The percentage ever using synthetic cannabinoids was twice as high for males as for females (19% vs. 9%).
3. Heavier users were more likely to identify themselves as LGBT; significantly less usage was found in students identifying themselves as heterosexual (27% vs. 14%).

More current findings are that "[e]fforts at the federal and state levels to close down the sale of these substances appear to be having an effect" (Johnston et al. 2015). Use fell by a statistically significant amount in 2015 for the three grades combined (8th, 10th, and 12th graders). The percentages of students saying they used any synthetic marijuana in the past 12 months now stand at 3%, 4%, and 5% in grades 8, 10, and 12, respectively—down considerably from the 4%, 9%, and 11% observed in those same grades in 2012. According to the authors of the study, "While there has been some increase in the proportion of students seeing use of this drug as dangerous, it hardly seems enough to account for the considerable declines in use, which leads us to conclude that efforts to reduce availability have been successful to some degree" (Johnston et al. 2015).

Data from Johnston, L. D., P. M. O'Malley, J. G. Bachman, and J. E. Schulenberg. *Monitoring the Future National Results on Drug Use: 2012 Overview, Key Findings on Adolescent Drug Use*. Ann Arbor, MI: Institute for Social Research, The University of Michigan, 2013; Center for Substance Abuse Research (CESAR). "Study Finds that 14% of Undergraduate Students at a Southeastern University Report Synthetic Cannabinoid Use; Users More Likely to Be Male and Identify as LGBT." *CESAR FAX* (20 May 2013). Available http://www.cesar.umd.edu; Johnston, L. D., P. M. O'Malley, R. A. Miech, J. G. Bachman, and J. E. Schulenberg. *Monitoring the Future National Survey Results on Drug Use, 1975–2015: Overview. Key Findings on Adolescent Drug Use*. Ann Arbor, MI: Institute for Social Research, The University of Michigan, February 2016.

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Inhalants. These volatile chemicals, which include many common household substances, are often the most dangerous drug, per dose, a person can take. In addition, inhalants are most often used by young children.

■ Anabolic Steroids

Steroids are a synthetic form of the male hormone testosterone. They are often used to increase muscle size and strength. Medically, steroids are used to increase body tissue, treat allergies, or reduce swelling. Steroids are available in either liquid or pill form. Athletes have a tendency to use and abuse these drugs because dramatic results can occur with regard to increased body mass and muscle tissue. Some side effects include heart disease, liver cancer, high blood pressure, septic shock, impotence, genital atrophy, manic episodes, depression, violence, and mood swings.

■ Inhalants/Organic Solvents

Inhalants and organic solvents also are often considered gateway drugs and are very attractive to and popular among preteens and younger teenagers. Products used include gasoline, model airplane glue, and paint thinner. When inhaled, the vapors from these solvents can produce euphoric effects. Organic solvents can also refer to certain foods, herbs, and vitamins, such as "herbal Ecstasy."

■ Narcotics/Opiates

These drugs depress the CNS and, if taken in a high enough quantity, produce insensibility or stupor. Narcotics or opiates are highly addictive. Narcotics include heroin, opium, morphine, codeine, meperidine (often a substitute for morphine, also known as Demerol), Darvon, and Percodan.

An Overview of Drugs in Society

Many people think that problems with drugs are unique to this era. In reality, drug use and abuse have always been part of nearly all—past and present—human societies. For example, the Grecian oracles of Delphi used drugs, Homer's Cup of Helen induced sleep and provided freedom from care, and the mandrake root mentioned in the first book of the Bible, Genesis, produced a hallucinogenic effect. In Genesis 30:14–16, the mandrake is mentioned in association with bartering for lovemaking:

> In the time of wheat harvest Reuben went out, found some mandrakes in the open country, and brought them to his mother Leah. Then Rachel asked Leah for some of her son's mandrakes, but Leah said, "Is it so small a thing to have taken away my husband, that you should take my son's mandrakes as well?" However, Rachel said, "Very well, let him sleep with you tonight in exchange for your son's mandrakes." So when Jacob came in from the country in the evening, Leah went out to meet him and said, "You are to sleep with me tonight; I have hired you with my son's mandrakes." That night he slept with her.

Ancient literature is filled with references to the use of mushrooms, datura, hemp, marijuana, opium poppies, and so on. Under the influence of some of these drugs, many people experienced extreme ecstasy or sheer terror. Some old pictures of demons and devils look very much like those described by modern drug users during so-called bummers, or bad trips. The belief that witches could fly may also have been drug induced because many natural preparations used in so-called witches' brews induced the sensation of dissociation from the body, as in flying or floating.

As far back as 2240 BC, attempts were made to regulate drug use. For instance, in that year, problem drinking was addressed in the Code of Hammurabi, where it was described as "a problem of men with too much leisure time and lazy dispositions." Nearly every culture has experienced drug abuse, and as found in the historical record, laws were enacted to control the use of certain types of drugs.

■ How Widespread Is Drug Abuse?

As mentioned earlier, drug abuse today is more acute and widespread than in any previous age (see "Here and Now: Numbers of Past Month: Illicit Drug Users and Illicit Drug Use Among People Aged 12 or Older by Age Group"). The evidence for this development is how often large quantities of illicit drugs are seized in the United States as well as throughout the world (see "Here and Now: *The World Factbook*: Current Global Status of Illicit Drugs and Drug Use"). Media exposure about illicit drug use is more likely to occur today than in the past. On any given day, you can scan most major national and international newspapers and run across stories about illegal drug manufacture, storage and distribution, use and/or abuse, and convictions. Drug use is an "**equal-opportunity affliction**." This means that no one is immune from the use and/or abuse of both licit and illicit drugs. Research shows that drug consumption is found across the many different

Courtesy of the Advertising Council.

Although the media is often credited with glamorizing dangerous drug use, many successful prevention campaigns have used TV, radio, and print media as outlets. Since the Advertising Council began their "Friends Don't Let Friends Drive Drunk" campaign, 79% of Americans have stopped an intoxicated friend from getting behind the wheel.

KEY TERM

equal-opportunity affliction
refers to the use of drugs, stressing that drug use cuts across all members of society regardless of income, education, occupation, social class, or age

income, education, social class, occupation, race and ethnic, lifestyle, and age groups. To date, no one has proved to be immune from drug use and/or abuse.

Many of us, for example, are dismayed or surprised when we discover that certain individuals we admire—our family members (a mother, father, aunt, uncle, cousin, grandparent), close friends, workmates, celebrities, politicians, athletes, clergy, law enforcement personnel, physicians, academics, and even the seemingly upstanding man or woman next door—either admit to, are accused of, need treatment for, or are arrested for licit and/or illicit drug use. We are also taken aback when we hear that cigarettes, alcohol, and marijuana abuse are commonplace in many public and private middle schools. Furthermore, most of us know of at least one (and many times more than one) close friend or family member who appears to secretly or not so secretly use drugs.

HERE AND NOW

Numbers of Past-Month Illicit Drug Users and Age Groups by People Aged 12 and Older, 2014

In 2014, an estimated 27 million Americans aged 12 or older were current (past-month) illicit drug users, meaning that they had used an illicit drug during the month prior to the survey interview (**Figure A**). The most commonly used illicit drug in the past month was marijuana, which was used by 22.2 million people aged 12 or older. An estimated 6.5 million people reported nonmedical use of psychotherapeutic drugs in the past month, including 4.3 million nonmedical users of prescription pain relievers. Thus, the number of current nonmedical users of pain relievers was second to marijuana among specific illicit drugs. Smaller numbers of people in 2014 were current users of the other illicit drugs shown in Figure A.

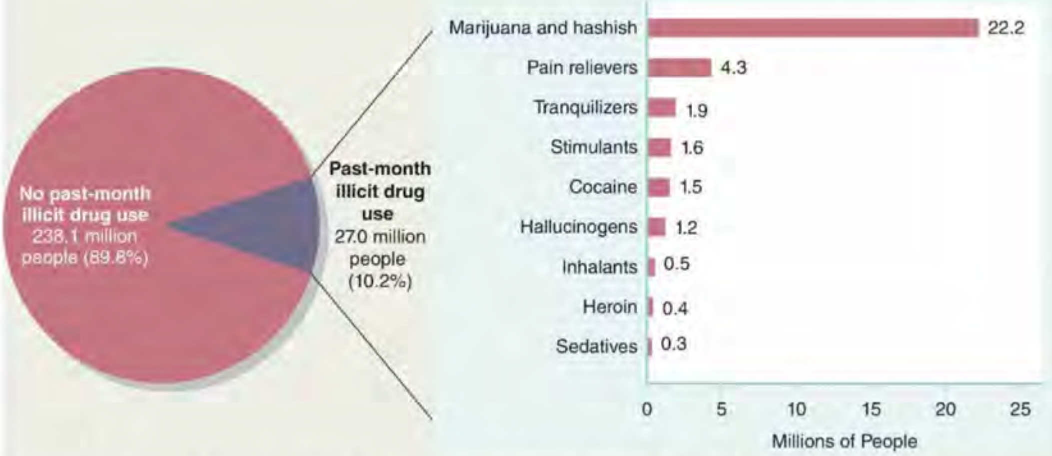


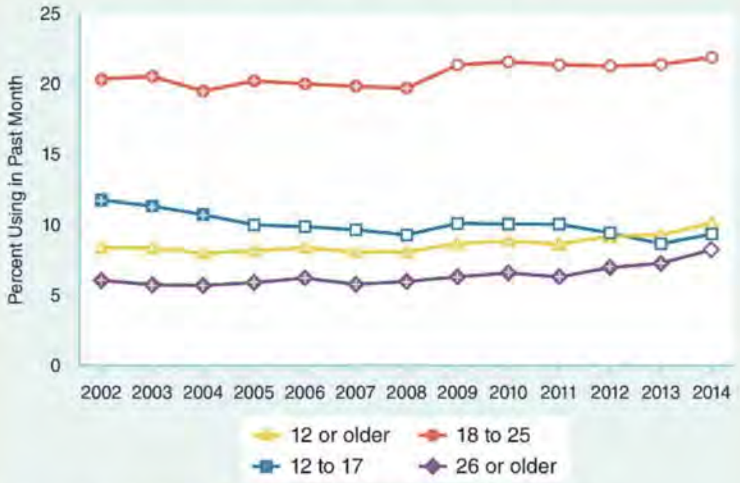
FIGURE A Number of past-month illicit drug users among persons aged 12 or older: 2014.

Data from Center for Behavioral Health Statistics and Quality (CBHSQ). Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health. Rockville, MD: Substance Abuse and Mental Health Services (SAMHSA), HHS Publication No. SMA 15-4927, NSDUH Series H-50, 2015. Available http://www.samhsa.gov/data/

The estimated 27 million people aged 12 or older who were current illicit drug users in 2014 (Figure A) represent 10.2% of the population aged 12 or older (**Figure B**). Stated another way, 1 in 10 individuals aged 12 or older in the United States used illicit drugs in the past month. The percentage of people aged 12 or older who were current illicit drug users in 2014 was higher than the percentages from 2002 to 2013. The rise in illicit drug use among those aged 12 or older since 2002 may reflect an increase in illicit drug use by adults aged 26 or older and, to a lesser extent, increases in illicit drug use among young adults aged 18 to 25 relative to the years before 2009.

HERE AND NOW

Numbers of Past-Month Illicit Drug Users and Age Groups by People Aged 12 and Older, 2014 (*continued*)



+ Difference between this estimate and the 2014 estimate is statistically significant at the .05 level.

FIGURE B Past-month illicit drug use among persons aged 12 or older by age group: 2001–2014.

Data from Center for Behavioral Health Statistics and Quality (CBHSQ). Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health. Rockville, MD: Substance Abuse and Mental Health Services (SAMHSA), HHS Publication No. SMA 15-4927, NSDUH Series H-50, 2015. Available http://www.samhsa.gov/ data/

Data from Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927, Rockville, MD: Substance Abuse and Mental Health Services, 2015. Available http://www.samhsa.gov/data/

■ Extent and Frequency of Drug Use in Society

Erich Goode (2012), a much-respected sociologist, lists four types of drug use:

- *Legal instrumental use*: Taking prescribed drugs and OTC drugs to relieve or treat mental or physical symptoms.
- *Legal recreational use*: Using such licit drugs as tobacco, alcohol, and caffeine to achieve a certain mental or psychic state.
- *Illegal instrumental use*: Taking drugs without a prescription to accomplish a task or goal, such as taking nonprescription amphetamines to drive through the night or relying excessively on barbiturates to get through the day.
- *Illegal recreational use*: Taking illicit drugs for fun or pleasure to experience euphoria, such as abusing prescribed methylphenidate (Ritalin) as a substitute for cocaine.

Why has the prevalence of licit and illicit drug use remained consistent since 1988? Why has this trend occurred, when federal, state, and local government expenditures for fighting the drug war have been increasing at the same time? There are several possible answers, none of which, by itself, offers a satisfactory response. One perspective notes that practically all of us use drugs in some form, with what constitutes "drug use" being merely a matter of degree. A second explanation is that more varieties of both licit and illicit drugs are available today. One source estimated that approximately 80% of all currently marketed drugs were either unknown or unavailable 30 years ago (Critser 1996). Regarding prescriptions, "the average number of prescriptions per person, annually, in 1993 was seven, and in 2005 it was 12 (Critser 2005, p. 23) and in 2011, 13 prescriptions per person in the U.S." Another source stated, "The retail sales of all OTC drugs that includes approximately 27 categories of drugs totaled over $32.1 billion in 2015" (CHPA 2016). In

HERE AND NOW

The World FactBook: Current Global Status of Illicit Drugs and Drug Use in Selected Countries

Afghanistan

Afghanistan is world's largest producer of opium; poppy cultivation increased 7%, to a record 211,000 hectares* in 2014 from 198,000 hectares in 2013, while eradication dropped sharply. However, Afghanistan has had relatively low opium yields due to poor weather that has kept potential opium production—6,300 metric tons—below the record set in 2007. The Taliban and other antigovernment groups participate in and profit from the opiate trade, which is a key source of revenue for the Taliban inside Afghanistan. Widespread corruption and instability in Afghanistan impede counterdrug efforts. Most of the heroin consumed in Europe and Eurasia is derived from Afghan opium. Afghanistan is also struggling to respond to a burgeoning domestic opiate addiction problem and is vulnerable to the laundering of drug money through informal financial networks. Afghanistan also has extensive illicit cultivation of cannabis and is a regional source of hashish.

Argentina

Argentina is a transshipment country for cocaine headed for Europe, heroin headed for the United States, and ephedrine and pseudoephedrine headed for Mexico. Some money laundering occurs, especially in the Tri-Border Area. Law enforcement corruption is also a problem. Argentina is a source for precursor chemicals, and there is increasing domestic consumption of drugs in urban centers, especially cocaine base and synthetic drugs (2008 data).

Aruba

This is a transit point for U.S.- and Europe-bound narcotics, with some accompanying money-laundering activity. A relatively high percentage of its population consumes cocaine.

Australia

Tasmania is one of the world's major suppliers of licit opiate products. The government maintains strict controls over areas of opium poppy cultivation and the output of poppy straw concentrate. It is a major consumer of cocaine and amphetamines.

Bahamas

The Bahamas is a transshipment point for cocaine and marijuana bound for the United States and Europe; it is also an offshore financial center.

Belgium

Belgium is a growing producer of synthetic drugs and cannabis. It is a transit point for U.S.-bound Ecstasy and a source of precursor chemicals for South American cocaine processors. It is a transshipment point for cocaine, heroin, hashish, and marijuana entering Western Europe. Despite a strengthening of legislation, the country remains vulnerable to money laundering related to narcotics, automobiles, alcohol, and tobacco. Significant domestic consumption of Ecstasy is also a problem.

Bolivia

Bolivia is the world's third-largest cultivator of coca (after Colombia and Peru), with an estimated 30,000 hectares under cultivation in 2011, a decrease of 13% over 2010. It is also the third-largest producer of cocaine, estimated at 265 metric tons of potential pure cocaine in 2011, a 29% increase over 2010. Bolivia is a transit country for Peruvian and Colombian cocaine destined for Brazil, Argentina, Chile, Paraguay, and Europe, due to its weak border controls. Money-laundering activity related to the narcotics trade is a problem, as is domestic cocaine consumption (2013).

Brazil

The second-largest consumer of cocaine in the world, Brazil is an important market for Colombian, Bolivian, and Peruvian cocaine. It is an illicit producer of cannabis and trace amounts of coca cultivation in the Amazon region, used for domestic consumption. The government has a large-scale eradication program to control cannabis. It is an important transshipment country for Bolivian, Colombian, and Peruvian cocaine headed for Europe and is also used by traffickers as a way station for narcotics air transshipments between Peru and Colombia. It has experienced an upsurge in drug-related violence and weapons smuggling. Illicit narcotics proceeds are often laundered through the financial system, with significant illicit financial activity in the Tri-Border Area (2008).

Burma

Burma is the world's third-largest producer of illicit opium, with estimated production in 2012 of 690 metric tons, an increase of 13% over 2011. Poppy cultivation in 2012 totaled 51,000 hectares, a 17% increase over 2011. Shan state is the source of 94.5% of

HERE AND NOW

The World FactBook: Current Global Status of Illicit Drugs and Drug Use in Selected Countries (*continued*)

Burma's poppy cultivation; lack of government will to take on major narco-trafficking groups and lack of serious commitment against money laundering continues to hinder the overall antidrug effort. It is a major source of methamphetamine and heroin for regional consumption (2013).

Canada

Canada is a producer of cannabis for the domestic drug market and export to United States. The use of hydroponics technology permits growers to plant large quantities of high-quality marijuana indoors, some of which is destined for the United States. Production of Ecstasy has also increased. Canada is vulnerable to narcotics money laundering because of its mature financial services sector.

China

China is a major transshipment point for heroin produced in the Golden Triangle region of Southeast Asia. Domestic consumption of synthetic drugs and heroin from Southeast and Southwest Asia is increasing. It is a source country for methamphetamine and heroin chemical precursors, despite new regulations on its large chemical industry. Nongovernmental organizations (NGOs) claim that more people have been convicted and executed for drug offences in China than anywhere else in the world (2008 data).

Colombia

Columbia is an illicit producer of coca, opium poppy, and cannabis. It is the world's leading coca cultivator, with 83,000 hectares in coca cultivation in 2011, a 17% decrease over 2010, producing the potential for 195 metric tons of pure cocaine. It is also is the world's largest producer of coca derivatives, and supplies cocaine to nearly all of the U.S. market and the great majority of other international drug markets. Columbia is an important supplier of heroin to the U.S. market, although opium poppy cultivation is estimated to have fallen to 1100 hectares in 2009, and pure heroin production to 2.1 metric tons. In 2012, aerial eradication efforts sprayed herbicide over 100,549 hectares, in addition to manual eradication of 30,486 hectares. A significant portion of narcotics proceeds are either laundered or invested in Colombia through the black market peso exchange.

Germany

Germany is a source of precursor chemicals for South American cocaine processors. It is a transshipment point for and consumer of Southwest Asian heroin, Latin American cocaine, and European-produced synthetic drugs. It is also a major financial center.

Guatemala

Guatemala is a major transit country for cocaine and heroin. In 2005, it cultivated 100 hectares of opium poppy after reemerging as a potential source of opium in 2004, with potential production of less than 1 metric ton of pure heroin. Marijuana cultivation is mostly for domestic consumption. Its proximity to Mexico makes Guatemala a major staging area for drug trafficking (particularly for cocaine). Money laundering and corruption are serious problems in Guatemala.

Haiti

Haiti is a Caribbean transshipment point for cocaine en route to the United States and Europe; there is also substantial bulk cash smuggling activity. Colombian narcotics traffickers favor Haiti for illicit financial transactions. Corruption is pervasive, and the country is a significant consumer of cannabis.

Iran

Despite substantial interdiction efforts and considerable control measures along the border with Afghanistan, Iran remains one of the primary transshipment routes for Southwest Asian heroin to Europe. Iran has reached out to neighboring countries to share counterdrug intelligence. It also suffers one of the highest opiate addiction rates in the world and has an increasing problem with synthetic drugs. Iran regularly enforces the death penalty for drug offences, but lacks anti-money-laundering laws.

Ireland

Ireland is a transshipment point for and consumer of hashish from North Africa en route to the United Kingdom and the Netherlands. It is also a minor transshipment point for heroin and cocaine destined for Western Europe. Ireland is also a consumer of European-produced synthetic drugs and South American cocaine. Despite recent legislation, narcotics-related money laundering that relies on currency exchanges,

(*continues*)

HERE AND NOW

The World FactBook: Current Global Status of Illicit Drugs and Drug Use in Selected Countries (*continued*)

trusts, and shell companies involving the offshore financial community remains a concern.

Israel

Israel is increasingly concerned about Ecstasy, cocaine, and heroin abuse. These drugs arrive in country from Lebanon and, increasingly, from Jordan. Israel is also a money-laundering center.

Italy

Italy is an important gateway for and consumer of Latin American cocaine and Southwest Asian heroin entering the European market. Organized crime is involved in money laundering and smuggling.

Mexico

A major drug-producing and transit nation, Mexico is the world's second-largest opium poppy cultivator. Opium poppy cultivation in 2009 rose 31% over 2008 to 19,500 hectares, yielding a potential production of 50 metric tons of pure heroin, or 125 metric tons of "black tar" heroin, the dominant form of Mexican heroin in the western United States. Marijuana cultivation increased 45% to 17,500 hectares in 2009. The Mexican government conducts the largest independent illicit-crop eradication program in the world. Mexico continues to be the primary transshipment country for U.S.-bound cocaine from South America, with an estimated 95% of annual cocaine movements toward the United States stopping in Mexico. Major drug syndicates control the majority of drug trafficking throughout the country. It is a producer and distributor of Ecstasy, a significant money-laundering center, a major supplier of heroin, and the largest foreign supplier of marijuana and methamphetamine to the U.S. market (2007 data).

Morocco

Morocco is one of the world's largest producers of illicit hashish. Shipments of hashish are mostly directed to Western Europe. It is also a transit point for cocaine from South America destined for Western Europe. Morocco is a significant consumer of cannabis.

Netherlands

The Netherlands is a major European producer of synthetic drugs, including Ecstasy, and a cannabis cultivator. It is an important gateway for cocaine, heroin, and hashish entering Europe and a major source of U.S.-bound Ecstasy. Its large financial sector is vulnerable to money laundering. The Netherlands is also a significant consumer of Ecstasy.

Nigeria

Nigeria is a transit point for heroin and cocaine intended for European, East Asian, and North American markets. It is a consumer of amphetamines, a safe haven for Nigerian narco-traffickers operating worldwide, and a major money-laundering center. Nigeria also faces massive corruption and criminal activity. Nigeria has improved some of its anti-money-laundering controls, resulting in its removal from the Financial Action Task Force's (FATF) Noncooperative Countries and Territories List in June 2006. However, Nigeria's anti-money-laundering efforts continue to be monitored by the FATF.

Pakistan

Pakistan is a significant transit area for Afghan drugs, including heroin, opium, morphine, and hashish, bound for Iran, Western markets, the Gulf States, Africa, and Asia. Financial crimes related to drug trafficking, terrorism, corruption, and smuggling remain problems. Opium poppy cultivation was estimated at 2,300 hectares in 2007, with 600 of those hectares eradicated. Federal and provincial authorities continue to conduct antipoppy campaigns that utilize forced eradication, fines, and arrests.

Panama

Panama is a major cocaine transshipment point. It is a primary money-laundering center for narcotics revenue because of its status as an offshore financial center. Money-laundering activity is especially heavy in the Colón Free Zone. Although monitoring of financial transactions is improving, official corruption remains a major problem. There are negligible signs of coca cultivation.

Peru

Until 1996, Peru was the world's largest coca leaf producer. Today, Peru is the world's second-largest producer of coca leaf, lagging far behind Colombia. Cultivation of coca in Peru was estimated at 40,000 hectares in 2009, a slight decrease over 2008. It is the second-largest producer of cocaine, estimated at 225 metric tons of potential pure cocaine in 2009. Finished cocaine is shipped out from Pacific ports to the international drug market; increasing amounts of base and finished cocaine, however, are being moved to Brazil, Chile, Argentina, and Bolivia for use in the Southern Cone (the region of South America comprising the countries of

HERE AND NOW

The World FactBook: Current Global Status of Illicit Drugs and Drug Use in Selected Countries (*continued*)

Brazil, Paraguay, Uruguay, Argentina, and Chile) or are being transshipped to Europe and Africa. Peru is experiencing increasing domestic drug consumption.

Poland

Despite diligent counternarcotics measures and international information sharing on cross-border crime, Poland is a major illicit producer of synthetic drugs for the international market as well as a minor transshipment point for Southwest Asian heroin and Latin American cocaine to Western Europe.

South Africa

South Africa is a transshipment center for heroin, hashish, and cocaine and a major cultivator of marijuana in its own right. Cocaine and heroin consumption in South Africa is on the rise. It is the world's largest market for illicit methaqualone, usually imported illegally from India through various East African countries, but it is increasingly producing its own synthetic drugs for domestic consumption. It is an attractive venue for money launderers given the increasing level of organized criminal and narcotics activity in the region and the size of the South African economy.

United States

The United States is the world's largest consumer of cocaine (shipped from Colombia through Mexico and the Caribbean), Colombian heroin, and Mexican heroin and marijuana. It is also a major consumer of Ecstasy and Mexican methamphetamine and a minor consumer of high-quality Southeast Asian heroin. An illicit producer of cannabis, depressants, stimulants, hallucinogens, and methamphetamine, the United States is also a money-laundering center.

Worldwide Facts: Illicit Drugs

Cocaine

Worldwide coca leaf cultivation in 2013 likely amounted to 165,000 hectares, assuming a stable crop in Bolivia. Colombia produced slightly less than half of the worldwide crop, followed by Peru and Bolivia. Potential pure cocaine production increased 7% to 640 metric tons in 2013. Colombia conducts an aggressive coca eradication campaign. Peru has increased its eradication efforts, but remains hesitant to eradicate coca in key growing areas.

Opiates

Worldwide illicit opium poppy cultivation increased in 2013, with potential opium production reaching 6,800 metric tons. Afghanistan is world's primary opium producer, accounting for 82% of the global supply. Southeast Asia is responsible for 12% of global opium, with Pakistan producing 3% of global opium. Latin America produced 4% of global opium, most being was refined into heroin destined for the U.S. market.

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* A hectare is a metric measurement used throughout the world. One hectare is equivalent to 2.47 acres.

Courtesy of Central Intelligence Agency. *The World Factbook 2013-14.* Washington, DC: Central Intelligence Agency, 2014. Available https://www.cia.gov/library/publications/the-world-factbook/fields/2086.html. Accessed March 27, 2016.

the United States alone, the rate of yearly prescription growth from 2012 to 2013 was up 1% (IMS Health 2013). In 2013, the total global prescription pharmaceutical market had sales of $950 billion; in 2016, sales were expected to reach $1.2 trillion (Herper 2012). Similarly, Reuters reports that "[G]lobal pharmaceutical sales are expected to reach $1.1 trillion in 2014" (Berkrot 2010, p. 1). Further, CBS News reported "that 40% of Americans are on at least one prescription drug, and more than half receive at least two prescriptions" (Fearnow 2013).

Other findings reflecting problems with prescription drug use are as follows (NIDA 2014b):

- Fifty-two million people in the United States older than age of 12 have used prescription drugs nonmedically in their lifetime.
- Approximately 6.1 million Americans have used prescription drugs nonmedically in the past month.
- Although the United States is just 5% of the world's population, it consumes 75% of the world's prescription drugs.
- With regards to obtaining prescription drugs, 54.2% reported obtaining them for free from a friend or relative, 18.1% from one doctor, and 16.6% buying or taking them from a friend or relative.

Such figures indicate that it may be more difficult to find people who do not use psychoactive drugs compared to individuals who do.

Further, a third category of drug sales has joined OTC and prescription drugs: herbal medicines, vitamins, minerals, enzymes, and other natural potions. According to Boyles (2009), "Out-of-pocket spending on herbal supplements, chiropractic visits, meditation, and other forms of complementary and alternative medicines (CAM) was estimated at $34 billion in a single year" and "Americans spend almost a third as much money out-of-pocket on herbal supplements and other alternative medicines as they do on prescription drugs." A more recent study found that "Americans will spend $21 billion on vitamins and herbal supplements in 2015. If protein powders are included, supplements are as big a market as all organic foods combined" (Scott 2015). This is even though the U.S. Preventive Services Task Force does not recommend regular use of any multivitamins or herbs.

Other findings regarding these types of drugs include (Scott 2015):

- 50% of Americans take multivitamins.
- One in five U.S. adults take herbal supplements.
- Americans will spend $21 billion on supplements in 2015.
- The FDA only spot tests 1% of the 65,000 dietary supplements on the market.

Drug use is so common that the average household in the United States owns about five drugs, of which two are prescription drugs and the other three are OTC drugs. Of the many prescriptions written by physicians, approximately one-third modify moods and behaviors in one way or another. A 2010 National Institute on Drug Abuse (NIDA 2010) study and other research indicate that more than 60% of adults in the United States have, at some time in their lives, taken a psychoactive drug (one that affects mood or consciousness). More than one-third of adults have used or are using depressants or sedatives.

A third explanation is that "in the modern age, increased sophistication has brought with it techniques of drug production and distribution that have resulted in a worldwide epidemic of drug use" (Kusinitz 1988, p. 149). In the 1980s and 1990s, for example, illicit drug cartels proliferated, and varieties of marijuana with ever-increasing potency infiltrated all urban and rural areas in the United States, as well as the world. Many of these varieties are crossbred with ultra-sophisticated techniques and equipment available everywhere.

Finally, even coffee has undergone a technological revolution. Higher levels of caffeine content have become available worldwide. This trend has led to the phenomenal growth of the following: (1) franchise duplication of gourmet coffee bars in the United States (e.g., Starbucks, Peet's, Three Brothers Coffee); (2) sales of espresso and cappuccino coffeemakers for home use, with accompanying coffee grinders or coffee pods and capsules; and (3) sales of specialized coffees and teas through a multitude of email coffee/tea clubs.

Approximately 25 years ago, it was difficult to purchase a cup of espresso or cappuccino in a typical restaurant; today, availability of such types of coffees is commonplace. Even at university unions and libraries, airports, shopping malls, and inner-city coffee shops, it is not unusual to see people lined up waiting to order and purchase their specially made and specially flavored coffee or tea. This is just one example of how caffeine (often seen as a benign drug) has evolved, with many new varieties of coffee beans from exotic islands and countries coming together with more sophisticated electronic equipment, with the result that the idea of simple brewing has been relegated to the past. The standard American "cup of coffee in the morning" has spilled into including coffee during the afternoon and evening. This is a small example of a much-tolerated drug maintaining its own impressive history of development, increased use, complexity in developing many more varieties, and added sophistication.

Drug Use: Statistics, Trends, and Demographics

An incredible amount of money is spent each year for licit (legal) and illicit (illegal) chemicals that alter consciousness, awareness, or mood. The following are six categories of widely used licit and illicit types of psychoactive drugs:

1. *Social drugs*: Approximately $90 billion is spent on alcohol each year. Another $51.9 billion goes toward tobacco products, of which 90% comes from cigarette sales. The other 5% accounts for the $2 billion or so spent on cigars, chewing tobacco, pipe tobacco, roll-your-own tobacco, and snuff tobacco. During 2014, nearly 264 billion cigarettes were sold in the United States, a decrease from approximately 273 billion sold in 2013. About 13 billion cigars, including 12.4 billion large cigars and cigarillos and 0.6 billion little cigars, were sold in the United States in 2014 (CDC 2015a). Smokeless tobacco sales totaled approximately 124.6 million pounds in the United States in 2011, an increase from

122.6 million pounds sold in 2010 (CDC 2015a). E-cigarette sales in 2012 were approximately $500 million and in 2013 were projected to increase by $1 million per year (ECIG Review Central 2014). E-cigarettes account for 5% of the tobacco market, and 47.6% of current smokers have tried e-cigarettes and 55.4% of smokers who have quit used e-cigarettes (*The Motley Fool* 2015). In addition, $5.7 billion is spent on coffee, tea, and cocoa.

2. *Prescription drugs*: As mentioned earlier, the prescription pharmaceutical market racked up $950 billion in worldwide sales in 2012. The United States is the world's largest pharmaceutical market. In 2012, $237.5 to $240.5 billion of pharmaceutical prescription drugs were sold (IMS Health 2012, 2013). According to the *Pharmacy Times* (2007), total purchases of outpatient prescription medicines increased from approximately 2 billion to nearly 3 billion from 1997 to 2004.
3. *Over-the-counter (patent) drugs*: These products, including cough and cold items, external and internal analgesics, antacids, laxatives, antidiarrheal products, sleep aids, sedatives, and so on, had $30.8 billion in sales in 2014, with U.S. households spending, on average, about $338 per year on OTC products. Eighty-one percent of adults use OTC medicines as a first response to minor ailment (CHPA 2016).
4. *Illicit drugs*. A report prepared by the Rand Corporation for the White House estimated that over a 10-year period, from 2000 to 2010, an astonishing $1 trillion were spent on illicit drugs (Ferner 2014). Pinpointing specific types of drugs, another source indicated that "[d]rug users in the United States spend on the order of $100 billion annually on cocaine, heroin, marijuana, and meth. While this total figure has been stable over the decade, there have been important compositional shifts. In 2000, much more money was spent on cocaine than marijuana; in 2010 the opposite was true" (Rand Corporation 2014).
5. *Nonmedical use of prescription-type drugs:* Misuse of prescription drugs is second only to marijuana as the nation's most prevalent illicit drug problem and is a major public health concern, with approximately 22 million persons initiating nonmedical pain reliever use since 2002 (CBHSQ 2013). Combined 2010 and 2011 data indicate that about 1 in 22 (4.6%) persons aged 12 or older nationwide reported having used pain relievers nonmedically in the past year, which was lower than the rate using combined 2009 and 2010 data (4.9%) (CBHSQ 2013). Finally, as mentioned above, in 2015, 2.5% of illicit drug users, over 6.5 million persons age 12 or older, used prescription-type psychotherapeutic drugs nonmedically. Even the very young are not immune to significant nonmedical use of prescription-type drugs. For example, 2.8% of 8th graders, 7.2% of 10th graders, 10.5% of 12th graders, 7.5% of college students, and 8.6% of young adults had used narcotics, specifically OxyContin and Vicodin (Johnston et al. 2012) (see "Here and Now: Sources of Prescription Drugs Misused by Youths").
6. *Miscellaneous*: Finally, the amount spent on inhalants and other miscellaneous drugs, such as nutmeg and morning glory seeds, cannot be estimated.

Regarding nationwide trends in the use of illicit drug use in 2013, the following findings are noteworthy (NIDA 2015):

- Illicit drug use in the United States has been increasing. In 2013, an estimated 24.6 million Americans aged 12 or older—9.4% of the population—had used an illicit drug in the past month. This number is up from 8.3% in 2002. The increase mostly reflects a recent rise in use of marijuana, the most commonly used illicit drug.
- Marijuana use has increased since 2007. In 2013, there were 19.8 million current users—about 7.5% of people aged 12 or older—up from 14.5 million (5.8%) in 2007.
- Use of most drugs other than marijuana has stabilized over the past decade or has declined. In 2013, 6.5 million Americans aged 12 or older (or 2.5%) had used prescription drugs nonmedically in the past month. Prescription drugs include pain relievers, tranquilizers, stimulants, and sedatives. And 1.3 million Americans (0.5%) had used hallucinogens (a category that includes ecstasy and LSD) in the past month (NIDA 2015).
- Most people use drugs for the first time when they are teenagers. There were just over 2.8 million new users of illicit drugs in 2013, or about 7,800 new users per day. Over half (54.1%) were under 18 years of age.
- More than half of new illicit drug users begin with marijuana. Next most common are prescription pain relievers, followed by inhalants (which is most common among younger teens).

- Drug continues to increase among people in their fifties and early sixties. This increase is, in part, due to the aging of the baby boomers, whose rates of illicit drug use have historically been higher than those of previous generations.
- Binge and heavy drinking are more widespread among men than women. In 2013, 30.2% of men and 16.0% of women 12 and older reported binge drinking in the past month. And 9.5% of men and 3.3% of women reported heavy alcohol use.
- After alcohol, marijuana has the highest rate of dependence or abuse among all drugs. In 2013, 4.2 million Americans met clinical criteria for dependence or abuse of marijuana in the past year—more than twice the number for dependence/abuse of prescription pain relievers (1.9 million) and nearly five times the number for dependence/abuse of cocaine (855,000).
- Drug use is highest among people in their late teens and twenties. In 2013, 22.6% of 18- to 20-year-olds reported using an illicit drug in the past month. **Table 3** shows that in regard to age groups, 18- to 25-year-olds are by far the heaviest users and experimenters in terms of past-month and past-year usage.

TABLE 3 Trend Data on the Prevalence of Illicit Drug Use: 2009–2014

	2009	2010	2011	2012	2013	2014
Used in Past Month						
All ages 12+	8.7	8.9	8.7	9.2	9.4	10.2
12–17	9.8	10	9.9	9.4	8.7	9.2
18–25	21.3	21.5	21.3	21.3	21.5	21.9
26–34	12.5	13.9	13	13.9	15.3	15.3
35+	5.3	5.3	5.4	6.1	6.2	7.5
Used in Past Year						
All ages 12+	15.1	15.3	14.9	16	15.9	16.7
12–17	19	19.2	18.6	17.7	17.1	17.2
18–25	35.8	35	35	36.2	35.7	36.1
26–34	21.9	22.7	21.6	23.9	25.6	25.3
35+	9.1	9.6	9.3	10.6	10.2	11.8
Used in Lifetime (Ever Used)						
All ages 12+	47.1	47.3	47	48	48.6	49.2
12–17	26.1	25.4	25.1	24	23.1	22.9
18–25	58.4	57.6	57.2	57.8	57.1	56.7
26–34	59.4	60	60	60.8	61.7	61.2
35+	48.4	49	49	50.5	51.3	52.2

Data from Substance Abuse and Mental Health Services Administration (SAMHSA). *Results from the 2007 National Survey on Drug Use and Health: National Findings*. Office of Applied Studies, NSDUH Series H-36, HHS Publication No. (SMA) 09-4435. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2008; Substance Abuse and Mental Health Services Administration (SAMHSA). *Results from the 2009 National Survey on Drug Use and Health: Volume II. Technical Appendices and Selected Prevalence Tables*. Office of Applied Studies, NSDUH Series H-38B, HHS Publication No. (SMA) 10-4586 Appendices. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2010; Substance Abuse and Mental Health Services Administration (SAMHSA). *Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings*. NSDUH Series H-44, HHS Publication No. (SMA) 12-4713. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2012. *Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings*. NSDUH Series H-48, HHS Publication No. (SMA) 14-4863. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014; Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health*. NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

HERE AND NOW

Sources of Prescription Drugs Misused by Youths

Friends and family are the most common source of prescription drugs misused* by youths in the United States, according to an analysis of data from the National Survey on Drug Use and Health (NSDUH). Around one-half of youths who reported misusing prescription stimulants (50%), tranquilizers (47%), or sedatives (47%) in the past year said that they most recently obtained the medication for free from friends or family, as did one-third of those who reported the misuse of prescription opioids. The second most common source for obtaining stimulants, tranquilizers, and sedatives was purchasing from a friend/relative, drug dealer/stranger, or the Internet, and the second most common source for obtaining prescription opioids was acquiring them from a physician.

Another source (Read 2012) reported that teens get their prescription drugs from the following locations:

- In the medicine cabinet
- At a neighbor's house
- Online
- A friend of a friend
- At schools
- At parties

According to a University of Florida study, "[u]sing someone else's medication is the most common form of prescription stimulant misuse among adolescents," with researchers finding that 88% of teens who used the drugs nonmedically in the past 30 days said "they had obtained the medications from someone else" (ScienceDaily 2016). Friends and family are the most common source of prescription drugs misused* by youths in the U.S., according to an analysis of data from the National Survey on Drug Use and Health (NSDUH). Around one-half of youths who reported misusing prescription stimulants (50%), tranquilizers (47%), or sedatives (47%) in the past year said that they most recently obtained the medication for free from friends or family, as did one-third of those who reported the misuse of prescription opioids. The second most common source for obtaining stimulants, tranquilizers, and sedatives was purchasing from a friend/relative, drug dealer/stranger, or the Internet, while the second most common source for obtaining prescription opioids was acquiring it from a physician (CESAR FAX 2009 and Schepis and Krishnan-Sarin 2009).

Most recent source of prescription medicines misused in the past year among youths aged 12 to 17: 2005 and 2006.

(continues)

HERE AND NOW

Sources of Prescription Drugs Misused by Youths (*continued*)

* *Misuse* was defined as "any intentional use of a medication with intoxicating properties outside of a physician's prescription for a bona fide medical condition, excluding accidental misuse."

Note: Respondents also reported that prescription medicines were obtained "some other way" (stimulants, 5%; tranquilizers, 4%; sedatives, 12%; opioids, 7%). Data are from 36,992 adolescents aged 12 to 17 participating in the 2005 and/or 2006 National Survey on Drug Use and Health. Of these youths, 8.3% reported any prescription drug misuse in the past year, 7% reported opioid misuse, 2% reported tranquilizer misuse, 2% reported stimulant misuse, and 0.4% reported sedative misuse.

Reproduced from University of Maryland, Center for Substance Abuse Research (CESAR). "Friends and Family Are Most Common Source of Prescription Drugs Misused by Youths." *CESAR FAX* 18(32) (2009) using data from Schepis, T.S., and S. Krishnan-Sarin. "Sources of Prescriptions for Misuse by Adolescents: Differences in Sex, Ethnicity, and Severity of Misuse in a Population-Based Study." *Journal of the American Academy of Child and Adolescent Psychiatry* 48(8) (2009): 828-836.

Table 4 shows a more recent percentage of population and estimated number of alcohol, tobacco, and illicit drug users in the United States among persons aged 12 or older. In looking at past-month usage, an estimated 13.9 million Americans, or 52.7% of the total U.S. population age 12 or older, were drinkers. Statistics also reveal that with regard to past-month usage of cigarettes, approximately 55.2 million Americans (20.8%) smoked cigarettes and 22.1 million 8.4% used marijuana/hashish in 2014 (see Table 4).

TABLE 4 National Household Survey on Drug Abuse: 2014

Percentage of population and estimated number of alcohol, tobacco, and illicit drug users in the United States among persons aged 12 or older.

	LIFETIME*		PAST MONTH	
	Percentage	Number of Users (in thousands)	Percentage	Number of Users (in thousands)
Alcohol	82.1	217,765	52.7	139,677
Cigarettes	61.0	161,789	20.8	55,241
Marijuana/hashish	44.2	117,213	8.4	22,188
Nonmedical use of any psychotherapeutics†	20.5	54,395	2.5	6537
Smokeless tobacco	17.1	45,290	3.3	8662
Cocaine	14.8	39,200	0.6	1530
Crack	3.6	9424	0.1	354
Hallucinogens	15.0	39,647	0.4	1173
LSD	9.4	25,035	0.1	287
Ecstasy	6.6	17,548	0.2	609
PCP	2.4	6388	0.0	33
Pain Relievers	13.6	36,064	1.6	4325
OxyContin	2.7	7031	0.1	356
Tranquilizers	9.4	24,851	0.7	1875
Inhalants	8.0	21,293	0.2	546

(*continues*)

TABLE 4 National Household Survey on Drug Abuse: 2014 (*continued*)

Percentage of population and estimated number of alcohol, tobacco, and illicit drug users in the United States among persons aged 12 or older.

	LIFETIME[*]		PAST MONTH	
	Percentage	Number of Users (in thousands)	Percentage	Number of Users (in thousands)
Stimulants	8.5	22,530	0.6	1595
Methamphetamine	4.9	12,943	0.2	569
Sedatives	3.0	7,826	0.1	330
Heroin	1.8	4,813	0.2	435
Any illicit drug[§]	49.2	130,332	10.2	26,983
Illicit Drugs Other Than Marijuana[§]	30.2	80,119	3.3	8,719

Note: The results obtained from this national survey were completed at 142,938 addresses, and 68,736 completed interviews were obtained. The survey was conducted from January 2014 through December 2014. Weighted response rates for household screening and for interviewing were 89.0% and 74.4%, respectively.

[*] Lifetime refers to ever used. This column shows the use of drugs from highest to lowest percentages as well as the number of persons using.

[†] Nonmedical use of prescription-type psychotherapeutics includes the nonmedical use of pain relievers, tranquilizers, stimulants, or sedatives but does not include over-the-counter drugs.

[§] Illicit drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. Illicit drugs other than marijuana include cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

Data from Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

■ Current Patterns of Licit and Illicit Drug Use

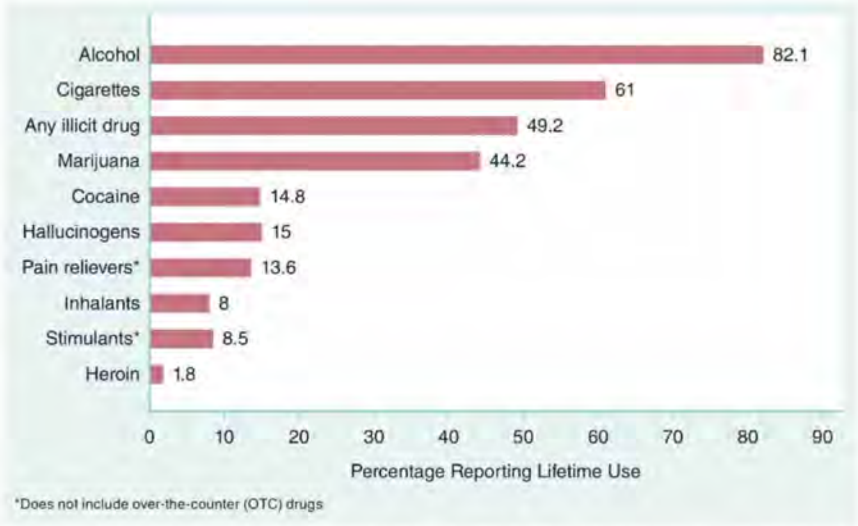
Table 4 shows that illicit drug use remains an alarming problem. In looking at lifetime use of illicit types of drugs, it is estimated that approximately 27 million Americans aged 12 years or older were current illicit drug users in 2014. This number represents 10.2% of the population aged 12 years or older (CBHSQ 2015). The leading types of lifetime use of drugs (see **Figure 2**) were alcohol (82.1%), cigarettes (61.0%), use of any illicit drug (49.2%), marijuana (44.2%), cocaine (14.8%), hallucinogens (15.0%; mainly LSD and Ecstasy), pain relievers (13.6%; not including OTC drugs), inhalants (8%), stimulants (8.5%; not including OTC drugs), and heroin (1.8%).

Figure 3 shows the number of past-month illicit drug users among persons age 12 or older in 2011. The category "illicit drugs" shows the highest use (22.5 million), followed by use of marijuana (18.1 million), psychotherapeutics (6.1 million), cocaine (1.4 million), hallucinogens (1 million), inhalants (0.6 million), and heroin (0.3 million).

NONMEDICAL USE OF PSYCHOTHERAPEUTICS (PAIN RELIEVERS)

Figure 4 shows the four categories of prescription-type drugs (pain relievers, tranquilizers, stimulants, and sedatives) that currently are or have been available by prescription; see the Case in Point highlighting the number of painkiller prescriptions in each of the 50 states, plus the District of Columbia in 2012 (CDC 2014). These groupings also include drugs that may be available as prescription medications but currently are much more likely to be manufactured and distributed illegally; one such drug is methamphetamine, which is included under stimulants. Major findings regarding the age groups are the following:

- *Aged 12 to 17*: An estimated 655,000 adolescents aged 12 to 17 were current nonmedical users of psychotherapeutic drugs in 2014. This number corresponds to 2.6% of adolescents. The 2014 estimate for current nonmedical use of psychotherapeutic drugs among adolescents was lower than the estimates in most years from 2002 to 2009.



*Does not include over-the-counter (OTC) drugs

FIGURE 2 Percentage of U.S. residents aged 12 or older reporting lifetime use of alcohol, tobacco, and illicit drugs: 2014.

Data from Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

- *Aged 18 to 25*: In 2014, an estimated 1.6 million young adults aged 18 to 25 were current nonmedical users of psychotherapeutic drugs, which corresponds to 4.4% of young adults. The 2014 estimate for current nonmedical use of psychotherapeutic drugs among young adults was lower than the estimates from 2002 to 2010.
- *Aged 26 or Older*: In 2014, 4.3 million adults aged 26 or older were current nonmedical users of psychotherapeutic drugs. This number corresponds to 2.1% of adults aged 26 or older. The 2014 estimate for current nonmedical use of psychotherapeutic drugs among those aged 26 or older was similar to the estimates for most years between 2002 and 2013.

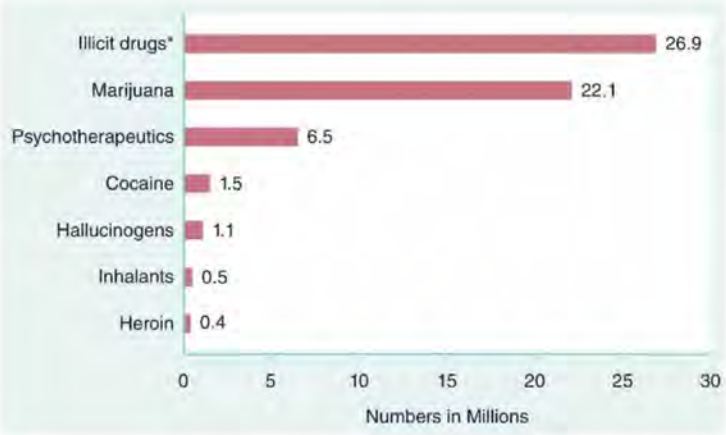


FIGURE 3 Past-month use of selected illicit drugs among persons aged 12 or older: 2014.

[1] Illicit drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

Data from Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

FIGURE 4 Past-month nonmedical use of types of psychotherapeutic drugs (pain relievers, tranquilizers, stimulants, and sedatives) among persons aged 12 or older: 2005–2014

Reproduced from Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

CASE IN POINT

Figures A and B: State Differences in the Number of Painkiller Prescriptions per 100 People

The color-coded U.S. map (**Figure A**) shows the number of painkiller prescriptions per 100 people in each of the 50 states, plus the District of Columbia in 2012 (CDC 2014). The major findings from this map are as follows:

- Some states have significantly more painkiller prescription per person than other states (CDC 2014).
- Healthcare providers show significant state differences in prescribing pain killers.

Some states (**Figure B**) have more painkiller prescriptions per person than others.

The illustration below shows health care providers in different states prescribe at different levels resulting in significant variances with some states having more painkiller prescriptions per person than others.

- "Ten of the highest prescribing states for narcotic painkillers are in the South, with Alabama, Tennessee and West Virginia leading the nation" (Thompson 2014).
- "The Northeast, especially Maine and New Hampshire, had the most prescriptions per person for long-acting/extended-release painkillers and for high-dose painkillers" (Thompson 2014).
- States with the lowest pain prescription per 100 people are New Jersey, New York, Hawaii, Minnesota, and California.
- "Prescriptions for oxymorphone varied the most between states, out of all narcotic medications. Nearly 22 times as many prescriptions were written for oxymorphone in Tennessee as were written in Minnesota" (Thompson 2014).

Data from Centers for Disease Control and Prevention (CDC). "Vital Signs: Opioid Painkiller Prescribing Infographic." 2014. Available http://www.cdc.gov/vitalsigns/opioid-prescribing/infographic.html; Thompson, D. "The States with the Worst Prescription Painkiller Problem." New York: CBS Interactive, Inc., 1 July 2014. Available http://www.cbsnews.com/news/the-states-with-the-worst-prescription-painkiller-problem/

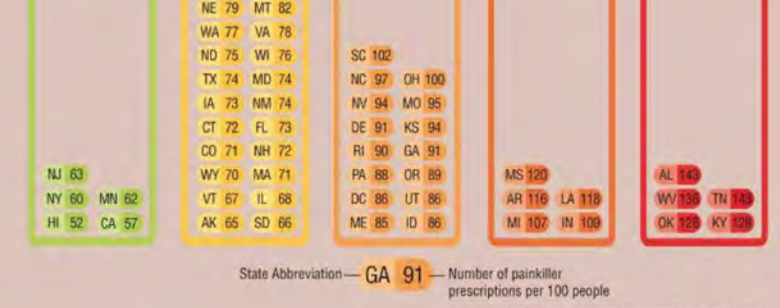
(continues)

CASE IN POINT

Figures A and B: State Differences in the Number of Painkiller Prescriptions per 100 People (*continued*)

FIGURE A This color-coded U.S. map shows the number of painkiller prescriptions per 100 people in each of the 50 states, plus the District of Columbia in 2012.

Data from IMS, National Prescription Audit (NPA™), 2012.



SOURCE: IMS, National Prescription Audit (NPA™), 2012.

FIGURE B **Figures A and B: State Differences in the Number of Painkiller Prescriptions per 100 People** Some states (Figure B) have more painkiller prescriptions per Person than others. The illustration below shows health care providers in different states prescribe at different levels resulting in significant variances with some states having more painkiller prescriptions per person than others.

Reproduced from Centers for Disease Control and Prevention (CDC). "Vital Signs: Opioid Painkiller Prescribing Infographic." Atlanta, GA: National Center for Injury Prevention and Control, 2014. Available http://www.cdc.gov/vitalsigns/opioid-prescribing/infographic.html

FIGURE 5 Nonmedical use of pain relievers in the past year among persons aged 12 or older, by state: Percentages, annual averages based on 2013 and 2014.

Reproduced from Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

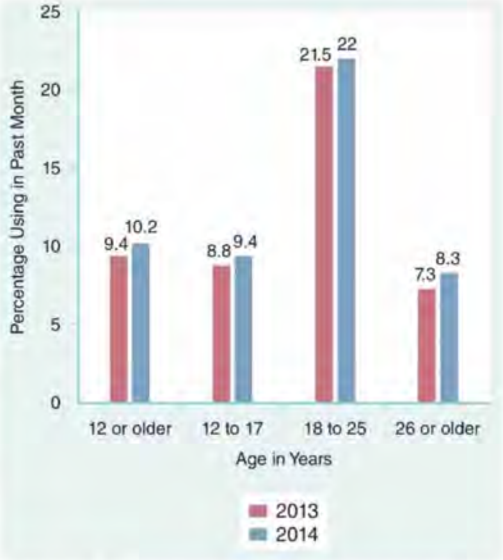


FIGURE 6 Percentage of past-month illicit drug use among persons aged 12 or older, by age: 2013 and 2014.

Reproduced from the Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

Figure 5 shows the nonmedical use of pain relievers in past year among person's aged 12 or older, by state.

Figure 6 shows past-month use of illicit drugs among persons aged 12 or older, by age group, in 2013–2014. With regard to age patterns, the following trends are apparent:

- Rates of drug use shows substantial variation by age group.
- In comparing 2013 with 2014, past-month illicit drug use was similar across age groups.
- In comparing 2013 with 2014 across all age groups, past-month illicit drug use increased slightly in 2014.
- The highest percentage of illicit drug use was among 18- to 25-year-olds (21.5% in 2013; 22% in 2014).
- Of the four age groups (12 or older, 12 to 17, 18 to 25, and 25 older), those 25 or older had the lowest percentage of past-month illicit drug use.

RACIAL AND ETHNIC DIFFERENCES

Figure 7 shows average past-month illicit drug use among persons age 12 or older by race and ethnicity (black or African American, white, Hispanic or Latino, and Asian) for 2014. The figures in this chart reveal the following trends:

- In 2014, from highest to lowest, racial/ethnic groups had the following rates of illicit drug use: black or African American (12.4%), whites (10.4%), Hispanic or Latino (8.9%), and Asian (4.1%). (Note: Two or more races [13.5%] and American Indians or Alaska Natives [13.4%] are not shown in Figure 7 because the sample sizes for these two groups were too small for reliable trend presentation.)

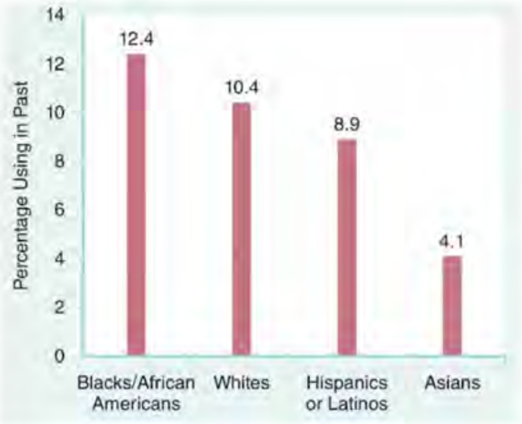


FIGURE 7 Past-month illicit drug use among persons age 12 or older, by race/ethnicity: 2014

Reproduced from Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

- As in past years when this research was conducted, Asians continue to have the lowest percentage of current illicit drug use, just as many other racial and ethnic group studies on drug use have found previously.
- The current illicit drug use rate for blacks or African Americans, whites, Hispanics or Latinos, and Asians increased from 2011 to 2014.* (Latest published findings in the breakdown of illicit drugs among Hispanic groups, indicates that Puerto Ricans were the heaviest users of illicit drugs, followed by Mexican Americans, and Cuban Americans. Central and South Americans had the lowest amount of current illicit drug use [SAMHSA 2012].)

In 2014, the following were the major findings regarding illicit drug use by gender, pregnant women, education, college students, and criminal justice populations/arrestees (SAMHSA 2014b):

GENDER

- In 2013, as in prior years, the rate of current illicit drug use among persons aged 12 or older was higher for males (11.5%) than for females (7.3%). Males were more likely than females to be current users of several different illicit drugs, including marijuana (9.7 vs. 5.6%), cocaine (0.8 vs. 0.4%), and hallucinogens (0.7 vs. 0.3%).
- In 2013, the rate of current illicit drug use was higher for males than females aged 12 to 17 (9.6 vs. 8.0%).
- Likewise, in 2013, the rate of current marijuana use was higher for males than females aged 12 to 17 (7.9 vs. 6.2%), which is a change from 2012 when the rates of current marijuana use for males and females were similar (7.5 and 7.0%).
- Among females aged 12 to 17, the rate of current marijuana use decreased from 7.2% in 2002 and 2003 to 6.2% in 2013.

PREGNANT WOMEN

- Among pregnant women aged 15 to 44, 5.4% were current illicit drug users based on data averaged across 2012 and 2013. This was lower than the rate among women in this age group who were not pregnant (11.4%). Among pregnant women aged 15 to 44, the average rate of current illicit drug use in 2012–2013 (5.4%) was not significantly different from the rate averaged across 2010–2011 (5.0%)
- The rate of current illicit drug use in the combined 2012–2013 data was 14.6% among pregnant women aged 15 to 17, 8.6% among women aged 18 to 25, and 3.2% among women aged 26 to 44.

EDUCATION

Illicit drug use rates in 2013 were correlated with educational status of adults aged 18 or older. The rate of current illicit drug use was lower among college graduates (6.7%) than those with some college education but no degree (10.8%), high school graduates with no further education (9.9%), and those who had not graduated from high school (11.8%) (SAMHSA 2014b).

COLLEGE STUDENTS

In the college-age population (persons ages 18 to 22 years), the most significant findings regarding college students and illicit drug use are as follows:

- In 2013, the rate of current illicit drug use was 22.3% among full-time college students aged 18 to 22. This was similar to the rate among other persons aged 18 to 22 (23.0%), which included part-time college students, students in other grades or types of institutions, and nonstudents.

- In 2013, about one-quarter of male full-time college students aged 18 to 22 were current illicit drug users (26.0%). This rate was higher than the rate of current illicit drug use among female full-time college students aged 18 to 22 (19.2%). Similarly, 23.6% of male full-time college students aged 18 to 22 were current marijuana users compared with 16.6% of female full-time college students aged 18 to 22.
- Among full-time college students aged 18 to 22 in 2013, the rate of current illicit drug use was 9.4% for Asians, 19.7% for blacks, 21.5% for Hispanics, and 25.1% for whites.

CRIMINAL JUSTICE POPULATIONS/ARRESTEES

Certain significant findings and correlations are unique to criminal justice populations:

- In 2013, an estimated 1.7 million adults aged 18 or older were on parole or other supervised release from prison at some time during the past year. About one-quarter (27.4%) were current illicit drug users, with 20.4% reporting current use of marijuana and 12.1% reporting current nonmedical use of psychotherapeutic drugs. These rates were higher than those reported by adults aged 18 or older who were not on parole or other supervised release during the past year (9.3% for current illicit drug use, 7.5% for current marijuana use, and 2.4% for current nonmedical use of psychotherapeutic drugs) (SAMHSA 2014b).
- In 2013, an estimated 4.5 million adults aged 18 or older were on probation at some time during the past year. More than one-quarter (31.4%) were current illicit drug users, with 23.5% reporting current use of marijuana and 12.3% reporting current nonmedical use of psychotherapeutic drugs. These rates were higher than those reported by adults who were not on probation during the past year (9.0% for current illicit drug use, 7.3% for current marijuana use, and 2.3% for current nonmedical use of psychotherapeutic drugs) (SAMHSA 2014b).
- "An estimated 56% of state prisoners, 45% of federal prisoners, and 64% of jail inmates have a mental health problem … at the time of the survey … conducted by the Urban Institute, … 49% of state prisoners, 40% of federal prisoners, and 60% of jail inmates had a symptom of a mental disorder, such as developmental and personality disorders, as well as clinical symptoms as specified in the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV)" (KiDeuk, Becker-Cohen, and Serakos, 2015).
- In 2011, 197,050 sentenced prisoners were under federal jurisdiction. Of these, 94,600 were serving time for drug offenses (Carson and Sabol 2012).
- In 2010, Home Health Testing (2010) reported that drugs were involved in a wide range of crimes, including violent crimes (78%), property crimes (83%), weapons offenses (77%), and parole violations (77%).
- Arrestee Drug Abuse Monitoring (ADAM) reports that at the time of arrest 40% of arrestees tested positive for the presence of multiple drugs. Approximately 40% tested positive for marijuana, 30% tested positive for cocaine, and 20% tested positive for crack (National Institute of Justice [NIJ] 2009). These three drugs are the most prevalent drugs that arrestees test positive for at the time of arrest. (The 2013 ADAM II report provides a comparison of the results over the years [ONDCP 2013a].)

■ Types of Drug Users

Just as a diverse set of personality traits exists (e.g., introverts, extroverts, type A, obsessive-compulsive, and so on), drug users also vary according to their general approach or orientation, frequency of use, and types and amounts of the drugs they consume. Some are occasional or moderate users, whereas others display a much stronger attachment to drug use. In fact, some display such obsessive-compulsive behavior that they cannot let a morning, afternoon, or evening pass without using drugs. Some researchers have classified such variability in the frequency and extent of usage as fitting into three basic patterns: experimenters, compulsive users, and "floaters" or "chippers" (members of the last category drift between experimentation and compulsive use).

Experimenters begin using drugs largely because of peer pressure and curiosity, and they confine their use to recreational settings. Generally, they more often enjoy being with peers who

KEY TERM

experimenters
first category of drug users, typified as being in the initial stages of drug use; these people often use drugs for recreational purposes

also use drugs recreationally. Alcohol, tobacco, marijuana, prescription drugs, hallucinogens, and many of the major stimulants are the drugs they are most likely to use. They are usually able to set limits on when these drugs are taken (often preferred in social settings), and they are more likely to know the difference between light, moderate, and chronic use.

Compulsive users, in contrast, "devote considerable time and energy to getting high, talk incessantly (sometimes exclusively) about drug use … [and 'funny' or 'weird' experiences] … and become connoisseurs of street drugs" (Beschner 1986, p. 7). For compulsive users, recreational fun is impossible without getting high. Other characteristics of these users include the need to escape or postpone personal problems, to avoid stress and anxiety, and to enjoy the sensation of the drug's euphoric effects. Often, they have difficulty assuming personal responsibility and suffer from low self-esteem. Many compulsive users are from dysfunctional families, have persistent problems with the law, and/or have serious psychological problems underlying their drug-taking behavior. Problems with personal and public identity, excessive confusion about their sexual identity and at times sexual orientation, boredom, family discord, childhood sexual and/or mental abuse, academic pressure, and chronic depression all contribute to the inability to cope with issues without drugs.

Floaters or chippers initially focus more on using other people's drugs without maintaining a steady supply of drugs. Nonetheless, floaters or chippers, like experimenters, are generally light to moderate drug users. Floaters or chippers feel a largely unconscious need to seek pleasure from using drugs and the desire to relieve moderate to serious psychological problems. Even though most are on a path to drug dependence, at this stage they may generally drift between or simultaneously intermix with other experimental drug-taking peers and chronic drug-using peers. In a sense, these types of drug users feel marginally attached to conventional society and often appear to conventional members of society as norm abiding, while masking their secret drug use. At this stage, floaters or chippers are not yet firmly attached to compulsive users often because they have not made the commitment to continually do drugs. (See "Signs and Symptoms: Who Is More Likely to Use Licit and Illicit Drugs?")

SIGNS & SYMPTOMS

Who Is More Likely to Use Licit and Illicit Drugs?

Many factors influence whether an adolescent tries drugs, including the availability of drugs within the neighborhood, community, and school and whether the adolescent's friends are using them. The family environment is also important: violence, physical or emotional abuse, mental illness, or drug use in the household increase the likelihood an adolescent will use drugs. Finally, an adolescent's inherited genetic vulnerability; personality traits such as poor impulse control or a high need for excitement; mental health conditions such as depression, anxiety, or ADHD; and beliefs such as that drugs are "cool" or harmless make it more likely that an adolescent will use drugs (NIDA 2014).

According to the National Institute of Drug Abuse (2014), adolescents experiment with drugs or continue taking them for several reasons, including:

- *To fit in*: Many teens use drugs "because others are doing it"—or they think others are doing it—and they fear not being accepted in a social circle that includes drug-using peers.
- *To feel good*: Abused drugs interact with the neurochemistry of the brain to produce feelings of pleasure. The intensity of this euphoria differs by the type of drug and how it is used.
- *To feel better*: Some adolescents suffer from depression, social anxiety, stress-related disorders, and physical pain. Using drugs may be an attempt to lessen these feelings of distress. Stress especially plays a significant role in starting and continuing drug use as well as returning to drug use (relapsing) for those recovering from an addiction.
- *To do better*: Ours is a very competitive society, in which the pressure to perform athletically and academically can be intense. Some adolescents may turn to certain drugs like illegal or prescription stimulants because they think those substances will enhance or improve their performance.
- *To experiment*: Adolescents are often motivated to seek new experiences, particularly those they perceive as thrilling or daring.

(*continues*)

SIGNS & SYMPTOMS

Who Is More Likely to Use Licit and Illicit Drugs? (*continued*)

Finally, when attempting to determine who among drug users has a greater likelihood of becoming addicted, one research finding reports that "As with many other conditions and diseases, vulnerability to addiction differs from person to person. Your genes, mental health, family and social environment all play a role in addiction" (Helpguide.org n.d.). The following risk factors increase a person's vulnerability to addiction (Helpguide.org n.d.):

- Family history of addiction
- Abuse, neglect, or other traumatic experiences
- Mental disorders such as depression and anxiety
- Early use of drugs
- Method of administration (smoking or injecting a drug may increase its addictive potential)

Data from National Institute of Drug Abuse (NIDA). *Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide*. Bethesda, MD: National Institute on Drug Abuse, January 2014. Available https://www.drugabuse.gov/sites/default/files/podata_1_17_14.pdf; Helpguide.org. "Drug Abuse and Addiction." n.d. Available http://www.helpguide.org/articles/addiction/drug-abuse-and-addiction.htm

■ Drug Use: Mass and Electronic Media and Family Influences

Studies continually show that the majority of young drug users come from homes in which drugs are liberally used (Goode 1999; National Association for Children of Alcoholics 2005; SAMHSA, Office of Applied Studies 1996). Children from these homes constantly witness drug use at home, often on a daily basis. For instance, parents may consume large quantities of coffee to wake up in the morning and other forms of medication throughout the day: cigarettes with the morning coffee, pills for either treating or relieving an upset stomach, vitamins for added nutrition, or aspirin for a headache. Finally, before going to bed, the grown-ups may take a few "nightcaps" or a sleeping pill to relax. The following is an interview related to the overuse of drugs:

> Yeah, I always saw my mom smoking early in the morning while reading the newspaper and slowly sipping nearly a full pot of coffee. She took prescription drugs for asthma, used an inhaler, and took aspirin for headaches. When she accused me of using drugs at concerts, I would pick up her pack of cigarettes and several prescription bottles and while she was raging on me, I would quietly wave all her drugs close up in front of her face. She would stop nagging within seconds and actually one time I think she wanted to laugh but turned away toward the sink and just started washing cups and saucers. The way I figure it, she has her drugs, and I have mine. She may not agree with my use of my drugs but then she is not better either. It's great to have a drug-using family ain't it? *(From Venturelli's research files, male college student, age 20, June 12, 2000)*

This next interview is an example of how "pill-pilfering" can easily occur:

> Yes, I came from a home with dozens of pharmacy prescriptions and with medicine cabinets crammed with over-the-counter drugs. In fact, my mom noticed that certain friends of mine were helping themselves to our medicine cabinet. At first, she told my dad that I was taking the pills. Finally, she had to remove most of the prescription medicines from the guest bathroom and hide them in her bedroom bathroom. This was about four years ago when I was in high

KEY TERMS

compulsive users
second category of drug users, typified by an insatiable attraction followed by a psychological dependence on drugs

floaters or chippers
third category of drug users; these users vacillate between the need for pleasure-seeking and the desire to relieve moderate to serious psychological problems; this category of drug user has two major characteristics: (1) a general focus mostly on using other people's drugs (often without maintaining a personal supply of the drug) and (2) vacillation between the characteristics of chronic drug users and experimenter types

> school. She was right, several of my friends had a knack of lifting tabs from other homes when visiting friends. I know that one of my friends was into this when he told another friend of mine that our home had a nice variety of great drugs in the bathroom. Now, I know why my friends always had to go to the bathroom whenever they would stop by to see me. *(From Venturelli's research files, male attending a mid-size university in the Midwest, age 20, June 6, 2010)*

Some social scientists believe that everyday consumption of legal drugs—caffeine, prescription and OTC drugs, and alcohol—is fueled by the pace of modern lifestyles and greatly accelerated by the influence of today's increasingly sophisticated mass media.

If you look around your classroom building, the dormitories at your college, your college library, or your own home, evidence of mass media and electronic equipment can be found everywhere. Cultural knowledge and information are transmitted via media through electronic gadgets we simply "can't live without," to the point that they help us define and shape our everyday reality. One recent survey reports that "digital peer pressure appears to have played a significant role in getting teens started on drugs and booze—something that was not the case before the era of social networking sites. Seventy-five percent of respondents said that seeing Facebook pictures of their peers partying with alcohol and marijuana encourages other teens to imitate them" (Huffington Post 2012, p. 1). In addition, "[c]ompared to teens who have not seen pictures on Facebook or other social networking sites of kids getting drunk, passed out, or using drugs, teens who have seen such pictures are: [f]our times likelier to have used marijuana, [m]ore than three times likelier to have used alcohol; and [a]lmost three times likelier to have used tobacco" (CASA Columbia 2012, p. 3).

With regards to drug advertising, television remains the most influential medium. Today, most homes (82%) have more than one television (Nielson 2016). Nielsen (2016) also reports that "in 2009 the average American home had 2.86 TV sets, which is roughly 18% higher than in 2000 (2.43 sets per home)." Just as the number of televisions in the average home has been increasing over the last 30 years, "Drug firms … [have been increasing] … their spending on television advertising to consumers seven-fold from 1996 to 2000" (CBS News 2002). "Drug makers in 2014 spent $4.5 billion marketing prescription drugs, up from $3.5 billion in 2012. That's also up from the $2.5 billion drug makers spent in 2000, or $3.39 billion in 2015 dollars when adjusted for inflation" (Millman 2015).

As an example, "[i]n 2014, two widely recognized erectile dysfunction drugs that have been on the market for more than a decade—Pfizer's Viagra and Eli Lilly's Cialis—ranked among the top five, …. Pfizer's advertising budget for its 'little blue pill' has more than doubled in the past five years to $232 million, and the company notably started marketing directly to women" (Millman 2015).

As another example, "Each year, the top 14 major alcohol marketers spent more than a $3.45 billion dollars on 'measured media' advertising, that is television, radio, print, online, direct mail and outdoor ads" (Federal Trade Commission [FTC] 2015). "The advertising budget for one beer—Budweiser—is more than the entire budget for research on alcoholism and alcohol abusers" (Kilbourne 1989, p. 13). Other findings indicate that "Alcohol companies spent $4.9 billion on television advertising between 2001 and 2005. They spent 2.1% of this amount ($104 million) on 'responsibility advertisements'" (Center on Alcohol Marketing and Youth [CAMY] 2007). "For the entire period from 2001 to 2003, Anheuser-Busch spent 20 times more on product ads than on 'responsibility' ads, and placed 30 times as many product ads as 'responsibility' ads" (CAMY 2005).

Radio, newspapers, and magazines are also saturated with advertisements for OTC drugs that constantly offer relief from whatever illness you may have. There are pills for inducing sleep and those for staying awake, as well as others for treating indigestion, headache, backache, tension, constipation, and the like. Using these medicinal compounds can significantly alter mood, level of consciousness, and physical discomfort. Experts warn that such drug advertising is likely to increase.

In the early 1990s, the Food and Drug Administration (FDA) lifted a 2-year ban on consumer advertising of prescription drugs; since then, there has been an onslaught of new sales pitches. In their attempts to sell drugs, product advertisers use the authority of a physician or health expert or the seemingly sincere testimony of a product user. Viewers, or listeners are strongly affected by testimonial advertising because these drug commercials can appear authentic and convincing.

The constant barrage of commercials, including many for OTC drugs, relays the message that, if

HERE AND NOW

Abuse of Licit and Illicit Drugs by the Elderly

SAMHSA (2012) reports the following regarding drug misuse and abuse by the elderly:

> Older adults are among those most vulnerable to medication misuse and abuse because they use more prescription and over-the-counter (OTC) medications than other age groups. They are likely to experience more problems with relatively small amounts of medications because of increased medication sensitivity as well as slower metabolism and elimination. Older adults are at high risk for medication misuse due to conditions like pain, sleep disorders/insomnia, and anxiety that commonly occur in this population. They are, therefore, more likely to receive prescriptions for psychoactive medications with misuse and abuse potential, such as opioid analgesics for pain and central nervous system depressants like benzodiazepines for sleep disorders and anxiety. Approximately 25% of older adults use prescription psychoactive medications that have a potential to be misused and abused. Older adults are more likely to use psychoactive medications for longer periods than younger adults. Longer periods of use increases the risk of misuse and abuse. In addition to concerns regarding misuse of medications alone, the combination of alcohol and medication misuse has been estimated to affect up to 19% of older Americans.

Scope of the Problem: Drug Use and Abuse Among Older Adults

- "An estimated 4.8 million adults aged 50 and older have used an illicit drug in the past year. . . .The prevalence of illicit drug use was higher among adults aged 50 to 59 than those aged 60 and older) (Reardon 2012).
- "Overall, alcohol was the most frequently reported primary substance of abuse for persons aged 50 or older. Opiates were the second most commonly reported primary substance of abuse, reported most frequently by individuals aged 50 to 59. These individuals also had the highest proportions of inpatient admissions for cocaine, marijuana, and stimulant abuse" (Bogunovic 2012).
- Marijuana use was more common than nonmedical use of prescription-type drugs for adults aged 50 to 54 and those aged 55 to 59 (6.1% vs. 3.4% and 4.1% vs. 3.2%, respectively), but among those aged 65 or older nonmedical use of prescription-type drugs was more common than marijuana use (0.8% vs. 0.4%) (NSDUH Report 2009).
- Marijuana use was more common than nonmedical use of prescription-type drugs among males aged 50 or older (4.2% vs. 2.3%), but among females the rates of marijuana use and nonmedical use of prescription-type drugs were similar (1.7% and 1.9%) (*The NSDUH Report* 2009).
- "Among adults aged 50 or older, the prevalence rates of any illicit drug use and marijuana use in the past year were higher among males than females" (Crabb 2014).
- "Among adults aged 50 or older who used illicit drugs in the past year, 45.2% used only marijuana, 31.5% used only prescription-type drugs nonmedically, and 5.6% used only other illicit drugs (including cocaine, heroin, hallucinogens, or inhalants) with the remainder using other combinations of illicit drugs" (Crabb 2014).
- "The number of Americans aged 50+ years is increasing as large numbers of baby boomers reach age 50 years or older, and this cohort uses more psychoactive drugs than older cohorts" (Li-Tzy and Blazer 2011).
- Many Americans who are now young or middle-aged will carry their use and abuse of alcohol and other drugs with them into old age—and they will also live longer (SAMHSA 2013).
- Older adults are more likely to take prescribed psychoactive medications for longer periods of time than younger adults and run an additional risk of becoming addicted to their prescribed medications (SAMHSA 2013).

An example of elderly drug abuse includes the following:

> Oh, I started with cigarettes when I was fourteen. Then came the alcohol when I was sixteen, and now I am now 62 years old and still playing around with drugs. I have several friends who still smoke weed, but not too many around who continue like I do. I generally smoke cigarettes, weed (as they call it today), sometimes buy a little bag of coke and smoke that, too, and drink alcohol. I don't do the coke much because I like

(*continues*)

HERE AND NOW

Abuse of Licit and Illicit Drugs by the Elderly (*continued*)

to smoke it, and it is tough on the heart. My drug using friends who are around my age don't really know about the coke use; they think I stopped this years ago. I still have days when I long for it, but I have enough of a hard time with the weed and the drinking. My children do not know how much I drink since I live alone, and they even think I have nothing to do with weed. So, I guess I am a closet user. At times I am sorry to continue with these unnecessary drugs, and it's even darn right embarrassing if anyone finds out. Even the cigarettes are a pain in the butt. I just need to get high every now and then, and I don't know why. I think it is something genetic since I want to quit all these drugs but simply do not do it. You asked if I think a lot of the elderly use drugs unnecessarily [drugs used without medical purposes]. Yes, there are many of us, especially the baby boomers who still smoke weed, but we kind of keep it secret. So, if the numbers of users my age are increasing, I would double the real number of users. As I said, many of us just keep it secret because we still work, have good jobs with a lot of responsibilities, and our kids would look down on us if they knew. You asked if I feel addicted to these drugs. Yes, I am addicted since I really don't want to quit everything, yet it is not good for my health and still keep using these drugs. Isn't this a classic example of addiction, which is to keep using drugs even though you know they are not good for you? If it's not addiction, what else would it be? *(From Venturelli's research files, male, age 62, April 22, 2011)*

Data from Reardon, C. "The Changing Face of Older Adult Substance Abuse." *Social Work Today* 12 (January/February 2012):8; Bogunovic, O. "Substance Abuse in Aging and Elderly Adults." Psychiatric Times, 27 July 2012. Available http://www.psychiatrictimes.com/geriatric-psychiatry/substance-abuse-aging-and-elderly-adults; Substance Abuse and Mental Health Service Administration (SAMHSA). "Older Americans Behavioral Health, Issue Brief 5: Prescription Medication Misuse and Abuse Among Older Adults." Rockville, MD: Older Americans: Behavioral Health Technical Assistance Center, 2012. Available http://www.aoa.acl.gov/AoA_Programs/HPW/Behavioral/docs2/Issue%20Brief%205%20Prescription%20Med%20Misuse%20Abuse.pdf; *The NSDUH* (National Survey on Drug Use and Health) *Report*. "Illicit Drug Use Among Older Adults." Rockville, MD: U.S. Department of Health and Human Services (USDHHS), Office of Applied Studies (OAS), 2012; Crabb, G. "Illicit Drug Use Among Older Adults." Naples, FL: Dr. George Crabb, Physician and Addiction Expert, 7 March 2014. Available http://drgeorgecrabb.com/uncategorized/illicit-drug-use-among-older-adults.html; Li-Tzy, W., and D. G. Blazer. "Illicit and Nonmedical Drug Use Among Older Adults: A Review." *Journal of Aging Health* 23 (2011):481-504; Substance Abuse and Mental Health Services Administration (SAMHSA). *Substance Abuse Among Older Adults*. Rockville, MD: National Center for Biotechnology Information, 2013.

you are experiencing restlessness or uncomfortable symptoms, taking drugs is an acceptable and normal response. As a result, television viewers, newspaper and magazine readers, and radio listeners are led to believe or unconsciously select the particular brand advertised when confronted with dozens upon dozens of drug choices for a particular ailment. In effect, this advertising reaffirms the belief that drugs are necessary when taken for a real or an imagined symptom.

Drug Use and Drug Dependence

Why are so many people attracted to drugs and the effects of recreational drug use? Like the ancient Assyrians, who sucked on opium lozenges, and the Romans, who ate hashish sweets some 2000 years ago, many users claim to be bored, in pain, frustrated, unable to enjoy life, or alienated. Such people turn to drugs in the hope of finding oblivion, peace, inner connections, outer connections (togetherness), or euphoria. The fact that many OTC drugs never really cure the ailment, especially if taken for social and psychological reasons, and the fact that frequent use of most drugs increases the risk of addiction, do not seem to be deterrents. People continue to take drugs for many reasons, including the following:

- Searching for pleasure and using drugs to heighten good feelings.
- Taking drugs to temporarily relieve stress or tension or provide a temporary escape for people with anxiety.
- Taking drugs to temporarily forget one's problems and avoid or postpone worries.
- Viewing certain drugs (such as alcohol, marijuana, and tobacco) as necessary to relax after a tension-filled day at work.
- Taking drugs to fit in with peers, especially when peer pressure is strong during early and late adolescence; seeing drugs as a rite of passage.

- Taking drugs to enhance religious or mystical experiences. (Very few cultures teach children how to use specific drugs for this purpose.)
- Taking drugs to relieve pain and some symptoms of illness.
- Resuming drug use from teenage and young adult period(s) of life, for example, elderly baby boomers who may have used drugs in their youth.

It is important to understand why, historically, many people have been unsuccessful in eliminating the fascination with drugs. To reach such an understanding, we must address questions dealing with (1) why people are attracted to drugs, (2) how experiences with the different types of drugs vary (here, many attitudes are conveyed from the "inside"—the users themselves), (3) how each of the major drugs affects the body and the mind, (4) how patterns of use vary among different groups, and (5) what forms of treatment are available for the addicted.

■ When Does Use Lead to Abuse?

Views about the use of drugs depend on one's perspective. For example, from a pharmacological perspective, if a patient is suffering severe pain because of injuries sustained from an automobile accident, high doses of a narcotic such as morphine or Demerol should be given to control discomfort. While someone is in pain, no reason exists not to take the drug. From a medical standpoint, once healing has occurred and pain has been relieved, drug use should cease. If the patient continues using the narcotic because it provides a sense of well-being or he or she has become dependent to the point of addiction, the pattern of drug intake is then considered abuse. Thus, the amount of drug(s) taken or the frequency of dosing does not necessarily determine abuse (even though individuals who abuse drugs usually consume increasingly higher doses). Most important is the motive for taking the drug, which is the principal factor in determining the presence of abuse.

Initial drug abuse symptoms include (1) excessive use, (2) constant preoccupation about the availability and supply of the drug, (3) denial in admitting the excessive use, and (4) reliance on the drug. All of these four factors frequently result in producing the initial symptoms of withdrawal whenever the user attempts to stop taking the drug. As a result, the user often begins to neglect other responsibilities or ambitions in favor of using the drug.

Even the legitimate use of a drug can be controversial. Often, physicians cannot decide even among themselves what constitutes legitimate use of a drug. For example, MDMA (Ecstasy) is currently prohibited for therapeutic use, but in 1985, when the **Drug Enforcement Administration (DEA)** was deciding MDMA's status, some 35 to 200 physicians (mostly psychiatrists) were using the drug in their practice. These clinicians claimed that MDMA relaxed inhibitions and enhanced communication and was useful as a psychotherapeutic adjunct to assist in dealing with psychiatric patients (Leventhal 1996; Schecter 1989). From the perspective of these physicians, Ecstasy was a useful medicinal tool. However, the DEA did not agree and made Ecstasy a Schedule I drug. Schedule I excludes any legitimate, legal use of the drug in therapeutics; consequently, according to this ruling, anyone taking Ecstasy is guilty of drug abuse (Goode 2012) and is violating drug laws.

If the problem of drug abuse is to be understood and solutions are to be found, identifying the causes of the abuse is most important. When a drug is being abused, it is not legitimately therapeutic; that is, it does not improve the user's physical or mental health. When drug use is not used for therapeutic purposes, what is the motive for taking the drug?

There are many possible answers to this question. Initially, most drug abusers perceive some psychological advantage when using these compounds. For many, the psychological lift is significant enough that they are willing to risk social exclusion, health problems, and dramatic changes in personality, arrest, incarceration, and fines to have their drug. The psychological effects that these drugs cause may entail an array of diverse feelings. Different types of drugs have different psychological effects. The type of drug an individual selects to abuse may ultimately reflect his or her own mental state.

For example, people who experience chronic depression, feel intense job pressures, are unable to focus on accomplishing goals, or have a sense of inferiority may find that a stimulant such as cocaine or an amphetamine-type of drug appears to provide immediate relief—a solution to a set

KEY TERM

Drug Enforcement Administration (DEA)
the principal federal agency responsible for enforcing U.S. drug laws

of psychological frustrations. These drugs cause a spurt of energy, a feeling of euphoria, a sense of superiority, and imagined self-confidence. In contrast, people who experience nervousness and anxiety and want instant relief from the pressures of life may choose a depressant such as alcohol or barbiturates. These agents sedate, relax, provide relief, and even have some amnesiac properties, allowing users to suspend or forget their immediate pressing concerns or problems. People who perceive themselves as creative or who have artistic talents may select hallucinogenic types of drugs to "expand" their minds, heighten their senses, and distort what appears to be a confining and sometimes monotonous nature of reality. As individuals come to rely more on drugs to inhibit, deny, accelerate, or distort their realities, they run the risk of becoming psychologically dependent on drugs.

Some have argued that taking a particular drug to meet a psychological need, especially if a person is over 21 years of age, is not very different from taking a drug to cure an ailment. The belief here is that physical needs and psychological needs are really indistinguishable. In fact, several drug researchers and writers, including Szasz (1992) and Lenson (1995), believe that drug taking is a citizen's right and a personal matter involving individual decision making. They see drug taking as simply a personal choice to depart from or alter consciousness. Lenson states that taking drugs for recreational purposes is simply an additional form of diversity, a type of mental diversity that should exist with many other acceptable forms of diversity, such as cultural, racial, religious, gender, and sexual orientation diversity. (For additional elaboration on these views, see Venturelli 2000.) Obviously, this is a very different and often extremely controversial point of view that can easily cause polemic and very debatable perspectives!

Drug Dependence

This section introduces some underlying factors that lead to drug dependence. Our discussion emphasizes drug dependence instead of addiction because the term *addiction* is both controversial and relative, as evidenced with celebrities and rock and movie stars and their drug dependence, including some who have died from drug dependence. Stars such as Charlie Sheen, Mel Gibson, and Ben Affleck (alcoholism); John Belushi, Lindsay Lohan, and Robin Williams (alcoholism and cocaine); Robert Downey, Jr. (cocaine and heroin); Michael Jackson (prescription drugs); Philip Seymour Hoffman (illegal drug); Cory Monteith (illegal drug and alcohol); Chris Kelly (illegal drug); Whitney Houston (illegal drug); Amy Winehouse (alcohol); and Eminem (analgesic prescription drugs) are just a few examples.

Even when drug dependence becomes full-fledged, addiction remains debatable, with many experts unable to agree on one set of characteristics that constitutes addiction. Furthermore, the term *addiction* is viewed by some as a pejorative that adds to the labeling process.

KEY TERMS

relief phase
satisfaction derived from escaping negative feelings by using the drug

increased use phase
taking increasing quantities of the drug

The main characteristics necessary for drug dependence are as follows:

- Both physical and psychological factors precipitate drug dependence. Recently, closer attention has been focused on the mental (psychological) attachments than on the physical addiction to drug use as principally indicative of addiction—mostly, the craving aspect of wanting the drug for consumption.
- More specifically, psychological dependence refers to the need that a user may feel for continued use of a drug to experience its effects. Physical dependence refers to the need to continue taking the drug to avoid withdrawal symptoms that often include feelings of discomfort and illness.
- With repeated use there is a tendency to become dependent on and addicted to most psychoactive drugs.
- Addiction to a drug sets in when the drug user has advanced within the dependence phase. (Having an addiction to a drug is simply an advanced stage of dependence.)
- Generally, the addiction process involves mental (psychological) and physical (physiological/biophysiological) dependence.

Figure 8 shows that the process of addiction involves five separate phases: relief, increased use, preoccupation, dependency, and withdrawal. Initially, the **relief phase** refers to the relief experienced by using a drug, which allows a potential addict to escape one or more of the following feelings: boredom, loneliness, tension, fatigue, anger, or anxiety. The **increased use phase**

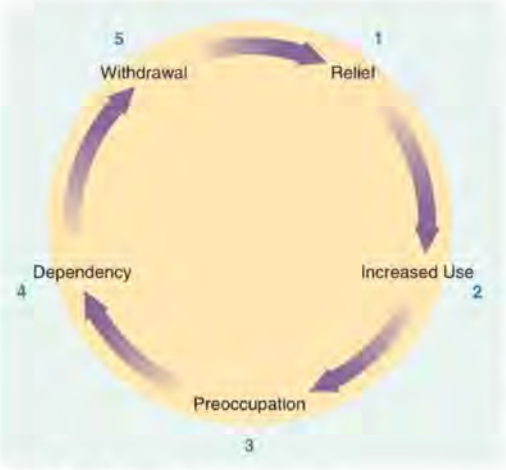


FIGURE 8 Stages of drug dependence.

involves taking greater quantities of the drug. The **preoccupation phase** consists of a continuous interest with and concern for the substance—that is, always having a supply of the drug and taking the drug is perceived as "normal" behavior. The **dependency phase** is synonymous with addiction. In this phase, more of the drug is sought without regard for the presence of negative physical symptoms, such as congested coughing and/or shortness of breath in cases of cigarette and marijuana addiction, blackouts from advanced alcohol abuse, and moderate to acute soreness and inflammation of nasal passages from snorting cocaine. The **withdrawal phase** involves such symptoms as itching, chills, tension, stomach pain, or depression from the nonuse of the addictive drug and/or an entire set of psychological concerns mainly involving an insatiable craving for the drug (Monroe 1996).

The Costs of Drug Use to Society

Many of the costs of drug addiction go beyond the user. Society pays a high price for drug addiction. Consider, for example, the loss of an addicted person's connection with reality and the loss of responsible dedication to careers and professions, illnesses experienced by the addicted individual, marital strife, shortened lives, and so on. Additionally, the dollar costs of addiction are also enormous.

The **National Institute on Drug Abuse (NIDA)** has estimated that the typical narcotic habit costs the user approximately $150 a day to support his or her addiction. The precise dollar amount spent to support a narcotic addiction largely depends on the geographic location where the drug is procured and used, availability of the drug affecting the price, and numerous other factors. For example, a heroin addict, will spend "$150–200 per day in order to support his or her habit" (Heroin.net 2016), which adds up to $54,750 to $73,000 per year just to maintain the drug supply. It is impossible for most addicts to get this amount of money legally; therefore, many support their habits by resorting to criminal activity or by working as or for drug dealers.

Most crimes related to drugs involve theft of personal property—primarily burglary and shoplifting—and, less commonly, assault and robbery (often mugging). Estimates are that a heroin addict must steal three to five times the actual cost of the drugs to maintain the habit, which becomes an astronomical and impractical amount per year. Further, it is not unusual with crack and heroin use that a high proportion of hardcore addicts resort to pimping and prostitution (with no accurate figures available regarding the cost of drug-related prostitution), although some law enforcement officials have estimated that prostitutes take in a total of $10 billion to $20 billion per year. It has also been estimated that nearly three out of every four prostitutes in major cities have a serious drug dependency.

In looking at the history of past-month methamphetamine (meth) users in the United States, we find that according to the yearly National Survey on Drug Use and Health (NSDUH) there were 569,000 (0.2%) users in 2014 (CBHSQ 2015). There were 440,000 (0.2%) users in 2011; 353,000 (0.1%) in 2010; 502,000 (0.2%) in 2009; 314,000 (0.1%) in 2008; 731,000 (0.3%) in 2006; and 530,000 (0.2%) in 2007 (SAMHSA 2012). In 2012, there were 133,000 new users of

KEY TERMS

preoccupation phase
constant concern with the supply of the drug

dependency phase
synonym for addiction

withdrawal phase
physical and/or psychological effects derived from not using the drug

National Institute on Drug Abuse (NIDA)
the principal federal agency responsible for directing research related to drug use and abuse

methamphetamine aged 12 or older, with the same number the previous year but a continuing a general downward trend across the past decade (SAMHSA 2012).

In the late 1990s there was a significant concern regarding the nationwide increase in clandestine laboratories involved in synthesizing or processing this type of illicit drug. Such laboratories produced amphetamine-type drugs, heroin-type drugs, designer drugs, and LSD and processed other drugs of abuse such as cocaine and crack. The DEA reported that 390 laboratories were seized in 1993, a figure that increased to 967 in 1995. Another example of the phenomenal growth of methamphetamine laboratories was found in Missouri. From 1995 to 1997, seizures of such labs in Missouri increased by 535% (Steward and Sitarmiah 1997). "In Dawson County in western Nebraska ... 'The percentage of meth-related crimes is through the roof' ... as reiterated by an investigator with the county sheriff's office.... In the state as a whole, officials discovered 38 methamphetamine laboratories in 1999; last year [2001] they discovered 179" (Butterfield 2002, p. A23). In 2012, the total number of meth clandestine laboratory incidents was 11,210, and included lab, dumpsite, and Chem/Glass/Equipment incidents (USDOJ 2013). Regarding seizures of this drug, one report states that "36,572 pounds: That's the amount of methamphetamine seized near the U.S.–Mexico border at U.S. Border Patrol stations and Customs and Border Protection ports of entry near the border from 2005 to 2011" (Chen 2013). In 2015, the state of Indiana had the highest amount of clandestine methamphetamine lab incidents, resulting in 1530 site seizures (Meth. IN.gov 2015). The reasons for such dramatic increases and usage are related to the enormous profits and relatively low risk associated with these operations. As a rule, clandestine laboratories are fairly mobile and relatively crude (often operating in a kitchen, basement, or garage) and are run by individuals with only elementary chemical skills.

Another interesting discovery was that these laboratories were not always stationary in locations such as garages, barns, homes, apartments, and so on. Although these stationary labs predominated, especially in the production of methamphetamine, mobile labs also made an appearance:

> Cooking in cars and trucks helped producers in two ways: It eludes identification by law enforcement and motion helps the chemical reaction [of methamphetamine production]. Motels are a new production setting ... [though fewer in number today]. Clandestine labs are also set up in federal parklands, where toxic byproducts pose a danger to hikers and campers. (ONDCP 2002, p. 58)

To demonstrate how a drug such as methamphetamine affects society, in 2003, the following was reported:

> With portable meth labs popping up everywhere from motel bathrooms to the back seat of a Chevy, it was only a matter of time before they made their way onto campus. Last November, a custodian notified campus police at [University in Texas] about what appeared to be a lab set up in a music practice room in the [university's] Fine Arts Center. "We found beakers of red liquid, papers and other residue, and the room had this horrible odor...."
>
> Students were on vacation, so the practice room, which had its windows blackened out, would have afforded the occupant a few days to cook. [One campus police official] ... speculates that this is just the beginning: "Labs are popping up on campuses all over the country. It's just too easy now. You can get the recipe on the Internet. Still, how could someone be so brazen as to set up an operation next to the French horn section?" (Jellinek 2003, p. 54)

Because of a lack of training, inexperience, and the danger of experiencing the effects of methamphetamine while making the drug, the chemical "cooking" procedures are performed crudely, sometimes resulting in adulterants and impure products. Such contaminants can be very toxic, causing severe harm or even death to the unsuspecting user as well as a greater likelihood of sudden explosion (Drug Strategies 1995). Fortunately, when looking at all the illicit drugs produced by such underground laboratories, such outbreaks of physically harmful drugs do not occur very often. Partial proof of this is found in the small number of news stories of deaths or poisonings from illicit drugs. Nevertheless, because profit drives these clandestine labs, which obviously have no government supervision, impurities or "cheap fillers" are always possible so that greater profits can be made. Here, caution is very advisable in that drug purchasers do not have any guarantees when purchasing powerful illicit drugs.

Society continues paying a large sum even after users, addicts, and drug dealers are caught and sentenced because it takes from $75 to $1500 per day to keep one person incarcerated. A recent post by the Federal Register (2015) reports that "The fee to cover the average cost of incarceration for Federal inmates in Fiscal Year 2014 was $30,619.85 ($83.89 per day). (Please note: There were 365 days in FY 2014.) The average annual cost to confine an inmate in a Residential Reentry Center for Fiscal Year 2014 was $28,999.25 ($79.45 per day)."

Supporting programs such as methadone maintenance costs much less. New York officials estimate that methadone maintenance costs about $3000 per year per patient. For nonhospital residential treatment, methadone costs average around $76.13 per day. With outpatient methadone programs, daily costs average around $17.78 per day (Methadone Centers 2016), which is much less than the cost of incarceration.

A more long-term effect of drug abuse that has substantial impact on society is the medical and psychological care often required by addicts due to disease resulting from their drug habit. Particularly noteworthy are the communicable diseases spread because of needle sharing within the drug-abusing population, such as hepatitis and HIV.

In the United States, the Centers for Disease Control and Prevention (CDC) estimates that 1,218,400 persons aged 13 years and older are living with HIV infection, including 156,300 (12.8%) who are unaware of their infection. Over the past decade, the number of people living with HIV has increased, while the annual number of new HIV infections has remained relatively stable. Still, the pace of new infections continues at far too high a level—particularly among certain groups (CDC 2015b). (Acquired immune deficiency syndrome [AIDS] has a tendency to develop within 5 to 10 years of the onset of HIV.) Worldwide, approximately 35 million people are living with HIV/AIDS (CDC 2016). This number includes people living in sub-Saharan Africa, Asia, Latin America and the Caribbean, Eastern Europe, Central Asia, North America, Western and Central Europe, North Africa and the Middle East, and Oceania (Clinton 2006).

In the United States, HIV is spread primarily through unprotected sexual intercourse and sharing of previously used needles to inject drugs. HIV in the injecting–drug-user subpopulation is transmitted in the small (minuscule) amount of contaminated blood remaining in the used needles. The likelihood of a member of the drug-abusing population contracting HIV directly correlates with the frequency of injections and the extent of needle sharing. Care for AIDS patients lasts a lifetime, and many of these medical expenses come from federal- and state-funded programs. Many cities throughout the United States have publicly funded programs that distribute new, uncontaminated needles to drug addicts. The needles are free of charge in exchange for used injection needles in order to prevent the spread of HIV and hepatitis B and C from contaminated needles. These programs are often referred to as **needle-exchange programs**.

Also of great concern is drug abuse by women during pregnancy. Some psychoactive drugs can have profound, permanent effects on a developing fetus. The best documented is fetal alcohol syndrome (FAS), which can affect the offspring of alcoholic mothers. Cocaine and amphetamine-related drugs can also cause irreversible congenital changes when used during pregnancy. All too often, the affected offspring of addicted mothers become the responsibility of welfare organizations. In addition to the costs to society just mentioned, other costs of drug abuse include drug-related deaths, emergency room visits and hospital stays, and automobile fatalities.

■ Drugs, Crime, and Violence

There is a long-established close association between drug abuse and criminality. The beliefs (hypotheses) for this association range along a continuum between two opposing views: (1) criminal behavior develops as a means to support addiction, and (2) criminality is inherently linked to the user's personality and occurs independently of drug use (Bureau of Justice Statistics [BJS] 2006; Drug Strategies 1995; McBride and McCoy 2003). In other words, does drug addiction cause a person to engage in criminal behavior such as burglary, theft, and larceny to pay for the drug habit? Or, does criminal behavior stem from an already existing criminal personality such that drugs are used as an adjunct to commit such acts? In other words, are drugs used in conjunction with crime to sedate and give the added confidence needed to commit daring law violations?

KEY TERM

needle-exchange programs
publicly funded programs that distribute new, uncontaminated needles to drug addicts in exchange for used injection needles in order to prevent the spread of HIV and hepatitis B and C

The answers to these questions have never been clear because findings that contradict one view in favor of the other continue to mount on both sides. Part of the reason for the controversy about the relationship between criminal activity and drug abuse is that studies have been conducted in different settings and cultures, employing different research methods, and focusing on different addictive drugs. As a result, too many factors are involved to allow us to distinguish the cause from the result. We know that each type of drug has unique addictive potential and that interpretation of exactly when a deviant act is an offense (violation of law) varies. Furthermore, we know that people think differently while under the influence of drugs. Whether criminalistic behavior is *directly* caused by the drug use or whether prior socialization and peer influence work in concert to cause criminal behavior remains unclear. Certainly, we think it would be safe to believe that prior socialization, law-violating peers, and drugs are strong contributing factors for criminal behavior.

Although this controversy about the connection between drugs and crime continues to challenge our thinking, the following findings are also noteworthy:

- The United States ranks first the world in the number of people incarcerated in federal and state correctional facilities. In 2014, 1,561,500 prisoners were under the jurisdiction of state and federal correctional authorities (BJS 2015a). Almost half (48%) of the federal inmates were serving time for drug offenses (Carson and Sabol 2012).
- The United States incarcerates more people for drug offenses than any other country (Natarajan et al. 2008; Sentencing Project 2013).
- With an estimated 24.6 million Americans struggling with current (within 30 days of use) drug use and/or dependence (SAMHSA 2014b), the growth of the prison population continues to be driven largely by incarceration for drug offenses.
- In 2006, "17% of State and 18% of Federal prisoners committed their crime to obtain money for drugs" (Mumola and Karberg 2007, p. 1). Approximately one out of every six major crimes is committed because of the offender's need to obtain money for drugs.
- An estimated 516,900 black males were in state or federal prison on December 31, 2014, on sentences of more than 1 year, which was 37% of the sentenced male prison population. White males made up an additional 32% of the male population (453,500 inmates), followed by Hispanic males (308,700 inmates, or 22%). White females in state or federal prison at yearend 2014 (53,100 prisoners) outnumbered black (22,600) and Hispanic females (17,800) combined (BJS 2015b).
- 80% of offenders abuse drugs or alcohol (National Council on Alcoholism and Drug Dependence [NCADD] 2015).
- Nearly 50% of jail and prison inmates are clinically addicted (NCADD 2015).
- Approximately 60% of individuals arrested for most types of crimes test positive for illegal drugs at arrest (NCADD 2015).
- In 2011, 45% of arrestees tested positive for marijuana during their arrest, 41% for cocaine, 61% for opiates, and 61% for methamphetamine (ONDCP 2012).
- The Arrestee Drug Abuse Monitoring Program (ADAM) reports that arrestees are tested for the presence of 10 drugs. The proportion of arrestees testing positive for any of the 10 drugs ranged from 63% in Atlanta to 83% in Chicago and Sacramento. Arrestees testing positive for multiple drugs in their system ranged from 12% in Atlanta to 50% in Sacramento (ONDCP 2014).
- Marijuana remained the most commonly detected drug in urine testing, from 34% of ADAM II arrestees testing positive in Atlanta to 59% in Sacramento. Those who obtained marijuana in the prior 30 days reported little difficulty obtaining the drug, indicating an overall high availability of the drug in all sites (ONDCP 2014).
- In federal prisons in 2015, the Bureau of Justice Statistics (2015b) reports that almost all (99.5%) drug offenders in federal prison were serving sentences for drug trafficking.
- Cocaine (powder or crack) was the primary drug type for more than half (54%) of drug offenders in federal prison.
- Race of drug offenders varied greatly by drug type. Blacks were 88% of crack cocaine offenders, Hispanics or Latinos were 54% of powder cocaine offenders, and whites were 48% of methamphetamine offenders (BJS 2015b).
- More than one-third (35%) of drug offenders in federal prison at sentencing had either no or minimal criminal history (BJS 2015b).

- 52% of female jail inmates were found to be dependent on alcohol or drugs, compared to 44% of male inmates (BJS 2015b).
- Jail inmates between the ages of 25 and 44 had the highest rate of substance dependence or abuse (7 in 10 inmates). Those age 55 or older had the lowest rate (nearly 5 in 10 inmates) (Karberg and James 2002).
- More than 50% of drug or property offenders were dependent on or had abused a substance, compared to over 60% of violent and public-order offenders (Karberg and James 2002).
- Women and white inmates were more likely to have used drugs at the time of their offense (Karberg and James 2002).
- Thirty-two percent of state and 26.4% of federal prison inmates reported being under the influence of drugs at the time of their offense in 2004 (see **Table 5**). Approximately 44% were incarcerated for drug offenses in state prisons and 32% were incarcerated in federal prisons. Of these, 46% in state prisons and 21% in federal prisons were arrested for possession. Forty-two percent were serving time in state prisons and 34% were serving time in federal prisons for trafficking in drugs. One outcome of these findings is that one out of every four major crimes committed—violent, property, and drug offenses—involves an offender who is under the influence of drugs (Mumola and Karberg 2007).
- Of the 1,561,231 arrests for drug law violations in 2014, 83.1% (1,297,384) were for possession of a controlled substance. Only 16.9% (263,848) were for the sale or manufacturing of a drug (DrugWarFacts.org 2016).

In regard to the connection between drug use and crime, the following findings can be summarized: (1) drug users in comparison to nondrug users are more likely to commit crimes, (2) a high percentage of arrestees are often under the influence of a drug while committing crimes, and (3) a high percentage of drug users arrested for drug use and violence are more likely to be under the influence of alcohol and/or stimulant types of drugs such as cocaine, crack, and methamphetamines.

Drug-related crimes are undoubtedly overwhelming the U.S. judicial system. Table 5 shows the percentage of state and federal inmates reporting being under the influence of drugs at the time of their offenses in 2004. Approximately 29% of state and federal prisoners were under the influence of drugs for violent offenses (e.g., homicide, sexual assault, robbery, assault), 26% for property offenses (e.g., burglary, larceny/theft, motor vehicle theft, fraud), 38% for drug offenses (possession, trafficking), and 22% for public order offenses (e.g., weapons, other public order offenses) (Mumola and Karberg 2007). Furthermore, nearly 40% of the young people (often younger than 21 years of age) in adult correctional facilities reported drinking before committing a crime.

TABLE 5 **Percentage of State and Federal Inmates Reporting Being Under the Influence of Drugs at the Time of Their Offense: 2004**

	State (%)	Federal (%)
Total[a]	32.1	26.4
Violent offenses	27.7	24.0
Homicide	27.3	16.8
Sexual assault[b]	17.4	13.8
Robbery	40.7	29.4
Assault	24.1	20.1
Property offenses	38.5	13.6
Burglary	41.1	:
Larceny/theft	40.1	:
Motor vehicle theft	38.7	:
Fraud	34.1	9.3
Drug offenses	43.6	32.3
Possession	46.0	20.9
Trafficking	42.3	33.8
Public order offenses[c]	25.4	18.7
Weapons	27.6	27.8
Other public order	24.6	8.0

[a] Includes offenses not shown.

[b] Includes rape and other sexual assault.

[c] Excluding DWI/DUI.

: Not calculated; too few cases to permit calculation.

Data from Mumola, C. J., and J. C. Karberg. *Drug Use and Dependence, State and Federal Prisoners*. Washington, DC: U.S. Dept. of Justice (USDOJ), Office of Justice Programs (OJP), 19 January 2007: 1–12.

DRUG CARTELS

Drug cartels are defined as large, highly sophisticated organizations composed of multiple drug-trafficking organizations (DTOs) and **drug cells** with specific assignments, such as drug transportation, security/enforcement, or money laundering. (A drug cell is similar to a terrorist cell, consisting of only three to five members to ensure operational security. Members of adjacent drug cells usually do not know each other or the identity of their leadership.) Drug cartel command-and-control structures are based outside the United States; however, they produce, transport, and distribute illicit drugs domestically with the assistance of DTOs that are either a part of or in an alliance with the cartel. Here are some reports of incidents in the world of drugs, violence, and crime:

> As a political analyst living and working in Mexico for the last three decades, I have watched with horror how the United States–Mexico drug war strategy has led to the explosion of violence and criminal activity here. The deep-rooted complicity between government officials and security forces on the one hand and cartels on the other means that the training, equipment and firepower given in aid and sold to the Mexican government fuel violence on both sides.
>
> The lines blur. The cartels are not fighting the state for political power; they are seeking to protect a $40 billion drug-trafficking business that has been converted into a war for control of territory, a war against the people. (Carlsen 2016)
>
> In recent years, ... (notorious drug lord "El Chapo") ... Guzman extended the operations of his Sinaloa cartel to an estimated 50 countries across Latin America, Africa, and Europe, even hooking up with one of the most notorious Italian mafias, the 'Ndrangheta. (Fausset and Wilkinson 2014)
>
> In Mexico, [former] President Felipe Calderon may [have been] the constitutionally elected leader of the nation [in 2007], but in reality, drug cartels and warlords exercise de facto authority over much of the area.... Drug trafficking overwhelmingly is the prevailing social malady throughout the country, particularly along the border with the United States. In spite of lengthy declarations by government officials in Mexico City and Washington, and their insistence that important battles are being won against drug trafficking, criminal organizations like the Tijuana cartel continue to thrive, ruling over whole sections of the Mexican countryside like sectoral feudal lords.... The governor of the state of Nuevo Leon (bordering the United States), Natividad Gonzalez Paras, has declared that: "Unfortunately, the drug problem has escalated significantly in the past six to seven years. It is a national problem affecting most of the country's states. It is a dispute between cartels or organizations to control locations, cities, and routes." (Birns and Sánchez 2007)

KEY TERMS

drug cartels
large, highly sophisticated organizations composed of multiple drug-trafficking organizations (DTOs) and cells with specific assignments, such as drug transportation, security/enforcement, or money laundering

drug cells
are similar to terrorist cells, consisting of only three to five members to ensure operational security; members of adjacent drug cells usually do not know each other or the identity of their leadership

In another news report:

> Once known merely as "mules" for Colombia's powerful cocaine cartels, today Mexico's narcotics traffickers are the kingpins of this hemisphere's drug trade, and the front line of the war on drugs has shifted from Colombia to America's back door.
>
> In August 2005, the *Christian Science Monitor* reported that according to senior U.S. officials, in the biggest reorganization since the 1980s, Mexican cartels had leveraged the profits from their delivery routes to wrest control from the Colombian producers. As a result, Mexican drug lords are in control of what the U.N. estimates is a $142 billion a year business in cocaine, heroin, marijuana, methamphetamine, and other illicit drugs.
>
> The new dominance of Mexican cartels has caused a spike in violence along the 2000-mile U.S.–Mexico border where rival cartels are warring against Mexican and U.S. authorities. Drugs are either flown from Colombia to Mexico in small planes, or, in the case of marijuana and methamphetamine, produced locally.

> Then, they're shipped into the U.S. by boat, private vehicles, or in commercial trucks crossing the border....
>
> The Sept. 26 edition of the *San Antonio Express-News* reported that a new method of intimidation is being utilized by Mexican drug cartels—beheadings. So far this year, at least 26 people have been decapitated in Mexico, with heads stuck on fences, dumped in trash piles, and even tossed onto a nightclub dance floor. In the latter act of violence, which took place in early morning hours of Wednesday, Sept. 6, five heads were scattered on the dance floor of a bar in the state of Michoacan, notorious for drug trafficking. No arrests for the killings have been announced. (Worldpress.org 2006)

And, in another news report:

> The dead policeman is found propped against a tree off a dirt road on the outskirts of the city. He is dressed like a cartoon version of a Mexican cowboy wearing a blanket. The murder and symbolic mutilation of *policia* has become almost routine in Caliacán, capital of the Mexican state of Sinaloa: Pablo Aispuro Ramirez is one of 90 cops to be killed here this year. There is a note pinned to the body, a warning to anyone who dares to oppose the powerful drug lord who ordered the execution "I'm a copy-cowboy!" the note reads. "Ahoo-ya! There are going to be more soon." (Lawson 2008, p. 76)

In addition,

> The Tijuana-based Felix drug cartel and the Juarez-based Fuentes cartel began buying legitimate businesses in small towns in Los Angeles County in the early 1990s.... They purchased restaurants, used-car lots, auto-body shops and other small businesses. One of their purposes was to use these businesses for money-laundering operations. Once established in their community, these cartel-financed business owners ran for city council and other local offices. (Farah 2006, quoting an excerpt from *In Mortal Danger* by Tom Tancredo, a former U.S. Congressman, Colorado)

These news briefs are just a very small sampling of the types of crimes and violence perpetrated by drug dealers. It is clear that production, merchandising, and distribution of illicit drugs have developed into a worldwide operation worth hundreds of billions of dollars (Goldstein 2001); one publication states that the United Nations (UN) estimates that the global world drug trade is worth $320 billion annually (Stopthedrugwar.org 2005). These enormous profits have attracted organized crime, both in the United States and abroad, and all too frequently even corrupt law enforcement agencies (McShane 1994). For the participants in such operations, drugs can mean incredible wealth and power. For example, dating back to 1992, Pablo Escobar was recognized as a drug kingpin and leader of the cocaine cartel in Colombia, and he was acknowledged as one of the world's richest men and Colombia's most powerful man (Wire Services 1992). With his drug-related wealth, Escobar financed a private army to conduct a personal war against the government of Colombia (Associated Press 1992); until his death in 1993, he was a serious threat to his country's stability.

In December 1999, the notorious Juarez drug cartel was believed to be responsible for burying more than 100 bodies (including 22 Americans) in a mass grave at a ranch in Mexico. All of the deaths were believed to be drug related. According to a news story on this gruesome discovery, the alleged perpetrator, Vincente Carrillo Fuentes, is one among dozens of drug lords and lieutenants wanted by U.S. law enforcement agents (Associated Press 1999). A more current drug lord, Ismael "el Mayo" Zambada, age 62, is "one of Mexico's most wanted drug lords, who has never been arrested despite a $5 million reward offered in the United States" (Campbell 2010, p. 1). This same news release indicated that the drug trade would not end until drug cartels are eliminated. Such occurrences, which are often reported by the mass media, indicate the existence of powerful and dangerous drug cartels that are responsible for the availability of illicit drugs around the world.

And finally, more recent information involves another drug kingpin, "El Chapo" Guzman:

> Born in Badiraguato, Mexico, Joaquín Guzmán Loera entered the drug trade as a teenager. Nicknamed "El Chapo," he founded the Sinaloa cartel in 1989, over time building it into an immensely profitable global drug-trafficking operation. Known for his violent actions and powerful influence, Guzmán has successfully orchestrated daring escapes from maximum-security prisons in his home country. One such escape came in July 2015, although he was recaptured the following January in the Mexican city of Los Mochis....

> Guzmán coupled that success with serious muscle. He established gangs with names such as "Los Chachos," "Los Texas," "Los Lobos," and "Los Negros" to protect his empire. Over the years, Guzmán's men have been accused of committing more than 1000 murders throughout Mexico, the casualties including both incompetent henchmen and rival bosses….
>
> On January 8, 2016, Mexican President Enrique Peña Nieto announced on Twitter that Mexican authorities had recaptured Guzmán after a shootout earlier that morning in the city of Los Mochis.
>
> "Mission Accomplished," the President wrote. "We have him." (Bio. 2016)

Drug-related violence takes its toll at all levels, as rival gangs fight to control their "turf" and associated drug operations. Innocent bystanders often become unsuspecting victims of the indiscriminate violence. For example, a Roman Catholic cardinal was killed on May 24, 1993, when a car he was a passenger in was inadvertently driven into the middle of a drug-related shootout between traffickers at the international airport in Guadalajara, Mexico. Five other innocent bystanders were killed in the incident (Associated Press 1993). Finally, it was recently reported that, when spotted, the Mexican army engages in shooting at cartel members and likewise armed cartel members shoot back. When this occurs, mostly in border towns and cities in Mexico, innocent bystanders, many of them children, are often caught in the crossfire and are routinely killed (Del Bosque 2010). On April 13, 2010, one report cites just such an incident. In Acapulco, Mexico, 24 people died, half of whom were innocent bystanders: "[T]he shootout broke out in the middle of the day in the center of the town as it was full of bystanders" (Associated Press 2010, p. 38). In many other incidents, unsuspecting people have been injured or killed by drug users who, while under the influence of drugs, commit violent criminal acts.

■ Drugs in the Workplace: A Persistent Affliction

"He was a good, solid worker, always on the job—until he suddenly backed his truck over a 4-inch gas line." If the line had ruptured, there would have been a serious explosion, according to the driver's employer. The accident raised a red flag: "under the company's standard policy, the employee was tested for drugs and alcohol. He was positive for both" (Edelson 2000, p. 3).

Another tragic incident involving drug use occurred in Alvin, Texas, in December 2012, when "a 20-year-old man ran over two young boys, ages 11 and 12, in front of their father after having too much drink. Later, the driver was killed by gunshot, and the boys' father was charged" (Project Know 2016).

Generally, once drug use becomes habitual, drug use is brought into the workplace, because, second to the home and social environments, the work environment for full-time employees is the place where they spend the most time. The National Household Surveys, for example, found evidence of significant drug use among full-time workers, with approximately 7% to 9% drinking while working. In the surveys, 64.3% of full-time workers reported alcohol use within the past month (SAMHSA 2012). Some 6.4% of full-time workers reported marijuana use within the past month. Part-time employees were slightly more likely to be past-month illicit drug users in comparison to full-time workers in 2010 (11.2 % vs. 8.4%) (SAMHSA 2012).

WORKER SUBSTANCE ABUSE IN DIFFERENT INDUSTRIES

Substance use in the workplace negatively affects U.S. industry through lost productivity, workplace accidents and injuries, employee absenteeism, low morale, and increased illness. The loss to U.S. companies due to employees' alcohol and drug use and related problems is estimated at billions of dollars a year. Research shows that the rate of substance use varies by occupation and industry (Larson et al. 2007). Studies also have indicated that employers vary in their treatment of substance use issues and that workplace-based employee assistance programs (EAPs) can be a valuable resource for obtaining help for substance-using workers (Delaney, Grube, and Ames 1998; Reynolds and Lehman 2003).

Regarding employment, highlights from SAMHSA (2014b) indicate the following:

ILLICIT DRUG USE

- Current illicit drug use differed by employment status in 2013 and 2014. Among adults age 18 or older, the numbers and percentage of illicit drug use was higher for unemployed persons (2.1 million users, or 18.2%, in 2013 and 2 million, or 18.7%, in 2014) than for those who were employed full time (10.8 million, or 9.1%,

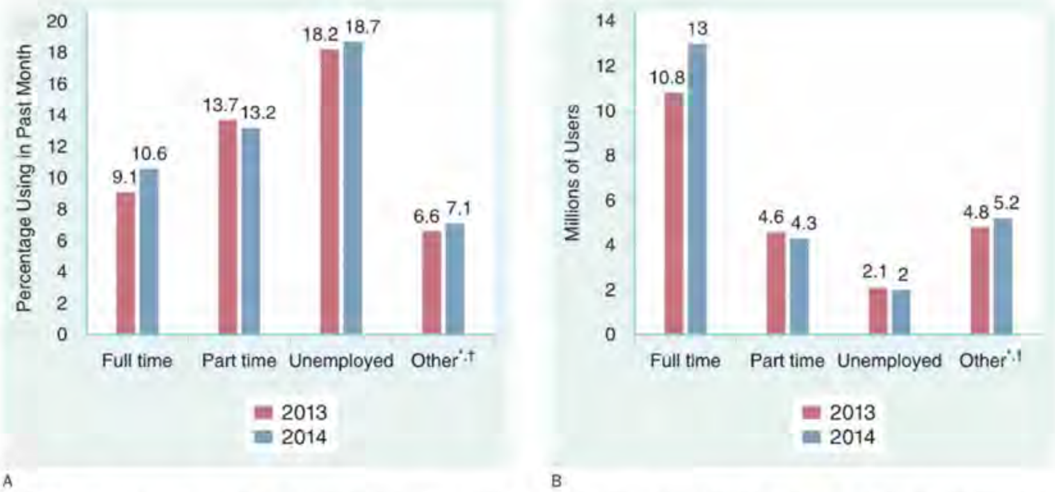


FIGURE 9 Panel A shows the percentages of past-month illicit drug use among persons aged 18 or older by employment status in 2013 and 2014. Panel B shows the numbers in millions of past-month illicit drug users based on employment status.

[*] Difference between this estimate and the 2014 estimate is statistically significant at the .05 level.

[†] The Other employment category includes retired persons, disabled persons, homemakers, students, or other persons not in the labor force.

Reproduced from Center for Behavioral Health Statistics and Quality (CBHSQ). *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health.* NSDUH Series H-50, HHS Publication No. (SMA) 15-4927. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2015.

in 2013 and 13 million, or 10.6%, in 2014) or part time (4.6 million, or 13.7%, in 2013 and 4.3 million, or 13.2%, in 2014). The rate of other employment, which includes retired and disabled person, homemakers, students, or other persons not in the labor force, was 4.8 million (6.6%) in 2013 and 5.2 million (7.1%) in 2014. These rates were all similar to the corresponding rates in 2012 (see **Figure 9**).

- Of the 22.4 million current illicit drug users aged 18 or older in 2013, 15.4 million (68.9%) were employed either full or part time.

ALCOHOL USE

- The rate of current alcohol usage in 2013 was 65.8% for full-time employed adults aged 18 or older, which was higher than the rate for unemployed adults (53.8%). The rates of binge drinking were similar for adults who were employed full time and those who were unemployed (30.5% and 31.3%, respectively).
- Among adults in 2013, most binge and heavy alcohol users were employed. Among the 58.5 million adults who were binge drinkers, 44.5 million (76.1%) were employed either full or part time. Among the 16.2 million adults who were heavy drinkers, 12.4 million (76.0%) were employed.

TOBACCO USE

- In 2013, current cigarette smoking was more common among unemployed adults aged 18 or older (40.1%) than among adults who were working full time or part time (22.8% and 23.4%, respectively).
- Current use of smokeless tobacco in 2013 was higher among adults aged 18 or older who were employed full time (4.8%) and those who were unemployed (4.9%) than among those who were employed part time (2.2%) and those in the "other" employment category, which includes persons not in the labor force (1.9%).

SUBSTANCE DEPENDENCE

- Rates of substance dependence or abuse were associated with current employment status in 2013. A higher percentage of unemployed adults aged 18 or older were classified with dependence or abuse (15.2%) than were full-time employed adults (9.5%) or part-time employed adults (9.3%).
- Over half of the adults aged 18 or older with substance dependence or abuse were employed full time in 2013. Of the 20.3 million adults who were classified with dependence or abuse, 11.3 million (55.7%) were employed full time.

Highlights from SAMHSA, Office of Applied Studies (2007), indicate the following (see **Figure 10**):

- Among the 19 major industry categories, the highest rates of past-month illicit drug use among full-time workers ages 18 to 64 were found in accommodations and food services (19.1%) and arts, entertainment, and recreation (13.7%).
- The industry categories with the lowest rates of past-month illicit drug use were found in mining (5.0%), educational services (4.8%), and public administration (4.3%).
- The overall rate of past-month illicit drug use among full-time workers aged 18 to 64 was 8.6%. Rates of past-month illicit drug use ranged from 19.1% among workers in the accommodations and food services industry to 4.3% among workers in the public administration industry. These findings remained true even when controlling for gender and age differences across industries.
- The overall rate of past-year substance use disorder among full-time workers aged 18 to 64 was 9.5%. Rates of past-year substance use disorder ranged from 16.9% among workers in the accommodations and food services industry to 5.5% among workers in the educational services industry.
- Although the accommodations and food services industry group had the highest rate of past-year

FIGURE 10 Illicit drug use by industry category: Past-month illicit drug use among full-time workers aged 18 to 64: 2011–2012, combined.

* The full title of this category is "Management of companies and enterprises, administration, support, waste management, and remediation services."

Reproduced from Substance Abuse and Mental Health Services Administration (SAMHSA). *The National Survey on Drug Use and Health (NSDUH) Report. Worker Substance Use, by Industry Category.* Rockville, MD: Office of Applied Studies, 24 March 2012.

substance use disorder, this finding did not remain true after controlling for age and gender distributions. *This indicates that the high rate can be attributed to the demographic composition of the accommodation and food services industry.*

Although not shown in Figure 10, the following findings have also been reported (CBHSQ 2012 unless otherwise noted):

- The overall rate of past-month heavy alcohol use among full-time workers aged 18 to 64 was 8.7%. Rates of past-month heavy alcohol use ranged from 17.5% among workers in the mining industry to 4.4% among workers in the healthcare and social assistance industry.
- Workers in the mining (17.5%) and construction (16.5%) industries had the highest rates of past-month heavy alcohol use. For the workers in the construction industry, this finding remained true even when controlling for gender and age differences across industries. This indicates that there is something unique about past-month heavy alcohol use for the construction industry that would remain even if the construction industry had the same gender and age distribution of any other industry. However, for the mining industry, this higher rate did not remain when controlling for age or gender differences. *This indicates that the high heavy alcohol use rate in the mining industry can be attributed to the demographic composition of the mining industry.*
- Approximately 80% of large companies test for drug use, and approximately 60% of medium companies and 26% of small companies perform such testing. Of those companies that drug test, more than 90% use urine analysis, less than 20% use blood analysis, and less than 6% use hair analysis.
- Most companies that administer drug tests test for marijuana, cocaine, opiates, amphetamines, and PCP.
- Age is the most significant predictor of marijuana and cocaine use. Younger employees (18 to 24 years) are more likely to report drug use than older employees are (25 years or older).
- In general, unmarried workers report roughly twice as much illicit drug and heavy alcohol use as married workers. Among food preparation workers, transportation drivers, and mechanics, and in industries such as construction and machinery (not electrical), the discrepancy between married and unmarried workers is especially notable.
- Workers who report having three or more jobs in the previous 5 years are twice as likely to be current or past-year illicit drug users as those who held two or fewer jobs over the same period (NCADD 2016).
- 70% of the estimated 14.8 million Americans who use illegal drugs are employed (NCADD 2016).
- Marijuana is the most commonly used and abused illegal drug by employees, followed by cocaine, with prescription drug use steadily increasing (NCADD 2016).
- Workers in occupations that affect public safety, including truck drivers, firefighters, and police officers, report the highest rate of participation in drug testing.
- "Among full-time workers, heavy drinkers and illicit drug users are more likely than those who do not drink heavily or use illicit drugs to have skipped work in the past month or have worked for three or more employers in the past year" (Robert Wood Johnson Foundation 2001, p. 45).
- Most youths do not cease drug use when they begin working.

In summarizing this research on employees who abuse alcohol or other drugs, five major findings emerge: (1) these workers are three times more likely than the average employee to be late to work, (2) they are three times more likely to receive sickness benefits, (3) they are 16 times more likely to be absent from work, (4) they are five times more likely to be involved in on-the-job accidents (note that many of these hurt others, not themselves), and (5) they are five times more likely to file compensation claims.

Employee Assistance Programs

Many industries have responded to drugs in the workplace by creating **drug testing** and **employee assistance programs (EAPs)**. Most often, drug testing generally involves urine screening, blood screening, and/or hair follicle analysis that is undertaken to identify which employees are using

KEY TERMS

drug testing
urine, blood screening, or hair analysis used to identify those who may be using drugs

employee assistance programs (EAPs)
drug assistance programs for drug-dependent employees

drugs and which employees may have current or potential drug problems. EAPs are employer-financed programs administered by a company or through an outside contractor. More than 400,000 EAPs have been established in the United States.

The following are some important findings regarding workplace substance use policies and programs among full-time workers:

- Full-time workers aged 18 to 64 who used illicit drugs in the past month were generally less likely than those who did not use illicit drugs in the past month to work for an employer with a written policy about employee use of alcohol and drugs. Similarly, full-time workers who drank heavily in the past month were less likely than those who did not drink heavily to have an employer that provided these workplace policies and programs (SAMHSA 2014c).
- Of employees ages 18 to 64 who had used an illicit drug in the past month, 32.1% worked for an employer who offered educational information about alcohol and drug use, 71% were aware of a written policy about drug and alcohol use in the workplace, and 45.4% worked for an employer who maintained an EAP or other type of counseling program for employees who have an alcohol- or drug-related problem (SAMHSA, OAS 2007).
- Among full-time workers who used alcohol heavily in the past month, 37.2% worked for an employer who provided educational information about drug and alcohol use, 73.7% were aware of written policies about drug and alcohol use, and 51.1% had access to an EAP at their workplace (SAMHSA, OAS 2007)
- The most common EAP service that companies utilize is for job stress (87.9%), followed by substance abuse (84.1%), bereavement (83.4%), work–life balance (82.8%), and relationship counseling (82.2%), with slightly lower percentages mainly involving elder care/child care/parenting issues (78.3%), family violence (75.2%), harassment (73.2%), and financial or legal services (72.6%) (Pyrillis 2014).
- Approximately three-quarters of companies have an EAP (Pyrillis 2014).
- "U.S. enrollment in EAPs has increased by 285% since 2002, according to a 2011 survey by Open Minds, a market research firm based in Gettysburg, Pennsylvania. More than 97% of companies with more than 5000 employees have an EAP and continued growth is expected, according to the Employee Assistance Research Foundation" (Pyrillis 2014).

KEY TERMS

oral fluids

oral fluid testing analyses a saliva sample for drugs of abuse and their metabolites

EAP programs are designed to aid in identifying and resolving productivity problems associated with employees' emotional or physical concerns, such as those related to health, marital problems, family relationships, financial issues, and substance abuse. EAPs have also expanded their focus to combat employee abuse of OTC and prescription drugs in addition to illicit psychoactive substances. Overall, the programs attempt to formally reduce problems associated with impaired job performance.

Regarding drug testing today, the Society for Human Resource Management (SHRM) conducted an online survey taken by 454 randomly selected human resource managers from diverse organizations (U.S. Department of Labor 2009). The following drug testing practices were in effect:

- 84% of employers required new hires to pass drug screenings.
- 74% used drug screening when reasonable suspicion of drug use was determined.
- 58% of organizations used post-accident drug screening.
- 39% used random drug screening.
- 14% used scheduled drug testing.

Further, 70% of those responding to this survey indicated that their organization has a written policy that addresses drug testing. From these survey results, we can see that the future for employee drug testing is very bright. In all probability, if you have not already experienced such a screening, you will experience one at some point in your working life.

Today, drug testing can include the following (U.S. Department of Labor 2016):

- *Urine*: Testing for drug metabolites in a person's urine.
- *Breath*: The breath-alcohol test is the most common test for finding out how much alcohol is currently in the blood.
- *Hair*: Analysis of hair provides a much longer "testing window," giving a more complete drug-use history going back as far as 90 days.
- ***Oral fluids***: Saliva, or oral fluids, collected from the mouth also can be used to detect traces of drugs and alcohol. Oral fluids are

easy to collect (a swab of the inner cheek is the most common collection method), harder to adulterate or substitute, and may be better at detecting specific substances, including marijuana, cocaine, and amphetamines/methamphetamines.

- **Sweat**: Another type of drug test consists of a skin patch that measures drugs in sweat. The patch, which looks like a large adhesive bandage, is applied to the skin and worn for some length of time. A gas-permeable membrane on the patch protects the tested area from dirt and other contaminants. Although relatively easy to administer, this method has not been widely used in workplaces and is more often used to maintain compliance with probation and parole.

The following drugs that are detectable differ in the length of time they are detectable (U.S. Department of Labor 2016):

- Alcohol: 1 oz. for 1.5 hours
- Amphetamines: 48 hours
- Barbiturates: 2 to 10 days
- Benzodiazepines: 2 to 3 weeks
- Cocaine: 2 to 10 days
- Heroin metabolites: Less than 1 day
- Morphine: 2 to 3 days
- LSD: 8 hours
- Marijuana: Casual use, 3 to 4 days; chronic use, several weeks
- Methamphetamine: 2 to 3 days
- Methadone: 2 to 3 days
- PCP: 1 week

Venturing to a Higher Form of Consciousness: The Holistic Self-Awareness Approach to Drug Use

Whenever drug use leads to abuse, it rarely results from a single, isolated cause. Instead, it is often caused or preceded by multiple factors, which may include combinations of the following:

- Hereditary (genetic) factors
- Psychological conditioning
- Peer group pressures
- Inability to cope with the stress and anxiety of daily living
- Quality of role models
- Degree of attachment to a family structure
- Level of security with gender identity and sexual orientation
- Personality traits
- Perceived ethnic and racial compatibility with society as a whole and socioeconomic status (social class)

As authors, we strongly endorse and advocate a **holistic self-awareness approach** that emphasizes a healthy balance among mind, body, and spirit. Health and wellness can be achieved only when these three domains of existence are free from any unnecessary use of psychoactive substances. The holistic philosophy is based on the idea that the mind has a powerful influence on maintaining health. All three—mind, body, and spirit—work as a unified whole to promote health and wellness. Similarly, we are in agreement with holistic health advocates who emphasize the following viewpoint:

> Holistic Health is based on the law of nature that a whole is made up of interdependent parts. The earth is made up of systems, such as air, land, water, plants and animals. If life is to be sustained, they cannot be separated, for what is happening to one is also felt by all the other systems. In the same way, an individual is a whole made up of interdependent parts, which are the physical, mental, emotional, and spiritual. While one part is not working at its best, it impacts all the other parts of that person.... A common explanation is to view wellness as a continuum along a line. The line represents all possible degrees of health. The far left end of the line represents premature death. On the far right end is the highest possible level of wellness or maximum well-being. The center point of the line represents a lack of apparent disease. This places all levels of illness on the left half of the wellness continuum. The right half shows that even when no illness seems to be present, there is still a lot of room for improvement.... Holistic Health is an ongoing process. As a lifestyle, it includes a personal commitment to be moving toward

KEY TERMS

sweat
sweat is used for drug testing; a skin patch is used to absorb sweat that is analyzed for the presence of cocaine, marijuana, opiates, amphetamine, methamphetamine, and PCP.

holistic self-awareness approach
emphasizes that nonmedical and often recreational drug use interferes with the healthy balance among the mind, the body, and the spirit

> the right end of the wellness continuum. No matter what their current status of health, people can improve their level of well-being. Even when there are temporary setbacks, movement is always headed toward wellness. (Walter 1999, pp. 1–2)[2]

This passage embodies the essence of achieving a holistic self-awareness perspective by presenting a unified blend of different perspectives that can add to our awareness of what is at stake when the goal of drug use is for nonmedical purposes, such as using drugs for the sole purpose of achieving a high. Knowing about the holistic self-awareness perspective should expand people's often limited and narrow values and attitudes about drug use so that the information about and the use of drugs are viewed and understood from pharmacological, psychological, and sociological perspectives.

As mentioned earlier, understanding drug use is important not only for comprehending our own health, but also for understanding the following:

- Why and how others can become attracted to drugs
- How to detect drug use and abuse in others
- What to do (remedies and solutions) when family members and/or friends abuse drugs
- How to help and advise drug abusers about the pitfalls of substance use
- What the best available educational, preventive, and treatment options are for victims of drug abuse
- What danger signals can arise when others you care about exceed normal and/or necessary drug usage

Awareness and knowledge about drug use and/or abuse coupled with holistic health awareness can result in self-awareness, and self-awareness leads to self-understanding and self-assurance. Maintaining at least some belief in holistic self-awareness, either as a humanistic philosophy or adding this philosophy into a religious orientation you may already have, should increase an understanding of your own drug use practices as well as those of family members and close friends. By including at least some aspect of holistic self-awareness regarding the use of psychoactive substances, you will be better equipped to understand not only yourself but also others who may be in need of advice and role modeling.

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[2] Reproduced from Walter, S. *The Illustrated Encyclopedia of Body-Mind Disciplines*. New York: Rosen Publishing Group, 1999. Used with permission.

LEARNING PORTFOLIO

Discussion Questions

1. Give an example of a drug-using friend and describe how he or she may be affected by biological, genetic, pharmacological, cultural, social, and contextual factors.
2. Discuss and debate whether the often considered "benign" drug known as marijuana is or is not addictive. In your discussion/debate, consider the finding in Table 4 by the Center for Behavioral Health Statistics and Quality that in 2014 for persons aged 12 or older, 44.2% of illicit drug users (117.2 million) had used marijuana during their lifetime and past-month users of this drug accounted for 8.4% of all illicit drug users (22.1 million). Do you think this often-perceived "less addictive" drug is harmless to society?
3. What is the future of prescription drug abuse? For example, how much will it increase in the years to come? Do you think prescription drugs will ever become *the* drugs of choice for recreational and/or abusive use? Will prescription drug abuse ever surpass the use of marijuana? Should parents be prosecuted for not guarding their legally prescribed drugs if their children are caught using them?
4. In reviewing the ancient historical uses of drugs, how do you think drug use today is different from than in the past? Explain your answer.
5. Why do Americans use so many legal drugs (e.g., alcohol, tobacco, and OTC drugs)? What do you think is primarily responsible for such extensive nonmedical and recreational drug use?
6. Table 3 shows that the amount of drug use remained stable from 2009 to 2014 (showing little change in usage rates for past-month usage for persons aged 18 to 25 years). Cite two reasons why you think this high stable trend has occurred despite the media campaigns promoted by private organizations, state governments, the federal government, and efforts by law enforcement organizations against recreational drug use.
7. Because most casual and experimental drug users do not gravitate toward excessive drug use, should these two groups be left alone or perhaps be given legal warnings or fines? Overall, how do you think recreational drug users be punished by society?
8. Do the mass media promote drug use, or do they merely reflect our extensive use of drugs? Provide some evidence for your position.
9. At what point do you think drug use leads to abuse? When do you think drug use does not lead to abuse?
10. What do you believe is the relationship between drug use and crime? Does drug use cause crime or is crime simply a manifestation of personality?
11. What principal factors are involved in the relationship between drugs and crime?

Key Terms

- addiction
- central nervous system (CNS)
- compulsive users
- dependency phase
- designer drugs/synthetic drugs or synthetic opioids
- drug cartels
- drug cells
- Drug Enforcement Administration (DEA)
- drug(s)
- drug testing
- employee assistance programs (EAPs)
- equal-opportunity affliction
- ethanol
- experimenters
- floaters or chippers
- gateway drugs
- holistic self-awareness approach
- illicit drugs
- increased use phase
- insiders
- licit drugs
- marijuana wax
- MDMA
- National Institute on Drug Abuse (NIDA)
- needle-exchange programs
- opioids
- oral fluids
- outsiders
- over-the-counter (OTC)
- preoccupation phase
- psychoactive drugs (substances)
- relief phase
- structural analogs
- sweat
- withdrawal phase
- withdrawal symptoms

12. Should all employees be randomly tested for drug use? If not, which types of employees or occupations should randomly drug test?
13. List and rank order at least three things you found very interesting regarding drug use in this chapter.
14. Should all students and faculty be randomly drug tested at their schools and universities? Why or why not?
15. Do you think that the holistic self-awareness approach advocated by the authors regarding drug use is a viable one that can be used successfully for stopping drug use? Why or why not? What, if any, additional improvements can be made to strengthen this approach?

Summary

1. Biological issues; genetic issues; pharmacological issues; and cultural, social, and contextual issues are the four principal factors responsible for determining how a drug user experiences drug use. Biological, genetic, and pharmacological factors take into account how a particular drug effects and affects the body. Cultural factors examine how society's views, determined by custom and tradition, effect and affect the use of a particular drug. Social factors include the specific reasons why a drug is taken and how drug use develops from factors such as family upbringing, peer group alliances, subcultures, and communities. Contextual factors account for how drug use behavior develops from the physical surroundings in which the drug is taken.
2. Initial understanding of drug use includes the following key terms: drug, gateway drugs, medicines and prescription medicines, over-the-counter (OTC), drug misuse, drug abuse, and drug addiction.
3. Mentions of drug use date back to biblical times and ancient literature that goes back to 2240 BC. Under the influence of drugs, many people experienced feelings ranging from extreme ecstasy to sheer terror. At times, drugs were used to induce sleep and provide freedom from care.
4. Drug users are found in all occupations and professions, at all income and social class levels, and in all age groups. No one is immune to drug use. Thus, drug use is an equal-opportunity affliction.
5. According to sociologist Erich Goode (2012), drugs are used for four reasons: (a) legal instrumental use, (b) legal recreational use, (c) illegal instrumental use, and (d) illegal recreational use.
6. The most commonly used licit and illicit lifetime drugs (rated from highest to lowest in the percentages [frequency] of use) are alcohol, cigarettes, marijuana/hashish, nonmedical use of any psychotherapeutics, smokeless tobacco, cocaine, hallucinogens, pain relievers, tranquilizers, inhalants, stimulants, sedatives, and heroin.
7. The three types of drug users are experimenters, compulsive users, and floaters or chippers. Experimenters try drugs because of curiosity and peer pressure. Compulsive users use drugs on a full-time basis and continually desire to escape from or alter reality. Floaters or chippers vacillate between experimental drug use and chronic drug use.
8. The mass media tend to promote drug use through advertising. The constant barrage of OTC drug commercials relays the message that if you are experiencing some symptom, taking drugs is an acceptable option.
9. Drug use leads to abuse when the following occurs: (a) excessive use, (b) constant concern and preoccupation about the availability and supply of the drug, (c) refusal to admit excessive use, and (d) reliance on the drug.
10. The stages of drug dependence are *relief* from using the drug, *increased use* of the drug, *preoccupation* with the supply of the drug, *dependency* or addiction to the drug, and experiencing (either or both) physical and/or psychological *withdrawal* effects from not using the drug.
11. The following are the major findings of the connection between drugs and crime: (a) drug users are more likely to commit crimes, (b) arrestees are often under the influence of drugs while committing their crimes, and (c) drugs and violence often go hand in hand, especially when alcohol, cocaine, crack, methamphetamine, or other stimulant types of drugs are used.

12. Employee assistance programs (EAPs) are employer-financed programs administered by a company or through an outside contractor. More than 400,000 EAPs have been established in the United States They are designed to aid in identifying and resolving productivity problems associated with employees' emotional or physical concerns, such as those related to health, marriage, family, bereavement, finances, and substance abuse. Recently, EAPs have expanded their focus to combat employee abuse of OTC and prescription drugs as well as illicit psychoactive substances.

13. The holistic self-awareness philosophy is based on the idea that the mind, body, and spirit have a powerful influence on maintaining health. These three domains—mind, body, and spirit—work best when unobstructed by unnecessary drug use, and when all three domains work in a unified manner to promote health and wellness.

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CHAPTER FOCUS

The Nature of Disasters
- Definitions and Types of Disasters
- NA-TECH
- Disaster Characteristics
- Global Disaster Issues
- Natural Disaster Reduction
- Disaster as a Global Public Health Problem
- Populations at Risk in Disasters

Stages of Disaster

Disaster Planning
- Steps in the Disaster Process
- The Disaster Plan
- Disaster Management

Disaster Response
- Response and Recovery
- Levels of Disaster Response
- National Disaster Medical System
- Other Disaster Agencies
- Evacuation
- Rescue
- Triage
- Disaster Shelters

Role of the Community Health Nurse in Disasters
- General Functions of the Community Health Nurse
- Specific Nursing Approaches
- Shelter Management and Care

Disaster Recovery
- Effects on Survivors
- Special Survivor Populations: Elders and Children
- Collective Trauma: The Loss of Community
- Nurses' Reactions to Disasters
- Prevention Strategies for Nurses

QUESTIONS TO CONSIDER

After reading this chapter, you will know the answers to the following questions:

1. What are the categories and types of disasters community health nurses might deal with?
2. What are the variables by which disasters can be understood?
3. What is a global disaster?
4. Who are the populations most at risk in a disaster? Why?
5. What are the stages of disaster, and how does each stage affect both the disaster workers and the affected population?
6. What are the steps in the disaster process?
7. What are the characteristics of a disaster plan?
8. What are the common elements of a disaster plan?
9. What is disaster response? What are the different levels of response?
10. What is disaster triage? Why and how should it be implemented?
11. What is the role of the community health nurse in the disaster relief process?
12. Which specific approaches should a community health nurse use to mitigate human and material losses in a disaster?
13. What happens to the survivors in a disaster? How can a community health nurse promote recovery after a disaster?
14. Which factors can place individuals in a vulnerable position?
15. Why are children and the elderly at greater risk during a disaster? What can be done to intervene?
16. What are the sources of stress for the disaster workers, and how can they be managed?

Nurses are some of the first to respond during times of disaster. Think of recent events in New York City and New Orleans—do you know nurses who gave of themselves?

Disasters in the Community

Karen Saucier Lundy and
Janie B. Butts

KEY TERMS

- Department of Homeland Security (DHS)
- disaster
- disaster planning
- disaster triage
- emergency
- emergency stage
- human-generated (human-made) disasters
- impact stage
- interdisaster stage
- level I response
- level II response
- level III response
- level IV response
- major disaster
- National Disaster Medical System (NDMS)
- natural disasters
- posttraumatic stress disorder (PTSD)
- predisaster stage
- reconstruction (rehabilitation) stage
- recovery
- response

> Today our fellow citizens, our way of life, our very freedom came under attack in a series of deliberate and deadly terrorist acts.
>
> —President George W. Bush, following the September 11, 2001, terrorist attacks

> Crises, such as Hurricane Katrina and the unprecedented "disaster of disasters" in New Orleans, show society speeded up, its evolution compressed into a moment in time. The poor and dispossessed, the weak and the sick, always suffer disproportionately. And how society responds—or doesn't—is a reflection of its values, its way of organizing and caring for people.
>
> —Professor Jennifer Leaning, Harvard University, School of Public Health

> Noble souls, through dust and heat,
> Rise from disaster and defeat
> The stronger.
>
> —Henry Wadsworth Longfellow, "The Sifting of Peter," 1880

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REFLECTIONS

Think about the last time that you saw a television report on a terrorist event, such as the Boston Marathon bombings of 2013, or saw the devastation of a mass disaster, such as the tsunami that hit the Philippines in 2013 or Hurricane Sandy that hit the east coast of the United States in 2012. What went through your mind? If the context of the event were all outside the United States, would you have viewed it differently? If you had a personal experience with one of these disasters, did it change your view of the events? How can community health nurses help communities heal after a disaster? What are ways that we can all protect ourselves and our families and communities from the catastrophic health damage from disasters?

DISASTER! THE VERY WORD can evoke fear, panic, and a pounding heart. A major disaster occurs almost daily somewhere in the world: plane crashes, floods, hurricanes, tornadoes, fires, earthquakes, acts of terrorism, droughts, famines, and wars. Who among us can ever forget the images of the elderly and others dying in the New Orleans Superdome and Convention Center following Hurricane Katrina, people sitting on rooftops and on highways pleading to be rescued, Herculean rescues of patients from area hospitals, and bodies floating in the putrid water that literally covered the entire city of New Orleans? We will most likely never know the full impact on people's lives of dealing with the loss of those who died as a result of the flooding and coping with being transported to other states and shelters.

The community health nurse can assist communities in preparing for disasters such as Hurricane Katrina and limiting their damage in the aftermath. Communities can become stronger and healthier as a result. But what are the real threats of disaster? How can community health nurses be better prepared to strengthen communities in their responses to disasters? This chapter will help you answer these questions as you develop a better understanding of the nature of disasters and learn about the various levels of disaster preparedness in which community health nurses are involved. Start by reading about the familiar *Titanic* disaster of 1912 (**Box 1**) as an illustration of the role of preparedness in mediating the harmful effects of both natural and human-generated disasters.

BOX 1 The Making of a Disaster: The Sinking of the "Unsinkable" *Titanic*

Nondisaster or Interdisaster Phase

The *Titanic* was on its maiden voyage when it sank on April 14, 1912. The crown jewel of the White Star Line, the ship was a mammoth 46-ton British liner of incomparable luxury, three football fields long and eleven stories high, which was the world's largest and purportedly safest vessel on the water. On this maiden voyage, the *Titanic* had as its passengers both British and American aristocracy, along with immigrants coming to the "New World" with promises of a new life. The boat deck and bridge were 70 feet above water. According to White Star Line documentation, a "trial test" of 6 to 7 hours total was conducted 1 month before leaving Great Britain. This trial consisted of turning circles and compass adjustment; also, the ship sailed "a short time" at full steam, but never at full speed before passengers boarded.

The crew and officers of the *Titanic* (numbering 899) joined the ship a few hours before the passengers and went through only one drill: They lowered two lifeboats on starboard side into water. No evidence of crew duties being delineated as to task or role in event of disaster were noted by the U.S. Congress. Congressional hearings found that the crew did not know their "proper stations" or assignment until after passengers had already boarded in Queenstown, Ireland.

There were 1,324 passengers on board the ship, and together with 899 crew members, a total of 2,223 persons were on the maiden voyage of the *Titanic*. Congress found no evidence of passengers having any orientation in disaster procedures. There were lifeboats with capacity for 1,176 persons and life jackets for all persons on board. The *Titanic* was considered "unsinkable," having been constructed with special watertight bulkhead compartments that could be sealed off if the ship took on water. There was no evidence of a disaster plan or safety instructions posted or provided to passengers, nor were crew members prepared for their roles in the event of a disaster. The crew staffed the *Titanic* round the clock and had lookouts posted in the crow's nest for any water-related hazards.

Predisaster or Warning Phase

The *Titanic* had received several ice warnings on the third day of the voyage, and the captain noted them. On the day of the disaster, a warning message cited icebergs within 5 miles of the track that the *Titanic* was following, very near the place where the accident occurred. Congressional hearings revealed that despite repeated warnings, no general discussion took place among the officers, no conference was called to consider these warnings, and no heed was given to them. The speed was not reduced, the lookout was not increased, and the only extra vigilance noted was from the officer of the watch, who gave instructions to the lookouts to "keep a sharp lookout for ice." The speed of the ship had been gradually increased, and just before the collision, the ship was making her maximum speed of the voyage. Passengers had no advance knowledge of any possible risks of the ship related to the icebergs.

Impact Phase

At 10:13 p.m. on Sunday, April 14, the lookout signaled the bridge and telephoned the officer of the watch with this message: "Iceberg right ahead." The officer of the watch immediately ordered the quartermaster at the wheel to put the helm "hard astarboard" and reverse the engines. The *Titanic* immediately struck the ice, and the impact caused the vessel to roll slightly. The impact, which ripped a hole in the steel plating of the ship, was not violent enough to disturb the crew or passengers. During this time, the damage was reported by crew members from the boiler room related to water coming in; the captain began inspecting the ship for damage. Passengers were still not aware of the accident.

Emergency Phase

The reports by the captain after various inspections of the ship revealed that the compartments were rapidly filling with water and that the bow of the ship was sinking deeper and deeper. Through the open hatches, water promptly began overflowing into the other bulkheads and decks. No emergency alarm was sounded, no whistles were blown, and no systematic warning was given the passengers.

Within approximately 15 minutes after his inspection, the captain issued a distress call to ships in the area. The call was heard by several ships in the vicinity. The *Carpathia*, which was 58 miles away, responded to the distress signal by turning immediately toward the sinking ship. Other ships also attempted to sail toward the sinking ship but were too far away to be of any reasonable assistance. The closest ship, the *Californian*, was only 19 miles north of the *Titanic* but did not attempt to rescue the ailing ship. Proceedings indicate that the crew of the *Titanic* began firing distress rockets at frequent intervals and that the crew of the *Californian* saw them. The captain of the *Californian* failed to heed the warning signals and was chastised by Congress for "indifference or carelessness" and for not responding to the *Titanic*'s distress calls in accordance with the dictates of international usage and law.

The captain immediately gave the signal to retrieve the lifeboats, with the order to put women and children in the boats first. The proceedings report that the lack of preparation at this time was most noticeable. There was general chaos as passengers learned of the accident from each other, from some crew members who knocked on cabin doors, and from being awakened by the movement of people running on the ship:

> There was no system adopted for loading the boats; there was great indecision as to the deck from which boats were to be loaded; there was wide diversity of opinion as to the number of crew necessary to man each boat; there was no direction whatever to the number of passengers to be carried by each boat, and no uniformity in loading them. (Kuntz, 1998, p. 548)

In some boats, there would be only women and children; in others there would be an equal proportion of men and women. Only a few of the lifeboats were loaded to capacity; most were only partially loaded, which resulted in needless losses. If all of the lifeboats had been fully loaded at capacity for 1,176 persons, far more than the 706 persons who did survive could have reasonably been saved.

Furthermore, the proceedings noted that if the sea had been rough (which it wasn't), it is questionable whether any of the lifeboats would have reached the water without being damaged or destroyed. The lifeboats were suspended 70 feet above the water, and in the event of the ship's rolling (with a rough sea), the boats would have swung out from the side of the ship and then crashed back into the ship as they were being lowered. Also, had the survivors been concentrated in fewer boats once on the water, the crew could have returned and rescued more passengers.

Once the ship sank at 12:47 a.m., it broke in half and people died from drowning, exposure, and trauma; 1,517 persons died, 706 survived. Survivors of the *Titanic* reported rowing toward the lights of a ship in the distance, which has now been established as those of the *Californian*. There were questions about the way passengers were evacuated relative to whether they were in first-, second-, or third-class accommodation. Sixty percent of first-class passengers survived, 42% of second-class passengers survived, and only 25% of third-class passengers survived. These statistics suggest that there may have been a distinction in the warning and evacuation based on class accommodation. Twenty-five percent of the crew were saved.

The rescue of survivors came from the *Carpathia* crew and eventually from the crew of the *Californian*. After a thorough search, ships returned to New York and Nova Scotia with the survivors. A brief burial prayer service for the dead was held at 8:30 a.m. by the captain of the *Carpathia*. Public media notification occurred the evening of April 15, 1912.

Reconstruction or Rehabilitation Phase

The wreck of the *Titanic* represents in myth and reality a disaster beyond human comprehension at a time when

(*continues*)

BOX 1 *(continued)*

technological advances were seen as our defense against the disasters of nature. Because of lack of preparedness and lack of planning for ship disasters, technology could not have saved the passengers on the *Titanic*.

The recommendations that evolved from the *Titanic* hearings held by Congress in May 1912 were no less than revolutionary in terms of safety preparedness. One was that inspection certificates would be contingent on sufficient lifeboats to accommodate every passenger and every member of the crew. Inspection certificates that mandate these requirements would apply to all boats that carry passengers from ports of the United States. Lifeboats should be positioned in such a way that they would not be subject to damage from height related to water level. There would be no fewer than four members of the crew, trained in handling boats, on each lifeboat. All crew members assigned to this duty would be drilled in lowering and rowing the lifeboats not less than twice per month and the "fact of such drill or practice should be noted in the log." Recommendations also included assigning passengers to lifeboats before sailing and posting the shortest route to the lifeboats in each room. Two electric searchlights were to be present on boats carrying more than 100 passengers. A radio operator must be on duty at all times, 24 hours a day. And finally, all ships from that point on would be required to meet construction standards related to watertight compartments and hulls.

Source: Kuntz, T. (Ed.). (1998). *The Titanic disaster hearings: The official transcripts of the 1912 Senate investigation.* New York, NY: Pocket Books.

CULTURAL CONNECTION

Disaster nurses are often deployed outside of their regional home culture. Being prepared for the cultural values of the community experiencing the disaster is critical to the successful role of the disaster nurse using a holistic perspective.

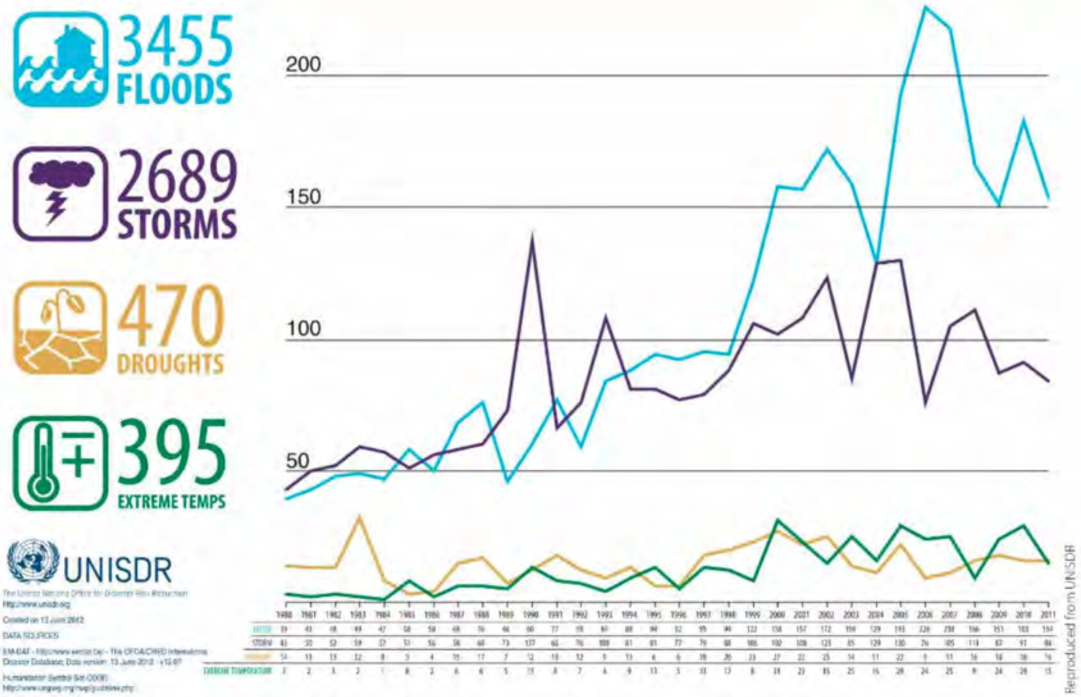
When Hurricane Katrina made landfall on the Mississippi Gulf Coast and near New Orleans, Louisiana, in August 2005, Americans became keenly aware of how a natural disaster can threaten the health of an entire population. Through the images on television of people stranded on rooftops, trapped in the New Orleans Superdome in a makeshift disaster shelter, and facing the total destruction of the Mississippi Gulf Coast, we were all affected in some way from the ravages of this "disaster of disasters." More than 1,300 people died, many because of levee failures in New Orleans, and Hurricane Katrina earned the dubious distinction of being the worst natural disaster in U.S. history. Since the September 11, 2001, terrorist attacks on the World Trade Center, in Pennsylvania, and at the Pentagon, the U.S. public has become much more aware of the devastating national and global effects of terrorism as a current disaster threat. The United States has experienced a string of unprecedented disasters since the late 1980s, including major earthquakes, hurricanes, tropical storms, floods, landslides, volcanic eruptions, severe winter storms, and wildfires.

Outside the United States, the Indian Ocean tsunami occurred on December 26, 2004, following a 9.1-magnitude earthquake; it killed more than 200,000 people in Indonesia, India, Sri Lanka, Thailand, and many other countries as far away as South Africa. Entire towns and villages were swept away. In South Asia, more than 73,000 people died and tens of thousands were injured when an earthquake measuring 7.6 on the Richter scale struck Pakistan and other parts of the region in October 2004. The thousands who remained homeless continued to suffer disease and exposure to the elements from the aftermath of these two disasters, and the death toll continued to climb even 2 years later (Garheld & Hamid, 2006; Gospodinov & Burnham, 2008; Hassmiller, 2007; Telford & Cosgrave, 2007).

From 1999 to 2011, 1.2 million people were killed worldwide from natural disasters alone. In this same period, natural disasters such as earthquakes, tsunamis, hurricanes, floods, and volcanic eruptions adversely affected the lives of at least 2.7 billion people, with an economic price tag of at least $1.7 trillion dollars (see **Figure 1**). Floods continue to be the most common natural disaster in the world.

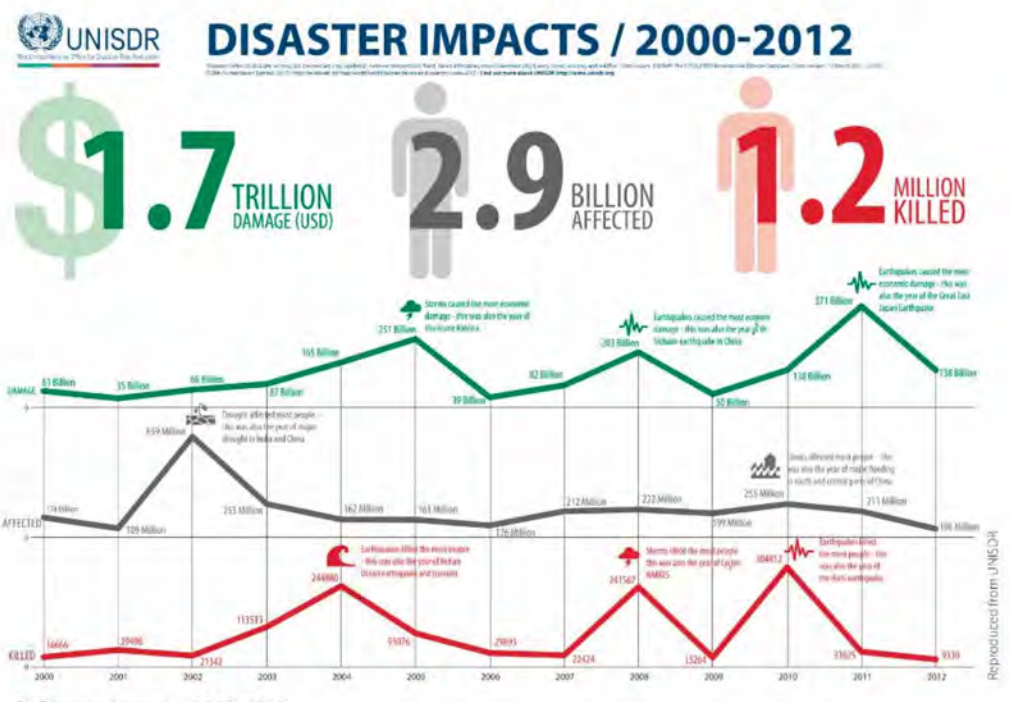
Natural disasters result in more deaths and property destruction in developing and least-developed countries. Most of the increase in natural disaster occurrence and damage was due to a combination of deforestation, greater population density in disaster prone areas and climate change, including global warming (EM-DAT: The OFDA/CRED International Disaster Database, 2012). See **Figure 2**.

Considered one of the strongest storms ever to make landfall, Typhoon Haiyan tore through the central Philippines November 8, 2013, killing nearly 6,000 people and displacing more than 3.6 million. The 13-foot storm surge and up to 235-mph wind gusts largely wiped out coastal cities and destroyed much of the region's infrastructure, such as roads, water and sanitation systems, and telecommunications lines. Just 3 weeks before Typhoon Haiyan hit Central Visayas, a magnitude-7.2 earthquake rocked the same region, killing 222 people, displacing 350,000, and damaging or destroying about 73,000 buildings. Thousands of displaced or homeless quake survivors still had not



Reproduced from UNISDR

Figure 1 Number of climate-related disasters around the world (1980–2011).



Reproduced from UNISDR

Figure 2 Disaster Impacts, 2000–2012.

found adequate shelter before Haiyan blew through. Other recent major disasters include the following:

- In October 2012, "Superstorm" Sandy devastated the U.S. eastern seaboard and large urban areas, such as New York City. Disaster assistance to New Jersey alone totaled $5.5 billion.
- In October 2013, the strongest cyclone to hit India in 14 years, Cyclone Phailin affected the livelihood of more than 13 million people in the country's northeast in 2013. Heavy rains and more than 150-mph winds brought widespread devastation. But fewer than 50 people died in the mid-October storm. Governments and aid organizations credited improved disaster preparedness and the early evacuation of about 1 million of the most vulnerable residents along the coast.
- In May 2013, a massive tornado, peaking at 210-mph winds, raked a 12-mile path through the Oklahoma City area, destroying homes and severely damaging two elementary schools. The twister killed 24 people. The week before, as many as 10 tornadoes touched down in North Texas, killing six.

NOTE THIS!

Why are we not prepared for a disaster?

Two-thirds of families still do not have basic emergency plans, even after 9/11 and Hurricane Katrina in 2005. A report sponsored by the Council for Excellence in Government also found:

- People 65 and older were less likely to be prepared than younger people.
- People with higher education and income levels were likely to be better prepared than others.
- Hispanics are less prepared than whites and African Americans.
- Parents of schoolchildren who know about their school's emergency plans are likely to be much better prepared, but most parents did not know details of the school emergency plans.
- Full-time employees who know about and have practiced company disaster plans are better prepared.

What are the implications of these findings for community health nurses?

Source: Peter D. Hart Research & Public Opinion Strategies. (2005). *The aftershock of Katrina and Rita: People not moved to prepare.* Washington, DC: The Council for Excellence in Government and the American Red Cross.

Community health nurses sometimes feel unprepared to react competently in a community disaster situation. For most practicing nurses, formal disaster education or training is not comprehensive. Therefore, the training that is received by nurses does not include the whole picture on levels of preparedness, which range from the basic emergency department response to the highest level of response from the community infrastructure. The disaster training that pertains to nurses' agency positions is usually the only training received, which often limits their understanding of the community's perspective on preparedness and response (Gospodinov & Burnham, 2008; Polivka et al., 2008).

Although the training delivered may not be comprehensive in many institutions, an important goal for community health nurses is for them to feel a greater sense of disaster preparedness. When community health nurses are prepared for disaster, research has indicated that communities benefit. Research has revealed that improved organization in delivering nursing care, planning the disaster response, and understanding the effects of disasters on families, communities, health professionals, and, ultimately, society can prevent or reduce the detrimental short- and long-term effects of disasters (Landesman, 2005; Noji, 1997; Plough et al., 2013). In essence, the community's health improves when it is prepared for disaster, even when the disaster doesn't come.

The Nature of Disasters

Definitions and Types of Disasters

Some of the many distinctions made between disasters include the definitions of an emergency and a major disaster. The U.S. Congress stated in 1974 that an **emergency** is any hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, earthquake, volcanic eruption, landslide, mudslide, snowstorm, drought, fire, explosion, or other catastrophe in any part of the United States that requires federal emergency assistance to supplement state and local efforts to save lives and protect property, public health, and safety or to avert or lessen the threat of a disaster. In 1974, the U.S. Congress determined that a **major disaster** may be any of the events listed as an emergency in any part of the United States that, in the determination of the U.S. president, causes damage of sufficient severity above and beyond emergency services by the federal government to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby (U.S. Congress, Section 102, Disaster Relief Act Amendments, 1974).

Erickson (1976) gave a more detailed description of disaster:

- A sharp and furious eruption of some kind that splinters the silence for one terrible moment and then goes away

- An event with a distinct beginning and a distinct ending that is by definition an extraordinary freak of nature, a perversion of the natural processes of life
- Doing a great deal of harm
- Sudden, unexpected, and acute

For the purposes of this chapter, a **disaster** is an event that causes human suffering and creates needs and demands exceeding the abilities of the community to cope without outside assistance. Most importantly, from a public health perspective, disasters are defined by what they do to people and, therefore, are relative to the context in which they occur. What results in a disaster in one community might not necessarily be considered a disaster in a different community (Landesman, 2005; Noji, 1997; Telford & Cosgrave, 2007). Disasters fall into two broad categories or types: **Natural disasters** arise from the forces of nature, such as hurricanes, tornadoes, earthquakes, and volcanic eruptions; **human-generated (human-made) disasters** are those in which the principal direct causes are identifiable human actions, deliberate or otherwise, such as the September 11 terrorist attacks. These two categories can be further subdivided into different types of disasters (**Box 2**).

NA-TECH

Although disasters can be grouped according to the stated definitions, in reality the distinction between natural and human-generated disasters is often blurred, because a natural disaster can trigger secondary disasters, such as explosions, fires, floods, and toxins released into the air after an earthquake. Such combination-type synergistic disasters are referred to as NA-TECH disasters; an NA-TECH disaster is a technological accident triggered by a natural event (natural-technological = NA-TECH). An example of an NA-TECH disaster occurred in the former Soviet Union when windstorms spread radioactive materials across the country, increasing by up to 50% the land area contaminated in an earlier nuclear disaster at Chernobyl. The flooding of New Orleans, after levee failure following landfall of Hurricane Katrina in Mississippi, is also an example of an NA-TECH disaster (Noji, 1997; Rebmann, Carrico, & English, 2008). On March 11, 2011, a 9.0-magnitude earthquake struck northeastern Japan, spawning an incredibly destructive tsunami that crippled the Fukushima Daiichi nuclear power plant. In the following year, much had changed; the effects of the disaster will most likely endure for many years to come. Nuclear power fell out of favor with the Japanese people, and confidence in the government was shaken. Japan mourned the confirmed deaths of more than 15,850 people, and still listed 3,287 as missing over a year later. Questions remain about rebuilding villages, cleaning up the nuclear exclusion zone, and deciding the future of nuclear power in Japan (Skirble, 2012).

BOX 2 Categories and Types of Disasters

Natural Disasters

- Meteorological: hurricanes, tornados, hailstorms, snowstorms, and droughts
- Topological: landslides, avalanches, mudslides, and floods
- Disasters that originate underground: earthquakes, volcanic eruptions, and tidal waves
- Bacteriological: communicable disease epidemics (e.g., Ebola virus) and insect swarms (e.g., locusts)

Human-Generated Disasters

- Warfare: conventional warfare (bombardment, blockage, and siege) and nonconventional warfare (nuclear, chemical, and biological; acts of terrorism), including mass refugee relocation
- Civil disasters: riots and demonstrations
- Accidents: transportation (planes, trucks, automobiles, trains, and ships); structural collapse (buildings, dams, bridges, mines, and other structures); explosion; fire; chemical (toxic waste and pollution); and biological (sanitation)

Sources: Modified from Garcia, L. M. (1985). *Disaster nursing: Planning, assessment, and intervention*. Rockville, MD: Aspen; Noji, E. K. (1997). *The public health consequences of disasters*. New York, NY: Oxford University Press.

As noted earlier, floods are the most common natural disaster in the world, accounting for more than one-third of all disasters from the late 1990s to the early 2000s. One example of a horrendous flood, although not necessarily a typical disaster, was the Mississippi River Flood of 1927, which has been cited as one of the worst natural disasters in U.S. history. In 1927, the Mississippi River swept across a geographic area larger than Massachusetts, Connecticut, New Hampshire, and Vermont combined and resulted in water as deep as 30 feet on the land, stretching from Illinois and Missouri south to the Gulf of Mexico and New Orleans. This flood forced almost 1 million people from their homes and resulted in thousands of deaths.

Many of the dead were still being pulled out of the Mississippi River at New Orleans even months after the flood. When more than 40,000 homes were destroyed close to where the dam broke in Mississippi, camps were set up in the Confederate National Park in Vicksburg. American Red Cross (ARC) nurses (see **Box 3**), nurses from the Mississippi State Department of Health, and nurses from other states were assigned to relief efforts for several months in the spring of 1927. A total of 383 nurses worked in the Mississippi flood disaster. Nurses worked in these refugee camps, battling typhoid and nutritional deficiencies such as pellagra. The waters from

BOX 3 An Early Field Test of the American Red Cross's Nurse Enrollment Campaign: The Purvis, Mississippi, Tornado of 1908

A devastating tornado hit the small town of Purvis, Mississippi in April 1908, injuring 200 persons. The American Red Cross had just undertaken its first major campaign to recruit and enroll nurses nationally for such disasters, and the Purvis tornado provided a "field test" of the newly developed communication system. In the end, a head nurse and 17 staff nurses were deployed from the District of Columbia, Philadelphia, and New York. These nurses managed tent hospitals and coordinated disaster relief for 3 weeks. Although the nursing was well done, recruitment and securement of nurses with the new system had been less than successful. The ARC staff had met with considerable difficulty locating the enrolled nurses and in the end had to recruit unenrolled, volunteer nurses outside the system. The disaster served to draw attention to the need for a more collaborative effort between nursing organizations together with the American Red Cross to develop a network of disaster preparedness through local volunteer nurses.

Source: Kernodle, P. (1949). *The Red Cross nurse in action 1882–1948*. New York, NY: Harper and Brothers.

the Mississippi did not recede for 3 months (Barry, 1997; Sabin, 1998).

Of course, a more recent flooding disaster occurred after Hurricane Katrina, when thousands of persons in New Orleans were left stranded after the levees broke, flooding the entire city with several feet of water. This unprecedented flooding left a major American city underwater for more than 4 weeks after the hurricane (Nigg, Barnshaw, & Torres, 2006). The major levee breaches in the city included breaches at the 17th Street Canal levee, the London Avenue Canal, and the wide, navigable Industrial Canal, which left approximately 80% of the city flooded. Flooding from the breaches put the majority of the city underwater for days, in many places for weeks (Boyer, 2005). Electricity and water were still not functioning in many of the hardest hit parts of the city as of 2007.

In another example, Colorado experienced torrential rain, floods, and mudslides in September 2012, resulting in catastrophic flooding along Colorado's Front Range, from Colorado Springs to Boulder County in the north. Boulder, Colorado was hit the hardest, with up to 20 inches (430 mm) of rain, which is comparable to Boulder County's average annual precipitation (20.7 inches, 525 mm). The floodwaters eventually spread across a range of almost 200 miles (320 km) from north to south, affecting 17 counties. Colorado experienced five deaths as a result of the flooding and more than 11,000 persons were evacuated from the mountainous area, including at least 1,750 people and 300 pets rescued by air and ground. Nearly 19,000 homes were damaged, and more than 1,500 were destroyed (Shank, 2013).

Disaster Characteristics

Disasters have different characteristics. Knowledge of these variables is necessary in disaster management and planning. Dynes, Quarantelli, and Kreps (1972) identified six variables by which disasters can be understood: predictability, controllability, speed of onset, length of forewarning, duration of impact, and scope and intensity of impact.

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Public health nurse in disaster recovery during one of the worst natural disasters in the United States—the Mississippi River Flood of 1927.

DAY IN THE LIFE

David Lyon, nursing student who lost his family home on Mississippi Gulf Coast

The storm came on a Monday morning but we were not able to cross over the railroad tracks to see the destruction until 4 days later. It was a Friday and the first time the hospital allowed my mother, a nurse who rode out Katrina in a local hospital, to leave work. She had stayed during Katrina in her position as manager of nursing services at Memorial Behavioral Health in Gulfport, Mississippi. Although my family had evacuated, my mother worked during the entire hurricane and for 4 days afterwards. Mother said she wanted to try to get across the tracks and find our house. The guards were not officially allowing people to access their property at that point. The entire coast looked like a war zone and we feared the worst. We parked near the railroad crossing at the corner of Railroad Street and Cleveland Avenue. I walked with my mother up to the armed National Guard posted at the road access. A Humvee was parked to block traffic. My mother started talking to one of the soldiers, but wasn't able to get more than three words out before she lost her voice and began sobbing uncontrollably. She choked up, unable to talk through her grief, as she looked past the guards toward the destruction of our neighborhood. Our house was a full five blocks south of the tracks and I guess we had held out hope that we had been spared. I finally had to step in and speak for my mother, attempted to explain the situation, and asked what we had to do to get down there. I think it was probably my mother's sobbing more than my words that influenced the guard to let us through the barricade. He told us that we had 30 minutes to drive to our house, look at the wreckage, and drive back out. We drove down and spent about an hour there. The images of our neighborhood will always be imprinted on my brain; no words are adequate to describe the scene. When I think about that fated afternoon, all I can recall was my mother crying at the railroad crossing and having to be her voice, speaking for her. I cannot recall a time when I had seen my mother cry. I have seen her get misty over a sad ending to a movie, but never actually sob. This photo here is of our tragic discovery, the debris of our lives and what was lost forever.

—David Lyon, senior BSN nursing student
The University of Southern Mississippi College of Nursing

David Lyon, RN, BSN, sifts through the remains of his home after Hurricane Katrina.

THINK ABOUT THIS

I helped rebuild communities in my home state of Gujarat after an earthquake in 2000, which killed 15,000 people and destroyed over a million homes. In India, one year after the earthquake in Gujarat, much of the affected areas had been rebuilt and the Indian government had given 100,000 INR (roughly US $2,250) to every family who had lost a loved one. That large sum is about two-thirds the average yearly income in India; the U.S. equivalent would be almost $30,000. The families of those who died during Hurricane Katrina have received nothing from their government.

When Martin Luther King, Jr., traveled to India, he was introduced to an audience he was about to address as "a fellow untouchable from the United States of America." He initially took great offense, but then thought about "twenty million of my brothers and sisters still smothering in an airtight cage of poverty in an affluent society" and realized that, "Yes, I am untouchable" because he was African American. Many years after Martin Luther King's visit in New Orleans, I saw my "untouchable" brothers and sisters still living in these conditions.

Less than a year after the earthquake, Gujarat was back to normal, with people living in their own villages and cities. Here I stood on the land of the super power, the wealthiest nation in the world, where the debris of almost 40,000 homes remained unmoved nearly a year later. Ironically, the Federal Emergency Management Agency (FEMA) offered to sell its systems and services to India to aid in Gujarat after the earthquake. Seeing their results in New Orleans, I was glad India declined. The Indian government is far from perfect, but at least it recognized that it had a responsibility toward its people.

Martin Macwan is an advocate for the human rights of the people in India, founder of the Nasvarjan Trust, and 2000 winner of the Robert F. Kennedy Human Rights Award.

Source: Macwan, M. (2006). *Human Rights Day and Hurricane Katrina: "Untouchable" New Orleans.* BBSNews Special 2006. Retrieved from http://www.commondreams.org/views06/1208-33.htm

Predictability is influenced by the type of disaster. A hurricane has a high degree of predictability in industrialized countries. Earthquakes are considerably less foreseeable than floods. Although we often assume that disasters are rare occurrences, certain areas of the globe are clearly more prone to disasters, such as the flood plains of the Ohio River Valley or low-lying areas in Louisiana swamps. The Gulf Coast of Mississippi, Texas, Louisiana, Florida, and Alabama is vulnerable to the threat of hurricanes born from the warm waters of the Caribbean. Tornadoes are more common in Kansas, Texas, and Mississippi and less common in Utah and Idaho.

Controllability refers to the degree to which interventions can be used to control the disaster, such as using dams for flood control. Earthquakes, for example, have very little controllability.

Speed of onset is quick with floods and tornadoes, whereas hurricanes generally are slow to develop.

Length of forewarning is the period between warning and impact. Communities in the path of a hurricane may have the luxury of a 24-hour warning, whereas a tornado warning may provide only a few minutes of preparation.

Duration of impact also varies. A tornado may be on the ground for only a few minutes, whereas a flood's impact usually lasts for days. The worst combination of variables from the viewpoint of damage is the disaster that is rapid in onset, gives no warning, and lasts a long time. An earthquake with strong aftershocks is such a disaster and can also result in tsunamis.

Scope and intensity of impact refers to geographic and social space dimension. A disaster such as a tornado may be limited to a mile or two, whereas a flood may involve hundreds of miles. The population density of an area influences this variable and can lead to widespread consequences. An example of the effect of density can be seen in the Oklahoma City bombing, which was limited to a few city blocks but affected a large, dense population. The structure of New Orleans—also a densely populated urban area that is essentially trapped in a geographical "bowl"—led to devastating consequences when Hurricane Katrina struck, including the loss of thousands of lives and destruction of property that is taking years to repair. A disaster in a densely affected area can also result in disruption of community functions, depending on the number of persons involved and the geographic impact (Gamboa-Maldonado, Marshak, Sinclair, Montgomery, & Dyjack, 2012).

The World Trade Center and Pentagon attacks of 2001 have had global consequences, including U.S. military action and economic damage. Although the July 7, 2005, terrorist attacks on the London subway and buses were geographically limited, the population of the area was dense. Some 52 persons were killed and more than 700 injured in the deadliest attack in Great Britain since World War II; as with the 2001 U.S. attacks, the U.K. bombings had significant global political consequences (Ingram, Franco, Rio, & Khazai, 2006).

THINK ABOUT THIS

Hurricane Katrina: The Perfect Disaster?

Hurricane Katrina is one of the costliest and deadliest storms in U.S. history. Katrina was part of an unprecedented (and record-breaking) hurricane season, with 28 named storms (of which 15 became hurricanes), surpassing the previous record of 21 set in 1933. For the first time ever, the National Weather Service ran through an entire list of alphabetized proper names and resorted to naming hurricanes after Greek letters.

Levees failed in the city of New Orleans following Katrina's landfall on the Mississippi Gulf Coast, causing massive post-disaster flooding of the city of New Orleans. New Orleans was inundated with floodwaters for weeks in many areas after the storm. More than 1,300 people died in four states.

Katrina also exposed the nation's inadequate preparation for a disaster of this magnitude. Elders were left to die in nursing homes while they waited for transport, even though each nursing home was required by law to have transportation in place for evacuation. No one had counted how many transport companies existed or if the system might be easily overloaded. Disaster relief officials at the local, state, and federal levels were apparently unaware of the existence of frail and ill persons trapped in nursing homes and hospitals, so they focused their efforts on transporting the generally healthier, more visible group taking refuge in the Superdome. The number of elderly receiving in-home care, those who lived alone, and those with mental illness who lived on the street and were left stranded will probably never be accurately known.

Sources: Baum, D. (2006, August 16). Letter from New Orleans: The lost year. *The New Yorker;* Bourne, J. K. (2004, October). Gone with the water. *National Geographic;* Boyer, P. J. (2005, September 26). Letter from Mississippi: Gone with the surge. *The New Yorker;* Foxman, B., Camargo, C. A., Lillienfeld, D., Linet, M., Mays, V. M., McKeown, R., . . . Rothenberg, R. (2006). Looking back at Hurricane Katrina: Lessons for 2006 and beyond. *Annals of Epidemiology, 16*(8), 652–653; Kiewra, K. (2006, Winter). The eye of the storm: What lessons do Katrina and other humanitarian crises teach us about managing calamity? *Harvard Public Health Review.* Retrieved from http://www.hsph.harvard.edu/review/rvwwinter06_katrinaeye.html; Knabb, R. D., Rhome, J. R., & Brown, D. P. (2005, December 20). *Tropical cyclone report: Hurricane Katrina.* Miami, FL: National Hurricane Center; Waltham, R. (2005). The flooding of New Orleans. *Geology Today, 21*(6), 225–231.

> These terrorists kill not merely to end lives, but to disrupt and end a way of life. . . . From this day forward, any nation that continues to harbor or support terrorism will be regarded by the United States as a hostile regime. Our nation has been put on notice: We are not immune from attack. We will take defensive measures against terrorism to protect Americans. . . . Great harm has come to us. We have suffered great loss. And in our grief and anger we have found our mission and our moment. Freedom and fear are at war. . . . We will rally the world to this cause, by our efforts and by our course. We will not tire, we will not falter, and we will not fail.
>
> *—President George W. Bush, address to Congress on terrorism, September 20, 2002*

Shifting back to a global perspective, the 2004 Indian Ocean tsunami killed more than 200,000 people across South and Southeast Asia, including parts of Indonesia, Sri Lanka, India, and Thailand. This great undersea earthquake's epicenter, off the west coast of Sumatra, Indonesia, was the second largest earthquake ever recorded on a seismograph at (9.1 on the Richter scale) and was the longest duration of faulting ever observed, lasting between 8 and 10 minutes. It was large enough that it caused the entire planet to vibrate as much as half an inch and to minutely "wobble" on its axis by as much as 1 inch. The total energy released by this earthquake was equivalent to the explosion of 250 megatons of TNT. The shift of mass and massive release of energy very slightly altered the Earth's rotation. Although the exact amount is yet undetermined, theoretical models suggest the earthquake shortened the length of a day by 2.68 microseconds. It also triggered earthquakes in other locations as far away as Africa and Alaska in the United States (Ingram et al., 2006; Stein & Okal, 2005; Telford & Cosgrave, 2007).

Global Disaster Issues

As humans continue to migrate throughout the globe and population densities continue to increase in flood plains, along vulnerable coastal areas, and near faults in the Earth's crust, we can expect natural disasters to worsen and affect more people. The global community continues to witness complex emergencies resulting from the breakdown of traditional state structures, armed conflict, and the upsurge of ethnicity and micronationalism (Garheld & Hamid, 2006; Hayes, 2005; Noji, 1997; Rowitz, 2005; Stein & Okal, 2005; Telford & Cosgrave, 2007). One need look no further than today's newspaper headlines or watch a news network to find these political and cultural conflicts as they play out on a daily basis in disaster areas such as Bosnia, Syria, Darfur, Somalia, Rwanda, Chechnya, and Iraq, to name but a few. Because of these political and cultural upheavals, refugees have become a large and vulnerable population with complex health problems (Leaning & Guha-Sapir, 2013). Between 1965 and 2006, 90% of all natural disaster victims lived in Asia and Africa. The number of people affected (killed, injured, or displaced) by disasters worldwide rose from 100 million in 1980 to 157 million in 2005. By the mid-1990s, the number of refugees affected by a combination of natural and human-made disasters increased to an estimated 17 million throughout the world (International Strategy for Disaster Reduction [ISDR], 2006).

RESEARCH ALERT

The article discusses the impact of natural disasters and armed conflict on public health. It is stated that natural disasters and armed conflict have caused increases in mortality and morbidity. The growth in scale and scope of these events since 1990 is discussed. The effects of armed conflict and natural disasters on global public health progressed in the technical quality, normative coherence, and efficiency of the healthcare response.

Source: Leaning, J., & Guha-Sapir, D. (2013). Natural disasters, armed conflict, and public health. *New England Journal of Medicine, 369*(19), 1836–1842.

Earthquakes are global incidents that have been cited as causing the greatest number of deaths and the largest monetary loss of any type of natural disaster. The tragic 2004 earthquake that occurred in the Indian Ocean and the ensuing tsunami caused the deaths of more than 200,000 people, and the restoration of that area may take decades. This has further added to the poverty of these countries and to the already strained burden of immigration to other countries (Berz, 1984; Kumar et al., 2007; Telford & Cosgrave, 2007).

Not only are these displaced vulnerable populations at risk for serious health consequences, but the economic costs for their care are also devastating (Noji, 1997). As former United Nations (UN) Secretary General Boutros Boutros Ghali stated:

> There is no hard-and-fast division in terms of their [disasters'] effects on civilian populations between conflicts and wars, and natural disasters. Droughts, floods, earthquakes, and cyclones are just as destructive for communities and settlements as wars and civil confrontation. Just as preventive diplomacy can foresee and prevent the outbreak of war, so the effects of natural disasters can be foreseen and contained. (cited in Noji, 1997, p. xv)

Much of the destruction caused by natural disasters can be avoided. For almost every natural disaster in the world in the 1990s, an ounce of prevention or preparedness would have made a significant difference in terms of damage to persons and property (Noji, 1997, p. 7). Natural hazards, such as weather, earthquakes, and floods, are, in fact, only natural agents that transform a vulnerable condition into a disaster (Noji, 1997, p. 11).

People often do not know their limitations until they reach them. As technology has advanced and provided humans with opportunities to live in and explore the world without the territorial constraints of our ancestors, the probability that the future will be marked by periodic disasters is certainly increased. In many cases in recent disasters, building codes were ignored, communities were located in dangerous areas, warnings were not issued or followed, or plans were unknown to all community residents or were ignored (Noji, 1997).

We know much about the cause and nature of disasters, populations at risk, and the inevitable outcome when communities are not prepared for disasters. Such knowledge assists us in anticipating some of the effects that a disaster may have on the health of communities. Knowing how people are injured and killed in disasters is critical prerequisite knowledge for preventing or reducing injuries and deaths during future disasters (Noji, 1997). For example, although none of the advances in science and technology have done much to arrest the force of natural disasters, we often see them coming a few hours earlier and can measure their destructiveness with greater precision afterward. Yet those very advances have rendered us in many ways even more vulnerable to potential catastrophes, because persons often feel a false sense of security regarding the likelihood of serious threat from a disaster (Erickson, 1976). Persons in the New Orleans area hardest hit by Hurricane Katrina were living below sea level and were certainly accustomed to hurricane warnings, for example.

RESEARCH ALERT

Indian Ocean Tsunami, December 26, 2004

The 9.0-magnitude undersea earthquake occurred December 26, 2004. The earthquake generated a tsunami that was among the deadliest disasters in modern history. The tsunami wreaked devastation along the shores of Indonesia, Sri Lanka, South India, Thailand, Maldives, and other countries where waves of up to 30 meters hit the coast. Even areas as far as the coast of East Africa sustained damage and recorded fatalities. The World Health Organization (WHO) estimates that between 228,000 and 310,000 people died as a result of the tsunami, although an accurate count will never be known due to the number missing and destruction of the public health infrastructure in affected areas.

Sources: Garfield, R., & Hamid, A. Y. (2006). Tsunami response: A year later. *American Journal of Nursing, 106*(1), 76–79; Hassmiller, S. (2007). The 2004 tsunami. *American Journal of Nursing, 107*(2), 74–77; Kumar, M. S., Murhekar, M. V., Hutin, Y., Subramanian, T., Ramachandran, V., & Gupte, M. D. (2007). Prevalence of posttraumatic stress disorder in a coastal fishing village in Tamil Nadu, India, after the December 2004 tsunami. *American Journal of Public Health, 97*(1), 99–101; Telford, J., & Cosgrave, J. (2007). The international humanitarian system and the 2004 Indian Ocean earthquake and tsunamis. *Disasters, 31*(1), 1–28.

Natural Disaster Reduction

The UN General Assembly declared the 1990s to be the International Decade for Natural Disaster Reduction (IDNDR) and led the way in calling for a global, scientific, technical, and political effort to reduce the impact of catastrophic acts of nature (Advisory Committee IDNDR, 1987). The IDNDR was later renamed the International Strategy for Disaster Reduction (ISDR). This declaration came about because disasters and the number of their victims had increased in recent decades (Pickens, 1992; Rowitz, 2005). The UN has continued to meet yearly on this issue and, in June 2006, launched the 2006–2007 "Disaster Risk Reduction Begins at School" campaign.

When a natural disaster strikes, children are among the most vulnerable groups, especially those attending school in times of disaster. Disasters such as the October 2005 earthquake in Pakistan, in which more than 16,000 children died in schools that collapsed, or the 2006 mudslide on Leyte Island in the Philippines, where more than 200 school children were buried alive, are just a few tragic examples of why more needs to be done to protect our children during catastrophic events. The UN/ISDR secretariat and its partners made disaster risk education and safer school facilities the two key themes of the 2006–2007 World Disaster Reduction campaign. The "Disaster Risk Reduction Begins at School" initiative aimed to inform and mobilize governments, communities, and individuals to ensure that disaster risk reduction was fully integrated into school curricula in high-risk countries and that school buildings were built or retrofitted to withstand natural hazards. In all societies, children represent hope for the future. Because of their direct link to youths, schools are universally regarded as institutions of learning, for instilling cultural values, and for passing on both traditional and conventional knowledge to younger generations. Protecting our children during natural disasters, therefore, requires two distinct yet inseparable priorities for action: disaster risk education and school safety (ISDR, 2006).

The massive adverse impacts on the health of global populations resulting from disaster have now been recognized as a significant public health problem. Sudden-impact disasters, such as earthquakes and tornadoes, may result in large numbers of people killed, injured, or disabled for life; health facilities damaged or destroyed; and national healthcare development efforts in underdeveloped countries set back for years. As human societies have become denser as a result of the twin forces of urban migration and population growth, more people are now exposed and vulnerable to the hazards of disaster than ever before. Their increasingly sophisticated and technical physical infrastructure makes developed countries, such as the United States, even more vulnerable to destruction than in past generations. For instance, a major disaster could disrupt the computer networks of the federal government or some other large organization. Damage from both natural and technological disasters tends to be more and more extensive when proper planning and precautions are not taken. In the past 50 years, much has been learned about disasters and their aftereffects. Disaster preparedness involving careful and methodical planning does make a difference in mediating the destructive nature of disasters (Noji, 1997; Plough et al., 2013).

THINK ABOUT THIS

Healthcare needs of people in developing and underdeveloped countries experiencing violent conflict and disaster are similar. In such cases, nurses can play key roles in disease detection and control, social support, and rehabilitation. Nurses already provide much of the care in these situations because they are present on a daily basis, have key clinical and organizational skills, and have a high level of popular trust.

This commentary recommends that we can do more with systems training, disaster skill development, and participation in policy and research related to preventing and reducing the effects of disaster. Nurses are usually invisible, serving without discipline-specific orientation. The reasons for the lack of nursing's presence during disasters include unresolved ethical and political issues among nursing leaders regarding the role and image of nursing, humanist values, and relations between the profession and government. We are always the first on the scene and the last to leave, but rarely is our presence acknowledged in the press or official accounts of the disaster. Nightingale knew that better organization, autonomy, and recognition of the unique contribution that nurses make in times of war and disaster could do much to prevent further harm to damaged populations.

Source: Garfield, R., Dresden, E., & Rafferty A. (2003). Commentary: The evolving role of nurses in terrorism and war. *American Journal of Infection Control, 31*(3), 163–167.

> **Begin at the beginning" the King said, gravely, "and go till you come to the end; then stop.**
>
> ***—Lewis Carroll's Alice's Adventures in Wonderland, 1865***

> **Will you be a hero in your daily work? . . . We may give you an institution to learn in, but it is you who must furnish the heroic feelings of doing your duty, doing your best, without which no institution is safe.**
>
> ***—Florence Nightingale***

Disaster as a Global Public Health Problem

The Centers for Disease Control and Prevention (CDC) has led the way and has major responsibilities to prepare for and respond to public emergencies such as disasters. The CDC is also responsible for conducting investigations into the health effects and health consequences of disaster. The first major comprehensive research study of disasters was published in 1962 by Baker and Chapman in their book *Man and Society in Disaster.* Since then, many research centers have been established to study the health effects of disaster; among them are collaborative centers under the guidance and sponsorship of WHO and the Pan American Health Organization. The major aim of these research efforts is to assess risk for death and injury and to develop strategies for preventing or mitigating the impact of future disasters.

Disasters affect communities in myriad ways. Most effects are related to health, directly or indirectly (Noji, 1997). Communication lines, such as telephones, television, and Internet connections, may be disrupted, as well as transportation links, such as roads and methods of transportation. Public utilities (electricity, water, gas, and sewer) are often disrupted early in a massive disaster. A substantial number of persons may be without homes. Casualties may require medical and nursing care. Damage to food, damage to food preparation and sources, and lack of sanitation resources may create serious public health threats. A long-term effect is the community's possible destruction of its industrial or economic base. A detailed summary of disasters and public health is provided in **Box 4** and the health effects of disasters in **Box 5**.

BOX 4 Public Health Problems That May Result from Disasters

- Excessive deaths and injuries can tax the local health services and therapeutic capabilities, which may require external assistance.
- Destruction or disruption of acute care health facilities, such as clinics and hospitals, may leave services and resources unable to provide care to the injured from the disaster and predisaster patient population needs.
- Disruption of routine health services and preventive activities can lead to long-term consequences in terms of morbidity and mortality.
- Environmental hazards can lead to increased risks for communicable disease and injury from a damaged ecosystem.
- Psychological and social behavioral stressors, including panic, anxiety, neuroses, and depression, can be exacerbated.
- A shortage of safe, nutritional food sources may lead to severe nutritional deficiencies and sequelae in the very young and the very old.
- Displaced populations to overcrowded hospitals and shelter facilities may increase the dangers of communicable disease.

Sources: Adapted from Logue, J. N., Melick, M. E., & Hansen, H. (1981). Research issues and directions in the epidemiology of health effects of disasters. *Epidemiological Review, 3,* 140–162; and Noji, E. K. (1997). *The public health consequences of disasters*. New York, NY: Oxford University Press.

Box 5 Health Effects of Disasters

Physical

Sleep disturbance
Poor concentration
Back pain
Tachycardia
Poor diet

Psychological

Loss of self and relationships
Emotional pain
Brooding
Aggressive thoughts
Depression

Sociocultural

Loss of intimacy
Loss of sense of belonging to once claimed culture

Source: From Nurses' Role in World Catastrophic Events: War and Dislocation Effects on Serbian Australians by N. Procter and J. Cheek. In B. Neuman (Ed.) *The Neuman Systems Model* (3rd Int. ed.), pp. 119–131, 1995. Reproduced by permission.

Populations at Risk in Disasters

Not all persons in the world are equal regarding the probability of disaster occurrence or severity of consequences. The more vulnerable to a disaster a population is, the more serious the outcomes of injury and damage to persons and property (Garheld & Hamid, 2006; Mizutani & Nakano, 1989; Telford & Cosgrave, 2007). As far as individual health characteristics, persons with conditions that put them at risk, such as those with chronic diseases, elder persons, pregnant women, home health patients, the disabled, homebound persons, or children, are among the most vulnerable in any society concerning impact of disaster (FEMA, 2011). Industrialized countries are buffered from disasters by characteristics and abilities that are summarized in **Box 6**.

Stages of Disaster

Disasters can be divided into five chronological stages that require specific levels of prevention and levels of response at various points during each stage. Knowing the disaster stages will assist in the development of the disaster plan, role responsibilities, and the setting of priorities in each phase of the disaster plan. Refer to Box 1 about the 1912 Titanic disaster as an illustration of the stages of disaster. The stages of a disaster are as follows:

1. Nondisaster, or interdisaster, stage
2. Predisaster, or warning, stage
3. Impact stage
4. Emergency stage
5. Reconstruction, or rehabilitation, stage

BOX 6 Resources for Industrialized Countries

- Sophisticated technology to forecast storms
- Development and strict enforcement of codes for earthquake- and fire-resistant buildings
- Widespread mandatory use of communications networks to broadcast disaster warnings, alerts, and information about disaster preparedness
- Resources to provide timely and high-quality emergency health services and accommodation
- Contingency planning to prepare the population and public agencies for possible disasters
- Shelters for evacuation widely available and used by population

The low death rate associated with disasters in the United States, such as hurricanes Katrina and Rita (2005), Hugo (1989), Andrew (1992), and Georges (1998), earthquakes and wildfires in California, are evidence of the success of the United States' devotion of resources in disaster warning and recovery, which reduces the death risks to vulnerable populations (Noji, 1997; Rowitz, 2005). The following major factors contribute to the degree of vulnerability of populations:

- Human vulnerability resulting from poverty and social inequality
- Environmental degradation resulting from poor land use
- Rapid population growth, especially among the poor

It is estimated that 95% of the deaths that result from natural disasters occur among 66% of the world's poorest population. The poor are most at risk for greatest damage for the following reasons (EM-DAT, 2012):

- They are likely to live in substandard housing with little structural protection.
- They often live in coastal locations that are at high risk for disasters.
- They are likely to live in flood plains and other less desirable land.
- They are likely to live in substandard housing built on unstable geographic slopes.
- They are likely to live near hazardous industrial sites.
- They are not usually well educated about safe and appropriate life-saving behaviors and disaster preparedness.
- They are more dependent on others for transportation.

Source: Adapted from Garcia, L. M. (1985). *Disaster nursing: Planning, assessment, and intervention.* Rockville, MD: Aspen.

Disaster planning should begin before the disaster event. During the nondisaster stage (**interdisaster stage**), planning and preparation for a disaster include the two critical elements of disaster preparedness: (1) disaster training and education programs for the community and (2) the development of a disaster plan for all involved in the mitigation of a potential disaster (Noji, 1997; Rowitz, 2005). Mitigation is preventive in nature and is defined as action taken to prevent or reduce the harmful effects of a disaster on human health and property (Langan & James, 2004; Malilay, 1997). Included in this critical phase of primary prevention are assessment of hazards and risks, vulnerability analysis, inventory of existing resources for coping with a disaster (human, communication, and material), and the establishment of a disaster plan. Disaster planning is discussed in more detail later in this chapter.

A disaster is imminent during the warning stage (**predisaster stage**). The disaster plan, when available, is implemented, which includes early warnings based on predictions of impending disaster and mobilization as well as implementation of protective measures for the affected communities and populations (Garcia, 1985). Because primary prevention is the focus during this stage, disaster team members, officials, and emergency personnel prepare the population for disaster by providing information via multiple communication routes. Advisories and warnings are issued, and evacuation measures are taken where indicated. Mobilization can occur in the form of evacuation to shelters, preparation such as using sandbags around riverbanks to divert floodwaters, boarding up windows and tying down boats when a hurricane is forecast, moving to the basements or inner halls of homes and schools in the event of a tornado, or evacuating geographically vulnerable persons after volcano warnings. Healthcare workers may be placed on alert call for health facility staffing and disaster shelter management. The effectiveness of these protective measures will depend largely on the community's preparedness and contingency plans developed in the nondisaster phase (Leaning & Guha-Sapir, 2013; Noji, 1997).

Problems associated with such warnings include the fact that the communication systems may be inadequate in transmission and/or reception, or there may not be enough time to send warnings; in addition, the community must recognize the warning threat as serious and legitimate. Nevertheless, some people in the targeted community may deny the need for taking action based on previous experience with the specific disaster (e.g., persons who live on a fault line or on a coastline), and the occurrence of false alarms in the past can desensitize persons to appropriate reaction (Garcia, 1985; Janis & Mann, 1977; Rosenkoetter, Covan, Cobb, Bunting, & Weinrich, 2007).

The **impact stage** involves "holding on" and enduring the impact of the disaster. This stage may last from minutes (as in earthquakes, plane crashes, tornadoes, and bomb blasts) to days or weeks (hurricanes, floods, fire, and drought). People who are directly experiencing the disaster may be unable to comprehend the scope of the disaster (Garcia, 1985). If possible, disaster team members during the impact phase or immediately afterward should conduct a preliminary assessment and inventory of injuries and property damage so that the implementation of secondary prevention strategies of setting priorities can be set in motion. How much the impact affects community members depends on several factors: population density, the extent of the damage, the preparedness of the community, the extent of community resiliency, response to the consequences of the damage, and the organization of emergency response teams.

During the **emergency stage**, the community faces the consequences of the disaster's impact. This stage begins during the actual impact and continues until the immediate threat of additional hazards has passed (Garcia, 1985; Gibson, Theadore, & Jellison, 2012). Secondary prevention strategies are used to minimize damage and prevent further complications. This stage is divided into three parts—isolation, rescue, and remedy.

Isolation of the affected population can occur as a result of limited access (as a result of disaster damage, such as closed roads, downed trees, or building obstruction). The community members themselves must assume responsibility for their own needs relative to the disaster until outside help arrives.

ENVIRONMENTAL CONNECTION

Why was New Orleans a "disaster waiting to happen"?

The city of New Orleans sits below sea level. Why is this so? According to Tidwell, author of *Bayou Farewell*, the answer is the levees. The huge earthen river dikes that have kept the city dry and inhabitable for 300 years have also resulted in a virtual giant bathtub. Every great river delta in the world is shaped by two defining geological phenomena: One feature involves the flooding resulting from overflow, in this case, of the sediment-rich Mississippi River. This has created over the past 7,000 years a vast deltaic coast from the water-borne deposits composed of sediments and nutrients flowing from two-thirds of the United States. The second feature is subsidence, or sinking. The deposits of alluvial soil are extremely fine and unstable. Over time, they tend to compact, shrink in volume, and sink. This natural process of sediment deposit

(*continues*)

ENVIRONMENTAL CONNECTION *(continued)*

counterbalanced the sinking and resulted in net land building. By corseting the river with levees right out to the Gulf of Mexico's Continental Shelf, we are left with a sinking "bowl."

When French colonists first settled in Louisiana 300 years ago, vast, dense hardwood forests lay between what is now New Orleans and the Gulf of Mexico. There were freshwater marshes, endless saltwater wetlands, and a network of strong barrier islands. Today, all that land is essentially gone. Because of the levees and the "law of unintended consequences," New Orleans is a sunken, walled city, essentially jutting out exposed to the hurricane-prone Gulf of Mexico. Had Katrina struck 50 or 100 years ago, the destruction would not have been the same. In 2005 there were simply no land structures left to slow Katrina's deadly blow.

Every day, even without hurricanes, 50 acres of land in coastal Louisiana turn to water. Every 10 months, an area of land equal to Manhattan joins the Gulf of Mexico. It is the fastest disappearing landmass on Earth. This is why Katrina happened, why people drowned, lost their homes.

The entire coast of Louisiana, including New Orleans, began rapidly sinking, dropping 2–3 feet in the 20th century alone:

> It would be criminally irresponsible of us to fix a single broken window in New Orleans, pick up a single piece of debris, or fix a single cubic foot of levee without simultaneously committing as a nation to the massive plan to rebuild the entire Louisiana coast. To do one without the other is to simply set the table for the next nightmare hurricane.

Source: Tidwell, M. (2006). Exporting calamity: Katrinas for everyone. *World Watch, 19*(5), 43–45.

After a disaster, communities must come to terms with rebuilding their entire lives from the ground up. After Hurricane Katrina, these residents illustrate the shock of such devastation and the resilience of the human spirit.

Rescue begins when outside resources arrive and provide search-and-rescue operations. Community members are often harried, stressed, and nonproductive in this early stage. First aid, emergency medical assistance, and a command post for disaster management are established. Restoration of means of communication begins, and regional, state, federal, and voluntary organizations and agencies converge to meet the needs of the community.

Remedy begins with the establishment of organized, professional, and voluntary relief operations and organizations. The panic and confusion of the earlier phases tend to subside. Community members, disaster workers, and volunteers "get on with the task" of providing appropriate medical aid, clothing, food, and shelter to the affected population. The injured and ill are triaged, transportation becomes more organized, morgue facilities are established, reunions of family members become organized, and communication networks are established to provide early data on the disaster damage (Garcia, 1985). Later in the emergency stage, surveillance of public health effects (e.g., infectious disease, sanitation issues, safety concerns, and environmental fallout, such as flood debris and air pollutants) is put in place and interventions are developed (Wilson, 2006). When communities are well prepared and disaster plans are in place to help people know the "what, when, and how" of disasters for their population, both self-reliance and the effectiveness of early assistance can save lives and reduce injury during this critical period (Langan & James, 2004; Noji, 1997; Plough et al., 2013; Rowitz, 2005). At this stage, coordination of rescue efforts becomes critically important to execute and evaluate effectiveness.

The **reconstruction (rehabilitation) stage** begins when communities start the process of healing. Reconstruction or rehabilitation optimally restores the community to predisaster conditions (Noji, 1997). Health services are restored to normal. Damaged homes, facilities, and buildings are repaired and reconstructed. This period is also the time for evaluation and reflection by the community and disaster team members, community officials, and voluntary agencies, as lessons learned from the disaster are shared and documented (Noji, 1997). This period, which may combine secondary and tertiary prevention, may take days, months, or years, depending on the nature of the disaster, the response of the community, and the extent of the damages. For persons in the impact area, the recovery can be a long course and, in some cases, can be a lifelong readjustment to life and community living after the disaster (Garcia, 1985; Gibson et al., 2012; Wilson, 2006).

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In the wake of the September 11, 2001 disasters, people in New York City have reconstructed their lives in varied ways. Memorials have been held, artwork has been created, and a new community ethic of connectedness seems to have emerged. There appeared to be a need to invest in the future, to define and reach for goals, and to invest energy in plans to rebuild both the city and individual lives that had been personally touched by the trauma and loss. Klagsbrun (2002) suggests that by moving on in our personal lives, as well as in our communal lives, we are attempting to regain control over our destiny. Each person often reviews his or her own history and recognizes how the individual has overcome losses, difficulties of all kinds, pain, and failure and has succeeded in being able to go on.

RESEARCH ALERT

An emerging approach to public health emergency preparedness and response, *community resilience* encompasses individual preparedness and establishes a supportive social context in communities to withstand and recover from disasters. This article examines why building community resilience has become a key component of national policy across multiple federal agencies and discusses the core principles embodied in community resilience theory—specifically, the focus on incorporating equity and social justice considerations in preparedness planning and response. We also examine the challenges of integrating community resilience with traditional public health practices and the importance of developing metrics for evaluation and strategic planning purposes. Using the example of the Los Angeles County Community Disaster Resilience Project, the article discusses the authors' experience and perspective from a large urban county to better understand how to implement a community resilience framework in public health practice.

Source: Plough, A., Fielding, J. E., Chandra, A., Williams, M., Eisenman, D., Wells, K. B., … Magaña, A. (2013). Building community disaster resilience: Perspectives from a large urban county department of public health. *American Journal of Public Health, 103*(7), 1190–1197.

It is during the rehabilitative phase that victims often suffer from posttraumatic stress disorder. **Posttraumatic stress disorder (PTSD)** is recognized by the American Psychiatric Association (APA) with the following symptoms and circumstances: The sufferer is a victim of an extremely distressing event who persistently reexperiences the event after it is over (compulsive and obsessive thoughts about details of the event), persistently avoids stimuli that remind the victim of the event, and experiences numbing of responsiveness and persistent symptoms of arousal not present before the trauma (APA, 2013). In conjunction with disaster, other symptoms include flashbacks, depression, inability to form close personal relationships, and sleep disturbances (Barker, 1989; Rhoads, Mitchell, & Rick, 2006). Florence Nightingale is thought to have suffered from PTSD after the Crimean War. This condition, once diagnosed, requires professional mental health intervention and follow up (Adams, 2007; Hyre, Ompad, & Menke 2007; Rebmann et al., 2008; Rhoads et al., 2006; Waters, Selander, & Stuart, 1992).

RESEARCH ALERT

This study surveyed workers, truck drivers, heavy equipment operators, laborers, and carpenters about their work-related exposures and somatic and mental health symptoms after working on the cleanup and recovery efforts at the World Trade Center Disaster site following September 11, 2001. Respondents reported debilitating consequences of their work, being poorly prepared to work in a disaster,

(*continues*)

RESEARCH ALERT (*continued*)

lacking protective equipment and training, and being overwhelmed by the devastation at the World Trade Center site.

Source: Johnson, S. B., Langlieb, A. M., Teret, S. P., Gross, R., Schwab, M., Massa, J., ... Geyh, A. S. (2005). Rethinking first response: Effects of the cleanup and recovery effort on workers at the World Trade Center disaster site. *Journal of Occupational and Environmental Medicine, 47*(4), 386–391.

Disaster Planning

A planned response to disasters must occur to lessen the terror of a disaster, to cushion the impact by providing care for the greatest number of potential survivors, and to increase society's ability to survive disasters and grow more self-sufficient and self-reliant in the process (Henderson, Inglesby, & O'Toole, 2002; Waeckerle, 1991). Clearly, the benefits of disaster planning for society today are more significant than ever as widespread disasters become more common and more costly, in both human and property terms.

Anticipating a disaster and planning for the possibility of multiple outcomes from disasters strengthen a community's adaptability. Consequently, the disaster team develops the ability to respond more quickly and more effectively in the face of disaster (Levy & Sidel, 2002; Muench, 1996). Another benefit to planning is the delineation of roles and responsibilities of the players in disaster preparedness. The result is less confusion over who does what and the roles of the multitude of organizations and volunteers once resources become available.

Once a disaster is imminent, it is too late to plan a response. Knowledgeable and experienced leaders and officials in the community should coordinate a clear community disaster plan for all contingencies. Such a plan must be as inclusive as possible, including input from health professionals; voluntary agencies; policymakers; officials from local, state, and federal levels, such as the civil defense and FEMA; emergency response system personnel; and all other components of the healthcare delivery system from acute care to home health to residential care, including medical and nursing schools (FEMA, 2006; Gospodinov & Burnham, 2008; Langan & James, 2004; Waeckerle, 1991).

Steps in the Disaster Process

When a major disaster has occurred, such as Hurricane Katrina in 2005, the president of the United States intervenes after the governor of the affected state requests the president to declare the area a major disaster. However, all major disaster declarations must follow certain steps (FEMA, 2006).

First, local government agencies, such as the mayor and civil defense, which includes neighboring communities and volunteer agencies, must respond. Second, if the local agencies become overwhelmed, the state responds at the governor's request through state agencies and the National Guard. Third, local, state, federal, and volunteer organizations make a damage assessment. Fourth, when state resources have been exhausted, the governor of the state makes a request to the president for a declaration of a major disaster. The governor bases this request on the already-completed damage assessment collected by the civil defense team and commits a certain amount of state funds and resources to the long-term recovery from the disaster. Fifth, FEMA evaluates the request and recommends action to the White House. Sixth, either the president gives the executive order for the declaration or FEMA informs the governor the request has been denied. The whole process may take only a few days. If the executive order is given, federal and financial resources are mobilized through FEMA for search and rescue and for the provision of basic human needs. Long-term federal programs are mobilized during this time.

Tornados often leave a path of severe destruction, especially in densely populated urban areas.

ENVIRONMENTAL CONNECTION

> **I'm a strong proponent of the restoration of the wetlands, for a lot of reasons. There's a practical reason, though, when it comes to hurricanes: The stronger the wetlands, the more [*sic*] likely the damage of the hurricane.**
>
> ***—President George W. Bush, discussing post-Katrina wetland improvements, New Orleans, March 1, 2007***

A new report on the environmental effects of Hurricane Katrina in 2007 indicates that the Louisiana gulf coast is sinking. Findings a year after Katrina indicate that the coastline in southern Louisiana is gradually shifting, sliding ever so slowly into the Gulf of Mexico. The implication of this for future disaster risks is significant as engineers repairing the levees around New Orleans must now reconsider how this will affect previous plans to rebuild the levees. This lateral movement of land into the Gulf indicates that the bedrock under southern Louisiana southward has been triggered by deep underground faults that are slipping under the enormous weight of the sediment from the disaster as well as from the Mississippi River.

Chapter author Dr. Karen Saucier Lundy (left) at an American Red Cross shelter after Hurricane Allen in Galveston, Texas.

The Disaster Plan

The purpose of **disaster planning** is to reduce a community's vulnerability to the tremendous consequences of disasters and to prevent or minimize problems resulting from system damage associated with the disaster. Community health nurses are involved in disaster planning, as are other healthcare professionals in the community. Specific ways that a nurse can be more prepared for a disaster in his or her community are described in the next section (Drabek, 1986; Gospodinov & Burnham, 2008; Langan & James, 2004).

In a disaster, the usual strategies and process for providing care may not work. Deviating from a routine plan of care may present a few problems for nurses and other healthcare professionals when disaster occurs. Disaster health care is very different from daily nursing practice; it is not routine (even compared with emergency department services), and the philosophy of care is based on providing the greatest good for the greatest number. Abiding by this standard of care is often difficult for healthcare professionals, especially for those in routine practice settings who practice holistic care and provide optimal care to all who need services. The disaster plan is fundamental in the preparation of healthcare professionals (Waeckerle, 1991). Drabek (1986) identified general principles that can guide community health nurses who take part in disaster planning. These principles are listed in **Box 7**.

As Waeckerle (1991) has stated, "Disaster planning is an enormous undertaking" (p. 815). As in other areas of health care, enormous amounts of money are spent in the United States on disaster relief during the recovery period, yet few funds are made available for communities to use in disaster preparedness and disaster planning. This emphasis poses challenges in the development of a disaster plan. Although the disaster plan is usually developed from guidelines set forth by local, state, and

BOX 7 Principles to Guide Disaster Preparedness for All Persons Involved in Planning

- Measures used for everyday emergencies generally do not work in major disasters.
- Disasters are more uncertain, less predictable, with more unknowns, and citizens have little consensus on what needs to be done in a disaster.
- Laypersons are most likely to jump in and provide aid without direction and knowledge of prioritization and triage.
- Plan for specific population needs and consider "disaster planning" as a verb, which is ongoing, rather than as a noun, such as the limits of a written plan.
- Provide information regularly to the community to correct misconception through all forms of available media, including social media (Facebook, Twitter, etc.), television, newspapers, and in the virtual communities, such as blogging.
- Widespread looting and theft are actually quite uncommon.
- People should be given information and details about the extent of the disaster to enable them to take appropriate action, in contrast to the long-held belief of health workers that people will panic if they "know too much."
- Involve the entire community in the planning process, not just officials and emergency personnel.
- Such inclusion limits confusion about who does what and where the lines of authority are.
- Use routine working methods and procedures in the disaster plan, which will eliminate the need to learn new procedures and prevent confusion at the disaster site.
- Disaster plans should be flexible.
- Roles and responsibilities of team members should be identified by position or title, not by names of individuals, to avoid having to revise the plan when people change positions.

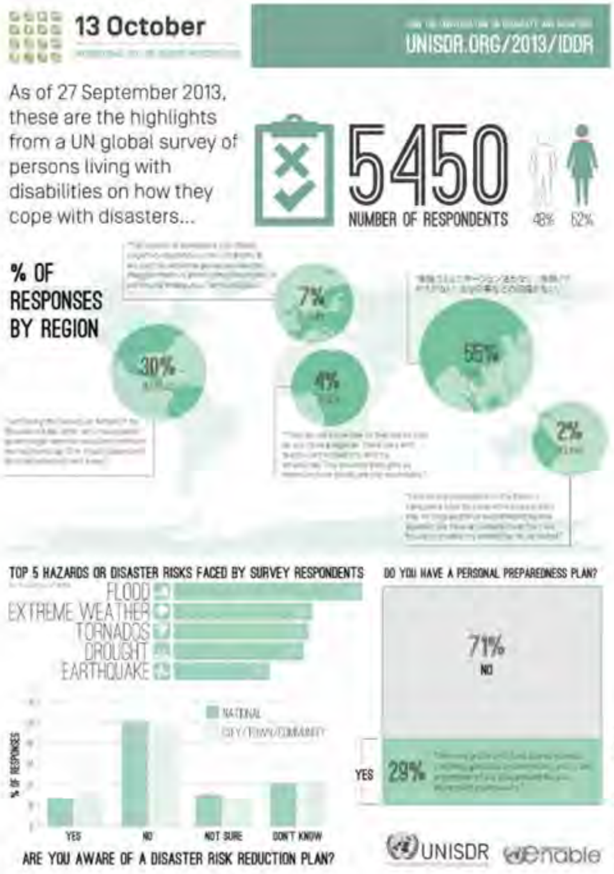

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Figure 3

federal officials, communities are often on their own and must rely on local officials and volunteers to do much of the work when organizing a disaster plan and evaluating its validity through mock disaster drills (Gospodinov & Burnham, 2008).

Since the 2001 anthrax attacks on U.S. mail facilities and the emergence of the threat of smallpox bioterrorism, disaster plans must include much more detail on protocols for managing communicable diseases and chemical agents, most of which current healthcare professionals have never seen. Bioterrorism, germ warfare, and disaster/bioterrorism preparation have become common terms on news shows and in the vocabulary of the American public since September 11, 2001 (Porche, 2002). As the terrorist attacks in which anthrax spores were distributed through the U.S. Postal Service demonstrated, these threats are a means to produce fear and could potentially target unsuspecting individuals, but most citizens are unclear as to how to protect themselves. In addition to being prepared and educated about bioterrorist agents such as anthrax and smallpox, disaster planners need to prepare for even rarer infectious diseases that could be used in bioterrorism, such as *Brucellosis,* plague, tularemia, Q fever, and botulism. Additionally, chemical agents are substances that can injure and kill through a variety of mechanisms. Choking, blood, blister, or neural agents are the ones most likely to be used in a terrorist attack, because they will cause the highest rates of morbidity and mortality (Porche, 2002; Smith, 2000).

Garrett (2000) warns that the collapse of the public health infrastructure in the United States leaves us particularly vulnerable to such epidemics. Public health is the only viable protection against epidemics, whether natural or human made, and public health is responsible in most states for disaster planning. Since the 1980s, health departments have been chronically underfunded, according to Garrett (2000; see also Colias, 2005), because of their successes in the past century at keeping children immunized, the air breathable, factories safer, and citizens better educated about self-care. Disaster plans, however, must change as threats to the public's health evolve (see **Box 8**).

Characteristics of Disaster Plans

Through research into past disasters and the presence or absence of disaster plans, disaster specialists have determined common characteristics of effective disaster plans (Drabek, 1986; Ingram et al., 2006; Noji, 1997; Waeckerle, 1991):

- The disaster plan is based on a realistic assessment of potential problems that can happen, such as destruction to property, materials, and utilities; impairment of communication; and geographic isolation.
- Estimates of types of injuries that would result from the disasters most likely to occur in the area and the possible destruction of health facilities and alternative agency use are included in the plan.
- The plan is brief, concise, and inclusive of all who can provide disaster aid.
- The plan is organized by a timeline; it details the stages of a disaster, who must be involved, what must occur, and how each stage unfolds throughout the disaster process.
- The plan is approved by all agencies that provide authority endorsement, as well as sanctioned by those who have the most power to see that the plan is updated periodically and carried out when disaster strikes.
- The plan is regularly tested through mock drills and revised based on drill results.
- The plan is always considered a work in progress because needs and resources in a community relative to disaster preparedness change constantly.

NOTE THIS!

Online Resources for Disaster Preparedness

Pets and Disaster: Get Prepared

Developed with the Humane Society of the United States, this American Red Cross resource provides recommendations and specific suggestions on having a pet disaster plan: pet disaster supplies, what to do when a disaster threatens, and alternatives when pets are not allowed in shelters. For more information, visit http://www.redcross.org/prepare/disaster/pet-safety

Disaster Preparedness for People with Disabilities

This 46-page booklet is designed for use by anyone who has a disability or who works with, lives with, or assists a person with a disability. It has information on possible disaster effects, assessing personal needs and abilities, suggestions about forming a personal support network, and fill-in-the-blank checklists.

For more information, visit http://www.disastersrus.org/mydisasters/disability/disability.pdf

Facing Fear: Helping Young People Deal with Terrorism and Tragic Events

This curriculum supplement for teachers will help deal with children's concerns, fears, anger, and feelings when human-caused events occur. It is aligned with national standards in social studies, health, and language arts and available in four complete sets for teachers of grades K–2, 3–5, 6–8, and 9–12.

Terrorism: Preparing for the Unexpected

This is a brochure for the general public providing information about how to prepare for disasters of any type. It includes fundamental family disaster preparedness tips, what to do when disaster strikes, instructions on how to shelter in place and evacuation, and an abbreviated first aid primer.

For more information, visit http://www.redcross.org/images/MEDIA_CustomProductCatalog/m4440084_Terrorism.pdf

Your Family Disaster Plan

This 4-page brochure describes four steps to disaster safety—finding out what can happen, planning, preparing, and practicing.

For more information, visit http://www.fema.gov/pdf/library/yfdp.pdf

THINK ABOUT THIS

Children and Disasters: Protecting Our Future

How to teach children about disasters and their role in saving lives and livelihoods: An online game

The secretariat of the UN International Strategy for Disaster Reduction has created an online game aimed at teaching children how to build safer villages and cities against disasters. This initiative comes within the 2006–2007 World Disaster Reduction Campaign "Disaster Risk Reduction Begins at School." To access the game, go to www.stopdisastersgame.org

Common Elements of Disaster Plans

Although disaster plans should be targeted for the specific community, certain components should be included in all disaster plans. Each component may have more or less elaboration, detail, and specifics according to the needs of the community to which it applies. These components consist of authority; communication; supplies; equipment; human resources (health professionals, both acute and public health); emergency and disaster specialists; officials of government and voluntary agencies; engineers; weather specialists; community leaders, both lay and official; team coordination; transportation; documentation; record keeping; evacuation;

rescue; acute care; supportive care; recovery; and evaluation. Details of these components are summarized in Box 8.

Disaster Management

The goal of disaster management is to prevent or minimize death, injury, suffering, and destruction (Taggert, 1982). Disaster management by nature is an interdisciplinary, collaborative team effort (Sullivan, 1998); however, community health nurses are integral in planning for and responding to disasters. Specific community officials, such as those in civil defense, usually coordinate disaster management.

Once the civil defense efforts are begun, individuals overseeing these agencies carry out coordination of the many networks in the community disaster infrastructure. Some examples include the mayor, chief executive officer(s) of the local hospital(s), executive officer of the local American Red Cross chapter, the emergency medical system manager, and the emergency/triage physicians and nurses. Other agencies or resources and staff persons who make up the disaster team include local, state, and federal disaster management agencies; private relief organizations, such as churches and the Salvation Army; fire and police departments; political leaders who function under the mayor's administration; engineers, geologists, and meteorologists; sociologists, epidemiologists, and other researchers; community volunteers; and the media, including television news reporters, cable weather broadcasters, and radio communication persons (e.g., shortwave radio, HAM radio).

ETHICAL CONNECTION

After the greatest natural disaster in American history, the U.S. government was often accused of being too slow in its response to the plight of abandoned residents in New Orleans after Hurricane Katrina in 2005. Often referred to as "an epic failure of the imagination," did the federal government, specifically FEMA, fulfill its mission, "to lead America to prepare for, prevent, respond to, and recover from disasters with a vision of 'A Nation Prepared'" to protect U.S. residents after disasters?

Disaster Response

Disaster response is a complex plan that is sometimes difficult to coordinate and carry out. All healthcare and other personnel should become knowledgeable about the disaster plan and their anticipated roles. As pointed out previously, regularly evaluating the performance of all involved personnel through mock disaster drills is an important function of community health nurses and other personnel involved in coordinating disaster response (Dixon, 1986; Neff & Kidd, 1993).

BOX 8 Common Elements of a Disaster Plan

- **Authority:** Issues warnings and official responses and is the central authority for disaster declarations and delegation
- **Communication:** Warnings to public and how communicated, whether by weather sirens, television, radio, police loudspeakers; includes chain of notification, rumor control, and restriction and access to the press in the disaster area
- **Equipment and supplies:** Sources and where located, usual and special needs, staging areas, and controlled access to supplies; dissemination of donated food, clothing, and storage
- **Human resources:** Health professionals, both acute and public health; emergency and disaster specialists; utility officials; officials of government and voluntary agencies; engineers; weather specialists; community leaders, both lay and official
- **Team coordination:** Central operations, staging area, chain of command
- **Transportation:** Traffic control, access and escape routes, control of risk to victims and rescuers related to transportation
- **Documentation:** Details of disaster plan, how and where disseminated; procedures for managing records of injuries, deaths, supplies, and agency reporting responsibilities; development of brief forms with minimal duplication
- **Evacuation:** Logistics and procedures, destiny of evacuees, and routes of escape
- **Rescue:** Search-and-rescue operations; details the removal of victims and immediate first aid, who is responsible, and what equipment is needed
- **Acute care:** Casualty collection points, triage, and detailed role descriptions of healthcare workers for immediate emergency care
- **Supportive care:** Shelter management
- **Recovery:** Postdisaster team meeting, debriefing, critical incident stress debriefing, press conferences, and reports to media
- **Evaluation:** Mock disaster drills and revision of disaster plan based on results

Response and Recovery

The disaster team's **response** is initiated during and after the impact stage of the disaster. Local, state, regional, national, federal, and volunteer agencies assist communities in need (FEMA, 2006). **Recovery** is a long-term process that occurs during the rehabilitation stage of the disaster. Sometimes, severe financial strain is placed on the local or state government during this time.

Levels of Disaster Response

Disasters are usually defined in terms of severity and levels of response required. Neff and Kidd (1993) identified four levels of disaster response, which are explained in the following paragraphs.

A **level I response** is limited to emergencies that require medical resources from the local hospital and community, such as minor injuries incurred in a local disaster, but also may include severe injuries incurred in multicar accidents or a plane crash. Occasionally, level I responses may include state and federal agency involvement (Neff & Kidd, 1993). In general, hospital and community resources are adequate to provide field and hospital triage, medical treatment, and stabilization for multiple casualties.

All hospitals maintain a written disaster plan that corresponds to the local civil defense and community disaster plan. Fundamental to all written level I hospital disaster plans is the assurance that a command post and chain of command will be established. Usually, the chief executive officer or a senior administrator of the hospital will be in command. Communication via telephones, cellular systems, and portable radios is limited to the commander, security, and other authorized personnel. Water conservation and backup generators are important considerations just in case they are needed. A smooth flow of patients depends on an efficient triage system in the field and within the hospital.

A **level II response** involves multiple casualties that require the use of multijurisdiction healthcare personnel and medical facilities across a specified region (Auf der Heide, 1989; Neff & Kidd, 1993). When more than one geographic jurisdiction is involved or required, the chain of command structure becomes unified for the sake of clarity, information flow, and minimization of duplications. Coordination and communication efforts among the agencies are emphasized at this response level.

When a mass-casualty disaster occurs, a **level III response** is required (Auf der Heide, 1989; Neff & Kidd, 1993). This level of disaster, such as occurred with Hurricane Andrew in South Florida in 1992 and the attacks on the World Trade Center and Pentagon in 2001, is so overwhelming that medical resources at the local and regional levels are exhausted. Consequently, state and federal agencies intervene.

A **level IV response** occurs when FEMA intervenes by providing financial and oversight assistance. FEMA is an independent agency that reports to the president of the United States. Level IV response efforts sometimes require an executive order from the president to declare the disaster a major disaster. (The presidential response to FEMA was discussed in the section "Disaster Planning.") From 1953 to early 2007, 1,688 disasters (an average of 30 per year) were declared by the president of the United States as level IV disasters (FEMA, 2011).

National Disaster Medical System

The **National Disaster Medical System (NDMS)** is a federally coordinated system that augments the United States' medical response capability. The overall purpose of the NDMS is to establish a single, integrated national medical response capability for assisting state and local authorities in dealing with the medical impacts of major peacetime disasters and to provide support to the military and the Department of Veterans Affairs medical systems in caring for casualties evacuated back to the United States from overseas armed conventional conflicts. The NDMS's efforts, such as recommendations and guidelines for disaster planning and response, filter down to state and local governments and officials, such as the civil defense office and the emergency medical services in the community (NDMS, 2006).

The National Response Plan utilizes the NDMS as part of the U.S. Department of Health and Human Services, Office of Preparedness and Response, under Emergency Support Function #8 (ESF #8), Health and Medical Care, to support federal agencies in the management and coordination of the federal medical response to major emergencies and federally declared disasters. These events may include any of the following situations.

- Natural disasters
- Technological disasters
- Major transportation accidents
- Acts of terrorism including weapons of mass destruction events

Nurses are involved at every level of the NDMS. Some of the functions of community health and other nurses include serving on the NDMS's national-level task force and board; decision making regarding guidelines and policies; disaster planning at the state and local levels; collaborating with other disaster team members on plans, procedures, and tasks; coordinating the disaster team at various locations within the community; triaging victims at community and hospital locations; and managing the care of victims.

ENVIRONMENTAL CONNECTION

New Orleans Residents and "Katrina Cough": Respiratory Problems After the Disaster

People returning to New Orleans and other flood-ravaged areas in 2005 exhibited a constellation of symptoms—coughs, sore throats, runny noses, and respiratory trouble—that health officials have named the "Katrina cough." The CDC attributes it mainly to the mold and contaminated dust left behind by the floodwaters that have been stirred up by cleanup and demolition work.

Although "Katrina cough" has not been associated with significant negative effects for the general population in New Orleans, it can be serious for people with asthma, respiratory illness, or compromised immune systems. In previous research studies of New York City residents in the aftermath of 9/11, early symptoms like coughs can exacerbate chronic health problems among people who are not protected from ongoing hazards. If Katrina cough follows the 9/11 pattern, more people are likely to become sick years after the disaster incident.

Following 9/11, numerous research studies have found that residents and workers at Ground Zero were exposed to asbestos, lead, glass fibers, concrete dust, and other toxins. The damage was caused not by a few days of rescue work, but by weeks and months of cleaning up the site or living nearby.

The aftermath of Katrina differs from 9/11 in the specific toxins that have been released into the environment. Residents who returned to their homes in New Orleans following Katrina were exposed to petroleum products, arsenic, lead, mercury, bacteria, and rampant mold. More than 16% of New Orleans children suffered from asthma, for example, according to the American Lung Association. They are at particularly high risk in mold-infested houses.

Although the U.S. Environmental Protection Agency (EPA) recommended that people who were involved in repairing homes in the post-Katrina New Orleans area wear protective equipment, like respirators, many were unable to purchase such equipment. Few retail businesses were open during the first 6 months following the disaster, which resulted in a severe shortage of the needed respirator mask model, called an N95, which filters about 95% of particulate matter and costs about $20 for a box of 20. Painters' masks offer no protection and can actually be worse than no mask at all because the material traps the debris inside the mask.

Links between post-disaster exposure, cancer rates, and other serious illnesses will not be known for years regarding exposed populations after 9/11 and Hurricane Katrina.

Sources: Schaffer, A. (2005). Katrina cough: The health problems of 9/11 are back. *Slate.* Retrieved from http://www.slate.com/articles/health_and_science/medical_examiner/2005/11/katrina_cough.html; EMS wire service. (2006, January). "Katrina cough" besets residents. *Emergency Medical Services, 35*(1), 16.

RESEARCH ALERT

The Journal of Homeland Security and Emergency Management (*JHSEM*) was created to meet the needs of emerging issues on public health and disaster management. The journal features articles and important research on public health in the context of homeland security and emergency management. Issues have featured topics on diverse subjects, such as the effects of mass public outbreaks (e.g., pandemic flu and SARS) and secondary disasters, such as the flooding of New Orleans. By bridging health issues and homeland security and emergency management, *JHSEM* offers a forum where various fields can find common ground.

Source: The Journal of Homeland Security and Emergency Management (JHSEM).
Available online at http://www.bepress.com/jhsem

NOTE THIS!

Top U.S. States for Federal Declaration of Disaster

- Texas
- California
- Florida
- New York
- Louisiana
- Oklahoma
- Alabama
- Kentucky
- Pennsylvania
- Ohio
- Mississippi

Source: http://www.fema.gov/news/disaster_totals_annual.fema

Other Disaster Agencies

American and International Red Cross Disaster Services

The ARC is a humanitarian organization led by volunteers and guided by the Congressional Charter and the Fundamental Principles of the International Red Cross Movement (ARC, 2008). The ARC provides relief to victims of disasters and helps people prevent, prepare for, and respond to emergencies.

On May 21, 1881, Clara Barton and a group of her friends founded the ARC because of her commitment to and hard work with the mass casualties of yellow fever, dysentery, and many other infections during the Spanish–American War (ARC, 1990; Frantz, 1998). In gratitude for the efforts of the Red Cross nurses during the Spanish–American War, Cuba communicated the committed efforts of Clara Barton to important officials. A former schoolteacher and government worker from

Massachusetts, Barton was not actually a nurse. Nevertheless, her organizational skills were exceptional.

The unique contribution that Barton made to the worldwide Red Cross movement was her organization of volunteers to help disaster victims (ARC, 1990). America became the 32nd nation to support the Red Cross international treaty at the Geneva Convention in 1882. In 1900, the U.S. Congress granted the ARC its charter. The Red Cross nurses of the Spanish–American War were also responsible for the Congressional decision of 1901 to establish the Army Nurse Corps.

The ARC is composed of more than 1.2 million adult and youth volunteers. Many nurses are considered disaster volunteers. Community health nurses, for example, should take a voluntary leadership role in the ARC's disaster preparedness, response, and shelter management. Increasingly, ARC volunteers are being trained for technological disasters, such as those involving toxic chemicals, explosive materials, radiation, bioterrorism, and chemicals.

Salvation Army

William Booth founded the Salvation Army in London in 1865 (Salvation Army, 2014). The Salvation Army was founded on Christian principles. The Salvation Army Act of 1980 described this organization's mission as "the advancement of Christian religion ... of education, the relief of poverty, and other charitable objects beneficial to society of the community of humanity as a whole" (Salvation Army, 2014).

During a disaster, the Salvation Army provides food, water, shelter, and clothing and helps trace families. With the goal of carrying out God's mission, Salvationists reach out to suffering and needy people by providing the word of God and basic human physical needs (Salvation Army, 2014).

New Nationwide Student Nurse Disaster Response Course

For more than 50 years, nursing students have been involved in helping the ARC deliver critical community services. Volunteering with the ARC is relevant to learning nursing skills and can lead to a lifelong opportunity for service.

Starting in January 2012, nursing programs across the nation became able to access a blended learning course, American Red Cross Disaster Health and Sheltering. This two-part, 4-hour awareness course introduces nursing students to how they could help in a disaster response and involves a tabletop exercise facilitated in the classroom by the nursing program instructor and a Red Cross nurse. Find out more about the course registration by contacting the local ARC chapter.

The ARC partners with nursing faculty to help students develop basic leadership skills; provide meaningful services; and help prepare for, prevent, and respond to emergencies (ARC, 2014). Some of the opportunities for nursing student involvement are described in "Helping Where It Counts" (ARC, 2010a) and "Make a Difference: Guidelines for Nursing Student Involvement in the American Red Cross" (ARC, 2010b).

Evacuation

Community health nurses, among many other healthcare personnel, need to realize that wild panic reactions are different from fleeing from a threat (Auf der Heide, 1989; Weeks, 2007). Mileti, Drabek, and Haas (1975) have noted that panic might occur but usually arises only when at least one of three conditions is present: (1) a perception of immediate danger, (2) an encounter with blocked escape routes, and/or (3) a feeling of being isolated. When panic occurs, it is usually of short duration and not contagious, depending on the response from the media (Auf der Heide, 1989).

ENVIRONMENTAL CONNECTION

What can we do to evacuate large numbers of people in advance of a major natural disaster?

After Hurricane Katrina, one of the primary problems cited by planning commissions was the inability to evacuate vulnerable populations. One of the solutions proposed by the state of Mississippi is the use of school buses and cafeterias. What solutions other than these might make mass evacuation more effective and save lives in natural disasters?

Hurricane Katrina created massive flooding after the storm when the levees failed. Residents were trapped in their homes or left alone in the water; many suffered and died as a result of the rising waters.

Disaster planning includes the rapid evacuation of large populations via U.S. interstate highways.

Evacuation traditionally has been a difficult task to carry out because of people's reluctance to evacuate (Langan & James, 2004; Quarantelli & Dynes, 1972; Wenger, James, & Faupel, 1985). There are several explanations for this reluctance. The primary reason for hesitancy is that some people do not believe that they are in danger. Another reason is that some people want to remain at the site to protect their property. Not wanting to evacuate until the family can be removed as a unit is another reason for hesitancy. The head of the household or another member may refuse to leave until other family members, who may also include dogs or other pets, are safe (Landesman, 2005; Saunders, 2007).

Besides demonstrating concern for human lives, FEMA is concerned for the lives of animals and, more specifically, the human–animal bond (FEMA, 2011; Lockwood, 1997; Rosenkoetter et al., 2007). Many people have developed close relationships with their pets. Lockwood (1997) has explored why animal owners will risk danger to themselves and not evacuate disaster areas without assurance of their animals' wellbeing; the most common responses are that people love their animals and treat them as part of the family. ARC shelters now include pet-friendly services for residents with pets.

The key to motivating people to evacuate is to improve warning effectiveness, which relies on several strategies (Auf der Heide, 1989; Rosenkoetter et al., 2007; Saunders, 2007). The credibility of the present warning and the validity of past evacuation warnings, for example, both influence a person's decision about whether to evacuate. Consistency and repetition of the warning by different sources of the evacuation command always increase the chance that a person will heed the warning. Commands to evacuate by agency and community officials are taken more seriously, which promotes the believability of the message. A clear, specific message to evacuate that is understood will yield better results. Finally, an effective strategy is to ensure a full range of protective actions, such as ample law enforcement officers on duty, for those people evacuating.

A significant problem in the evacuation of New Orleans residents prior to and during Hurricane Katrina was rooted in the Louisiana State Evacuation Plan. The plan left the means of evacuation up to individual citizens, parish governments, and private caretakers. Unfortunately, many private caretaking facilities relied on the same bus companies and ambulance services for evacuation and so were unable to function for this purpose. Fuel and rental cars were in short supply, and most forms of public transportation had been shut down well before the storm struck (Balinsky, 2003; Gospodinov & Burnham, 2008; Hayes, 2005; Kiewra, 2006; U.S. Congress, 2006).

Role of the Media

The mass media can be either a friend or a foe in the management of disasters (Dwyer & Drew, 2005; U.S. Congress, 2006). To enhance disaster response, the media can provide accurate information, convey instructions to the public, and stimulate donations from parts of the country not affected by the disaster. Conversely, the media may complicate the operations by putting a "feeding frenzy" spin on the facts (Haygood & Tyson, 2005). Reporters may make unreasonable demands on resources, facilities, and officials (Auf der Heide, 1989). Distortion of the facts, overreaction, and perpetuation of disaster myths are other factors that may interfere with the disaster response operations (Haygood & Tyson, 2005). For example, during the Hurricane Katrina disaster, rampant rumors about looting, homicides, mass uprisings, and deaths in the New Orleans Superdome proved to be unfounded, yet they dramatically affected both the communities experiencing the disaster and the general public's perceptions about the disaster.

MEDIA MOMENT

When the Levees Broke: A Requiem in Four Acts (2007)

Spike Lee commemorates the people of New Orleans with a 4-hour epic documentary about the destruction of the city of New Orleans from Hurricane Katrina and ill-fated disaster relief efforts. Lee doesn't just recount the events of late August 2005, but rather asks *why* they unfolded the way they did. Weaving interviews with news footage and amateur video, Lee uses the film to give meaningful voice to the people who were left behind. With a detached, unsentimental eye, he delivers a poignant account of a major moment in recent U.S. history. While offering no simple answers, you will be left with even more questions, such as "How could this unprecedented disaster involving a major U.S. city have happened in the United States?"

Good communication is vital during the evacuation operations (Yellowlees & MacKenzie, 2003). The Weather Bureau, social media, radio stations, television announcements, local sirens and announcements, and computers should be used to alert the public of the impending threat. Another key medium is the Emergency Broadcast System, which officials use to provide local, state, or national information and warnings. When the evacuation is in process, a large volume of requests place overwhelming demands on the media as well as on public officials of the city and county. One of the major findings of the 2006 U.S. Congress report on Hurricane Katrina, entitled *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina,* was that critical problems in rescue efforts were related to communication technology breakdown, such as the destruction of cellular and relay towers, radio and television station destruction, and a lack of alternatives with such failure.

Rescue

The search-and-rescue mission is the most challenging part of disaster operations (Hayes, 2005; Saunders, 2007; Silverstein, 1984; Waeckerle, 1983, 1991). Searching for and rescuing disaster victims tax the physical capabilities and emotions of rescuers. Emotional demands can also be extremely traumatic to the rescuers, who may require psychosocial debriefing (Rhoads et al., 2006). Teams of healthcare personnel, fire and security officials, and volunteers comb the designated area many times in search of casualties. Once the casualties are located, quick triage actions are necessary. After the victims are categorized by way of triage, rescue workers need to continue to search the area for undiscovered injured people or dead bodies.

Triage

The triage system normally practiced in emergency departments across the country is not the same triage system used during a disaster (Kitt, Selfridge-Thomas, Proehl, & Kaiser, 1995; Waltham, 2005). Field (disaster) triage is used when mass casualties result from disaster. The initial triage that takes place in the field is called the primary triage. Secondary triage occurs at the point of entry into the medical facility. Tertiary triage occurs in the specified area where the patient is located, such as the emergency department, pediatrics, and so on. Home health agencies and community-based residential agencies also mandate the triage process in order to evacuate and manage these vulnerable populations.

Disaster triage allows healthcare personnel to identify the most salvageable patients so that treatment can be initiated immediately. Colored tags with symbols are attached to disaster victims so that healthcare personnel (Gospodinov & Burnham, 2008) can readily see level of triage (Kitt et al., 1995).

Several factors may affect the triage system (Dixon, 1986), such as the patient's general state of health. For example, an elderly person may have a poor cardiovascular status, which may decrease the person's survival expectation.

Another factor that may affect the outcome of triage is the healthcare worker's experience (or lack thereof) in triage and assessment. Lack of supplies or equipment is another factor. Not having proper supplies and equipment in sufficient quantities can adversely influence the disaster victim's triage status (Balinsky, 2003; Langan & James, 2004; Neff & Kidd, 1993; Weeks, 2007).

Disaster Shelters

Trained volunteers and/or ARC nurses manage shelters. When help is needed, the executive director of the affected local chapter of the ARC calls upon nurses and other volunteers. Shelters are opened by volunteers in the community through coordinated efforts of the ARC, the mayor, civil defense, and other officials of the community. Churches, schools, civic centers, and community centers may all be used as shelters.

APPLICATION TO PRACTICE

Thinking Critically . . . an Ethical and Management Nightmare from "Ground Zero" During Hurricane Katrina

Imagine you are the top nurse administrator at a large mental hospital in New Orleans after Hurricane Katrina hit. All hospitals in the metro area have evacuated and closed, with only your hospital remaining open. Nurses are having difficulty deciding which patients to care for, with a severe shortage of nurses and hundreds of patients pouring into the emergency department needing hospitalization. As a mental health facility, you do not have the resources for medical problems. Nurses are having ethical conflict over making decisions about which patients should be transferred via FEMA airlifts. They fear that their patients will be more at risk due to their fragile mental state if transferred. Food and water begin to run out after 2 days, and the morgue cannot take any more bodies. Rationing of basic supplies, food, and water has begun. Ice has run out and water from the flood remains in the halls and most patient rooms. A local television station is broadcasting from the hospital emergency department and has requested to enter the hospital for patient and nurse interviews. What actions should you take? Can you ask the station to stop broadcasting? Can you force them to do so? List the things that would be priority for you as nurse manager?

It is sometimes difficult to determine or anticipate shelter needs during disasters. The local ARC chapter depends on other ARC chapters, the mayor, and civil defense teams to report anticipated numbers of persons who are evacuating their premises and reporting to a shelter. In widespread disasters, shelters are opened in a number of areas that house local residents as well as victims who have traveled a long distance to escape more immediate danger. An example of a widespread disaster was Hurricane Camille in 1969, which traveled from the Mississippi Gulf Coast to North Mississippi and beyond. Persons in the most danger were on the Mississippi Gulf Coast, so they evacuated to cities and towns north of the coast, while the local residents of those areas also were evacuating their premises and relocating to the same shelters. In such instances, anticipating the correct number of shelter residents is difficult.

By the time Hurricane Katrina hit in 2005, 26 years later, ARC officials were better able to plan the evacuation route and anticipate how and when evacuees would most likely relocate. Even with mock disaster drills and extensive planning for facilitating disaster shelter triage of residents, the extensiveness of the affected disaster area (over many miles) meant that the system was ill prepared to handle the number and risk level of the evacuees from the New Orleans area (Nigg et al., 2006).

Good communication between city officials and remote areas regarding evacuation numbers must be a priority prior to the disaster, because communication is often hampered by the destruction of electricity, phone lines, and cell phone relay towers (Balinsky, 2003; Langan & James, 2004; Weeks, 2007). For each shelter, there is one team manager, at least one nurse volunteer, multiple people to keep records, and numerous volunteers trained to assist victims. Activities include keeping thorough records; coordinating meals; providing snacks, cots, blankets, and other essentials; providing health care, such as first-aid treatment and over-the-counter medications that have been authorized by a physician; acting as a liaison between victims and resource agencies and their families; and protecting the victims from harm by keeping alert to possible fire outbreaks, accidents, and other mishaps. When help is needed, the ARC coordinates mass recruitment of supplies, equipment, food, and shelter. For example, after the summer Midwest floods in 1993, Wal-Mart loaned the ARC a large warehouse, forklifts, and staff to expedite distribution of urgently needed supplies to the shelters (ARC, 1995). Other retail stores and pharmaceutical companies offered many supplies and a large amount of monetary assistance.

NOTE THIS!

Hurricane Camille

Hurricane Camille was a category 5 hurricane that hit the coasts of Mississippi, Alabama, and Louisiana with winds in excess of 200 mph. Hurricane Camille resulted in the deaths of 141 persons, 9,472 injuries, property loss and damage for 74,000 families, and more than $1 billion total damage. At the 30-year anniversary of the storm, the scars and influence of Camille still exist on the Mississippi Gulf Coast, where the most severe damage occurred. The storm produced 19-foot tidal waves in August 1969 and remains one of the deadliest storms of the 20th century.

Comments from Survivors

"Afterwards, it looked like we had been bombed. My house was 'caddy whompas' on its foundation. All you could hear were helicopters and people crying. It was the most horrible experience I have ever had."

"The thing that I remember were the dead cows on the beach."

"The beach looked like a holocaust. A woman slipping and sliding through mud and muck clutching a lifeless child to her chest."

Source: Hattiesburg American, August 14, 1994, p. 7A.

Role of the Community Health Nurse in Disasters

Why should community health nurses be involved in disasters? Aren't trauma and hospital nurses better qualified to work in disasters than nurses in the community? These are good questions—ones that many student nurses and practicing nurses alike may ask. Our ideas about disasters, including what happens and who is involved—both victims and rescuers—are often shaped by the media. The disaster movie formula developed as a major box office draw in the 1970s with such movies as the *Airport* series about jet liner crashes; *The Towering Inferno* (1974), about a burning skyscraper; *The Hindenburg* (1975), about the real-life zeppelin airship disaster of 1937; and *The China Syndrome* (1979), about a fictitious nuclear power plant accident, which became an eerie prelude to the actual Three Mile Island nuclear accident that same year. This trend in film has continued over the years, and U.S. and international moviegoers have been fascinated by disasters and continue to line up for movies such as *Armageddon* (1998), *Deep Impact* (1998), *The Day After Tomorrow* (2004), *Independence Day* (1996), and *Titanic* (1997), which became the highest grossing movie of all time (until 2009).

These movies, as well as television programs such as *Grey's Anatomy*, portray disasters as a backdrop for story lines and romances, heroes and villains, and greatly influence the way we visualize disasters. As a result, disaster planning and disaster preparedness are given very little attention. In truth, the most recent terrorist attacks on the World Trade Center and the Pentagon provided more specific details about actual recovery and effects of aftermath for the public through extensive media coverage. At least temporarily, the American public appears to be more aware about the need for preparedness for disaster.

THINK ABOUT THIS

What would you do in a terrorist biological attack?

Assume you are a nurse administrator responsible for a large urban hospital when a biological terrorist attack occurs in your city. What precautions would you need to take? Think about things like quarantining patients, protecting the staff, decontaminating rooms and equipment, obtaining and securing antidotes, and monitoring the spread of disease. Do you think the same techniques would be applicable in a chemical or nuclear attack? What additional actions would you take in these circumstances?

GOT AN ALTERNATIVE?

> Americans need the solace of art, along with their other diverse cultural, spiritual, and religious practices, now more than ever.
>
> —*Karen VanMeenen*

The Role of Art in Healing After the 9/11 Disaster

Art is created and viewed for pleasure, for distraction, to tell stories, to emote, for documentation purposes, as an educational tool, to channel creative energies, for the processing of personal experience and for healing. Artists have always responded to personal and political challenges with their own outpourings of creative practice—documenting their illnesses, celebrating their survival, working through their difficulties, calling for change. Artists and health professionals have long known the beneficial effects of creating and viewing artwork on an individual and a communal level (e.g., the success of the AIDS Quilt). Art can tell personal truths as well as allow viewers access to universal truths, universal experience.

Source: Van Meenen, K. (2001, November/December). Media art AS/IN therapy [special issue]. *Afterimage, 29*(3).

Community health nurses are much better prepared than most other healthcare professionals are to manage disasters in the community, because emergency treatment and triage are but two of many activities that help people cope with disaster. Successful strategies often pair a community health nurse with a trauma nurse in the disaster setting. Among the major determinants of how effectively a disaster is managed are not only how well we carry out our individual roles in a disaster, but also how well we allow others to carry out their roles (Suserud & Haljamae, 1997; Weeks, 2007).

RESEARCH ALERT

Emergency Preparedness Competencies for Public Health Nurses with Disaster Prevention: A Position Paper of the Association of State and Territorial Directors of Nursing

The Association of State and Territorial Directors of Nursing vision for emergency preparedness is that every community, family, and individual will have a comprehensive emergency preparedness plan that minimizes the consequences of disasters and emergencies and enables communities, families, and individuals to respond and recover. This position paper provides national and state policy guidance during emergencies to all public health nurses in the United States and its territories. Public health nurses bring critical experience to each phase of a disaster: mitigation, preparedness, response, and recovery. Public health nurses strive to achieve individual competencies so that they may better collaborate with others and contribute to emergency preparedness and response. Twelve Emergency Preparedness Competencies are listed in this position paper that will assist public health nurses with disaster prevention, planning, response, recovery, drills, exercises, and training. This position paper will be useful in clarifying the expertise that public health nurses can contribute to teams that serve to protect the health and safety of communities against disaster threats and realities.

Source: Jakeway, C. C., LaRosa, G., Cary, A., & Schoenfisch, S. (2008). The role of public health nurses in emergency preparedness and response: A position paper of the Association of State and Territorial Directors of Nursing. *Public Health Nursing, 25*(4), 353–361.

General Functions of the Community Health Nurse

Community health nurses, as well as other nurses, are involved in emergency treatment and triage during the impact stage of the disaster. Good physical assessment skills are vital for success. Only healthcare personnel highly skilled in assessment should perform the triage function. Most healthcare personnel are not trained in advanced assessment skills and cannot make acuity judgments proficiently.

Nursing is specialized, as are most health professions. As a result, community health nurses often are more knowledgeable about teamwork and interdisciplinary effort than nurses in other specialties are, because they rely on group efforts daily in community health nursing practice. Community health nurses are experts in program planning, community assessment, and group dynamics—all skills that are critical to the effective management of a disaster crisis. Because community health nurses are population focused, assessing and intervening with vulnerable populations are second nature to them.

Other functions that enable community health nurses to work effectively in disasters include working with the media to inform and educate, the use of public health interventions to minimize risks from communicable diseases, and the securing of community resources for victims. These functions are accomplished while coordinating multiagency efforts in the mediation of health risks at the disaster site. The background work of disaster management, for which community health nurses are perfectly suited, may not make it to the big screen, but such activities are what ultimately influence how well a community survives and heals from disaster.

Specific Nursing Approaches

A major goal of community health nurses is to be an asset to the community, not a burden. Specific approaches that community health nurses should take to mitigate human and material losses in a community disaster include the following strategies:

Personal preparedness:

- Be disaster-prepared and disaster-aware.
- Maintain your own emergency equipment, supplies, and skills.
- Be certain that your family knows what to do during a disaster, when to do it, who to call, and where to go.
- Use caution and prudence when selecting the location of your home.

Community involvement:

- Become familiar with local disaster plans and emergency evacuation procedures.
- Get involved in the political issues in your community that relate to disaster preparedness and recovery.
- Support leaders who choose long-term, focused solutions in loss reduction and emergency preparedness rather than those who choose shortsighted, politically expedient solutions.
- Help modify land use and develop ordinances that reflect the best knowledge of geography and water hazards.
- Support local emergency assistance organizations by serving on advisory boards.
- Assist in the education of the public in personal disaster preparedness.
- Visit schools to help prepare children for assuming the lifetime responsibility of being prepared for disasters in the community.

Professional preparedness:

- Become trained and certified in professional disaster nursing by the local ARC chapter.
- Get involved in the development of agency and community disaster plans.
- Attend continuing education classes and disaster skills updates to keep current in disaster management skills.
- Be supportive of administrative efforts to increase disaster preparedness.
- Write news stories, volunteer to speak at community meetings, write letters to the editor of local newspapers, and publish articles in nursing journals about the nursing role in disaster preparedness (Garcia, 1985; Gospodinov & Burnham, 2008).

Shelter Management and Care

Roles played by healthcare workers in disasters are critical to community recovery. Community health nurses play a vital role in disaster preparedness and response. In fact, the leadership administered by community health nurses may greatly affect the public's reception and comprehension of disaster education and warnings. See the Application to Practice feature about the Oklahoma City Bombing later in this chapter for examples of successful shelter management.

Neither the public nor many nurses realize the impact that nurses have before, during, and after a disaster (Gospodinov & Burnham, 2008; Landesman, 2005). The leadership role that community health nurses can take may prevent deaths and property damage.

ARC disaster nurses and other volunteers are often trained to coordinate and manage shelters, conduct tertiary triage within the shelter, and administer first aid to sick or wounded people. Currently, the ARC has a pool of more than 15,000 trained disaster volunteers, many of whom are nurses (ARC, 2006). With Hurricane Katrina, the number of disaster-trained nurses proved inadequate, and the ARC sought all RNs who could assist with the overwhelming number of shelters that were opened in the disaster area. These nurses were trained "on the spot" and were often asked to be on duty for much longer times owing to the magnitude of the disaster. Additionally, because of the large numbers of persons left homeless by Katrina, shelters in many areas remained open for months after the disaster.

DAY IN THE LIFE

Toni D. Frioux

Because of the tremendous response from caring volunteers at the Oklahoma City bombing disaster, the first critical step was to establish a centralized system to manage the number of individuals calling to report to the emergency site. Once established, we were able to schedule, validate licenses, and orient volunteers from the Oklahoma State Medical Association, Oklahoma Nurses Association, American Red Cross, hospitals, and other entities to the expectations and limitations of the bomb site.

There was tremendous generosity from everyone. Medical supplies, equipment, and medication were immediately available and continued to be delivered at the site for many days. Public health was responsible for centralizing and assuring that these supplies were used appropriately and responsibly by licensed providers. It was important to assure that the appropriate practice guidelines were in place.

Providing disaster services as a public health function doesn't end with just providing emergency services. Public health is also responsible for ensuring that volunteers who provide ongoing emergency health services are competent and properly licensed. It is important to be familiar with your state's nurse practice act and knowledgeable regarding any actions that might be needed to invoke licensure reciprocity in the event that the disaster is of such magnitude that volunteers arrive from other states or countries to assist.

Planning and ongoing networking with all players in the emergency response team are very important. While personnel may change, the fundamental needs in an emergency generally do not. Having a public health workforce that is prepared in disaster response is very beneficial.

Any coordination and networking that can be in place with state and local American Red Cross chapters prior to a disaster benefit both the public health agency and the American Red Cross.

—Toni D. Frioux, MS, CNS, ARNP, Chief, Nursing Service,
Oklahoma State Department of Health

Volunteers are ready for immediate assignment for damage assessment, case management, and shelter management at a moment's notice. The ARC shelter manager, often a community health nurse, organizes and manages the shelter operations by fulfilling the roles of administrator, leader, and supervisor (Garcia, 1985; Saunders, 2007). The way the manager conducts operations affects the flow of operations and activities within the shelter. Functions of the manager include allocating space, obtaining supplies and equipment, scheduling staff, completing reports and records, and attending to problems. If the community health nurse volunteer happens to be the manager and the nurse on duty, the dual roles and functions can become overwhelming. Care should be coordinated by application of the nursing process. Good assessment and planning skills are among the most important functions of the community health nurse volunteer. Interventions in this setting include preventing disease and illness, providing emotional support, protecting health, and providing intermittent, temporary care to this vulnerable population. With Hurricane Katrina, residents were often displaced from their homes and family, which made the housing issue much more challenging. Many residents in these shelters did not know if they had a home to return to, nor did they know where their families were. Because of the rapid evacuation of survivors from the New Orleans and Mississippi Gulf Coast, many had nothing except the clothes on their backs, no medication, and few necessities for self-care. As in most disasters of this severity, elders, patients with chronic physical and mental problems, and children accounted for a large number of the evacuees (Garcia, 1985; Gospodinov & Burnham, 2008).

NOTE THIS!

What Is the American Red Cross?

The American Red Cross is a voluntary, nonprofit organization that responds to all disasters, regardless of size and scope. The Federal Emergency Management Agency (FEMA) is a federal agency under the Department of Homeland Security. FEMA responds when a disaster has received a presidential declaration. FEMA is involved with community recovery, such as repairing and building bridges and public buildings and assisting in security of disaster areas; ARC provides humanitarian aid to individuals. Nurses have always been a cornerstone for the provision of services by the American Red Cross. Historically, Red Cross nurses have provided their assistance during times of disaster and conflict beginning with the 1889 Johnstown flood and the 1888 yellow fever epidemic. Jane Delano formally established the Red Cross Nursing Service in 1909. Red Cross nursing has also had a major role in the historical evolution of nursing and nursing leadership in the United States with many Red Cross

(continues)

NOTE THIS! (*continued*)

nurses, including Jane Delano, Clara Noyes, Julia Stimson, and others playing strategic roles in the development of American nursing.

Today more than 30,000 nurses continue to be involved in paid and volunteer capacities at all levels and in all service areas throughout the American Red Cross. These activities consist of:

- Providing direct services such as local disaster action teams, health fairs, volunteering in military clinics and hospitals, blood collection teams, and first aid stations
- Teaching and developing courses in cardiopulmonary resuscitation (CPR) and first aid, automated emergency defibrillator (AED), disaster health services, nurse assistant training, babysitting, and family care giving
- Acting in management and supervisory roles including chapter and blood services region executives
- Functioning in governance roles such as local board member to national board of governors

Source: American Red Cross. (2014). *Disaster services*. Retrieved from http://www.redcross.org/services/disaster

Then and now ... perspectives on disaster

Content removed due to copyright restrictions

Anticipation of certain problems will facilitate the operations and care of the community health nurse volunteer. For instance, in the shelter population, the nurse should expect some everyday, normal occurrences, which will include chronically ill people who are dependent on medications and equipment, normal episodes of illness and infection, communicable disease, and emotional stress reactions. Evaluation of the shelter population should be ongoing, including one-on-one conferences with shelter families and staff members. In the Hurricane Katrina example, the ARC was able to use advanced technology to keep up-to-date shelter resident rosters all over the affected area, which assisted nurses in helping residents locate their families in shelters located throughout the United States.

Disaster Recovery

Toffler (1970), in his classic study *Future Shock*, described future shock as "the response to overstimulation" (p. 344). He described numerous examples of stress in situations requiring constant change; among them are persons in disasters. Toffler described persons who experienced a disaster as being trapped in environments that are rapidly changing, unfamiliar, and unpredictable. Results of such situations can be devastating, even for the most stable and well-prepared person. Victims of disasters may be hurled into anti-adaptive states and be incapable of the most elementary decision making (Toffler, 1970). Evidence of this reaction can be seen in pictures of a woman, after a destructive earthquake, strolling down a dangerous, debris-filled road with a dead or wounded baby in her arms, her face blank and numb, appearing impervious to the danger around her. Persons can be overwhelmed and become paralyzed as familiar objects and relationships are transformed. Where a person's house once stood, a tornado can within minutes change the environment into an unrecognizable pile of rubble and gushing water pipes. The Oklahoma City bombing destroyed life and property within minutes, replacing familiar landmarks with images of unimaginable horror and destruction.

Simple acts taken for granted hours before, such as making a telephone call or pouring a cup of coffee, are no longer appropriate or possible. Signs, sounds, and other psychological and cultural cues surround disaster victims without meaning, without recognition during and immediately after the impact. Every word, every action, every movement is characterized by uncertainty. Even in a crowd, victims often experience a sense of isolation and loneliness, abandonment, and an overwhelming sense of loss of the world as they know it. Confusion, disorientation, and distortion of reality occur spontaneously; fatigue, anxiety, tenseness, and extreme irritability follow. Apathy, emotional withdrawal, and pessimism result when victims develop a sense of little hope for the future or when they see themselves as never being safe or stable again (Toffler, 1970).

After a major disaster, such as Hurricane Andrew in Homestead, Florida, and Hurricane Katrina on the Mississippi Gulf Coast and New Orleans, Louisiana, healthcare facilities are often disabled or destroyed. Recovery may take years, and the community is often faced with inadequate or nonexistent health services. This is often referred to as the "disaster after the disaster"—catastrophic community changes that can hamper recovery efforts and further damage a community's health. The havoc wrought by a major disaster affects the lives of healthcare facilities' staff, patients, and the community for many years after the initial disaster.

For example, a year after Hurricane Andrew struck Homestead, Homestead Hospital had lost 70% of its employees, many of whom had worked tirelessly through the disaster. Charity care spiked from 11% of patients to 26%. The hospital went from years of profitability to an $8 million loss. Additionally, demographic shifts in the community created challenges for the hospital. Many senior citizens left the community, never to return; replacing them were young families attracted by the affordable, federally funded housing market. These demographic changes are common after a hurricane, especially in coastal areas that attract large numbers of retirees. In addition to losing Medicare dollars and adding more Medicaid-insured families, hospitals often have to completely reorganize their services to meet the needs of the post-disaster community (Colias, 2005).

NOTE THIS!

Children, Terrorism, and Disasters: Web Resources

Society's most vulnerable population, children, is at a greater risk for developing health problems as a result of terrorism and disasters. Additionally, exposure to media coverage about disasters and other catastrophic events can have adverse emotional and psychological effects for children. The American Academy of Pediatrics has an area on its website dedicated to children, terrorism, and disasters. The website helps pediatricians, parents, community leaders, and others prepare for and meet children's needs during a disaster. Examples of information available include the following:

- Family Readiness Kit: Preparing to Handle Disasters
- The Youngest Victims: Disaster Preparedness to Meet Children's Needs
- AAP resources, federal resources, and medical journal and report information on topics such as biological, chemical, and nuclear agents
- How to communicate with children in the wake of a disaster

See http://www.aap.org/terrorism

In Their Own Words: 9/11 Parents Help Other Parents and Schools with Lessons Learned

Through the constructive advice of experienced parents, this publication discusses emergency planning for schools. The events of September 11, 2001 and its aftermath have challenged health, environment, and education agencies to understand how children are different from adults in relation to environmental hazards, and how schools are different from offices in terms of their responsibilities for the occupants and the demands on the facilities.

See http://www.healthyschools.org/documents/INTHEIROWNWORDS.pdf

School Nurse Role in Bioterrorism Emergency Preparedness and Response

It is the position of the National Association of School Nurses that school nurses should be designated and recognized as first responders to mass casualty emergencies, including those resulting from bioterrorist events. School nurses should be trained in protection, detection, and treatment of victims of such events and in the command and control management techniques of the logistics of such a situation. The strategic position of well-prepared nurses within the school environment has significant potential for minimizing the effects of a bioterrorist attack in school settings and, subsequently, in the community at large.

See http://www.nasn.org/Portals/0/positions/2005psbioterrorism.pdf

How Schools Can Become More Disaster Resistant: Resources for Parents and Teachers

FEMA recommends the following actions for all school officials:

- Identify hazards likely to happen to your schools.
- Mitigate the hazards.
- Develop a response plan, including evacuation route.
- Plan for coping after a disaster.
- Implement drills and family education.

See http://www.fema.gov/kids/schdizr.htm

Fuel shortages often accompany major disasters and add to the stress of recovery.

NOTE THIS!

The Bush–Clinton Fund for Hurricane Katrina recovery

Former Presidents Bill Clinton and George H. W. Bush have paired up to raise funds for the hurricane disasters via the Bush–Clinton Katrina Fund and had raised $100 million as of 2006.

The Bush–Clinton Katrina Fund is made possible by contributions received from donors throughout the nation and the world in response to Hurricane Katrina. The fund was set up to provide grants for medium- to long-term recovery needs in the affected areas. In December 2005, Presidents George H. W. Bush and William J. Clinton allocated $20 million from the Bush–Clinton Katrina Fund (BCKF) for local and regional faith-based organizations located in the affected areas prior to Hurricane Katrina in Alabama, Louisiana, and Mississippi. The fund sought applications from religious organizations to assist in rebuilding houses of worship and to cover costs for temporary relocation. The BCKF seeks to make a distinct impact on the unmet needs of the affected region in the following areas: financial self-sufficiency, economic opportunity, and quality of life.

Hurricane Katrina was a wake-up call for hospitals throughout the Gulf Coast region, according to Brian Keeley, CEO of Baptist Health South Florida in Coral Gables, Florida. "My conclusion is that it's beyond the capability of the municipal or state government to adequately respond to a disaster of that magnitude. It has to be a federal effort, and we've seen firsthand that it takes a long time to get them in here" (cited in Colias, 2005, p. 44). Baptist Health is spending millions to ensure that all of its hospitals in the Gulf Coast area can withstand a Category 5 hurricane—that is, have diesel storage, backup water and air-conditioning systems, reinforced windows, hurricane shutters, and the ability to turn on generator power for 2 weeks.

In the classic study *Everything in Its Path,* sociologist Kai Erickson (1976) described the 1972 Buffalo Creek flood and its aftermath in terms of disaster impact and the destruction of community. This study provided a detailed and analyzed view of a disaster and the resulting conflict between individualism and dependency, self-assertion and resignation, and self-centeredness and community orientation. The results of this devastating disaster included loss of community connection, declining morality, rise in crime, and the rise in out-migration from the sudden loss of neighborhood and community. Organized disaster activity was largely provided by outsiders.

Collective deaths, like those in a disaster, do not permit persons to set up the usual barriers between the living and the dead, as is customary in the deaths of the hospital, where "death is screened from view, sanitized, muffled, tidied up" (Erickson, 1976, p. 169). In disaster, "death lies out there at its inescapable worst. There are no wreckers to rush the crushed vehicle away, no physicians to shroud death in a crisp white sheet or to give it a clean medical name, no undertakers to wash away the evidence of death and to knead out the creases of pain or fear ... and the sight does not go away easily" (Erickson, 1976, p. 169).

Effects on Survivors

When death is experienced on a wide scale, such as in a disaster, survivors often experience guilt as a result of their own survival (Erickson, 1976). They may even come to regret their own survival, when others around them were killed in what seems like a meaningless and capricious way, in part because "they cannot understand by what logic they came to be spared" (p. 170). Survivor guilt has often been described in disaster research literature. Lifton (1967), in his classic study of the psychological effects of the atomic bomb in Hiroshima, found that survivors described the open eyes of corpses as evoking guilt: It was as if the eyes were saying, "Why me, why not you?"

One of the consequences of a major disaster, such as Hurricane Katrina, is the challenge of keeping families together.

NOTE THIS!

Four years after 9/11, thousands of people who worked at Ground Zero or lived in lower Manhattan were still sick with respiratory problems and other illnesses because of the contaminants they were exposed to. Some did not respond to standard medications and were unable to work. The total impact on the population from these toxins will most likely remain unknown for years.

Lifton and Olson (1976) identified five major elements that may be found in some type of combination in all disasters. Psychological difficulty or maladaptive response is more likely to occur if all five elements are found in a single disaster, as in the Buffalo Creek flood. The five elements are suddenness of the event, human callousness in causation (human-made rather than natural causation), continuing relationship of survivors to the disaster, isolation of the community, and totality of destruction.

The experience of the disaster can have both short- and long-term effects on mental health and functioning, such as dissociation, depression, and PTSD (Gerrity & Flynn, 1997). Refer to Box 5 for other health effects associated with disasters. Meichenbaum (1994) has compiled from disaster research a list of factors that can place individuals in a vulnerable position for developing psychological problems when all five of Lifton and Olson's (1976) elements are present in a disaster:

- Objective and subjective characteristics of the disaster, such as proximity of the victim to the disaster site, the duration, the degree of physical injury, and the witnessing of grotesque, graphic scenes
- The characteristics in the community of the post-disaster response and recovery environment, such as cohesiveness of community and disruption of social support systems
- The characteristics of the individual or group—for example, elders, unemployed persons, single parents, children, those with previous history of mental disorders, and those with marital conflict before the disaster

NOTE THIS!

More than 5 million people's livelihoods were affected during Hurricane Katrina in 2005. Fifty percent experienced moderate to severe psychological distress.

RESEARCH ALERT

Those who lived through Hurricane Katrina in August 2005, especially residents of New Orleans and the Mississippi Gulf Coast, were at risk for developing PTSD and most suffered some degree of emotional distress from trauma and loss. People who watched the disaster unfold on television have also reported symptoms of emotional distress, even if they did not experience the disaster personally. This article provides an extensive review of previous studies about PTSD in disaster survivors, and the etiology of traumatic stress disorders. The authors provide specific guidance for all nurses in the identification of PTSD and appropriate nursing interventions to promote healing from the horror of disaster.

Source: Rhoads, J., Mitchell, F. A., & Rick, S. (2006). Posttraumatic stress disorder after Hurricane Katrina. *Journal for Nurse Practitioners, 2*(1), 18–26.

NOTE THIS!

An estimated 35,000 workers—who responded from all across the country after the worst terrorist attacks on U.S. soil on September 11, 2001—were exposed to concrete dust that may have contained asbestos, lead, fiberglass, and other particles released when the twin towers of the World Trade Center collapsed after being hit by two hijacked aircraft.

Most studies on the aftermath of disasters have reported that the first reaction of survivors is a state of dazed shock and numbness. The "disaster syndrome" consists of classic symptoms of mourning and bereavement on a communitywide scale: grief for lost community members and homes and grief for lost culture and familiar surroundings (which will never be the same again, no matter what form the recovery takes). To make this reaction worse, government and rescue workers often control access to the disaster area, keeping residents from their own homes and cleaning up wreckage without consulting the community members. Often, such work by disaster workers, although necessary, further distances the survivors from their need to be a part of the recovery process and exacerbates feelings of loss of control caused by the disaster itself. People may experience symptoms of PTSD, such as intense fear, helplessness, and horror. Research has found that many persons who survived Hurricane Katrina as well as those who watched the disaster unfold on television experienced one or more common stress reactions for several days and possibly weeks (Sloand, Ho, Klimmek, Pho, & Kub, 2012). Affected individuals may experience temporary psychological reactions, cognitive responses, physical complaints,

BOX 9 Words of Wisdom from Nurses Working the Oklahoma City Bombing

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or changes in psychosocial behavior that cause them to avoid large crowds or social activities where they might have to recall the event. While PTSD is always a risk, most persons affected by Hurricane Katrina will most likely experience only mild, normal stress reactions (Adams, 2007; Hyre et al., 2007; Rhoads et al., 2006).

Among the symptoms of extreme trauma that can affect an entire society (such as the Oklahoma City bombing, the September 11 terrorist attacks, and Hurricane Katrina) is a sense of vulnerability, a feeling that one has lost a certain natural immunity to misfortune, a growing conviction that the world is no longer a safe place to be (see **Box 9**). A lingering thought grows into a prediction of sorts: If this can happen, something even more terrible is bound to happen—the line has been crossed (Erickson, 1976). **Box 10** describes an example of the far-reaching effects of the Chernobyl disaster, which continues to threaten the wellbeing of affected communities.

BOX 10 The Chernobyl Nuclear Disaster: Will It Ever Be Over?

On April 26, 1986, a reactor blew up in Chernobyl in the former Soviet Union, resulting in an explosion that threw out 100 million curies of dangerous radionuclides to surrounding areas of the Ukraine, Belarus, and Russia. The World Health Organization estimates that 4.9 million persons were affected, making it the largest nuclear disaster in history. The results: Livestock, vegetables, grains, the soil, and the environment continue to be hazardous for human existence, although a large population still inhabits these areas. Cancers (including rare pediatric cancers and leukemia), chromosomal damage, and stress-related disorders plague the region and result in premature death and disability among all age groups. Scientists even now do not know how long the nuclear danger will remain or if the region will be safe to live in ever again.

Source: Edwards, 1994. Michael W. Edwards/National Geographic Image Collection.

Special Survivor Populations: Elders and Children

Children are at special risk during a disaster because of their immaturity—they have not yet developed adult coping strategies and do not yet have the life experiences to help them understand what has happened to them. In addition, we know that children rely on routine and consistency in their environment, relationships, and home life for a sense of security and identity. These areas are often disrupted in a disaster. Problems can emerge at school and last for much longer periods when compared with adults (Dugan, 2007; Gerrity & Flynn, 1997). Children may suffer from fears, phobias, sleep disorders, nightmares, excessive dependence, fear of being alone, hypersensitivity to noise and weather conditions, and regression, such as thumbsucking, bedwetting, and "baby talk" or stuttering (Kumar et al., 2007; Laube & Murphy, 1985; Sloand et al., 2012).

RESEARCH ALERT

The purpose of this study was to explore the experiences of nurse volunteers caring for children after the Haiti earthquake in January 2010. Design and methods: This descriptive qualitative study using in-depth interviews focuses on the experiences of 10 nurse volunteers. Results: Four themes emerged: hope amid devastation, professional compromises, universality of children, and emotional impact on nurses. Practice implications: Nurses who volunteer after natural disasters have rich personal and professional experiences, including extremes of sadness and joy. Nurse volunteers will likely need to care for children. Nurses and humanitarian agencies should prepare for the unique challenges of pediatric care.

Source: Sloand, E., Ho, G., Klimmek, R., Pho, A., & Kub, J. (2012). Nursing children after a disaster: A qualitative study of nurse volunteers and children after the Haiti earthquake. *Journal for Specialists in Pediatric Nursing, 17*(3), 242–253.

Elders often experience significant depression and despair from losing homes and being uprooted from familiar surroundings. Many of the elderly will have already lost primary family members and friends before the disaster. Among their valuables are family photos and mementos, Bibles, and keepsakes. Loss of this sort has a considerably greater effect on elders than others. There are also the compounded problems of more chronic diseases and health problems among this population, making them more vulnerable to disaster stress (Gerrity & Flynn, 1997). Disorientation and memory disturbances have also been noted in this population (Laube & Murphy, 1985). Refer to Box 5 to review health effects in disasters.

Simple intervention methods, such as group work for children and elders and short-term counseling immediately after the disaster, have proven quite effective in helping the recovery process. Community health nurses are in an excellent position to intervene with these vulnerable populations. Community health nurses must be able to locate children and elders so that immediate action can be taken. The most likely place to find these populations is in community shelters.

Recovery teams to assist the community in looking within for healing energy have also used traditional healers and informal community resource persons effectively. Women's associations, community development schemes, family welfare workers, and church volunteers have all had significant success in mobilizing community resources to promote community healing and recovery. Such strategies reduce the need for outside resources and help the community regain its stability using its own assets of solidarity (Richman, 1993).

MEDIA MOMENT

The 9/11 Terrorist Attacks from a Child's Perspective

My Country Fights Terrorism: The Terror Begins

On September 11, 2001, four American planes on their way to California were hijacked by 14 terrorists. The terrorists flew two of the planes into the World Trade Center Twin Towers in New York City and the sound of two 110-story buildings thundering down filled the city. One of the planes flew into the Pentagon and the last one crashed in Pennsylvania that officials think was headed for the White House. Over 5,000 people were killed when the Twin Towers fell. Children lost their mothers and fathers in a split second on that horrible day. Firefighters were killed finding and rescuing people and many bodies are still missing. Many people still need our help in donating blood to the hospitals in New York City and they need our prayers to help them get well again and to never forget this horrible day.

September 30, 2001
Parker Lundy, Age 10
Fifth Grade
Excerpt from an essay for Mrs. Kim Watts Evans
English composition class
Purvis Middle School
Purvis, Mississippi

Collective Trauma: The Loss of Community

Erickson (1976) detailed not only the loss of the sense of community, which occurs in a mass disaster, but also the loss of communality, which consists of a network of relationships that make up their general human surround. Communality can be described as a "state of mind shared among a particular gathering of people" (p. 189). In a sense, this community is one that cushions the pain, provides a context for intimacy, represents morality, and serves as the repository of old traditions and culture.

When a disaster demolishes a community, people find that they no longer have the collective reservoir of pooled resources, both physical and emotional, from which to draw. Communities act as a:

> cluster of people acting in concert and moving to the same collective rhythms who allocate their personal resources in such a way that the whole comes to have more humanity than its constituent parts. In effect, people put their own individual resources at the disposal of the group—placing them in the communal store and then drawing on that reserve supply for the demands of everyday life. (Erickson, 1976, p. 194)

APPLICATION TO PRACTICE

The Oklahoma City Bombing, April 19, 1995

On the morning of April 19, 1995, the Alfred P. Murrah Federal Building in Oklahoma City was the site of a devastating terrorist bombing. In addition to federal employees and other government workers, the building was the site of a daycare center. Because of the effectiveness of the city's disaster plan, rescue and recovery began within minutes after the explosion. Oklahoma experiences frequent, deadly tornadoes throughout the state and consequently maintains a highly organized disaster planning response. Initial priorities the morning of the bombing included getting people out of the building, triaging injuries, and transporting the injured to six nearby hospitals. Nurses in hospitals, home health agencies, and public health and other facilities in the community quickly responded to the needs of the victims.

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APPLICATION TO PRACTICE (*CONTINUED*)

By midafternoon of that day, the four trauma departments had seen 40 to 80 persons each. Victims were transported by ambulances, private vehicles, cabs, and vans. A family communication center was quickly set up at a local church, 5 miles from the bomb site, by the American Red Cross and FEMA. This center, which "wrapped its arms around the families of the victims of the blast," provided mental health professionals, hospice nurses, psychiatric nurses, and counselors 24 hours a day for 2 weeks after the bombing. The medical examiner's office communicated with the families of the victims there, and rescue workers from the bomb site frequently reported back to the families concerning the progress of the search teams.

A play area for children was set up, and the Salvation Army provided comfort services, including food and clothing. Pets were brought by local groups to provide solace for the victims. A Native American healer was present for tribal members. Toll-free numbers were provided by the state mental health department for direct and indirect victims' use to prevent and treat posttraumatic stress disorder. Support groups were set up, television talk shows featured survivors and disaster workers, and articles were printed in the local newspapers, all directed toward giving the people of Oklahoma a chance to talk through the horror of their collective experiences. The city's convention center became a huge hostel that fed, clothed, and housed thousands of rescue workers during this period. Roses and chocolates appeared on the pillows of disaster workers, stress management was available, massages were provided for sore muscles, and there was "always a listening ear for sore souls."

Nurses were involved at all levels of the disaster, including triage at the command center, accompanying surgeons as they removed the legs of a child in the bombed building, providing grief counseling for the families of victims and for the disaster workers themselves, providing direct care at hospitals to the injured, and visiting the families of victims in their homes for forensic identification and later on as follow up.

According to Wilson (1996), an "important reason why the people here worked so well was because of disaster planning. When people live in an area that is nicknamed 'tornado alley,' they plan for disaster" (p. 24). "Though we will never rectify the loss of life incurred in a disaster by planning ahead, we can be ready to mobilize the resources to make all of us a little less vulnerable" (p. 25).

Source: Wilson, J. S. (1996). Healing Oklahoma's wounds. *Home Healthcare Nurse, 14*(1), 23–25.

When a community is destroyed, people find themselves without the reservoir of support on which they have relied in the past. They find that they are almost empty of feeling, empty of affection, and empty of confidence and assurance. Residents feel abandoned, often expressing feelings of fear, apathy, and demoralization. Comments from survivors often reflect despair: "I thought this was the end of the world" or "It looked like Dooms Day" (Erickson, 1976, p. 199).

> Whoever fights monsters should see to it that in the process he does not become the monster. And when you look into the abyss, the abyss looks into you.
>
> —*Nietzsche*

Nurses' Reactions to Disasters

Nurses should attend to the needs of the disaster workers themselves during and after a disaster to reduce the possibility of producing secondary victims. Rescue personnel are often reluctant to take breaks to replenish food, water, and rest when time is of essence in the search and recovery phase when they are needed. Nevertheless, nurses should be firm in reminding workers that, to remain useful, they must not exhaust themselves in the process. Seeing that workers are rotated and providing rest, nourishment, and relaxation for the rescuers should be considered essential responsibilities of the community health nurse.

Nurses often experience the same disturbing, and sometimes dramatic, emotional problems as those found in their patients who were victims. Nurses may experience difficulty

Residents in New Orleans sought refuge and disaster rescue on interstate highways after Hurricane Katrina.

concentrating, fatigue, irritability, insomnia, and other unique symptoms of stress. Unique symptoms may include depersonalization of the victim, a macabre sense of humor, hypervigilance, and excessive unwillingness to disengage or leave the disaster scene or the helping role (e.g., refusal to leave after the arrival of a relief shift) (Gerrity & Flynn, 1997; O'Boyle, Robertson, & Secor-Turner, 2006; Rhoads et al., 2006). Reactions of nurses are magnified when the nurse is a member of the affected community and when the nurse may have endured property and community damage, as well as stress related to family wellbeing. According to Laube (1992), nurses should be considered "normal persons reacting in a very normal manner to an abnormal condition" (p. 19).

A qualitative study conducted by O'Boyle, Robertson, and Secor-Turner (2006) found that nurses who work in hospitals that are designated as receiving sites during public health emergencies continue to express a "fear of abandonment" regarding their work assignments during a major disaster. The nurses in the study reported concerns about their own safety, fear of nursing colleagues refusing to work, failure to have a clear chain of command, and the stress of working in a chaotic environment without adequate preparation. Clearly, there is much work to be done on a national basis to involve all nurses in all healthcare settings with disaster planning and preparedness—not just the administrative staff in selected facilities.

Sources of stress for the disaster nurse can be generally classified into three categories:

- Event stressors—the trauma and fatigue associated with the extreme intensity of the disaster event, of the highest intensity if the nurse lives in the affected community and has family who are potential victims
- Occupational stress—stress related to role conflict, role overload, and role confusion
- Organizational stressors—factors that emerge from the organizational response itself, multiagency demands, and the complex tangle of bureaucracy that emerges in a major disaster (Hartsough & Myers, 1985)

With every disaster victim treated, nurses often experience an unconscious fear that the victim could just as easily have been one of their loved ones.

RESEARCH ALERT

This study examined associations between alcohol use and PTSD symptoms among Red Cross workers who responded to the September 11, 2001 terrorist attacks against the United States. Seven hundred seventy-nine Red Cross paid and volunteer staff who responded during the first 3 months were randomly assigned to receive one of four questionnaire packets. Women made up 64% of the sample. The sample was chosen from an ARC mailing list of all paid and volunteer staff ($n = 6{,}055$ with valid addresses) who participated in the disaster relief operations in response to the 9/11 attacks. This study is based on the fourth group, which received the alcohol questionnaires. The researchers found that overall, traumatic stress symptoms and alcohol use were low. Hyperarousal and intrusion symptoms on the Impact of Events Scale-Revised (IES-R) were associated with alcohol consumption, hazardous alcohol consumption, and change in alcohol consumption when controlling for age, gender, and worksite. Positive associations between intrusion and avoidance scores and hazardous consumption were stronger for younger participants. Individuals who reported increasing or decreasing alcohol use had higher IES-R scores than did those who maintained their normal rate of alcohol consumption, though effects were stronger for increasing alcohol use. Associations between alcohol variables and avoidance symptoms were minimal. The results suggest that there is a functional relation between posttraumatic stress symptoms and alcohol consumption. The study suggests that efforts to cope with traumatic stress symptoms may manifest in either increases or decreases in alcohol consumption.

Source: Gaher, R., Jacobs, G., Meyer, D., & Johnson-Jimenez, E. (2005). Associations between alcohol use and PTSD symptoms among American Red Cross disaster relief workers responding to the 9/11/2001 attacks. *American Journal of Drug & Alcohol Abuse, 31*(2), 285–295.

DAY IN THE LIFE

Dr. Jerri Laube

How did you become interested in disaster research?

In 1970 I was fresh out of my master's program at the University of Colorado and was asked by the local American Red Cross Chapter in Dallas to give a talk to their nurses on the psychological effects of disaster. I thought they wanted me to talk about the psychological effects of disaster on nurses (later I learned that they just wanted the effects in general). I had no experience so I went to the library to research the subject and found only one reference specific to the effect on nurses—Jeannette Rayner's article written in 1958. By generalizing from publications about army nursing, plus Rayner's article, I managed to meet my assignment but felt a great need for an in-depth study of the psychological effects of disaster on nurses. I later wrote a small grant to the American Red Cross for funding to survey nurses' reactions in a recent tornado close to home. While waiting on that response, Hurricane Celia hit the coast of Texas. I immediately called and requested that I be sent to that

(*continues*)

DAY IN THE LIFE (*CONTINUED*)

area. This was granted and I was on site within 24 hours of the disaster. That study was published in *Nursing Research*. I later broadened my area of study to cover all healthcare providers in disaster. Not long after my first study, I was invited to be a part of a task force to revise the Disaster Act to include assistance for psychological aspects of disaster. That was completed and has been carried forth ever since.

Should BSN nurses be prepared in disaster response and recovery?

Students in baccalaureate programs should have classes and simulated experience in reducing the impact of disaster. If available, collaboration with the local Red Cross chapter is ideal. Nursing students who take their courses can earn hours toward Red Cross certification, thus shortening the time after graduation to become a Red Cross nurse.

Why do you believe BSN nurses should be prepared in disaster nursing?

Nurses are uniquely qualified by the nature or their education and experience. Nurses are prepared to work with the whole patient—physically and psychologically. They work both in crisis and chronic conditions, which is necessary because a disaster victim, definitely in crisis, may also have a chronic illness. Thus, they have the basic qualifications. Updating their knowledge and skills should continue through workshops and disaster drills sponsored by/through their place of work.

—Jerri Laube, RN, PhD, FAAN

Dr. Jerri Laube is co-author, with Dr. Shirley A. Murphy, of *Perspectives on Disaster Recovery* (1985, Appleton-Century-Crofts)

Nurses are educated to maintain professional composure in any type of stressful situation, even in the face of grief, suffering, and death. This composure has been termed "detached concern" by Coombs and Goldman (1973). Detached concern is the adaptive ability to care for critically ill and injured patients while maintaining an acceptable emotional detachment. Research has revealed that nurses function effectively in disasters, and very few have long-term emotional difficulties after the disaster. Chubon's (1992) study of nurses who worked during the Hurricane Hugo disaster in Florida supported the findings of previous studies—namely, nurses continued to function effectively in their work roles despite their emotional responses. In this research study, nurses' functioning was generally consistent with their predisaster work patterns. Sources of stress were consistently related to the safety of their own loved ones and family. Suggested interventions were (1) to bring outside nurses from other home health agencies to care for assigned patients until the local nurses stabilize their own family situations and (2) to make mental health resources available in the immediate postrecovery period for the nurses in the agency.

In Laube's (1973) study of the Hurricane Celia disaster, the majority of nurses functioned in their role without impairment from anxiety. Research into excessive physical demands has identified major stressors that nurses may experience during disasters, such as concerns for personal safety, inadequate supplies, seeing people suffer and not being able to meet basic needs of all, hurt children, disorganization, and concern for their own family's welfare (Waters et al., 1992).

Family roles seem to play a critical part in the nurse's response to disaster. Healthcare workers who are from the disaster area experience exceptional stress; not only must they work through their own reactions to and losses of the community from the disaster, but they also must resolve the family/community role conflict (Adams, 2007; Hyre et al., 2007; Rhoads et al., 2006; Waters et al., 1992; Weeks, 2007). In other words, when the wellbeing of the nurse's family is jeopardized, professional effectiveness decreases and stress becomes more likely to affect the nurse's role. This finding means that relying on outside disaster workers is indicated early in the course of disasters and should continue until the local healthcare providers can be assured of their own family's safety (Laube & Murphy, 1985).

Stuhlmiller (1996) suggests that, because nurses are typically involved with suffering and disruption of lives of their patients, they may actually be in a better position than other disaster workers to mediate the effects of the disaster. By participating in debriefings, nurses begin healing themselves even as they help others begin their own process of healing. Stuhlmiller contends that we often assume that workers are at risk for posttraumatic stress and proceed with negative assumptions about how they should react. By doing so, we unwittingly hamper their "natural restorative capacities" (p. 19). In other words, looking for the negative effects may overshadow the positive outcomes on which nurses tend to focus—the positive outcomes that come from helping people in extreme need.

"Disasters challenge self-understanding and meanings just as illness does … what the rescuers need most then is what nurses are particularly good at providing. Nurses can foster emotional recovery and growth by attending to what approaches work best and by acknowledging the validity of the person's expressed pain, fear, and grief" (Laube, 1973, p. 19). Such a view is consistent with Laube's (1973) conclusion that, even with all of the possible stressors nurses face during disasters, studies consistently reveal that nurses' responses to disaster do not interfere with their effectiveness as professionals.

Because of these findings, it can be concluded that nurses are extremely vulnerable to PTSD in the aftermath of a disaster. See the Research Alert feature that describes nurses' reactions and feelings during and after Hurricane Hugo and Box 9, which consists of actual quotes from nurses who expressed their feelings about their work in a disaster.

Prevention Strategies for Nurses

By becoming prepared for a disaster through specialized training and anticipatory stress counseling, nurses can reduce the damage of a disaster to self (see **Box 11**). Simple measures such as appreciating the intensity of emotions and dealing with them; taking breaks; eating nutritious foods in the form of smaller, more frequent meals; avoiding drinking large amounts of caffeine and alcohol; exercising; and sleeping as much as possible have given nurses the added strength to not only survive but actually flourish in a disaster. Seldom can as much attention be given to the victims as the nurse believes is necessary (Weeks, 2007).

BOX 11 Be Red Cross Ready...for a Disaster

1. Have a disaster kit that includes the following:
    - Flashlight
    - Battery-powered or hand-crank radio
    - Extra batteries of various sizes
    - First aid kit
    - Seven-day supply of medications
    - Copies of personal and financial documents
    - Store at least 3 days' supply of food, water, and other supplies in your family disaster kit.
    - Emergency contact information
    - Extra cash
    - Maps
    - Extra car and house keys
    - Check disaster kit every 6 months and replace expired items
    - Keep cell phones charged
2. Make a family disaster plan:
    - Discuss with all family members what to do during an impending disaster.
    - Develop a family plan that includes roles for each member and let all family members know where the disaster kit is located.
    - Learn how and when to turn off utilities and how to use fire extinguishers.
    - Develop escape routes from house and area, including a common meeting place for family members.
    - Include pets and their safe evacuation in the plan.
3. Remain informed and vigilant about emergency preparedness:
    - Identify sources in the community for information about disasters.
    - Know your geographical region and the associated risk factors for disasters in your area.
    - Consider taking an American Red Cross disaster preparedness class and/or a first aid course.

Although nurses seem to be effective in mediating stressors in the disaster setting, they are certainly not immune to possible ill effects. Based on her research into the 1989 Loma Prieta earthquake in California, Laube (1992) has suggested that prevention programs for disaster workers should be included in disaster preparedness. For primary-level prevention, a crisis team should work with the disaster staff before a disaster strikes. This crisis team should include a social worker, minister, psychiatric nurse, and other mental health professionals as available. It should have input into the disaster plan and be included in disaster drill critiques and debriefing. At a secondary level of prevention, the same team should be highly visible during the impact of the disaster. Its members could provide emotional support and monitor the emotional stability of workers, intervening as necessary. At the tertiary level of prevention, after the disaster, the team should take an active role in organizing and conducting mandatory disaster debriefing sessions. Counseling referrals should be made at this time, and nurses should have input into the critique of the disaster plan's effectiveness related to worker response and recovery (Laube, 1992). Such strategic interventions can prevent burnout and emotional casualties of the healthcare provider.

RESEARCH ALERT

Chubon was in the midst of an ethnographic study of home care nurses' job stress when Hurricane Hugo struck the South Carolina coast in 1989. The home health agency was heavily damaged by wind and water and was uninhabitable for more than a week. Because the nurse researcher had observed the nurses for 10 weeks before the hurricane, she was able to collect data about their response to the disaster in the context of their usual role of home health nurse. The nurses in the agency were simultaneously victims and caregivers for their home health patients. They experienced grief, anger, and frustration about their losses, as well as conflict between family responsibilities and work responsibilities. Chubon's work supported the findings of previous studies in which nurses continued to function effectively in their work roles despite their emotional responses. Because baseline data were available before the hurricane struck, this study indicated that the nurses' functioning was generally consistent with their pre-disaster work patterns. Sources of stress consistently related to the safety of their own loved ones and family. Suggested interventions were (1) to bring outside nurses from other home health agencies to care for assigned patients until the local nurses could stabilize their own family situations and

(continues)

RESEARCH ALERT (*CONTINUED*)

(2) to make mental health resources available in the immediate postrecovery period for the nurses in the agency.

Source: Chubon, S. J. (1992). Home care during the aftermath of Hurricane Hugo. *Public Health Nursing, 9*(2), 97–102.

LEVELS OF PREVENTION

Primary: involves warnings, preparation, and a disaster plan, including educating the population about appropriate disaster response. These interventions are aimed at reducing the probability of disease, death, and disability resulting from a disaster.

Secondary: includes the immediate identification of disaster problems and the implementation of measures to treat and prevent their recurrence or complications.

Tertiary: involves rehabilitation of disaster victims and the community to an optimal functional level, with permanency of change from the disaster being assumed. The goal during rehabilitation is to minimize further damage resulting from the disaster.

AFFORDABLE CARE ACT (ACA)

Section 5210 establishes a Ready Reserve Corps with the Commissioned Corps for service in times of national emergency. It authorized $50 million each year for fiscal years 2010–2014.

Section 5314 authorizes the Secretary to address workforce shortages in state and local health departments in applied public health epidemiology and public health laboratory science and information, including expansion of the Epidemic Intelligence Service.

Conclusion

Disasters are increasing in number and severity each year, so community health nurses need to be adequately prepared to deal with them. Lillian Wald, a famous nursing theorist and community activist, responded to her societal needs by developing the Henry Street Settlement House in 1893. At the time, Wald stated, "Nurses not only serve the individual but also promote the interest of a collective society" (as cited in Kippenbrock, 1991, p. 209). This statement also applies today, especially in the face of disasters.

Being prepared for future disasters means that community health nurses must plan disaster care for multicultural populations. The hallmark of American society is multiculturalism (Sobier, 1995). The major disaster goal for nurses now and in the future is to retain maximum wellness of individuals and populations in communities (Procter & Cheek, 1995). Learning to work with appropriate resources and placing emphasis on specific approaches to enhance individuals, families, and communities are integral to protection and healing from a disaster.

Melanie Dreher (1996), past president of Sigma Theta Tau International, pointed out that nurses are very resilient and can be called everyday heroes. Numerous nurses have performed heroic acts, such as Nightingale, Alcott, and Cavell. Dreher contended that nurses with "heroine" status are recognizable by traits and actions: "They define their life's work not in terms of paychecks, working conditions, and employment benefits, but in terms of the number of lives saved, families in crisis who were counseled, and patients comforted" (p. 5).

Critical Thinking Activities

1. Based on the Application to Practice feature on the Oklahoma City bombing, answer the following questions:
    - What were the primary, secondary, and tertiary prevention disaster interventions carried out by nurses during the Oklahoma City bombing?
    - Identify activities in each of the stages of disaster recovery.
    - Give examples of the three categories of stressors that disaster nurses faced in Oklahoma.
    - Identify the components of the Oklahoma City disaster plan. What would be your recommendations for the disaster team?
2. How can community health nurses better prepare individuals for the present and future threat of bioterrorism and terrorism?

HEALTHY ME

Be prepared for a disaster and consider volunteering as an ARC disaster nurse. Make sure you and your family have a disaster plan and kit ready at all times. See Box 11, "Be Red Cross Ready."

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Safety and Health in the Workplace

Chapter Outline

Chapter Objectives

After studying this chapter, you will be able to:

1. Describe the scope of the occupational safety and health problem in the United States and its importance to the community.
2. Identify some pioneers in the prevention of occupational injuries and disease.
3. Provide a short history of state and federal legislation on occupational safety and health.
4. Explain the difference between occupational injuries and occupational diseases and give several examples of each.
5. Discuss the types of injuries that frequently occur in the workplace and describe their occurrence with regard to person, place, and time.
6. Briefly describe broad strategies for preventing injuries in the workplace.
7. Outline the causes of, and risk factors for, violence in the workplace and describe prevention strategies.
8. Name the different types of occupational illnesses and disorders and list some of the causative agents.
9. Outline some general strategies for preventing and controlling these disorders and illnesses.
10. List several occupational safety and health professions and describe what the professionals in each of these do.
11. List and describe several kinds of workplace safety and health programs.
12. Explain the purpose of worksite health and wellness promotion programs and describe some of their features.
13. Discuss the concept behind Total Worker Health.

Scenario

Nguyen Thi Linh, "Lynn" to her friends, had been working at her new summer job in a nail salon business for 6 weeks now. With the money she earned as a manicurist, Linh planned to eventually continue her college education. Linh worked quickly and accurately, and enjoyed her work. Now, though, she had begun to worry about the safety of the chemicals in the various nail products used in the salon—products such as polishes, strengtheners, removers, and artificial nail liquids. Sometimes, after a long day in the salon, Linh would experience headaches. Once, when she was there alone, she read the list of contents of some of the products: acetone, acetonitrile, butyle acetate, dibutyl phthalate, ethyl acetate, ethyl methacrylate, formaldehyde, isopropyl acetate, methacrilic acid, methyl methacrylate, quaternary ammonium compounds, toluene. . . Linh wrote down the names of some of the chemicals. When she returned home, she searched the Internet to learn whether any of them could be responsible for her headaches. She learned that some of these chemicals irritate the skin and nose and cause asthma. Others cause headaches, dizziness, and irritated eyes, nose, and throat; still others can damage liver and kidneys, and can even harm to unborn children. Linh began to wonder whether she should continue to work as a nail technician.

Introduction

The global workforce exceeds 3.3 billion workers and is continuously growing. Approximately 85% of these workers are in less developed countries, where working conditions are more hazardous than in more developed countries. Each year as many as 317 million workers experience nonfatal occupational injuries and 321,000 workers are fatally injured. This amounts to nearly 1 million workplace injuries and 1 thousand injury deaths every day. Also, each year diseases acquired in the workplace sicken 160 million and kill an estimated 2.02 million workers.[1] Therefore, nearly 440,000 people are sickened and 5,500 workers die each day from a workplace exposure. It is estimated that the equivalent of $1.25 trillion are lost annually from the global gross domestic product by direct and indirect costs of occupational injuries and diseases.[2]

The number of civilian Americans employed in the labor force, as of January 2016, was approximately 158 million.[3] After home, Americans spend the next largest portion of their time at work; thus, safe and healthy workplaces are essential if the United States is to reach its future health objectives. It is not always easy to distinguish between the terms *occupational injury* and *occupational illness* or *disease*. However, it is generally accepted that an **occupational disease** is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by factors associated with employment. It includes acute or chronic illnesses or disease that may be caused by inhalation, absorption, ingestion, or direct contact. An **occupational injury** is any injury, such as a cut, fracture, sprain, or amputation, which results from a work-related event or from a single, instantaneous exposure in the work environment.[4]

Scope of the Problem

Each day in the United States, on average, fewer than 11 workers die from an injury sustained at work. Although even one worker death is one too many, it is instructive to note that the work-related fatality rates in the U.S. have declined significantly over the past 85 years. In 1928, an estimated 19,000 work-related unintentional injury deaths occurred, a death rate of 16 per 100,000 workers.[5] In 2014, there were 4,679 such deaths, and the death rate for occupational injury deaths had fallen to 3.3 per 100,000 workers.[6]

Nearly 3 million nonfatal injuries and illnesses were reported in private industry workplaces during 2014, resulting in a rate of 3.2 cases per 100 equivalent full-time workers. More than one-half of these injuries and illnesses in private industry required recuperation away from work beyond the day of the incident or transfer or restriction in 2014. The vast majority of these events, 95.1%, were classified as injuries; 4.9% were classified as illnesses.[7]

Occupational disease an abnormal condition, other than an occupational injury, caused by an exposure to environmental factors associated with employment

Occupational injury an injury that results from exposure to a single incident in the work environment

Even though more workplace injuries are reported than workplace illnesses, the estimated number of deaths is higher for workplace illnesses. For example, in the United Kingdom, where these data are carefully maintained, 2,535 people died from mesothelioma alone in 2012, compared with 133 workers who died from fatal workplace injuries; 23.5 million working days were lost because of work-related illness compared with 4.3 million due to workplace injury.[8] Worldwide, it is estimated that fewer than one in five work-related deaths is the result of an injury.[2]

Occupational injuries and illnesses are an economic issue, too. It has been estimated that workplace injuries and illnesses and resulting deaths cost $140 billion annually, including $45.7 billion in lost wages and productivity, $31 billion in medical costs, and $44 billion in administrative costs. It also includes employers' uninsured costs of lost time of workers other than those with disabling injuries ($11 billion), investigation costs, vehicle damage losses and fire losses[5] Thus, each worker in the U.S. must produce $1,000 in goods and services just to offset the cost of work-related injuries and illnesses.

Importance of Occupational Safety and Health to the Community

Because of the grim statistics previously stated, it is important to recognize how occupational and community health problems are linked. The population of those working in industry is a subset of the population of the larger community in which the industry is located. Workers, usually the healthiest people in the community, are exposed in the course of their jobs to specific hazardous materials at the highest concentrations. It is in the factory that the most accurate exposure and health data are available for extrapolation to the general community. Most pollutants for which safe exposure levels have been adopted are workplace materials for which occupational exposures were studied first.

Hazardous agents in the workplace affect not only workers but also those outside the worksite. This can occur through soil and groundwater contamination with solids and liquids or air pollution with industrial gases and dusts. It can also occur through clothing and vehicle contamination, as in the case of asbestos workers whose wives and children became exposed to asbestos from these sources or, more recently, electronic waste recyclers who unknowingly exposed their families to lead dust from their workplace. It is important to note that the general population, which includes children, the elderly, and pregnant women, is more sensitive to exposure to pollutants than the workforce.

Another way that industries and their communities share health problems is in the instance of an industrial disaster. Examples include the Three Mile Island (Pennsylvania) nuclear reactor near-meltdown in the United States in 1979, the Bhopal tragedy in India in 1984, and the Chernobyl nuclear catastrophe in the Ukraine in 1986. In these cases, the risk of exposure to a chemical or nuclear energy source, which was originally limited to the workplace, became a community-wide risk.

Finally, it is important to recognize the workers themselves as a community, with common social problems and environmental risks. The failure to recognize the community nature of occupational groups and to monitor chronic conditions such as dermatitis, headaches, blood pressure, or blood chemistries has been a major weakness in our conventional approach to occupational health problems.

History of Occupational Safety and Health Problems

Occupational risks undoubtedly occurred even in prehistoric times, not only during hunting and warfare, but also in more peaceful activities such as the preparation of flint by knapping. The discovery of flint heaps suggests that even these earliest of workers may have been at risk for silicosis (dust in the lungs).

An extensive historical review of occupational safety and health problems from early Egyptian times to late in the twentieth century has been published.[9] Among the early milestones was George Agricola's treatise on mining in 1561, *De Re Metallica*, which emphasized the need for ventilation of mines. In 1567, the work of Philippus Aureolus Theophrastus Bombastus von Hohenheim, also known as Paracelsus, was published under the title, *On the Miners' Sickness and Other Miners' Diseases*. These were the first significant works describing specific occupational diseases. The first work on occupational diseases in general was Ramazzini's *Discourse on the Diseases of Workers*, which appeared in 1700.[10,11] In this chapter, we concentrate only on recent events in the United States and make only brief references to earlier milestones.

FIGURE 1 Cotton mills in the late nineteenth century offered little protection from injuries.

Courtesy of Library of Congress, Prints & Photographs Division, National Child Labor Committee Collection [reproduction number LC-DIG-nclc-01640].

Occupational Safety and Health in the United States Before 1970

The Industrial Revolution, which began in Britain in the eighteenth century, soon spread to continental Europe and then to the United States. Factors creating and driving the Industrial Revolution were the substitution of steam and coal for animal power, the substitution of machines for human skills, and other advances in industrial technology. These changes resulted in the rise of mass manufacturing, the organization of large work units such as mills and factories, and eventually the exposure of masses of workers to new hazards. Although mining remained the most dangerous form of work, there were soon other unsafe occupations, such as iron smelting and working in cotton mills and textile factories (see **Figure 1**).

The recognition of the need to reduce workplace injuries began long before any attention was paid to workplace diseases. The earliest efforts of those responsible for inspecting workplaces were aimed primarily at the sanitation and cleanliness of workplaces. They soon became concerned with equipment safeguards and tending to those who had become injured or ill at work.[11] These efforts, while much needed and appreciated, did little to improve the overall health of the workforce.

State Legislation

The first official responses to new hazards in the workplace did not occur until 1835, when Massachusetts passed the first Child Labor Law, and later in 1867, when it created a Department of Factory Inspection to enforce it (see **Figure 2**). Under this law, factories were prohibited from hiring children younger than 10 years of age.[12] At this time the federal government was concerned only with working conditions of federal employees. In 1877, Massachusetts passed the first worker safety law, aimed at protecting textile workers from hazardous spinning machinery.[13]

In 1902, Maryland became the first state to pass any kind of workers' compensation legislation. In 1908, the U.S. Congress, at the insistence of President Theodore Roosevelt, finally enacted the first of several **workers' compensation laws**; this first law covered certain federal employees. Over the next 40 years, all states and territories eventually enacted some type of workers' compensation legislation, beginning with New York in 1910 and ending with Mississippi in 1948.[9] So ended the first wave of reform in occupational safety and health. With the exception of several other legislative efforts, little progress was achieved during the first half of the twentieth century in protecting workers from injuries in the workplace, and almost nothing was done about occupational illnesses.

FIGURE 2 Before child labor laws were passed, many children worked long hours at dangerous jobs such as mining.

Courtesy of Library of Congress, Prints & Photographs Division, National Child Labor Committee Collection [reproduction number LC-DIG-nclc-01137].

FIGURE 3 Alice Hamilton (1869–1970) was a pioneer in occupational safety and health in the United States.

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There was one exception. Alice Hamilton (1869–1970) was a strong proponent of occupational health and a true pioneer in this field (see **Figure 3**). Over her 40-year career in occupational health, she led crusades to reduce poisonings from heavy metals such as lead and mercury. She investigated silicosis in Arizona copper mines, carbon disulfide poisoning in the viscose rayon industry, and many other industrial health problems.[12]

In spite of Hamilton's efforts, progress in occupational health legislation was slow in the first half of the twentieth century. Occupational diseases were by and large ignored. There was some safety legislation, such as the Coal Mine Safety Act of 1952. Beginning in the 1960s, some people began to take a closer look at the various state workers' safety and workers' compensation laws. It then was discovered that in most states, legislation was a fragmentary patchwork of laws; some states had good laws, but many had inadequate legislation. Many of the laws had failed to keep up with new technology or with inflation. Some groups of workers, including agricultural workers, were not covered at all by legislation. Other problems were the division of authority among various departments within state governments, fragmented record keeping, and inadequate administrative personnel.[14]

Federal Legislation

In 1884, the federal government created a Bureau of Labor, in 1910 the Federal Bureau of Mines, and in 1914 the Office of Industrial Hygiene and Sanitation in the Public Health Service. In 1916, Congress passed the Federal Employees' Compensation Act, which provided federal employees compensation if injured while on the job.[13] Quite a few important laws were passed between 1908 and 1970 (see **Table 1**), but the two most comprehensive laws were the Coal Mine Health and Safety Act of 1969 and the **Occupational Safety and Health Act of 1970 (OSH Act)**, also known as the Williams-Steiger Act in honor of Senator Harrison A. Williams, Jr., and Congressman William A. Steiger, who worked for passage of the Act. At the time the act was passed, 14,000 workers died each year on the job. Since its passage, the Act has served to raise the consciousness of both management and labor to the problems of health and safety in the workplace.

Workers' compensation laws a set of federal laws designed to compensate those workers and their families who suffer injuries, disease, or death from workplace exposure

Occupational Safety and Health Act of 1970 (OSH Act) comprehensive federal legislation aimed at ensuring safe and healthful working conditions for working men and women

Occupational Safety and Health Administration (OSHA) the federal agency located within the U.S. Department of Labor and created by the OSH Act, which is charged with the responsibility of administering the provisions of the OSH Act

National Institute for Occupational Safety and Health (NIOSH) a research body within the U.S. Department of Health and Human Services, which is responsible for developing and recommending occupational safety and health standards

Occupational Safety and Health Act of 1970

The purpose of the Occupational Safety and Health Act of 1970 is to ensure that employers in the private sector furnish each employee "employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm."[13] Furthermore, employers were henceforth required to comply with all occupational safety and health standards promulgated and enforced under the Act by the **Occupational Safety and Health Administration (OSHA)**, which was established by the legislation.

Also established by the OSH Act was the **National Institute for Occupational Safety and Health (NIOSH)**, a research body now located in the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services. NIOSH is responsible for recommending occupational safety and health standards to OSHA, which is located in the U.S. Department of Labor (DOL).

The OSH Act contains several noteworthy provisions. Perhaps the most important is the employee's right to request an OSHA inspection. Under this right, any employee or any employee representative may notify OSHA of violations of standards or of the general duty obligation (to provide a safe and healthy workplace) by the employer. Under the Act, the employee's name must be withheld if desired, and the employee or a representative may accompany the OSHA inspectors in their inspection. By another provision of the OSH Act, individual states can regain

TABLE 1 Highlights of Federal Occupational Safety and Health Legislation

Year	Legislation
1908	Federal Workmen's Compensation Act—limited coverage
1916	Federal Highway Aid Act
1926	Federal Workmen's Compensation Act—amended to include all workers
1927	Federal Longshoremen's and Harbor Workers' Compensation Act
1936	Walsh-Healey Public Contracts Act
1952	Coal Mine Safety Act
1958	Federal Longshoremen's and Harbor Workers' Compensation Act—amended to include rigid safety precautions
1959	Radiation Standards Act
1960	Federal Hazardous Substances Labeling Act
1966	National Traffic and Motor Vehicle Safety Act
1966	Child Protection Act—banned hazardous household substances
1967	National Commission on Product Safety created
1968	Natural Gas Pipeline Safety Act
1969	Construction Safety Act
1969	Child Protection Act—amended to broaden the coverage
1969	**Coal Mine Health and Safety Act**
1970	**Occupational Safety and Health Act**

Source: U.S. Department of Labor, Bureau of Labor Statistics (2015). *"2014 Survey of Occupational Injuries & Illness Summary Estimates Charts Package."* Available at http://www.bls.gov/iif/oshwc/osh/os/osch0054.pdf

local authority over occupational health and safety by submitting state laws that are and will continue to be as effective as the federal programs.[13]

Prevalence of Occupational Injuries, Diseases, and Deaths

In this section, a brief overview of current trends in workplace injuries and illness is followed by a discussion of the occurrence and prevalence of work-related injuries and work-related diseases.

Overview of Recent Trends in Workplace Injuries and Illnesses

Since 1992, there has been a decline in the number of workplace injuries and illnesses reported in private industry. There were nearly 3 million injuries and illnesses reported in 2014, resulting in a rate of 3.3 cases per 100 equivalent full-time workers per year.[7] Approximately 1.16 million of these injuries and illnesses were cases with days away from work.[15] About 147,000 new, nonfatal cases of occupational illnesses were reported in private industry in 2014. This statistic does not include long-term latent illnesses, which are often difficult to relate to the workplace and therefore are underreported.[7]

In the private sector in 2014, the goods-producing industries had a higher rate of nonfatal injuries and illnesses per 100 full-time workers (3.8) than the service-providing industries (3.0). Within the goods-producing industries, agriculture, forestry, fishing, and hunting had the highest rate of nonfatal injuries and illnesses (5.5 per 100 full-time workers), followed by manufacturing (4.0), construction (3.6), and mining (2.0). Within the service-providing industries, health care and social assistance had the highest nonfatal injury rate (4.5), followed by art,

Approximately 1 in 5 cases reported by private industry employers in 2014 occurred in health care and social assistance industries. More than half (51.2 percent) of all nonfatal injury and illness cases reported among private industry establishments in 2014 occurred in only three industry sectors—health care and social assistance, manufacturing, and retail trade.

FIGURE 4 Incidence rates and numbers of nonfatal occupational injuries and illnesses by private industry sector, 2014.

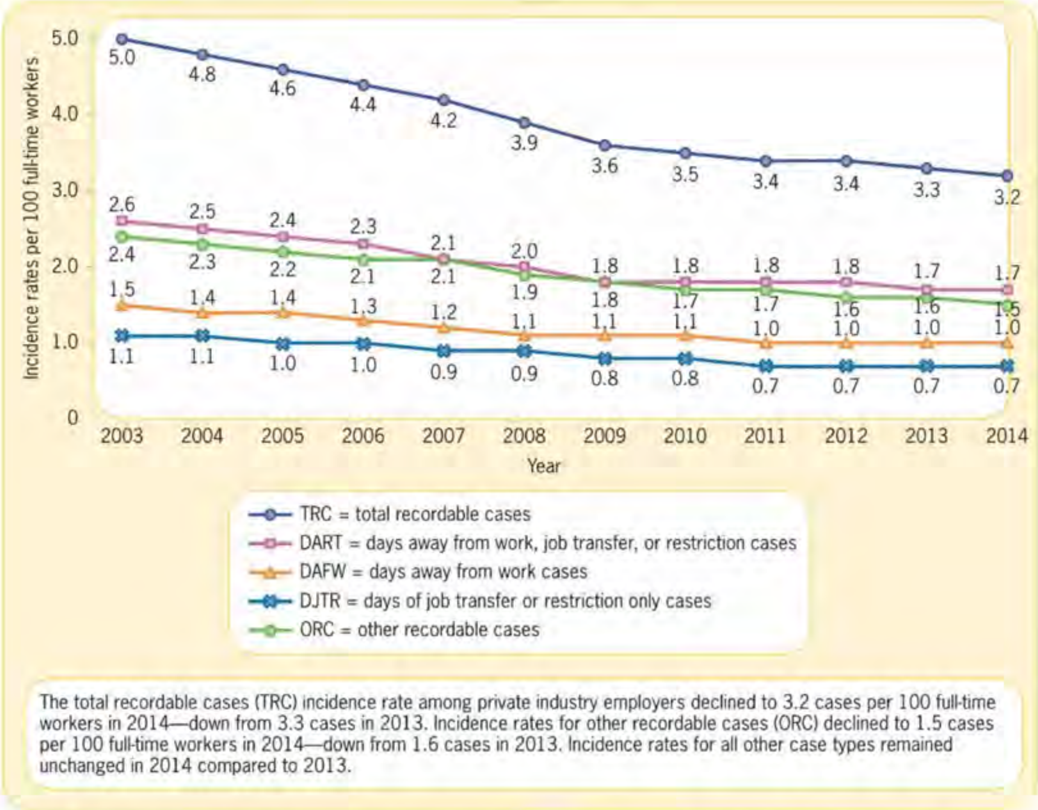
Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *2014 Survey of Occupational Injuries & Illness: Summary Estimates Charts Package*. Available at http://www.bls.gov/iif/oshwc/osh/os/osch0054.pdf.

entertainment, and recreation (4.2), and retail trade. Management of companies and enterprises (1.0), professional and technical services (0.9), and finance and insurance (0.7) had the lowest rates (see **Figure 4**).[7]

Specific industries within industry groups had higher nonfatal injury and illness rates. For example, the animal production industry had a rate of 7.1 per 100 full-time workers, transportation and warehousing had 4.8, hospitals had 6.2, and nursing homes and residential facilities workers had a nonfatal injury and illness rate of 7.1 per 100 full-time workers.[7] In one recent report it was revealed that in 2011, U.S. health care personnel experienced seven times the national rate of musculoskeletal disorders compared with all other private sector workers.[16] Nonfatal occupational injury and illness incidence rates have declined steadily since 2003, although little change was noted from 2013 to 2014 (see **Figure 5**).[7,15]

Unintentional Injuries in the Workplace

Unintentional injuries in the workplace include minor injuries (such as bruises, cuts, abrasions, and minor burns), and major injuries (such as amputations, fractures, severe lacerations, eye losses, acute poisonings, and severe burns). Statistics on injuries and injury deaths are available from several sources, including the National Center for Health Statistics (NCHS), the National



The total recordable cases (TRC) incidence rate among private industry employers declined to 3.2 cases per 100 full-time workers in 2014—down from 3.3 cases in 2013. Incidence rates for other recordable cases (ORC) declined to 1.5 cases per 100 full-time workers in 2014—down from 1.6 cases in 2013. Incidence rates for all other case types remained unchanged in 2014 compared to 2013.

FIGURE 5 Nonfatal occupational injury and illness incidence rates by case type, private industry, 2003–2014.

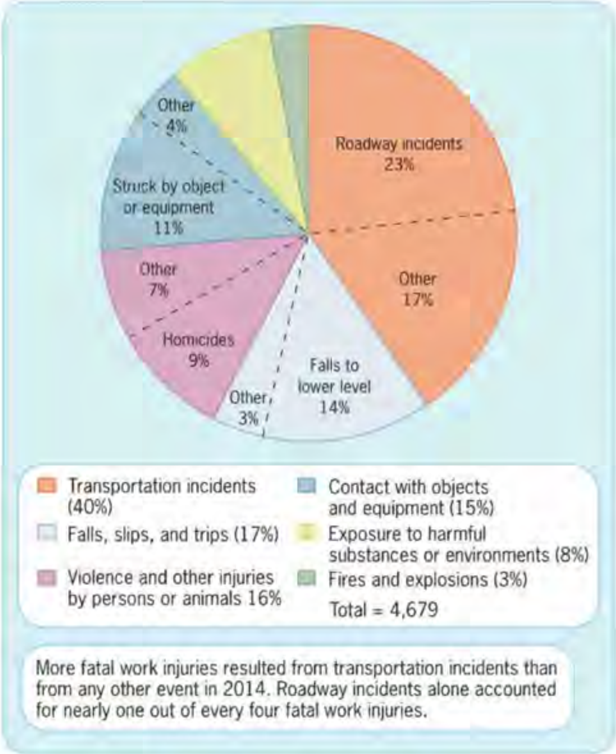
Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *2014 Survey of Occupational Injuries & Illness: Summary Estimates Charts Package*. Available at http://www.bls.gov/iif/oshwc/osh/os/osch0054.pdf.

Safety Council (NSC), the Bureau of Labor Statistics (BLS), and NIOSH. For this reason, estimates of the number of occupational injuries and injury deaths vary. However, beginning in 1992, the NSC adopted the figures published by BLS reports, including its Census of Fatal Occupational Injuries (CFOI) and its annual report on workplace injuries and illnesses. The BLS reports are the source of figures used in this text.[6,7,15,17]

Fatal Work-Related Injuries

In 2014, there were 4,679 fatal work-related injuries, or about 12.8 per day. The fatal occupational injury rate for 2014 was 3.3 per 100,000 full-time equivalent workers.[6,17] Overall, the 2014 total of fatal occupational injuries based on preliminary data was higher than the revised counts for 2013, although the fatality rate remained the same. It is assumed that when the revisions for 2014 are made, additional fatalities will be reported. A recovering economy may be the reason that the overall number of workplace fatalities increased in 2014.

Transportation incidents (1,891) accounted for two out of every five fatal workplace injuries. Roadway incidents continued to lead the way, with 1,075 deaths (23% of the total); followed by violence with 749 deaths (16%), being struck by an object or equipment with 708 (15%), falls with 793 deaths (17%), exposure to harmful substances or environments with 390 deaths (8%), and fire and explosions with 137 deaths (3%) (**Figure 6**).[6,17]



More fatal work injuries resulted from transportation incidents than from any other event in 2014. Roadway incidents alone accounted for nearly one out of every four fatal work injuries.

FIGURE 6 Fatal occupational injuries by major event, 2014.

Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *Census of Fatal Occupational Injuries, 2014 (Chart Package)*. Available at http://www.bls.gov/iif/oshwc/cfoi/cfch0013.pdf.

The industries with the highest rates of fatal occupational injuries per 100,000 employees in 2014 were agriculture, forestry, fishing, and hunting (24.9), mining (13.5), construction (14.1), and transportation and warehousing (13.5). Industries with the lowest fatality rates were financial activities (1.2), information (1.1), and educational and health services (0.7) (see **Figure 7**).[6,17]

Characteristics of Workers Involved in Fatal Work-Related Injuries

Differences in injury and injury death rates are often related to the age and gender of the worker. Injury death rate differences may vary according to minority racial or ethnic status.

Age

The youngest workers (18 to 19 years of age) had the lowest rates of fatal workplace injuries (2.0 per 100,000 full-time workers) in 2014. Workers 20 to 34 years of age had the next lowest workplace fatality rates (2.3 per 100,000). Above the age of 34 years, workplace fatality rates increased with age; the highest rates were recorded for working elders 65 years of age and older (10.2 per 100,000 full-time workers; see **Figure 8**).[6,17]

Gender

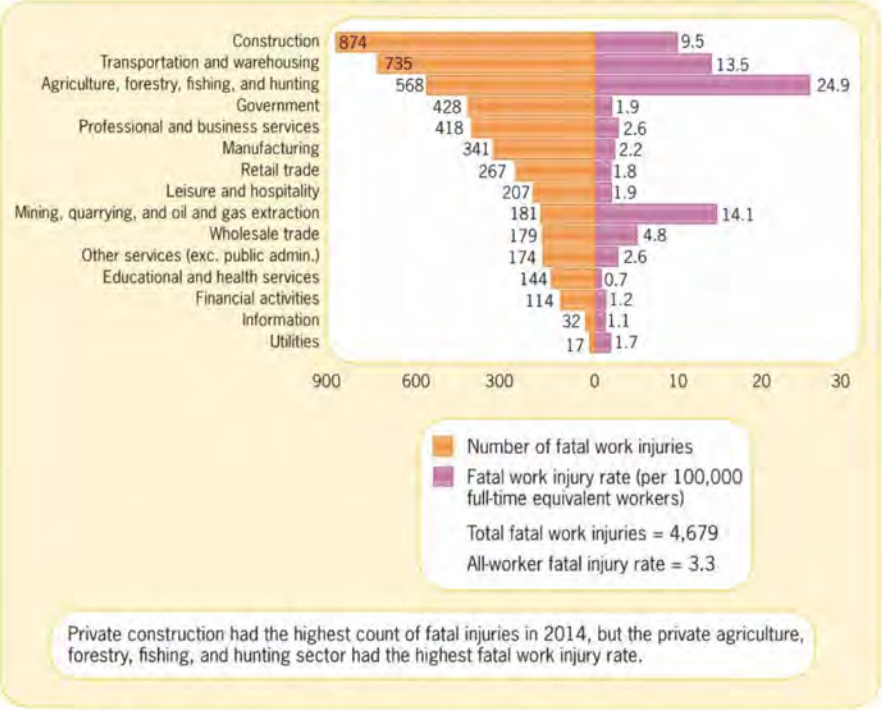
Women die of work-related injuries at much lower rates than do men. In 2014, only 8% of those who died of an injury in the workplace were women even though they worked 43% of all the hours worked (see **Figure 9**).[17] When statistics are adjusted for the numbers of each sex in the workforce, the overall occupational death rate for men is nine times higher than for women (5.4 deaths per 100,000 for men, compared with 0.6 per 100,000 workers for women).[6] A significant portion of the difference results from men being employed in more dangerous jobs. Industries with the highest fatality rates are the same for both men and women—mining, agriculture, construction, and transportation. Although the number of homicides is higher among men, proportionally homicides are greater for women, accounting for nearly one in five of women's job-related fatalities.[17]

Minority Status

Fatality rates for Hispanic or Latino workers were lower in 2014 than in 2013, but still the highest among worker groups (3.6 fatalities per 100,000 full-time workers). Only slightly lower were workplace fatality rates for white (non-Hispanic) workers (3.4) and black or African-American (non-Hispanic) workers (3.0). Asian (non-Hispanic) workers had the lowest workplace fatality rates (1.7 fatalities per 100,000 full-time workers).[6]

Nonfatal Work-Related Injuries

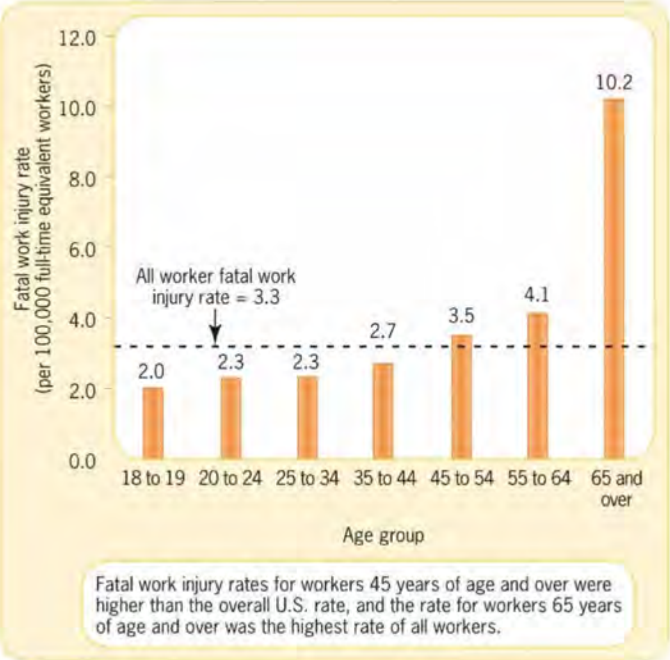
Nonfatal work-related injuries diminish productivity and jeopardize both employee wages and employer profits. In 2014, nearly 3 million injuries and illnesses were reported in private industry and 722,300 injuries and illnesses were reported in state and local government workers. Approximately 2.8 million work-related injuries were treated in emergency departments and 140,000 workers were hospitalized in 2013, the most recent year for which data are available.[18] The economic burden of worker injuries and illnesses for 2010 was estimated at $263 billion.[19]



Private construction had the highest count of fatal injuries in 2014, but the private agriculture, forestry, fishing, and hunting sector had the highest fatal work injury rate.

FIGURE 7 Number and rate of fatal occupational injuries, by industry sector, 2014.

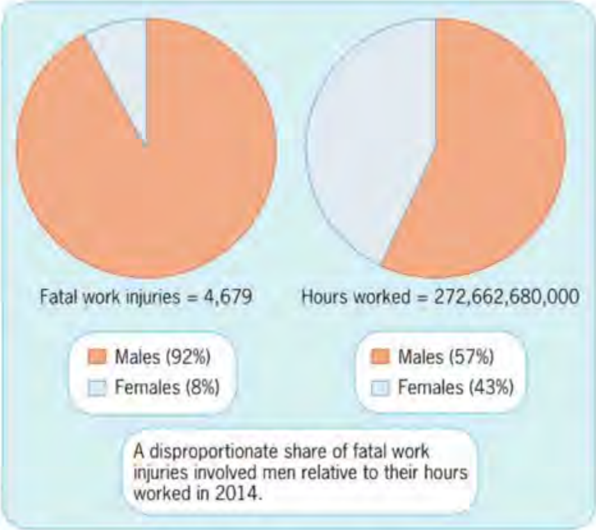
Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *Census of Fatal Occupational Injuries, 2014 (Chart Package)*. Available at http://www.bls.gov/iif/oshwc/cfoi/cfch0013.pdf.



Fatal work injury rates for workers 45 years of age and over were higher than the overall U.S. rate, and the rate for workers 65 years of age and over was the highest rate of all workers.

FIGURE 8 Fatal work injury rates, by age group, 2014.

Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *Census of Fatal Occupational Injuries, 2014 (Chart Package)*. Available at http://www.bls.gov/iif/oshwc/cfoi/cfch0013.pdf.



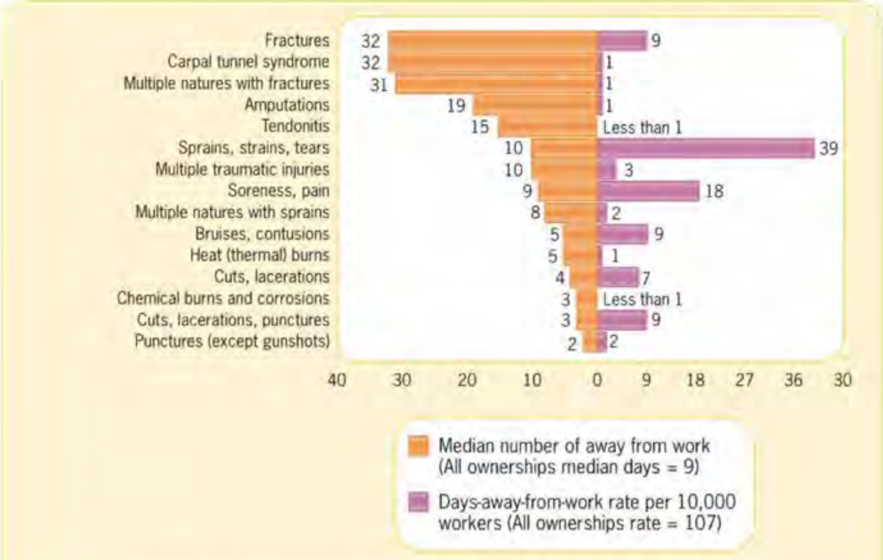
A disproportionate share of fatal work injuries involved men relative to their hours worked in 2014.

FIGURE 9 Fatal work injuries and hours worked by gender of worker, 2014.

Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *Census of Fatal Occupational Injuries, 2014 (Chart Package)*. Available at http://www.bls.gov/iif/oshwc/cfoi/cfch0013.pdf.

Disabling injuries or illnesses are those in which the injured worker remains away from work because of injury beyond the day on which the injury occurred. In 2014, the rate was 107 cases per 10,000 full-time workers. The total number of cases with days away from work in 2014 was 1,157,410 and the mean number of days away from work was 9 days, 1 day more than in 2013.[15] Six occupations accounted for the greatest number of the days-away-from-work cases: police officers and sheriff's patrol officers, firefighters, nursing assistants, laborers, janitors and cleaners, and heavy tractor-trailer truck drivers. Sprains, strains, and tears were the leading types of disabling injuries and illnesses. Within this category, the most common site of injury was back injury from exertion/lifting; these injuries required on average 13 days away from work.[15] The most disabling types of injury or illness are carpal tunnel syndrome and fractures, which result in an average of 32 days away from work (see **Figure 10**).[15]

One set of *Healthy People 2020* objectives is to reduce nonfatal work-related injuries in private sector industries. The first is aimed at injuries resulting in medical treatment, lost time from work, or restricted work activity; a second objective targets nonfatal injuries treated in



In 2014, fractures and carpal tunnel syndrome were the most severe of the selected natures, resulting in a median of 32 days away from work. Among the fracture cases, approximately one-third occurred to hands and feet. Workers experienced sprains, strains, and tears at a rate of 39 cases per 10,000 full-time workers, and required a median of 10 days away from work.

FIGURE 10 Median days away from work and incidence rate due to injuries and illnesses by nature, all ownerships, 2014.

Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *2014 Nonfatal Occupational Injuries and Illnesses: Cases with Days Away from Work: Cases and Demographics*. Available at http://stats.bls.gov/iif/oshwc/osh/case/osch0055.pdf.

emergency departments. A third objective aims at reducing nonfatal injuries among adolescent workers. According to available data, the target rates for each of these objectives had been surpassed by 2012 (see **Box 1**).[20]

Characteristics of Workers Involved in Work-Related Injuries

Age

Workers aged 45 to 54 years had the highest incidence of workplace injuries and illnesses (117.2 cases per 10,000 full-time workers). Workers aged 55 to 64 had nearly as high a rate (116.3 cases per 10,000 full-time workers).[15] Younger workers typically experience a lower rate of fatal workplace injuries, but a higher rate of nonfatal injuries than workers 25 years of age and older.[21] Younger workers typically spend fewer days away from work for each disabling injury. In 2014, young workers spent the lowest median number of days away from work (4 days) for each disabling injury or illness of any age group. The fewer days away from work per disabling injury or illness and the lower fatality rates being experienced by younger workers may reflect the types of employment today's young people find—fewer are finding manufacturing jobs and more are finding employment in service-providing industries. The median number of days spent away from work for a disabling injury in 2014 was 9 days. Days away from work for each disabling injury increase with age; 55-to-64-year olds average 12 days away from work, while workers 65 years and older required a median of 17 days away from work for each disabling injury or illness.[15]

One group of workers that is of special concern is children. An estimated 70% to 80% of teens have worked for pay at some time during their high school years; 50% of employed youths work more than 15 hours during the school week. One in six works more than 25 hours during the school week. Although some level of employment may be desirable, studies show that teens

BOX 1 *Healthy People 2020*: Objectives

OSH-2.1: Reduce nonfatal work-related injuries in private sector industries.

Target-setting method: 10% improvement.

Data sources: Survey of Occupational Injuries and Illnesses (SOII), DOL, BLS; National Electronic Injury Surveillance System-Work Supplement (NEISS-Work), CDC, NIOSH; Current Population Survey, U.S. Bureau of the Census.

Target and baseline:

Objective		2008 Baseline	Status (year)	2020 Target
		Injuries per 100 full-time equivalent workers		
OSH-2.1	Reduce nonfatal work-related injuries resulting in medical treatment, lost time from work, or restricted work activity, as reported by employers.	4.2	3.3 (2013)	3.8
OSH-2.2	Reduce nonfatal work-related injuries treated in emergency departments.	2.4	2.0 (2012)	2.2
OSH-2.3	Reduce nonfatal work-related injuries among adolescent workers aged 15 to 19 years.	5.5	4.5 (2012)	4.9

For Further Thought

The target for each of these reductions in nonfatal work-related injuries is 10% reduction in injury rates. In retrospect that target seems modest. According to the available data (middle column of figures), the announced targets had been surpassed by 2012. What do you think the effect of a stronger or weaker economy would have on meeting the target level? How does the shift to a "service economy" from a "manufacturing economy" affect the rate of nonfatal injuries in the workplace?

Data from: U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion (2010). *Healthy People 2020*. Washington, DC: U.S. Government Printing Office. Available at http://www.healthypeople.gov/2020/default.aspx.

who work more than 20 hours a week do worse academically and are more likely to abuse drugs and alcohol. There are other dangers, too. Every 9 minutes, a teenaged worker is injured in the workplace and, in a typical year, every 14 days a child worker dies. The five most dangerous jobs for teens in 2015 were (1) tobacco harvesting, (2) harvesting crops and using machinery, (3) traveling youth sales crews, (4) construction and height work, and (5) landscaping, grounds keeping, and lawn service.[22] Agriculture is usually ranked as the most dangerous industry by the National Safety Council.[5]

At particular risk are those youth who are employed in violation of child labor laws. An estimated 148,000 youth are illegally employed during an average week in the United States. This figure does not include the roughly 300,000 to 500,000 youth aged 6 to 17 years who are working as migrant and seasonal farmworkers.[23] Violations of child labor regulations are all too common and not always rigorously enforced. In 2011, three states—Missouri, Maine, and Wisconsin—have actually rolled back protections or removed limits on the number of hours children can work during a school week.[22] Youth employment peaks during summers, when an estimated 5.5 million youths find jobs. Young workers are at particular risk for injury because (1) they may not be trained to perform the assigned task, (2) they may not be adequately supervised, (3) they lack experience and maturity needed to perform assigned tasks and to recognize hazards, and (4) they may be unaware of child labor laws aimed at protecting them. **Box 2** provides recommendations for protecting the safety and health of young workers.[24]

BOX 2 Hazardous Work for Adolescents and Practical Steps for Protecting Their Safety and Health

Work Too Hazardous for Adolescents

- Working in or around motor vehicles
- Operating tractors and other heavy equipment
- Working in retail and service industries where there is a risk of robbery-related homicide
- Working on ladders, scaffolds, roofs, or construction sites
- Continuous manual lifting or lifting of heavy objects

Recommendations

Young Workers

Young workers should take the following steps to protect themselves:

1. *Know about and follow safe work practices.*
    - Recognize the potential for injury at work.
    - Follow safe work practices.
    - Seek information about safe work practices from employers, school counselors, parents, state labor departments, and the Department of Labor (DOL). Visit www.youthrules.dol.gov, or call 1-866-4-USWAGE.
2. *Ask about training:* Participate in training programs offered by your employer, or request training if none is offered.
3. *Ask about hazards:* Don't be afraid to ask questions if you are not sure about the task you are asked to do. Discuss your concerns with your supervisor or employer first.
4. *Know your rights:* Be aware that you have the right to work in a safe and healthful work environment free of recognized hazards. Visit www.osha.gov/sltc/teenworkers/index.html.
    - You have the right to refuse unsafe work tasks and conditions.
    - You have the right to file complaints with DOL when you feel your rights have been violated or your safety has been jeopardized.
    - You are entitled to workers' compensation for a work-related injury or illness.
5. *Know the laws:* Before you start work, learn what jobs young workers are prohibited from doing. State child labor laws may be more restrictive than federal laws, and they vary considerably from state to state. Visit www.youthrules.dol.gov or call 1-866-4-USWAGE.

Employers

Employers should take the following steps to protect young workers:

1. *Recognize the hazards.*
    - Reduce the potential for injury or illness in young workers by assessing and eliminating hazards in the workplace.
    - Make sure equipment used by young workers is safe and legal. Visit www.dol.gov/dol/topic/youthlabor/hazardousjobs.htm or call 1-866-4-USADOL.

(Continues)

BOX 2 Hazardous Work for Adolescents and Practical Steps for Protecting Their Safety and Health (Continued)

2. *Supervise young workers.*
   - Make sure that young workers are appropriately supervised.
   - Make sure that supervisors and adult coworkers are aware of tasks young workers may or may not perform.
   - Label equipment that young workers cannot use, or color-code uniforms of young workers so that others will know they cannot perform certain jobs.
3. *Provide training.*
   - Provide training in hazard recognition and safe work practices.
   - Have young workers demonstrate that they can perform assigned tasks safely and correctly.
   - Ask young workers for feedback about the training.
4. *Know and comply with the laws:* Know and comply with child labor laws and occupational safety and health regulations that apply to your business. State laws may be more restrictive than federal laws, and they vary considerably from state to state. Post these regulations for workers to read. For information about federal child labor laws, visit www.dol.gov/dol/topic/youthlabor/index.htm or call 1-866-4-USADOL. Links to state labor offices are available at www.youthrules.dol/gov/states.htm (1-866-4-USWAGE). Information about OSHA regulations that apply to workers of all ages is available at www.osha.gov.
5. *Develop an injury and illness prevention program:* Involve supervisors and experienced workers in developing a comprehensive safety program that includes an injury and illness prevention program and a process for identifying and solving safety and health problems. OSHA consultation programs are available in every state to help employers identify hazards and improve their safety and health management programs.

Educators

Educators should take the following steps to protect young workers:

1. *Talk to students about work:* Talk to students about safety and health hazards in the workplace and students' rights and responsibilities as workers.
2. *Ensure the safety of school-based work experience programs:* Ensure that vocational education programs, school-to-work, or Workforce Investment Act partnerships offer students work that is allowed by law and is in safe and healthful environments free of recognized hazards. All such programs should include safety and health training.
3. *Include worker safety and health in the school curriculum:* Incorporate occupational safety and health topics into high school and junior high curricula (e.g., safety and health regulations, how to recognize hazards, how to communicate safety concerns, where to go for help). Information is available from NIOSH at 1-800-35-NIOSH.
4. *Know the laws:* If you are responsible for signing work permits or certificates, know the child labor laws. State laws may be more restrictive than federal laws, and they vary considerably from state to state. Visit www.dol.gov/gol/topic/youthlabor/ResourcesforEducators.htm (or call 1-866-USADOL), or www. youthrules.dol.gov (or call 1-866-4-USWAGE).

Parents

Parents should take the following steps to protect young workers:

1. *Take an active role in your child's employment.*
   - Know the name of your child's employer and your child's work address and phone number.
   - Ask your child about the types of work involved, work tasks, and equipment he or she uses at work.
   - Ask your child about training and supervision provided by the employer.
   - Be alert for signs of fatigue or stress as your child tries to balance demands of work, school, home, and extracurricular activities.
2. *Know the laws:* Be familiar with child labor laws. State laws may be more restrictive than federal laws, and they vary considerably from state to state. Don't assume that your child's employer knows about these laws. Visit www.dol.gov/dol/topic/youthlabor/ParentsofYoung.htm (or call 1-866-4-USADOL) or www.youthrules.dol.gov (or call 1-866-4-USWAGE).
3. *Be aware of young workers' rights:* Report unsafe working conditions or employment in violation of child labor laws to DOL. Young workers are eligible for workers' compensation benefits if injured on the job.
4. *Share information with other parents:* Studies have shown that most young workers and parents are not aware of the laws and rights of young workers.

Data from: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (2003). *NIOSH Alert: Preventing Deaths, Injuries, and Illnesses of Young Workers* (DHHS [NIOSH] pub. no. 2003-128). Available at http://www.cdc.gov/niosh/docs/2003-128/pdfs/2003128.pdf.

Gender

Nearly 73 million women are part of the American labor force.[3] Since 1950, the labor force participation rate of women has nearly doubled, so that today more than half of all adult women work. In 2015, females made up 47% of the American workforce.[3] Although males made up 53% of the workforce, they worked 57% of all the hours worked. Because they work more hours and because there are still some dangerous jobs filled predominantly by males, males accounted for nearly two-thirds (60%) of all the injury and illness cases involving days away from work; they also required more days (10 days) away from work for each disabling injury compared with females (7 days).[15,17] One group of disorders in which women make up a higher proportion of cases with days away from work is anxiety, stress, and neurotic disorders.[25]

Working women are more likely than nonworking women to receive certain health benefits such as workplace prenatal education, weight control programs, and cancer education. Women in the workforce are more likely to be covered by health insurance than nonworking women and are more likely to have a preventive health tests.

Poverty and Minority Status

Nonfatal injury and illness rates for those of minority status and income levels are not available from the Bureau of Labor Statistics because the numbers of workers within these characteristics is not known. We know that 38% of cases with days away from work were taken by white workers in 2014 (unchanged from 2013); Hispanic or Latino workers accounted for 12% of the injuries and illnesses in 2014 (unchanged from 2012), and that the number of illnesses and injuries among Asian workers and among Native Hawaiian and Pacific Islander workers also increased from previous years.[15] But race and ethnicity were unreported in 40% of all cases, so incidence rates are unavailable.

Geographic Differences in Workplace Injuries

For 2014, occupational injury and illness rates were highest in the following states: Maine, Montana, Vermont, Washington, Wisconsin, Iowa, Indiana, and Alaska.[26] In all, 19 states reported private injury and illness rates above the national average of 3.3 cases per 100 full-time workers, while 14 states and the District of Columbia reported rates below the average. Eight states were not significantly different from the national average. Nine states did not report a rate (see **Figure 11**).[26]

Temporal Variations in Workplace Injuries

As mentioned previously, between 1928 and 2014 injury death rates among workers have declined 79% (from 16 per 100,000 workers to 3.3 per 100,000). During this period, the workforce in the U.S. has quadrupled in size, and the amount of goods and services produced has increased ninefold.[5] These improvements in workplace safety have been considered one of the 10 greatest achievements in public health during the past century.[27]

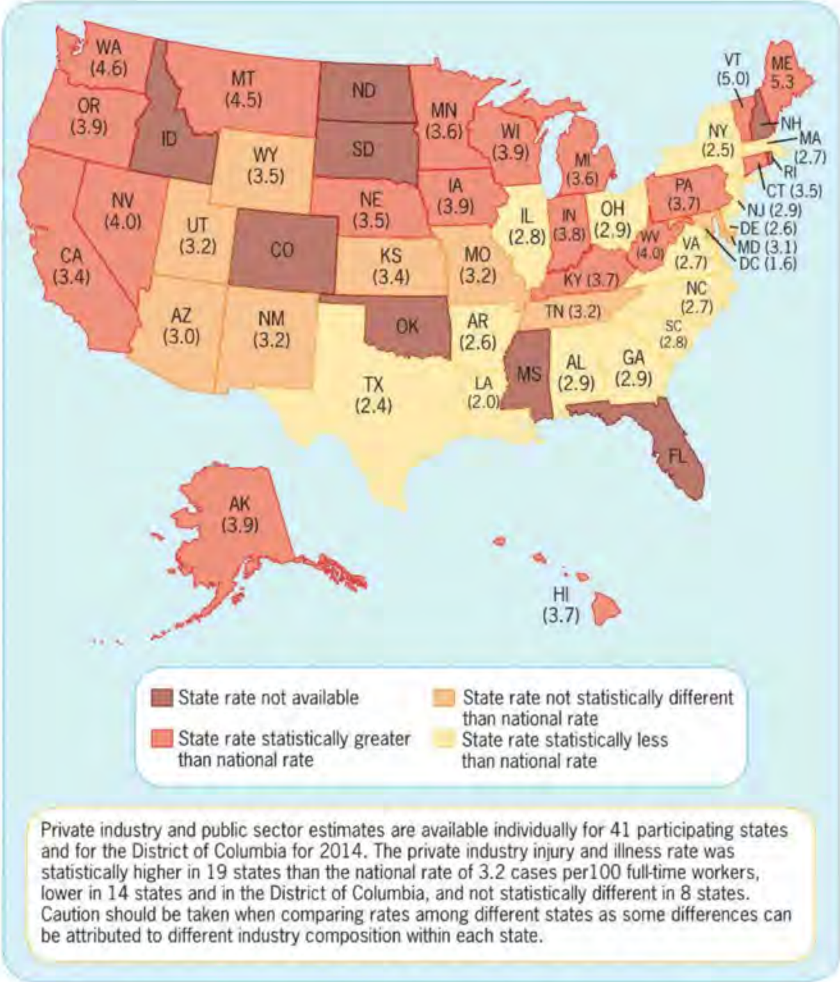
There is a seasonality to work-related deaths. Injury death rates from machinery, falling objects, electric current, and explosions are highest in the summer, when farming and construction work increase. Deaths from these causes are also more often reported during weekdays than on weekends, when, in general, more injury deaths occur.

Workplace Injuries by Industry and Occupation

Fatal and nonfatal occupational injury rates vary according to type of industry and type of occupation.

Fatal Occupational Injuries by Industry

Some jobs are more dangerous than others. Injury death rates are one indication of the risk associated with employment in an industry or in a particular job within an industry. Although the total number of deaths is highest in the construction industry, workers in agriculture, forestry,



Private industry and public sector estimates are available individually for 41 participating states and for the District of Columbia for 2014. The private industry injury and illness rate was statistically higher in 19 states than the national rate of 3.2 cases per100 full-time workers, lower in 14 states and in the District of Columbia, and not statistically different in 8 states. Caution should be taken when comparing rates among different states as some differences can be attributed to different industry composition within each state.

FIGURE 11 State nonfatal occupational injury and illness incidence rates compared to the national rate, private industry, 2014.*

*Total recordable cases (TRC) incidence rate per 100 full-time workers.

Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *2014 Survey of Occupational Injuries & Illness: Summary Estimates Charts Package*. Available at http://www.bls.gov/iif/oshwc/osh/os/osch0054.pdf.

fishing, and hunting have the highest workplace fatality rates (24.9 deaths per 100,000 full-time workers; see Figure 7).[17] Within this industry category, logging and commercial fishing were the most dangerous occupations in 2014, with death rates of 109.5 and 80.8 deaths per 100,000 workers respectively. (Remember the overall fatality rate for American workers is less than 4 deaths per 100,000 workers.) Aircraft pilots and flight engineers have the third highest fatality rates (63.2 deaths per 100,000 workers; see **Table 2**).

The industries with the second highest workplace fatality rate are mining, quarrying, and oil and gas extraction (14.1 deaths per 100,000 workers in 2014). On April 6, 2010, an explosion at the Upper Big Branch mine in West Virginia killed 29 miners. This was the country's worst disaster in four decades,[28] and an unneeded reminder of the hazardous nature of coal mining (see **Figure 12**). One set of *Healthy People 2020* objectives is to reduce deaths from work-related injuries in private sector industries. Mining, construction, transportation and

TABLE 2 Top 10 Deadliest Jobs in 2014

Rank	Occupation	Death Rate/ 100,000	Total Deaths
1	Logging workers	109.5	77
2	Fishers and related fishing workers	80.8	22
3	Aircraft pilots and flight engineers	63.2	81
4	Roofers	46.2	81
5	Refuse and recyclable material collectors	35.8	27
6	Farmers, ranchers, and other agricultural managers	26.0	263
7	Structural iron and steel workers	25.2	15
8	Driver/sales workers and truck drivers	23.4	835
9	Electrical power-line installers and repairers	19.2	25
10	First-line supervisors of construction trades and extraction workers	17.9	130

Data from: U.S. Department of Labor, Bureau of Labor Statistics (2015). *Census of Fatal Occupational Injuries Summary, 2014.* Available at http://www.bls.gov/news.release/pdf/cfoi.pdf.

FIGURE 12 President Barack Obama attended the memorial service for miners killed in the Upper Big Branch mine disaster in West Virginia in April, 2010.

© Steve Helber/AP Photos.

warehousing, and agriculture, forestry, fishing, and hunting offer the best opportunities for improvement (see **Box 3**).

Nonfatal Occupational Injuries and Illnesses by Industry

A total of 3.67 million injuries and illnesses were reported in public and private industry workplaces during 2014, resulting in a rate of 3.4 cases per 100 equivalent full-time workers.[7] Goods-producing industries had higher rates than service-producing industries. Among goods-producing industries, agriculture, forestry, fishing, and hunting had the highest incidence rate in 2014 (5.5 cases per 100 full-time workers). In the service-producing industries, transportation and warehousing had the highest incidence rate (4.6), followed by education and health services (4.2 cases per 100 full-time workers; see Figure 4). All 2014 incidence rates showed declines from 2003 levels.[7]

Agricultural Safety and Health

One particularly hazardous occupation is farming. Those working on farms are at considerable risk not just for injuries, but for lung diseases, noise-induced hearing loss, skin diseases, and certain cancers associated with chemical use and sun exposure. In 2012, there were approximately 2.2 million farms in the United States, with about 1,854,000 full-time workers involved in production agriculture. In addition, 1.4 to 2.1 million seasonal crop workers are hired annually.[29] More than 955,400 youth lived on farms in 2012 and nearly half worked on their farm. Also, more than 250,000 youth were hired in agriculture that year. Every day about 38 children are injured, and about every 3 days a child dies in an agriculture-related incident.[30] In 2014, 263 farm-related deaths were reported,[6] and farming and ranching alone ranked sixth among the top 10 most dangerous jobs in 2014 (see Table 2).

BOX 3 *Healthy People 2020*: Objectives

Objective OSH-1: Reduce deaths from work-related injuries.

Target-setting method: 10% improvement.

Data sources: Census of Fatal Occupational Injuries (CFOI), DOL, BLS; Current Population Survey (CPS), U.S. Bureau of the Census.

Target and baseline:

Objective	Industry	2007 Baseline	Progress (2012)	2020 Target
		Deaths per 100,000 full-time equivalent workers		
OSH-1.1	All industry	4.0	3.4	3.6
OSH-1.2	Mining	21.4	15.4	19.3
OSH-1.3	Construction	10.8	9.7	9.7
OSH-1.4	Transportation and warehousing	16.5	12.5	14.8
OSH-1.5	Agriculture, forestry, fishing, and hunting	27.0	22.6	24.3

For Further Thought

Targets call for reducing deaths from work-related injuries by 10%. Data available for 2012 indicate that the target for all industry has been exceeded; the death rate per 100,000 full-time workers was calculated at 3.4. Targets for mining, transportation and warehousing, and agriculture, forestry, fishing, and hunting have also been exceeded. In your opinion, which of these industries has the best chance of sustaining its safety achievements? Why? Why do you think the construction industry met but did not exceed its target?

Data from: U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion (2010). *Healthy People 2020*. Washington, DC: U.S. Government Printing Office. Available at http://www.healthypeople.gov/2020/default.aspx.

A major contribution to farm-related fatalities is farm machinery, particularly farm tractors. For more than two out of five farm worker deaths, the source of the fatal injury was a tractor, and more than half of these deaths resulted from tractor rollovers. Rollover incidents are those in which the tractor tips sideways or backward (especially when the tractor is improperly hitched), crushing the operator (see **Figure 13**). While all tractors manufactured since 1985 are fitted with seat belts and **rollover protective structures (ROPS)**, many tractors in use in the United States lack this equipment.

The effectiveness of ROPS in protecting the tractor operator was demonstrated by statistics collected in Nebraska, where only 1 (2%) of 61 persons operating ROPS-equipped tractors that rolled over died. These data compare favorably with a 40% death rate for the 250 persons

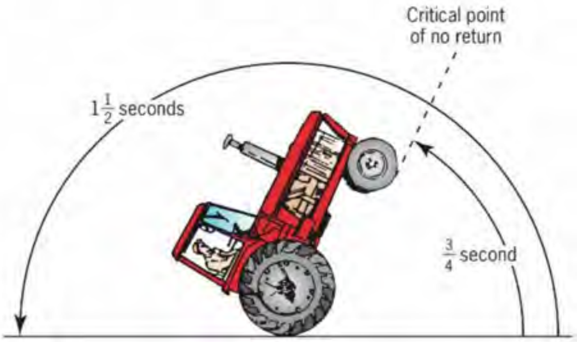


FIGURE 13 The timing of events during rear rollovers of farm tractors.

Source: Reproduced with permission from Deere & Company. © 1994 Deere & Company. All rights reserved.

Rollover protective structure (ROPS) factory-installed or retrofitted reinforced framework on a cab to protect the operator of a tractor in case of a rollover

FIGURE 14 It is not unusual for farm children under the age of 12 to be seen driving tractors.

© David R. Photolibrary, Inc./Alamy Images.

involved in unprotected tractor rollover incidents. The single fatality in the ROPS-equipped tractor was not wearing a seat belt and was ejected from the ROPS-protected area.[31]

Although today's tractors are the safest ever, they are still a leading cause of farm injuries and deaths.[32] The OSHA standard requiring ROPS be installed on all tractors is not actively enforced on farms with fewer than 11 employees, and family farms without other employees are exempt from OSHA regulations. NIOSH promotes the installation of ROPS systems but has no authority to require them. Recently, NIOSH has developed cost-effective rollover protective structure (CROPS) designs and installation instructions to the public for older tractors for which ROPS are otherwise not available. As of 2012, 59% of all tractors used on farms were equipped with ROPS.[32]

Farming is one of the few industries in which the families of workers are also exposed to many of the same risks. In the past, it was not unusual for farm boys under the age of 12 to be seen driving tractors (see **Figure 14**). Perhaps this practice is less common today. Certainly, childhood agricultural injury rates declined between 1998 (16.6 injuries per 1,000 farms) and 2012 (6.4 injuries per 1,000 farms).[30]

Another group of workers being exposed to health and safety risks in agricultural settings are members of the migrant workforce, where children as young as 12, 10, 8, and even 4 years of age can be found working in the fields. Testimony before the U.S. Senate Committee on Labor and Human Resources by Fernando Cuevas, Jr., paints a grim picture of migrant children (see **Box 4**).[33]

Of our 50 states, 48 rely heavily on migrant workers during the peak harvest season. These migrant workers have poor access to health care facilities; infant mortality is about 50 per 1,000 compared with the national average of about 6 per 1,000. In many cases, working conditions are hazardous, and water shortages require workers to drink water from irrigation ditches. Not only is such water unpurified, it is usually laden with agricultural chemicals and biological wastes. Migrant workers are also exposed to long hours in the sun, other unsanitary conditions, and numerous harmful pesticides from crop-dusting airplanes.

It is an unfortunate fact that virtually no progress has been made in addressing the plight of migrant farm workers. In 2000, Human Rights Watch (HRW) documented the exploitive and dangerous conditions under which these workers and their children labor in a report titled, *Fingers to the Bone: United States Failure to Protect Child Farmworkers.* Nearly 10 years later, when HRW reexamined the situation, they discovered that conditions for child farmworkers were essentially unchanged.[34] Children often work 10 or more hours a day and, during peak harvest times, may work dawn to dusk (see **Figure 15**). They typically earn less than the minimum wage and are often forced to spend their own money on tools, gloves, and even drinking water. They may be exposed to agricultural chemicals that make them sick. Because of missed days at school, farm-working youth drop out of school at a rate four times higher than the national average. "Under current U.S. law, children can do agricultural work that the U.S. Department of Labor deems 'particularly hazardous' for children at age 16 (and at any age on farms owned

BOX 4 Comments of a Young Farm Worker

"When I was younger it was all a game to me. But as I started getting older it became a job, and at the age of about 7 and 8, I was competing with my parents and my older sisters. . . . I was able to get out of the fields permanently at the age of 15 to try and get a decent education. I also became an organizer for the Farm Labor Organizing Committee at the age of 16, and I continue to see many, many young children working out in the fields at the same age that I was—4-, 5-, 6-, 7-, and 8-year olds. They are still working out in the fields. I see it every year, up in Ohio, I see it down in Texas, I see it in Florida, I see it anywhere that we go and organize."

Data from: Committee on Labor and Human Resources (1991, March 19). "Prepared Statement of Fernando Cuevas, Jr." *Childhood Labor Amendments of 1991* (S. HRG. 102-201, S. 600). Washington, DC: U.S. Government Printing Office.

or operated by their parents). In non-agricultural sectors, no one under age 18 can do such jobs."[34]

Even these lax labor laws are not enforced diligently. Between 2001 and 2009, enforcement of child labor laws overall by the U.S. Department of Agriculture declined dramatically. Despite the hazardous conditions and frequent injuries and illnesses suffered by farmworkers, relatively few complain for fear of being fired or even deported. Even though many of the children may be U.S. citizens, the entire family may fear being deported. One such hazardous job is tobacco farming. Sixteen-year-old Elena G., who has worked in the tobacco fields every summer since she was 12 years old, told Human Rights Watch,

> "I don't feel any different in the fields than when I was 12," she told Human Rights Watch. "I [still] get headaches and. . . my stomach hurts. And like I feel nauseous. . . . I just feel like my stomach is like rumbling around. I feel like I'm gonna throw up."[35]

FIGURE 15 Children of migrant farm workers often work 10 or more hours a day and tend to drop out of school at a rate four times the national average.

© Pat Sullivan/AP Images.

"The United States spent more than $26 million in 2009 to eliminate child labor around the world, yet the country's law and practice concerning child farmworkers are in violation of or are inconsistent with international conventions on the rights of children."[34] Legislation aimed at eliminating the double standard in child labor laws is introduced during each session of Congress. So far, none of these bills has reached a vote.

Prevention and Control of Unintentional Injuries in the Workplace

Reducing the number and seriousness of injuries and illnesses in the workplace involves four fundamental tasks: anticipation, recognition, evaluation, and control.[36] Anticipation involves the foresight to envision future adverse events and take action to prevent them. A hazard inventory should be conducted to detect and record physical, ergonomic, chemical, biological, and psychological hazards in the workplace. Recognition involves surveillance and monitoring of the workforce for injuries and illnesses, including near misses. It includes inspections of the workplace for hazards, monitoring it for toxins, recording injuries, and conducting employee health screenings.

All of the aforementioned activities include data collection. Evaluation is the assessment of the data that were collected during the recognition and monitoring activities. This includes toxicological, exposure, and clinical assessment as well as risk assessment. Epidemiology is part of the evaluation process. Risk assessment enables the translation of scientific information about hazards into decisions and policies that can improve workplace safety and health. Upon establishing the need for intervention, a decision concerning control can be made. The control may involve changes in the production process to make it safer, changes in the work environment to make it safer, or improvements in the use of personal protective equipment or apparel to protect individual workers. Finally, the education and training of workers can help to reduce workplace injuries and illnesses.[36]

National leadership in reducing the number and seriousness of workplace injuries and illnesses resides with OHSA and NIOSH. In an effort to chart the future course for research on workplace safety and health problems, NIOSH has developed a partnership with more than 500 public and private outside organizations and individuals, the National Occupational Research Agenda (NORA) in 1996. Partners include stakeholders from universities, large and small businesses, professional societies, government agencies, and worker organizations. Partners work together to develop research goals and objectives for resolving the most critical workplace issues based upon (1) the numbers of workers at risk, (2) the seriousness of the hazard, and (3) the probability that new information and approaches will make a difference. The various councils within NORA are based upon sectors in the North American Industry Classification System (NAICS). Examples include the following: Agriculture, Forestry, and Fishing; Construction; Manufacturing; Mining; and so on.[37] Some of the successful projects coming out of NORA include the development of CROPS discussed above, projects on commercial fishing, pesticide safety training among farmworkers, and the evaluation of safety in nighttime highway work zones.[38]

Workplace Violence: Intentional Workplace Injuries

Although only a small number of the incidents of workplace interpersonal violence that occur each day make the news, 1.7 million Americans are victims of workplace violence each year.[39] Between 1992 and 2010, 13,827 workplace homicide victims were reported.[40] In 2014, 403 homicides occurred in the workplace, making homicide the fourth leading cause of workplace fatalities behind roadway incidents, contact with objects and equipment, and falls.[17] In some years, homicide is the second leading cause of workplace deaths among women.[25]

In addition to the fatalities mentioned above, thousands of nonfatal workplace injuries and illnesses are a direct or indirect result of workplace violence. In 2009 it was estimated that more than 137,000 workers were treated in emergency departments for nonfatal assaults.[40]

There are many reasons for workplace homicides and violence. Researchers have divided workplace violence into four categories:[39]

Criminal intent (Type I): The perpetrator has no legitimate relationship to the business or its employees and is usually committing a crime, such as robbery, shoplifting, and trespassing. This category makes up 85% of the work-related homicides.

Customer/client (Type II): The perpetrator has a legitimate relationship with the business and becomes violent while being served. This category includes customers, clients, patients, students, and inmates. This category represents 3% of the work-related homicides.

Worker-on-worker (Type III): The perpetrator is an employee or past employee of the business who attacks or threatens another employee or past employee of the workplace. Worker-on-worker violence accounts for 7% of workplace homicides.

Personal relationship (Type IV): The perpetrator usually does not have a relationship with the business but has a personal relationship with the intended victim. This category, which includes victims of domestic violence assaulted or threatened at work, makes up just 2% of workplace homicides.

During 2003 through 2010, more than half of the workplace homicides occurred within three occupation classifications: sales and related occupations (28%), protective service occupations (17%), and transportation and material moving occupations (13%).[40] Data on nonfatal workplace violence are more difficult to obtain than data on workplace homicides. Assaults occur almost equally among men and women. Most of these assaults occur in service settings such as hospitals, nursing homes, and social service agencies. Forty-eight percent of nonfatal assaults in the workplace are committed by health care patients.[39]

Risk Factors

Risk factors for encountering violence at work are listed in **Box 5**. They include working with the public, working around money or valuables, working alone, and working late at night. Additionally, certain industries and occupations put workers at particular risk. For workplace homicides, the taxicab industry has the highest risk at 41.4 cases per 100,000, nearly 60 times the national average rate of 0.70 per 100,000. Other jobs that carry a higher than average risk for homicide are jobs in liquor stores (7.5), detective and protective services (7.0), gas service stations (4.8), and jewelry stores (4.7). The workplaces that have the highest risk of nonfatal assault (and the highest percentage of all assaults that occurred) are nursing homes (27%), social services (13%), hospitals (11%), grocery stores (6%), and restaurants or bars (5%).[39]

BOX 5 Factors That Increase a Worker's Risk for Workplace Assault

- Contact with the public
- Exchange of money
- Delivery of passengers, goods, or services
- Having a mobile workplace such as a taxicab or police cruiser
- Working with unstable or volatile persons in health care, social services, or criminal justice settings
- Working alone or in small numbers
- Working late at night or during early morning hours
- Working in high-crime areas
- Guarding valuable property or possessions
- Working in community-based settings

Data from: Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (2004). *Violence on the Job* (NIOSH pub. no. 2004-100d). Available at http://www.cdc.gov/niosh/docs/video/violence.html

Prevention Strategies

Prevention strategies for workplace violence can be grouped into three categories—environmental designs, administrative controls, and behavior strategies. Before these strategies can be implemented, a workplace violence prevention policy should be in place. Such a policy should clearly indicate a zero tolerance of violence at work. Just as workplaces have mechanisms for reporting and dealing with sexual harassment, they must also have a policy in place to deal with violence. Such a policy must spell out how such incidents are to be reported, to whom, and how they are to be addressed.

Environmental designs to limit the risk of workplace violence might include implementing safer cash handling procedures, physically separating workers from customers, improving lighting, and installing better security systems at entrances and exits. Administrative controls include staffing policies (having more staff is generally safer than having fewer staff), procedures for opening and closing the workplace, and reviewing employee duties (such as handling money) that may be especially risky. Behavior strategies include training employees in nonviolent response and conflict resolution and educating employees about risks associated with specific duties and about the importance of reporting incidents and adhering to administrative controls. Training should also include instruction on the appropriate use and maintenance of any protective equipment that may be provided.[39]

Occupational Illnesses and Disorders

Precise data on the number of cases of occupational illnesses are more difficult to acquire than data on injuries. It is more difficult to link illnesses to occupational exposure. Some illnesses that can result from occupational exposure (e.g., tuberculosis, cancer, and asthma) appear no different from those that result from exposure elsewhere. Also, there is usually a lengthy period of time between exposure and the appearance of disease, unlike injuries, which are usually evident immediately. Reported cases of illnesses in the workplace in 2014 accounted for only 4.9% of the nearly 3 million injury and illness cases. In private industry, 189,400 new cases of occupational illness were reported, a rate of 17.5 cases per 10,000 full-time workers in all employment settings. Skin diseases and disorders had the highest incidence, 2.6 cases per 10,000 full-time workers, followed by hearing loss, 1.9 cases per 10,000 full-time workers, and respiratory conditions, 1.6 cases per 10,000 full-time workers.[7] The illnesses reported in the statistics are only the cases reported during 2014. Some conditions, such as various cancers, are slow to develop and are difficult to associate with the workplace. These diseases and conditions are often unrecognized and underreported in annual reports of injuries and illnesses.[7]

Types of Occupational Illnesses

Occupational diseases can be categorized by cause and by the organ or organ system affected. For example, repeated trauma is the cause, and the musculoskeletal system is the affected organ system. Exposure to asbestos is a cause of illness; the respiratory system, especially the lung, is the system affected.

Pneumoconiosis a fibrotic lung disease caused by the inhalation of dusts, especially mineral dusts

Coal workers' pneumoconiosis (CWP) an acute and chronic lung disease caused by the inhalation of coal dust (black lung disease)

Musculoskeletal Disorders

Musculoskeletal disorders are the most frequently reported occupational disorders. They include both acute and chronic injury to muscles, tendons, ligaments, nerves, joints, bones, and supporting vasculature. The leading type of musculoskeletal disorder was repeated trauma disorders, which can make up 65% of all cases of nonfatal occupational illness in a given year.[25] Included in this category are carpal tunnel syndrome and noise-induced hearing loss. These disorders are sometimes referred to as repeated trauma disorders.

Skin Diseases and Disorders

Reported skin disorders included allergic and irritant dermatitis, eczema, rash, oil acne, chrome ulcers, and chemical burns. The highest incidences of occupational skin disorders were reported in agriculture, forestry, and fishing.[25] The skin may serve as the target organ for disease, or it may be the route through which toxic chemicals enter the worker's body.

Noise-Induced Hearing Loss

Noise-induced hearing loss is another form of repeated trauma. Approximately 30 million Americans are exposed to hazardous noise on the job, and an additional 9 million are at risk for hearing loss from other agents such as solvents and metals. Cases include workers with a permanent noise-induced hearing loss or with a standard threshold shift. Most of the cases were reported within manufacturing; within the manufacturing sector, 51% of the cases were associated with manufacturing.[25]

Respiratory Disorders

Occupational respiratory disorders are the result of the inhalation of toxic substances present in the workplace. The lungs, like the skin, can be both the target organ of disease and a portal of entry for toxic substances. Characteristic of occupational lung diseases are their chronic nature and the difficulty in early recognition (the latent period for such diseases may be 15 to 30 years). Also, there is the problem of multiple or mixed exposures in the home and the workplace.

FIGURE 16 Mining is a dangerous occupation because of exposure to injuries and to coal dust, which can cause chronic lung disease.

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Work-related asthma (WRA) is the most commonly reported occupational respiratory disease, even though estimates suggest that most cases are not recognized or reported as being work related. There is no estimate on how many cases of WRA occur nationwide. The highest percentage of cases occurs among operators, fabricators, and laborers.[25] Approximately 10% to 16% or adult-onset asthma cases are attributable to worksite factors. It is important for physicians and other health care providers to ask adult-onset asthma patients about work-related exposure. Unfortunately, sometimes complete exposure cessation is the only intervention for a worker who has become sensitized to the agent or agents causing asthma.[41]

One of the most important categories of lung diseases is **pneumoconiosis**, a fibrotic lung disease caused by the inhalation of dusts, especially mineral dusts. During the period 1979 to 2014, pneumoconiosis was either the underlying or contributing cause in 107,509 deaths in U.S. workers.[42]

Types of pneumoconiosis include coal workers' pneumoconiosis, asbestosis, silicosis, and byssinosis. The largest number of pneumoconiosis deaths was from coal workers' pneumoconiosis (CWP). **Coal workers' pneumoconiosis** (also called black lung disease) is an acute or chronic lung disease that is caused by inhaling coal dust (see **Figure 16**).

Historically, deaths from CWP clearly outnumber all other types of pneumoconiosis deaths. During the period from 1968 to 2014, there were 77,996 deaths attributed to CWP, making up more than 50% of all reported pneumoconiosis deaths for that period. However, deaths from CWP have declined during the last 40 years, from a high of 2,910 in 1972 to 363 in 2014.[42] The human cost of CWP can be measured another way, through analysis of years of potential life lost (YPLL). During the period 1968 to 2014, a total of 915,196

YPLL were attributed to CWP, an average of 11.7 years per fatality.[42] This means that workers who developed CWP during this period died, on average, 11.7 years sooner than expected. Most troubling is the finding that, after a period of decline, the number of YPLL has been increasing, from a low of 9.9 years in 2002 to 13.6 years in 2014.[42]

Asbestosis an acute or chronic lung disease caused by the deposition of asbestos fibers on lungs

Silicosis an acute or chronic lung disease caused by the inhalation of free crystalline silica

NIOSH has been monitoring trends in CWP, including progressive massive fibrosis (PMF), an advanced debilitating, and lethal form of CWP. The incidence of PMF, which results solely from the inhalation of coal dust, has increased dramatically among miners in the Appalachian states (see **Figure 17**).[43] This increase could be caused by the changing nature of the coal dust inhaled, to inadequate enforcement of standards and unrepresentative dust sample measurements, or to miners working longer hours. With the widest coal seams already mined, modern day miners must work narrower seams surrounded in some cases by rock containing silica. Also, machinery used now creates finer dust particles. So miners inhale both coal dust and silica dust.[44] Finally, miners worked an average of 25.6% more hours underground during 2003 to 2007 than they did during 1978 to 1982, thereby increasing their exposure to coal dust.[45] A recent study found that surface coal miners are also susceptible to pneumoconiosis and advanced occupational lung disease.[46] No effective medical treatment is available for pneumoconiosis; therefore, primary prevention is essential.

Asbestos workers suffer from diseases that include **asbestosis** (an acute or chronic lung disease), lung cancer, and malignant mesothelioma (cancer of the epithelial linings of the heart and other internal organs). In contrast to CWP, asbestosis deaths increased from 78 in 1968 to 1,221 in 2014. During the same period (1968 to 2014), the years of potential life lost (YPLL) for each death for which asbestosis was either the underlying cause or a contributing case was 11.5 years. During the period 1999 to 2014, 42,662 mesothelioma deaths were reported. A total of 2,785 mesothelioma deaths were reported in 2014.[42] The average number of YPLL for these deaths was 13.5 years.[42] The number of deaths from lung cancer to which asbestosis may have contributed has not been determined.

Workers in mines, stone quarries, sand and gravel operations, foundries, abrasive blasting operations, and glass manufacturing run the risk of **silicosis** (sometimes referred to as dust on the lungs) that is caused from inhaling crystalline silica. Mortality from silicosis has significantly declined in recent years from 1,065 in 1968 to 84 in 2014. The average number of YPLL for these deaths was 12.8 years.[42]

FIGURE 17 Prevalence of progressive massive fibrosis among working underground coal miners with 25 or more years of underground mining tenure (1974–2012) in Kentucky, West Virginia, and Virginia.

Data from: Blackley, D. J., C. N. Halldin, and A. S. Laney (2014). "Resurgence of a Debilitating and Entirely Preventable Respiratory Disease among Working Coal Miners." *American Journal of Respiratory and Critical Care Medicine*, 190(6): 708–709.

Byssinosis an acute or chronic lung disease caused by the inhalation of cotton, flax, or hemp dusts (brown lung disease)

Textile factory workers who inhale dusts from cotton, flax, or hemp often acquire **byssinosis** (sometimes called brown lung disease), an acute or chronic lung disease. In comparison with the other types of pneumoconiosis, byssinosis deaths are uncommon—10 or fewer cases were reported annually between 1996 and 2006, and 5 or fewer between 2007 and 2014. During 1979 through 2014, 341 deaths were attributed to byssinosis. Byssinosis has the highest YPLL of any of the types of pneumoconiosis discussed here, 15.1 years.[42] One reason for the decreasing number of byssinosis deaths in the United States might be that much of the textile manufacturing takes place in other countries.

Other agents that can affect the lungs include metallic dusts, gases and fumes, and aerosols of biological agents (viruses, bacteria, and fungi). Health conditions that can result from exposure to these agents include occupational asthma, asphyxiation, pulmonary edema, histoplasmosis, and lung cancer.

Other Work-Related Diseases and Disorders

Other types of work-related illnesses and disorders are those that arise from poisonings and infections. Poisoning agents include heavy metals (including lead), toxic gases, organic solvents, pesticides, and other substances. Pesticides, when used properly, offer benefits to society, increasing crop production, preserving produce, and combating insect infestations. However, pesticides do represent a health risk, especially for agricultural workers. Approximately 1.1 billion pounds of pesticide active ingredients are used annually in the United States, where 20,000 separate pesticide products are marketed. Each year, 10,000 to 20,000 physician-diagnosed pesticide poisonings occur among the approximately 2 million agricultural workers.[47] During 1998 through 2005, 3,271 cases of acute pesticide-related occupational illness were identified in the United States.[48] The vast majority of these cases (71%) occurred in farm workers. Insecticides are responsible for the highest percentage of occupational poisoning cases (49%).[25]

In 2014, 11.8 million people were employed by hospitals or in the health care industry in the United States, making up nearly 8% of the employed workforce.[3] More than 8 million of these workers are exposed to a variety of hazardous conditions, including infectious disease agents (see **Figure 18**). Among the agents of concern are hepatitis B virus and human immunodeficiency virus (HIV). Health care workers are at risk if they become exposed to the blood or bodily fluids of patients or coworkers. The major route of exposure to these agents (82% of the cases) is percutaneous exposure (injuries through the skin) via contaminated sharp instruments such as needles and scalpels. Exposure also occurs through contact with the mucous membranes of the eyes, nose, or mouth (14%), exposure to broken or abraded skin (3%), and through human bites (1%). Up to 800,000 percutaneous injuries occur annually, with an average risk of infection for HIV of 0.3% (3 cases per 1,000) and for hepatitis B of from 6% to 30%.[25] Health care workers are also at increased risk for acquiring other infectious diseases such as tuberculosis (TB); the incidence for health care workers is 3.7 cases per 100,000 workers.[25]

FIGURE 18 Health care workers are exposed to a variety of workplace hazards, including infectious diseases.
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Another risk in health care settings is occupational exposure to antineoplastic drugs (drugs used in cancer treatment) and other hazardous drugs. Exposure to these substances can cause skin rashes, infertility, miscarriage, birth defects, and possibly leukemia or other cancers. Exposure can occur while crushing tablets, reconstituting powdered drugs, expelling air from syringes filled with hazardous drugs, administering these drugs, or handling contaminated clothing, dressings, or body fluids. Currently, no statistics are available on the incidence of diseases and disorders resulting from these exposures, but NIOSH issued an alert and guidelines for preventing exposure in 2004.[49] In 2012, NIOSH published a list of about 167 drugs used in health care settings that should be handled as hazardous.[50] This list is updated periodically; updates are available at the NIOSH website.

In the past decade and a half, the field of nanotechnology has experienced rapid growth. One nanometer equals one billionth of an inch. Nanoscale materials, systems, and devices exhibit unique properties that affect their behavior. As this field becomes commercialized, concerns have arisen concerning the safety and health of those working with these materials. Recently, NIOSH issued a recommendation for a level of exposure to airborne concentrations of certain nanomaterials.[51] Certainly, there will be more news to come regarding this new workplace setting.

As stated previously, many of our most prevalent chronic health problems may arise from multiple exposures, both within the workplace and at home. Among these are cardiovascular diseases, cancers, and reproductive disorders. Perhaps a million or more workers are exposed to agents that can produce cancer, for example. However, there are no reliable estimates on the actual number of cancer deaths that can be traced directly to occupational exposure. Thus, we have discussed here only conditions generally accepted to be solely or predominantly related to work.

Prevention and Control of Occupational Diseases and Disorders

Preventing and controlling occupational diseases requires the vigilance of employer and employee alike and the assistance of governmental agencies. The agent-host-environment disease model discussed earlier in this book is applicable to preventive strategies outlined here. Specific activities that should be employed to control occupational diseases include identification and evaluation of agents, standard setting for the handling of and exposure to causative agents, elimination or substitution of causative factors, engineering controls to provide for a safer work area, environmental monitoring, medical screenings, personal protective devices, health promotion, disease surveillance, therapeutic medical care and rehabilitation, and compliance activities. In this regard, prevention and control of occupational diseases and disorders is similar to the prevention of occupational injuries.[36] Coordinated programs to monitor and reduce occupational hazards require professionally trained personnel who work with employers and employees to reduce the number and seriousness of workplace injuries and illnesses.

Resources for Preventing Workplace Injuries and Illnesses

Prevention of workplace injuries and illnesses requires professional expertise as well as effective prevention and intervention programs.

Occupational Safety and Health Protection Professionals

The need for safety and health protection professionals in the workplace is substantial. Among those with specialized training in their fields are safety engineers and certified safety professionals, health physicists, industrial hygienists, occupational physicians, and occupational health nurses.

Safety Engineers and Certified Safety Professionals

Approximately 400 academic institutions offer accredited programs that train occupational safety professionals. Many of these professionals will join the professional organization called the American Society of Safety Engineers (ASSE). "Founded in 1911, ASSE is the oldest and largest professional safety organization."[52] It has about 36,000 members who are involved in safety, health, and environmental issues in industry, insurance, government, and education. In spite of the name of this society, not all members are engineers. In fact, the background of the group is varied and includes a number of health educators.

Another recognizable group of trained professionals in this field is the Board of Certified Safety Professionals (BCSP). This group, founded in 1969, is slightly smaller; there are about 27,000 certified safety professionals (CSPs). "The Board of Certified Safety Professionals (BCSP) was organized as a peer certification board with the purpose of certifying practitioners in the safety profession."[53] Certification usually requires a bachelor's degree in engineering or in another scientific curriculum and the passing of two examinations.

Safety engineers and **certified safety professionals (CSPs)** design safety education programs, detect hazards in the workplace, and try to correct them (see **Figure 19**). Increased federal regulations have made the workload heavier for these occupational health professionals.

Health Physicists

Health physicists are concerned with radiation safety in the workplace. They monitor radiation within the work environment and develop plans for decontamination and coping with accidents involving radiation. It is estimated that there are approximately 11,000 health physicists in the United States, certified by the American Academy of Health Physics. Many of these belong to the Health Physics Society, a 5,000-member, international scientific organization of professionals that traces its beginning to 1956. Health physicists are dedicated to promoting the practice of radiation safety.[54,55]

Industrial Hygienists

Whereas the safety engineer or certified safety professional is primarily concerned with hazards in the workplace and injury control, the **industrial hygienist** is concerned with environmental factors that might cause illness. Examples of such factors might include poor ventilation, excessive noise, poor lighting, and the presence of hazardous substances.

It is estimated that there are 7,600 industrial hygienists practicing in the United States. Perhaps a third of them hold the title of certified industrial hygienist (CIH), and many belong to the American Industrial Hygiene Association. To be certified requires a two-part written examination; the first part is given following 1 year of post-baccalaureate experience. The second is given after 5 years of professional activity. Many industrial hygienists belong to the American Conference of Governmental Industrial Hygienists (ACGIH), founded in 1938. This 5,000-member organization advances worker health and safety through education and the development and dissemination of scientific and technical knowledge through their publications.[56]

Occupational Physicians

The **occupational physician (OP)** or **occupational medical practitioner (OMP)** is a medical practitioner whose primary concern is preventive medicine in the workplace. Many OPs or OMPs belong to the American College of Occupational and Environmental Medicine (ACOEM), which represents more than 4,500 physicians and other health care professionals specializing in the field of occupational and environmental medicine (OEM). "The American Board of Preventive Medicine (ABPM) recognizes and certifies qualified physicians in the medical specialty of occupational medicine. Approximately 2,200 physicians have been 'board certified' in occupational medicine within the United States."[57]

Because physicians are highly skilled and highly salaried occupational health professionals, only the largest companies maintain full-time OPs. Smaller companies may hire OPs on a part-time basis or as consultants.

FIGURE 19 Safety engineers prevent workplace injuries by detecting hazards.

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Occupational Health Nurses

The role of the **occupational health nurse (OHN)** has changed over the years from running the company's medical department and first aid station to one of greater emphasis on health promotion and illness prevention. Because the OHN may be the only health professional employed in smaller plants, it is clear that if injury prevention and health promotion programs are to be offered, the job will fall to this individual.

Safety engineer a safety professional employed by a company for the purpose of reducing unintentional injuries in the workplace

Certified safety professional (CSP) a health and safety professional, trained in industrial and workplace safety, who has met specific requirements for board certification

Health physicist safety professional with responsibility for developing plans for coping with radiation accidents

Industrial hygienist health professional concerned with health hazards in the workplace and with recommending plans for improving the healthiness of workplace environments

Occupational physician (OP) or **occupational medical practitioner (OMP)** a practitioner (physician) whose primary concern is preventive medicine in the workplace

Occupational health nurse (OHN) a registered nurse (RN) whose primary responsibilities include prevention of illness and promotion of health in the workplace

The OHN must be a registered nurse (RN) in the state in which he or she practices. It is unlikely that these persons will have had much formal training in occupational health nursing prior to receiving their baccalaureate degrees because most nursing curricula do not provide much training in this area. However, the American Board of Occupational Health Nurses, Inc. (ABOHN), established in 1972, now offers certifications. Requirements include many hours of continuing-education credits and 5 years of experience in the field of occupational health nursing. ABOHN is the only certifying body for occupational health nurses in the United States. More than 12,000 active, certified occupational health nurses are working today.[58] Many OHNs belong to the American Association of Occupational Health Nurses (AAOHN), which was founded in 1942 and includes about 5,000 members.[59]

Preplacement examination a physical examination of a newly hired or transferred worker to determine medical suitability for placement in a specific position

Safety programs those parts of the workplace safety and health program aimed at reducing unintentional injuries on the job

Worksite health and wellness promotion (WHWP) programs workplace-based programs aimed at improving the health and wellness of employees by identifying and acting on existing health conditions and by encouraging employees to optimize their health by improving health behaviors and lifestyle choices

Worksite Safety and Health and Wellness Promotion Programs

A number of programs can be put in place in occupational settings to reduce injuries and diseases. These include preplacement examinations, health maintenance programs, safety awareness programs, health promotion programs, investigation of accidents, stress management programs, employee assistance programs, and rehabilitation programs.

Preplacement Examinations

The purpose of **preplacement examinations** is to make sure that the worker fits the job. By selecting the employee who is the best physically and mentally qualified for a specific job, probabilities of job-related injuries or illnesses are minimized. Periodic evaluations are necessary to ensure that the selected individual continues to be physically and mentally qualified to carry out the job assignment. Examinations are also recommended for transferred and return-to-work employees. Sometimes a phasing in of these employees is desirable.

Occupational Disease Prevention Programs and Safety Programs

Occupational health services that facilitate preventive activities in the workplace include disease prevention programs and safety programs.

Disease Prevention Programs

Originally, occupational disease programs focused on controlling occupational diseases that one might succumb to from exposure in the work environment. Agents of concern were chemicals, radiation, and perhaps even psychological and social factors that could lead to sickness or disability. Gradually, these disease prevention efforts broadened into health maintenance programs and included the early detection and treatment of such diseases as hypertension, diabetes, obesity, and heart disease to keep employees healthier and on the job longer.

Safety Programs

Safety programs are those portions of the workplace health and safety program aimed at reducing the number and seriousness of unintentional injuries on the job. Each company needs to have a policy statement, safe operating procedures, a disaster plan, policies for hazard control, and policies for the investigation of injuries in the workplace. Provisions must be made for regular safety inspections of the workplace and for the maintenance of accurate records for each injury and for analysis of such records. Each safety program should include safety orientation and training programs and programs on first aid and cardiopulmonary resuscitation.

Worksite Health and Wellness Promotion Programs

Worksite health and wellness promotion (WHWP) programs are workplace-based programs aimed at improving the health and wellness of employees through changes in behavior and lifestyle. The goals for the employer include reduction of absenteeism, lowering health insurance premiums, increasing productivity, and improving employee morale. Other reasons why

Total Worker Health®
policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being (CDC/NIOSH).

Employee assistance program (EAP)
workplace-based program that assists employees who have substance abuse, domestic, psychological, or social problems that interfere with their work performance

employers might support WHWP programs include reducing workers' compensation costs, increasing employee retention, and enhancing the company's image.[60]

In the United States, historically, health care insurance has come through one's employment. In 1965, the employers' share of the nation's health care bill was 18%; in 2006, it was 40%. In some companies the cost of providing health care for employees is equal to about 50% of the companies' profits.[60] Obviously, this upward trend in the cost of health care for employers cannot continue much longer. Until this system changes, however, employers are making serious efforts to reduce health care costs, and one effective way to do this is worksite health and wellness promotion.

Worksite health and wellness promotion programs go by various names such as, "Working Well," "Worksite Health and Family Services," "Work-Life Balance," or "Wellness and Work/Life." Generally, the objectives of these programs are to facilitate changes in behavior or lifestyle to prevent disease and to promote employee health and wellness. WHWP programs range in size from modest programs that might include only a "wellness assessment, and, perhaps, hypertension screening, to more comprehensive programs that offer cancer risk screening, nutrition and weight management, fitness classes, smoking cessation, stress management programs, telephone health coaching to help manage chronic conditions, and medication therapy management. Physical activity is an important component of any wellness program and linkages to or agreements with recreation facilities is essential. But the goals of these programs have evolved from simply improving the physical health of employees to improving the quality of life, especially as it relates to work/life balance. Many include inducements, such as a free FitBit Flex®, or even monetary rewards, for participation by employees.

All indications are that WHWP programs will continue to grow. Corporations, colleges, and universities not only see them as a means to control health care costs and show a concern for the employees, but also as a means by which to retain current employees and recruit new ones. Undergraduate and graduate programs now exist to specifically train people to staff these programs; these professionals go by such titles as worksite wellness coordinator, worksite wellness manager, or wellness instructor.

The National Institute of Safety and Health located in the Centers for Disease Control and Prevention supports and promotes worksite wellness programs through its initiative, **Total Worker Health (TWH)**. Total Worker Health is defined as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.[61] The TWH approach advocates for a holistic understanding of the factors that contribute to worker well-being. Scientific evidence now supports what many safety and health professionals, as well as workers themselves, have long suspected—that risk factors in the workplace can contribute to health problems previously considered unrelated to work. The TWH website provides resources for those wishing to start or enhance existing "workplace programs and policies for improving worker health and well-being."[61]

Employee Assistance Programs

Employee assistance programs (EAPs) are programs that assist employees who have substance abuse, domestic, psychological, or social problems that interfere with their work performance. These programs, which arrived at many workplaces before WHWP programs, originally arose in response to occupational alcohol problems. EAPs provide help to employees with a variety of problems that affect their work performance. EAPs may be administered separately from WHWP programs or even through a contract with a third party. The goal of EAPs is intervention when an employee has a behavioral or other problem that interferes with his or her work before such problems become costly for both the employer and employee. During the intervention EAP personnel, together with the employee, try to identify resolve the problem so that the employee's work performance can return to normal.

Chapter Summary

- After time spent at home, Americans spend the next largest portion of their time at work; thus, safe and healthy workplaces are essential if the U.S. is to reach its health potential.
- Every day approximately 11 people die from work-related injuries and many more people die of work-related diseases.
- Occupational health issues affect the quality of life economically as well as medically in communities in which workers live. Although occupational injuries and illnesses have been a long-standing concern of workers in the U.S., rapid progress in reducing the number and seriousness of workplace injuries and illnesses became possible only after the passage of the Occupational Safety and Health Act (OSH Act) of 1970.
- The OSH Act established the Occupational Safety and Health Administration (OSHA) and the National Institute of Occupational Safety and Health (NIOSH) and required private industry to provide safe jobs and workplaces.
- The number and type of workplace injuries vary by person, place, time, and type of industry. Roadway injuries are the leading cause of fatal work-related injuries. Violence, being struck by an object or equipment, and falls are the second, third, and fourth leading causes of unintentional workplace deaths.
- Nonfatal work-related injuries diminish productivity and jeopardize both employee wages and employer profits.
- Workplace violence affects 1.7 million workers in the United States each year, and homicide is the fourth leading cause of workplace fatalities.
- Work-related injuries can be controlled by applying a variety of injury prevention strategies, including eliminating a dangerous job, improving the work environment, using safer machinery, and improving the selection and training of workers.
- Work-related illnesses and disorders kill thousands of workers and former workers each year.
- The types of illnesses and disorders that can be attributed to workplace exposure are many, including musculoskeletal conditions, dermatological conditions, lung diseases, and cancers, among many others.
- Repeated trauma is the leading cause of work-related nonfatal illnesses.
- There are numerous resources to aid in the prevention of occupational injuries and diseases, including occupational health professionals, workplace injury and illness prevention programs, and worksite health promotion programs.
- Worksite health and wellness promotion (WHWP) programs are workplace-based programs aimed at improving the health and wellness of employees through changes in behavior and lifestyle.
- Total Worker Health is defined as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.

Scenario: Analysis and Response

Please take a moment to reread the scenario at the beginning of this chapter. Here is some additional information on the nail salon industry from the CDC/NIOSH website:

> Approximately 350,000 people are employed in nail salons and other personal care services in the United States according to industry estimates (*Nails Magazine*, 2008–2009). These estimates indicate the workforce is largely female (96%) with the industry employing a large number of minority workers (63%). Nail salon employees are potentially exposed to dozens of chemicals including acrylates, solvents, and biocides as dusts or vapors.

Then, reflect on the questions that follow.

1. If you were Linh, what would you do?
2. What federal agencies, mentioned in this chapter (or elsewhere in the text), provide information, advice, or assistance? Does your state regulate nail salon operations in a way that protects nail technicians?
3. This scenario raises concerns about workplace exposure to environmental hazards nail salons, but environmental hazards can occur anywhere. What types of environmental hazards might be present where you work?
4. Suppose you suspected that you were being exposed to a toxic agent where you worked. What would you do? Who would you contact? How could OSHA be of assistance?

Review Questions

1. Provide definitions of the terms occupational injury and occupational disease and give three examples of each.
2. In what ways are health problems in the workplace related to health problems in the general community?
3. How did the Industrial Revolution contribute to an increase in occupational health problems?
4. Who was Alice Hamilton? What did she do?
5. What were the deficiencies in state occupational safety and health laws in the early 1960s?
6. Briefly discuss the purpose of the Occupational Safety and Health Act of 1970 and outline its major provisions.
7. What is OSHA and what does it do? What is NIOSH and what does it do?
8. What are some of the most frequently reported workplace injuries? Which are the leading causes of workplace injury deaths?
9. Which age group and gender of workers suffer the most occupational injuries? Which have the most fatal injuries?
10. Why is farming a particularly hazardous occupation? What are ROPS and how do they prevent deaths? Describe some of the workplace hazards experienced by migrant farmworkers and their children.
11. What are the risk factors for encountering violence in the workplace? Which occupation is at greatest risk for workplace homicides?
12. Outline some general control strategies that can reduce the number and seriousness of workplace injuries.
13. What is the most frequently reported occupational disorder?
14. What determines whether a musculoskeletal condition or skin condition should be considered an injury or a disease?
15. List four well-documented lung conditions that are related to occupational exposure. Name the occupations whose workers are at high risk for each of these conditions.
16. Why is it often difficult to prove that a disease or condition resulted from workplace exposure?
17. Outline some features of a workplace program to prevent or control occupational diseases. For each activity, indicate whether it is aimed at the agent, host, or environment aspect of the disease model.
18. List five health occupations that deal with worker safety and health. Describe their training and job assignments.
19. Name and describe four occupational safety and health programs.
20. What are some of the benefits of worksite health and wellness promotion programs for employers and employees?

Activities

1. Examine your local newspaper every day for a week for articles dealing with occupational injury or illness. Find three articles and, after reading them, provide the following: a brief summary, the resulting injury or disease, the cause of the injury or disease, and a brief plan for how the organization could eliminate the cause.
2. Interview someone who works in the profession you wish to enter after graduation. Ask about prevalent injuries and illnesses connected with his or her job. Also ask about specific preservice and in-service education the interviewee has had to protect against these problems. Finally, ask him or her to propose measures to prevent future injuries or illnesses. Summarize your interview on paper in a two-page report.
3. If you have ever become injured or ill as a result of a job, explain what happened to you. In a two-page paper, identify the causative agent, how the injury could have been prevented, and what kind of training you had to prepare you for a safe working environment.
4. Go to the school library and research the injuries and diseases connected with your future profession. In a two-page paper, identify the major problems and what employers and employees should do about them and express concerns that you have about working in the profession because of these problems.
5. Visit any job site related to your future profession. At that site, find 10 things that employers and employees are doing to make it a safe work environment. List these 10 things briefly and explain the benefit of each one.

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CHAPTER FOCUS

The Home Visiting Process
Advantages of Home Visits
Effectiveness of Home Visits
Challenges of Home Visits
Distractions in the Home Environment

QUESTIONS TO CONSIDER

After reading this chapter, you will know the answers to the following questions:

1. What is a home health visit?
2. How is a home visit conducted?
3. What are the stages of a home visit?
4. What are the advantages and challenges of a home visit?
5. How effective are home visits in improving health for populations?

The Home Visit

Karen Saucier Lundy

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KEY TERMS

- behavioral distractions
- environmental distractions
- nurse-initiated distractions
- visiting nurse

> “Home is where the heart is.”
>
> —Pliny the Elder

> “Hospitals are an intermediate stage of civilization. While devoting my life to hospital work I have come to the conclusion that hospitals are not the best place for the poor sick except for surgical cases.”
>
> —Florence Nightingale, 1860

REFLECTIONS

The home was the earliest setting for nursing care. In today's society, most of us expect to go away from home to receive health care. What is your idea of home? Have you ever been on a home visit for providing health care? Think about how you might feel as a patient receiving a home visit from a nurse.

THANKS TO ADVANCES IN technology, nurses can now make "home visits" via the Internet using video through smartphones or computers. Many outpatient facilities consider a "home visit" to be calling a patient the day after treatment to assess the patient's condition. The Affordable Care Act (ACA) of 2010 included provisions that provide incentives to healthcare providers and organizations to keep patients at home as much as possible and out of institutional care settings. As technology evolves, should these types of "home visits" be considered appropriate substitutions for the actual in-home visit by a community health nurse? What are the ethical implications of changing our traditional concept of the home visit?

Since the beginning of time, humans have cared for their own at home, both in sickness and in health. Historically, homes were the earliest practice settings for nurses who worked in the community. Patients were seldom in hospitals, but rather recovered from illness at home and learned about disease prevention and treatment at home; as always, nurses reached out to them through the home visit. During the latter part of the 19th century and throughout the 20th century, community health nurses always had the home as a common setting for practice. As hospitals became more accessible and technology advanced, roles for nurses in the community became more specialized. One specialized role that emerged was that of the visiting nurse, organized by visiting nurse associations that were funded by philanthropic donations (Howse, 2007).

The evolution of home care in the United States resulted from social, economic, technological, demographic, and political forces that continue to shape our healthcare delivery system (National Association for Home Care [NAHC], 2010). By the end of World War II, the physician shortage and the continued explosion of medical technology in the hospital moved many physicians into hospitals, and physician home visiting became a thing of the past (Hafkenschiel, 1997). By the early 1960s, home care was primarily provided by public health and visiting nurses, who assessed patients, provided the necessary services, and managed the therapeutic plan of care. Public health nurses focused on prevention and education; visiting nurses provided sick care in the home. By 1963, according to the National Association for Home Care (2010), the number of home health agencies, primarily private philanthropic organizations, had grown to 1,100. The services they provided involved a variety of professional disciplines, including skilled nursing.

Nurses who make home visits today are employed by a variety of agencies, and their roles can encompass elements of both the **visiting nurse** (sickness care) and the public health nurse (health promotion, case finding, disease prevention, and education). However, in the current reimbursement-driven healthcare system, most nurses who visit patients at home tend to specialize in home health services, with an emphasis on illness care and post-hospital follow up, or public health services, which deliver care in the home and provide health education. With the increase in outpatient surgeries, prevention, chemotherapy, shorter hospital stays, and other services previously done on an inpatient basis, follow-up care at home will continue to be even more critical in a managed care environment. The role of the homecare nurse is increasingly more important as a specialty within community-based health care, especially with the goals of the ACA related to increased patient and population care outside of acute care and institutional settings.

Home health nurses may be employed by home health agencies, hospices, hospitals, public health departments, or clinics. Public health nurses may see patients at home through the auspices of the state health department, a local hospital, or a rural clinic. In this chapter, the home visit as a practice environment is described in the context of the emerging community-based healthcare system.

The Home Visiting Process

One simply has to look around any local hospital to see that it would seem to be much more efficient for patients to come to the nurse and other healthcare providers, where resources are plentiful. Certainly, one of the primary reasons that hospitals were first developed in the Middle Ages was so that caregivers could see more patients and observe them throughout the day and night. Yet there are very good reasons for seeing patients in their own homes. **Box 1** lists common purposes of home visiting; **Box 2** details the stages of the home visit, with information about the sequential steps in the home visiting process; **Box 3** provides information about differences between the home setting and the acute care setting; and **Box 4** provides hints on communicating effectively in the home setting.

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The acceleration of home health nursing came during the 1960s, when Medicare approved home health visits for reimbursement.

BOX 1 Purposes of Home Visits

Case Finding

- Public health and protection
- Abuse, neglect cases
- Communicable disease
- School-related health conditions

Illness Prevention and Health Promotion

- Prenatal and well-baby care
- Child development
- Elder care

Care of the Sick and Terminally Ill

- Home health
- Hospice

BOX 2 From Beginning to End ... Selecting a Successful Home Visit

Previsit/Planning Stage

- Determine which patients need to be seen.
- Prioritize the scheduled visits based on patient need, distance between visits, laboratory work, and coordination with other professionals and physician.
- Review the chart, orders, patient diagnosis, goals of care, and reasons for the home visit.
- Telephone the patient for validation of scheduled visit; ask patient about specific needs, such as supplies, and any special hazards, such as pets or environmental concerns; caregiver schedule.
- Secure directions to the home.
- Conduct inventory of bag, needed equipment and supplies for patients, and educational materials.
- Review safety considerations, such as timing of visit, environmental assessment.

Implementing the Visit

- Initiate the visit: introduction and identification of nurse to patient, brief social phase to establish rapport.
- Practice appropriate hygienic practices before patient assessment.
- Review plans for visit with patient.
- Determine expectations of patient regarding home visits.
- Conduct assessment: environment, patient, medication, nutrition, functional abilities and limitations, psychosocial issues, and evaluation of previous visit intervention effectiveness.
- Modify the plan of care based on patient need and situational dictates.
- Perform nursing interventions.
- Deal with distractions: environmental, behavioral, and nurse initiated.

Evaluating the Visit

- Evaluate effectiveness of interventions based on established short-term (response during visit) and long-term outcome criteria (effects of intervention at subsequent visits or other patient contact).
- Evaluate as to primary, secondary, tertiary interventions.
- Evaluate conduct of visit: availability of appropriate supplies, preparation of nurse for visit.

Documentation

- Document based on established outcome criteria and agency requirements.
- Validate diagnoses and additional health needs based on visit.
- Evaluate goals and objectives.
- Review actions taken, response of patient, and outcome of interventions (short and long term).
- Record both objective (nurse-based) and subjective (patient-based) data.
- As appropriate, use federal agency reimbursement guidelines, such as Medicare, for progress documentation and certification/recertification requirements.

Termination

- Termination begins with the first visit as nurse prepares the patient for time-limited nature of home visiting.
- Review goal attainment with patient/family and make recommendations and referrals as necessary for continued healthcare issues.
- Develop strategies for appropriate closure with patients who die, refuse visits, or are terminated because of nonreimbursable services.

BOX 3 Challenges in Home Settings

- *Control belongs to the patient* because care is being provided in his or her home.
- *A feeling of isolation and lack of support* often results from the nature of the home setting. There are no nurses or other team members in the next room to confirm an assessment or to distinguish an abnormal finding.
- *The home environment and family support system* are unpredictable and not always conducive to optimal care.
- *Dealing with multi-problem families* is difficult emotionally for the nurse, especially in the home setting where family dynamics and interactions are more intense and visible.
- *Difficulty in communicating with the various team members* can be a stressor.
- *The volume of documentation* required can be difficult as a result of the variety and demands of various funding sources and standards.
- *Frustrations with the system* are a common concern. There is often difficulty explaining Medicare or Medicaid's ever-changing requirements to patients and families, as well as to other providers.
- *Complex caseloads* that encompass all age groups with diverse problems are common in home care. The skills and knowledge required are broad, requiring the nurse to become a strong generalist.
- *Concern for personal safety* is an issue, because violence has increased in all delivery settings.

BOX 4 Secrets of Professional Conversation: The Home Visit

1. *Break the ice with a warm topic.* Try opening with a cliché such as the weather, pets, sports, children, yard flowers, garden, or any subject that interests *most* people. This often establishes a conversational bond that helps make the transition to other more sensitive topics easier. Example: "How has all this rain lately affected your garden?" Or, while pointing to pictures in home, ask, "Are these your children?"
2. *If you are extremely uncomfortable or have a sense of unidentified anxiety, explore possible source with the patient.* Often, nurses can sense nonverbal conflict in the home, with the patient, or with the family. By acknowledging this, valuable information can be elicited from the patient. Example: "Things seem a little unsettled today. Do you want to talk about anything before we get started with your assessment?"
3. *Pick up the pace by asking open-ended questions.* This forces discussion, because questions can't be answered with a simple yes or no. Answers will be longer so you will be able to notice other things that are being said to keep the conversation going. Example: "Why do you like living out in the country? What do you think about the new road going through town? What if . . . ?"
4. *Show sincere interest.* Listening is a skill that must be practiced daily. This means making good eye contact. When the patient is speaking, our tendency is to spend that time planning what we will say next. This is not only discourteous and nontherapeutic, but also causes us to miss important information. Flatter your patient/family with sincere comments: All people crave appreciation. Make sure you *individualize* compliments with details, such as commenting on how much more energetic your patient is or noting that a young mother is attending to her new baby's cries very well. Listening is an excellent way to demonstrate your respect for your patient! Example: Instead of rehearsing your next line, focus on your *genuine* response to what he or she is saying. Challenge yourself to come up with questions about the points the person has raised.
5. *Develop a broad outlook.* Avoid using the word *I* too often. Watch the great conversationalists—Oprah Winfrey, Jane Pauley, Barbara Walters, Katie Couric, or Larry King—they seldom mention themselves, know a little bit about a lot of subjects, and demonstrate a curiosity about a broad range of topics. Example: Read the local newspaper daily and try to listen to at least one news show every other day. This ensures that you will expand your consciousness about community and national issues that concern your patients. Read a variety of opinions about a wide range of issues. Challenge yourself to think about things in new ways.
6. *Avoid judging others in advance (i.e., "prejudice").* Try to suspend judgment about your patient. Coming to conclusions about people before you have even entered their homes, based on what you have read in their chart or know about their income, shuts down your curiosity and prevents you from learning what you need to know about their health status. Example: In a home visit with a new mother who consistently misses clinic appointments, keep an open mind and ask her about other aspects of her life. Listen to her accounts of how her life has changed since giving birth.
7. *Quote your patient when possible.* A very flattering and confirming strategy to promote your patient's self-confidence is to use actual quotes from previous conversations (either from the same visit or previous visits, which means you have to really listen!) to illustrate health information. Example: "Since you mentioned last visit that you felt a 'bit better when I am able to cook my own breakfast,' I think that taking care of yourself as much as possible really makes a difference."

8. *End a conversation gracefully.* Breaking away from a conversation in the home can often be more difficult than starting one. After we "connect" with someone, most of us are hesitant to interrupt when we need to move on to other topics or to end the visit. The reality is that there will eventually come a point in any conversation when you will have to end it. Prepare when you enter the home to end the conversation. Example: Prepare an exit early on in a polite and friendly way. "I have so enjoyed our visit, but I must get going in order to see my other patients," or, "I see from the clock that it is near lunch and I know you must be hungry."

Source: Adapted from King, L. (1994). *How to talk to anyone, anytime, anywhere: The secrets of good conversation.* New York, NY: Crown.

Advantages of Home Visits

Community health nursing is holistic. Seeing patients in the artificial and controlled environment of a hospital reveals little to the nurse about the family's health influences and ability to carry out the plan of care (Persily, 2003). In the home, the nurse gets the complete picture, including environmental factors that affect health, social and psychological influences, relationships between and among family members, and the interaction of the patient with family and social networks. In a hospital, patients are separated from the context of their everyday lives: Healthcare providers control their every movement (including self-regulated body functions), they wear institutional clothes, and care is organized around physician and nurse schedules. Such separation of patients from the context of their lives makes it easier for nurses in the hospital to focus only on the biomedical aspects of disease (Liaschenko, 1994; Williams, 2004).

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Home health visits take an average of 45 to 60 minutes to complete.

Besides nursing the patient, she shows them in their own homes how they can call in official sanitary help to make their own poor room healthy, how they can improve appliances, how their homes may not be broken up.

—*Florence Nightingale, 1890*

This is not the case in the home, where illness is but one aspect of the totality of the patient's living experience (Coffman, 1997; Williams, 2004). Hazards and resources are quickly evident and allow a more realistic plan of care to be established, which promotes the achievement of mutually set health strategies and goals. In addition, on a home visit, the nurse can see firsthand how well the patient can perform self-care and can make a more accurate evaluation of medical and nursing interventions. Such information can provide the nurse with valuable indicators in the evaluation of the effects of therapeutic interventions, as compared with the limited time and artificial constraints of the clinic or hospital environment (Liepert, 1996).

There are distinct advantages to the patient when care is provided in the home. For example, rather than having to obtain transportation to a healthcare facility, a home visit may be a more appropriate way to reach a patient. Transportation can be an obstacle for many patients, including those who do not have access to a private car or mass transit, are unable to drive, or are confined to their homes, especially those who live in rural areas. Another advantage is that patients are able to exercise more autonomy on their own turf, which allows the nurse to promote a sense of empowerment in the patient and family (Ruetter & Ford, 1996). The patient becomes part of the interdisciplinary team, rather than a dependent, passive recipient of care. As such, effective community health nurses can use the visit as a way to increase the patient's ability for self-care and enhance the sense of accomplishment in meeting health goals for self and family (Li, Liebel, & Friedman, 2013).

Home Call: Mother and Child

There's so little here: one table,
not laden, one blind
shut. One bulb
hung straight down. One woman,
not well (that look
of someone who won't talk
because they've been beaten
so the bruises don't show), and one

boy, dancing over, no
diaper, eager for the coin
of candy you lay in his
hand. He leans into your
yellow dress, reaching up,
a tendril attaching, lifting
out of the dark, unfurling
his last leaf. She watches him
watch you,
you with a house
she imagines half glass, where light
pours in, and everything
is already paid for: your
dress, the shine of health you wear
as though you own it, the look
of wealth, and (this too is
visible) the knowhow
to make the right phone calls,
calls to those, who, when you call,
will do what you say, pay
what you tell them, when
and to whom. You, she imagines,
who have at least two
of everything, you lift her son
to your yellow breast, that
well lighted place, where the air's
clean, and you don't
hate yourself, waiting in line
to pay for a sack of potatoes
you can't afford, She watches him
cling to you, she waits to see
what you will do; you who
have things, you who can
do things, you who can do
what you choose to, you
who can do something for them,
if you choose to, a little something
or nothing.

—*Marilyn Krysl*

Source: Krysl, M. (1989). *Midwife and other poems on caring*. New York, NY: National League for Nursing, pp. 11–12.

GLOBAL CONNECTION

Home visiting in other countries may take the form of mandatory visits for mothers and babies, such as in Cuba and the United Kingdom. For remote villages, such as in the mountains of Nepal, how could home visiting be used as an efficient way of improving the health of community residents?

MEDIA MOMENT

Marvin's Room (1996)

Bessie, played by Diane Keaton, is a straight-laced, devoted daughter providing total care for her ill father (Hume Cronyn) who must ask her estranged, bohemian sister, Lee (Meryl Streep), for help after Bessie suffers a health catastrophe. Bessie lives with her father and eccentric older aunt and has devoted her life to their care. Lee left the family years before and expresses little interest in the welfare of either her sister or her ailing father. She eventually makes the trip home to Florida with her two sons in tow. Leonardo DiCaprio effectively portrays the older, disturbed son who finds comfort with his newly found family. Old wounds are opened, and the movie provides an outstanding examination of life-choice consequences and the rewards of caring for others. Bessie has put her life on hold for years to care for her father, who "has been dying for 20 years—slowly, so that I won't miss anything." She doesn't see the years as wasted but rather says, "I've been so lucky to have been able to love someone so much."

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Home health nurses can assist elders to recover more quickly from acute episodes of age related conditions.

Knowing in Nursing (Art Connection)

I stepped outside of myself so that I could know
So that I could know the meaning of the earth
Its green springs and quiet winter nights.
So that I could know the depths
of the great, blue ocean
A place from which we all came.
I stepped outside of myself so that I could know
that there was more than the moon,
and the sun, and the stars ...
And that when I looked upon the earth
so that I could know the meaning of life and
appreciate its continuance in death.
I stepped outside of myself so that I could know
how to raise my arms in loving, caring ways
And say to those who would listen
Let me share myself with you and all that I know ...

—Robyn Rice, RN, MSN, PhD

RESEARCH ALERT

The Home Visit and the Nurse–Family Partnership: Evidence-Based Practice Research

The Nurse–Family Partnership (NFP), created by Dr. David Olds as an applied evidence-based practice home visiting model, is considered to be the most rigorously tested home visiting model in the United States. This Research Alert provides details of the actual research that supports the validity and successful outcomes of the NFP.

The cornerstone of the NFP model is the extensive research on the model conducted since the late 1970s. Randomized trials were conducted with three diverse populations beginning in Elmira, New York, in 1977; in Memphis, Tennessee, in 1987; and Denver, Colorado, in 1994. All three trials targeted first-time, low-income mothers. Follow-up research continues today, studying the long-term outcomes for mothers and children in the three trials.

The program effects that have the strongest evidentiary foundations are those that have been found in at least two of the three trials.

Consistent Program Effects[1]

- Improved prenatal health
- Fewer childhood injuries
- Fewer subsequent pregnancies
- Increased intervals between births
- Increased maternal employment
- Improved school readiness

Employing new and improved statistical analysis methods, Olds and his research team at the Prevention Research Center have been involved in an extensive reanalysis of certain outcomes from the 15-year follow up of the Elmira trial of NFP. An updated summary of the positive program effects is given here:

Benefits to Mothers

- 61% fewer arrests
- 72% fewer convictions
- 98% fewer days in jail[2]

Benefits to Children at Child Age 15

- 48% reduction in child abuse and neglect
- 59% reduction in arrests
- 90% reduction in adjudications as PINS (person in need of supervision) for incorrigible behavior[3]

Whereas the original analysis indicated that program effects were limited to the higher risk portions of the sample (where the mother was unmarried and from a low-income family at registration), the reanalysis indicates that the benefits of the program on the outcomes listed previously are present for the entire nurse-visited sample, irrespective of risk. Many of the program-control differences remain larger for the higher risk families, but the significance of the program effects now holds for the entire sample.

Earlier reported impacts of the Elmira program on "maternal behavioral problems due to substance abuse" and number of times the teens ran away were more accurately characterized as trends in initial follow-up reports. A 2010 analysis, however, found some encouraging results: Compared to individuals who did not participate in the nurse visitation program, girls who had been visited by nurses via the program were significantly less likely to be arrested and convicted of a crime, and they also had fewer children (11% versus 30% in controls) and less use of Medicaid services (18% versus 45%; Eckenrode et al., 2010).

Olds and his research team are committed to continually subjecting their work and earlier findings to the highest scientific standards and state-of-the-art statistical analysis.

About the Research Design

A randomized controlled trial is the most rigorous research method for measuring the effectiveness of an intervention. It is the type of study that the U.S. Food and Drug Administration (FDA) requires of new drugs or medical devices to determine their effectiveness and safety before they are made available to the public. Because of their cost and complexity, these kinds of trials are not often used to evaluate complex health and human services.

In addition, important data are continuously collected from NFP replication sites through the web-based Clinical Information System (CIS). These data are analyzed and returned to local NFP-implementing agencies to provide them with evidence of their progress toward NFP's three goals. For more details on the research, visit: http://www.nursefamilypartnership.org.

[1] Effects observed in at least two of three trials (Elmira, Memphis, and Denver).

[2] Impact on days in jail is highly significant, but the number of cases that involve jail time is small, so the magnitude of program effect is difficult to estimate with precision.

[3] Based on family court records of 116 children who remained in the study community for a 13-year period following the end of the program.

Sources: Eckenrode, J., Ganzel, B., Henderson, C. R., Smith, E., Olds, D. L., Powers, J., … Sidora, K. (2000). Preventing child abuse and neglect with a program of nurse home visitation: The limiting effects of domestic violence. *Journal of the American Medical Association, 284*(11), 1385–1391; Izzo, C., Eckenrode, J., Smith, E., Henderson, C. R., Cole, R., Kitzman, H., & Olds, D. L. (2005). Reducing the impact of uncontrollable stressful life events through a program of nurse home visitation for new parents. *Prevention Science, 6*(4), 269–274; Kitzman, H., Olds, D. L., Sidora, K., Henderson, C. R., Jr., Hanks, C., Cole, R., … Glazner, J. (2000). Enduring effects of nurse home visitation on maternal life course: A 3-year follow-up of a randomized trial. *Journal of the American Medical Association, 283*(15), 1983–1989; Olds, D. (2003). Reducing program attrition in home visiting: What do we need to know? *Child Abuse & Neglect, 27*(4), 359–361; Olds, D., Luckey, D., & Henderson, C. (2004). Can the results be believed? *Pediatrics, 115*(4), 1113–1114.

Home visits often take place over long periods, which affords the nurse ample opportunities for developing the authentic trust relationship necessary for a truly collaborative partnership to develop between nurse and patient. A result is that patients are often more willing to share sensitive and more intimate issues in the home setting, which allows the nurse to gain insight into complex interpersonal influences (Stulginsky, 1993a, 1993b; Williams 2004). Pregnant teens, for example, often need a different type of home visit, including a focus on the teen's developmental level and using narratives to assess the family (SmithBattle, Lorenz, & Leander, 2013).

MEDIA MOMENT

One True Thing (1998)

In this adaptation of Anna Quindlen's novel, when tough New Yorker Ellen Gulden (Renee Zellweger) discovers that her mother (Meryl Streep) has cancer, she quits her job, breaks up with her boyfriend, and moves back in with her parents to help out. Wanting nothing more than to ease her mother's suffering, she inadvertently uncovers several family secrets, including one about her philandering professor father (William Hurt). The movie's lesson is that we go through life telling ourselves a story about our childhood and our parents, but we are the authors of that story, and it is less fact than fiction.

Effectiveness of Home Visits

Research from a variety of studies indicates that successful home visiting programs have resulted in improved health outcomes. But how effective are home visits—such as those that are preventive in nature—in the long run?

In a landmark research study, prenatal and early childhood home visits by nurses reduced subsequent antisocial behavior and experimentation with drugs in adolescents born into high-risk families. The study, which evaluated the effects of home visits by nurses over the course of 15 years to low-income, unmarried women, found long-term benefits that included fewer episodes of children running away from home, fewer arrests and convictions, and decreased drug abuse when compared with similar groups of women who received prenatal and well-child care in a clinic. The adolescent children of these mothers also improved in terms of having fewer sexual partners, and they smoked and drank less than their peers who were not part of the home visiting programs (Izzo et al., 2005; Kitzman et al., 2000; Olds & Kitzman, 1993).

Zeanah, Larrieu, and Boris (2006) used the NFP program in Louisiana, focusing on the use of mental health professionals paired with visiting nurses, to successfully improve maternal and child health, especially in relation to social and developmental issues. In this and other settings where the NFP model has been used, the long-term preventive mental health impact has been impressive. Brown, McLaine, Dixon, and Simon (2006) found that focused home visits to children with elevated blood lead levels resulted in improved parent–child interaction and family housekeeping practices at the end of 1 year of visits, as well as a 47% decrease in blood lead levels in the children.

Other research has revealed that successful home visiting programs should be broad in focus (e.g., "improved pregnancy outcome" versus "hypertension management during pregnancy"), so as to contribute to the most lasting effects in health status. Also, home visits that occur over time and in greater frequency accomplish more in terms of improved health status for the patients than single visits (Barkauskas, 1983; Persily, 2003). Home visits to targeted high-risk groups who have complex and multiple needs have been linked with more significant changes in health status than visits to medium- or low-risk groups (Brown et al., 2006; Byrd, 1998 Deal, 1994; Dodge, Goodman, Murphy, O'Donnell, & Sato, 2013; Izzo et al., 2005; Olds & Kitzman, 1993; Persily, 2003; Roberts, Kramer, & Suissa, 1996; Zotti & Zahner, 1995). Numerous studies have demonstrated that home visiting by nurses to pregnant and postpartum women and their infants reduces risk factors that result in preterm births, abuse and neglect, and maternal health problems (Avellar & Supplee, 2013; Easterbrooks et al., 2013). In addition, home visits improve healthy behaviors and are cost-effective (Gomby, Larson, Lewit, & Behrman, 1993; Izzo et al., 2005; Olds, 1992; Olds, Henderson, Phelps, Kitzman, & Hanks, 1993).

Home health visits have been linked with fewer hospital readmissions, fewer emergency department visits, and cost savings when compared with acute care. A study of patients with congestive heart failure who were visited by home health nurses linked fewer hospital admissions—from 3.2 admissions per year to 1.2 admissions per year—with home health visits. The length of stay decreased from 26 days per year to 6 days per year (Kornowski, Zeeli, Averbuch, & Finkelstein, 1995).

Schoen and Anderson (1998), in their extensive review of the effectiveness of home visiting programs, found that the most successful programs have the following elements:

- A focus on families in greater need of services rather than universal programs
- Interventions that begin in pregnancy and continue through the second to fifth years of life

- Flexibility and family specificity regarding the duration and frequency of visits, according to the family's need and risk level
- Active promotion of positive health-related behaviors
- Use of a broad, multiproblem focus to address the full complement of family needs
- Assistance to the family with reduction of stress by improving the social and physical environment
- Use of nurses and professionals specifically prepared in home visiting

Challenges of Home Visits

Paradoxically, many of the aspects of home visiting that make it more advantageous for the nurse and patient than the hospital environment also contribute to the challenges of home visiting. Because the nurse is more independent and less tied to the physical constraints of the agency, professional isolation can be a problem, especially for a novice nurse. In the clinic or hospital, help or consultation with other professionals is only a few steps away. For the home visiting nurse, finding that help becomes more difficult and can be a source of considerable anxiety. With advanced technology, such as laptop computers and tablets, pagers, cell phones, mobile devices, and remote monitoring devices, the nurse must use different strategies for connecting with other professionals and their patients (Cipriano et al., 2014).

The intimacy of the home visit can create boundary issues for both the nurse and the patient. For example,

CULTURAL CONNECTION

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RESEARCH ALERT

Recent advances in telecommunication technologies have enabled the direct provision of services to patients in the home using tools such as videophones and data transmission over phone lines. The present study compared nurse–patient interaction using two different video platforms designed for telehome care. One platform uses existing telephone lines (POTS video), and the other uses the Internet (IP video). The specific aims of this study were (1) to assess the degree of acceptance by nurses and patients of home video visits for nurse–patient interaction and (2) to compare preferences for delivery of home care between the two platforms, between video and live interaction, and between video and less frequent or no interaction.

The study used a quasi-experimental cross-over design. Nurse–patient pairs were assigned to conditions using a predetermined assignment procedure, alternating each new pair to start with one of the two platforms. Following that session, each participant pair then tested the second platform. Three simulated health problem scenarios, which focused on depression, anticoagulation therapy, and diabetes, were created for the study. A convenience sample of 26 practicing nurses and 18 volunteers serving as simulated patients participated in the study. Nurse case managers at the Iowa City Veterans Affairs Medical Center (VAMC) served as the nurse sample. Volunteer participants were recruited from the volunteer department at the same facility. Most of the volunteers (72%) were age 70 or older; 61% of the nurses were younger than 50 years old.

Most participants regularly wore corrective lenses (81% of nurses and 94% of volunteers); 11% of volunteers wore a hearing aid; and 17% reported having other hearing problems, while none of the nurses reported hearing problems. Forty percent of the volunteer patients reported that they were very or somewhat comfortable using a personal computer; 27% ($n = 4$) reported having a personal computer (PC) at home; and 20% ($n = 3$) had Internet access at home. All of the nurses regularly used computers at work, whereas most of the volunteers did not use the computer on a regular basis while at the medical center.

Description of POTS Video and IP Video Systems

The system selected for the plain old telephone service (POTS) video portion of the study was composed of a television monitor and a camera kit that combined a telephone, microphone, and video camera. To establish contact, the nurse activates the system using the remote control to enter the patient's telephone number. The patient at home responds by pushing the start button on the remote control device. During the visit, the nurse and the patient see and talk to each other, with all functions controlled by the nurse. At the end of the interaction, the patient presses the end-call button on the remote. The remote control device has one large green button to start the system and one large red end-call button to turn it off. This facilitates ease of use by older patients who may have limited dexterity or vision. In this study, the calls were placed on commercial telephone lines.

The Internet Protocol (IP)-based teleconferencing system consists of a small video camera with an integrated microphone that mounts on top of a PC monitor and connects to the PC via a USB port. To communicate using this platform, both the nurse and the patient need a PC, the video camera and software, and an Internet connection. To establish contact, the nurse activates the communication software, enters the patient's IP address, and clicks the dial button. When the patient has also activated the software on his or her PC and has established an Internet connection, the patient's software will recognize the incoming call and will emit an audible ring, much like a telephone call. The patient can then click a button to answer the call, and within a few seconds, the nurse and patient will be able to see and hear each other. To end the call, the nurse or patient clicks on the end-call button.

Each healthy adult volunteer played the role of a patient and was paired with a nurse. Seated in separate rooms, each patient–nurse pair conducted two simulated home visits on one of the video units being tested using a script prepared by the investigators. Scripts included typical patient problems addressed during a home care visit. Using the script, the nurse conducted a standard set of tasks or assessments that mimicked a home care visit. The nurse and patient each completed a short evaluation rating. The patient–nurse pair then conducted the same two simulated home visits using the same scripts on the second video unit, after which the nurse and patient again completed the same short evaluation rating. Following completion of the two simulated visits, the study coordinator conducted a brief open-ended interview with participants to discuss perceptions of the two platforms. These qualitative responses were recorded in notes taken by the study staff.

The three interaction scenarios simulated a nurse interacting with a patient with depression, a patient on anticoagulant therapy, and a patient with newly diagnosed diabetes. The scenarios were designed to maximize the features of the video component. The depression scenario required the nurse to observe the patient's facial expressions and body language. The anticoagulant scenario required the nurse to read the patient's medication bottle and to observe the patient's arms for signs of bruising. The diabetes scenario required the nurse to demonstrate the use of an insulin syringe to the patient. Each scenario was designed to be completed within 10 to 15 minutes.

Outcome Measures

An investigator-developed instrument was used that addressed patient–nurse communication using the video platforms. All items were scored using a 6-point Likert-type scale (1 = strongly disagree to 6 = strongly agree).

The first aim of the study was to assess the degree of acceptance of home video visits for nurse–patient interaction. For the first analysis, nurse and patient ratings were combined to compare POTS video to IP video. The IP video system was rated significantly higher ($p \leq 0.05$) in the following acceptance categories: trust that privacy is maintained; video visits as a replacement for nurse home visits; preference for the video visit compared to a nurse home visit; willingness to recommend the platform to others who need home care; willingness to use the platform if home care was needed; and recommending the platform to friends/patients. There were no significant differences between the POTS and IP system ratings for ease of use, visit taking too much time, and perceived expense of visit.

A separate analysis was conducted to compare patient and nurse ratings for each system. Patients rated the POTS video system significantly more favorably than did nurses, on the following criteria: acceptance of video visits as a replacement for nurse home visits, between the two platforms, and between video and live interaction.

Patients and nurses both preferred the IP video over the POTS system, citing superior visualization. Overall, patients ranked both platforms more favorably than did the nurses on acceptance of home video visits and preferences for more frequent visits relative to less frequent face-to-face visits.

Although the IP platform had higher overall ratings, a critical difference between the two platforms was ease of use. For example, some patients had a difficult time answering the call on the IP video system because they were not familiar or comfortable with using a computer. Although the study was initially designed to have both nurses and patients log on to the IP system, technical and end-user difficulties were so common in the first few sessions that the connection was instead established for the participants. Thus, ease of use is a critical consideration when selecting a home technology system.

Although participants preferred more frequent video visits compared to less frequent face-to-face visits, nurses emphasized the value of home visits. In the follow-up interviews, nurses often mentioned the importance of seeing a patient's surroundings and living conditions when conducting a home visit—a task that would be hampered by the narrow field of vision afforded by a video camera. Nurses expressed the need for personal contact with patients. However, they also acknowledged that video visits could be a good way to supplement face-to-face visits.

Home telehealth monitoring devices are quickly being adopted in practice settings. This study, by examining patient and nurse preferences for use, concluded that ease of use, clinical appropriateness, training, and support will affect the future growth of home telehealth.

Source: Wakefield, B. J., Holman, J. E., Ray, A., Morse, J., & Kienzle, M. G. (2004). Nurse and patient preferences for telehealth home care. *Geriatric Times, 5*(2), 27–30.

the boundary between professional distance and social intimacy because of the informality of the home is a constant challenge for the community health nurse. Certainly, there is a certain amount of socialization that occurs in all home visits as the nurse maintains therapeutic rapport and extends courtesy to her patient hosts. Nurses are always guests in the patient's home, and courtesies normally not extended in the hospital become critical in the home. Nurses also may find themselves disclosing more about themselves than they would in a hospital setting. Such self-disclosure must be monitored carefully so that the patient–nurse relationship remains therapeutic. For example, a nurse's concern about her own child's illness might be mentioned in casual comments and then become a significant source of anxiety for the elder patient who becomes overly worried about the child's wellbeing.

The nurse must also deal with the challenge that providing care may actually increase a person's feelings of vulnerability, simply by being seen at home by a nurse. The patient may perceive that by accepting the nurse's help, his or her own ability to give self-care is inadequate. In their ethnographic study, Magilvy, Brown, and Dydyn (1988) found that home health patients often expressed concerns about relying on a home health nurse as a sign of vulnerability. They expressed a need to maintain their independence and mobility and saw the nurse as a reminder of their dependency or reliance on outside help. Therefore, the nurse must constantly promote the collaborative nature of the patient–nurse relationship and frequently praise the patient for efforts to improve health, no matter how small or insignificant the changes might be. Nurses accustomed to using "take charge" skills such as are rewarded in the hospital often find that they may lead to failure in the home setting (Coffman, 1997; Liaschenko, 1994; Millard, Hallett, & Luker, 2006; Moser, Houtepen, & Widdershoven, 2007).

CULTURAL CONNECTION

People who live in the United States value home ownership as a sign of a successful life. For other cultures, a home is defined and valued very differently. For the homeless, home may be under a bridge, in an abandoned car, or in an alley. How does the definition of home affect nurses who visit patients "at home"?

In the home setting, the patient has the right to self-determination and can reject or accept the therapeutic interventions offered by the nurse. This important aspect of autonomy cannot be overemphasized when in the patient's home. The nurse must remember that true collaboration means that the nurse and the patient set goals, develop strategies, and evaluate outcomes of care together, no matter how difficult that sharing of power may be for the nurse who has been taught that "the nurse always knows best" (Millard et al., 2006; Zerwekh, 1997).

In a study by Jack, DiCenso, and Lohfeld (2002), researchers determined that factors which influenced relationship development with patients in the home-related "family–nurse engagement occurred through 'finding common ground' and 'building trust.'" For example, a prenatal patient may refuse to stop smoking during pregnancy, explaining to the nurse that she is too nervous to do so because her mother-in-law has moved in with the family. The nurse may be able to provide the patient with assistance in reducing the number of cigarettes smoked per day, especially if the nurse is a former smoker. Successive approximations in the attainment of patient goals means that progress is measured in small increments, rather than in the dramatic turnaround of the acute care setting (Stulginsky, 1993a). For many nurses, this is perhaps the most difficult challenge of all, especially for nurses who have primary experience in the hospital specialty units, such as the emergency department or intensive care unit. The community health nurse cannot solve all of the patient's problems during home visiting, nor should such attempts be made. Only those health problems that are amenable to therapeutic nursing interventions and that are mutually agreed on by the patient and nurse should be the focus during home visits. For example, the patient with diabetes may not be able to eliminate sugar from her coffee and tea but over time may be able to discontinue use of sugar with her cereal.

Another challenge that often emerges is when the nurse faces the immediate pressing demands of the family and a different, preset agenda determined by the agency, typically as a result of the funding source's policy (Cowley, 1995). Usually, the funding source states a specified number of visits or a specified time frame for the care (e.g., 60 days). The dilemma occurs for the community nurse when the patient needs additional care but not specifically at the skilled level. For example, a patient may express the need for more assistance in learning to exercise with an artificial hip appliance. The nurse could refer the patient to local support groups and community senior centers that offer specialized exercise classes. Community health nurses may be some of the most creative nurses working today as they struggle to find myriad ways of meeting patient needs when conventional reimbursement sources end. Consulting with other team members and using support groups may provide resources and support in these complex and frustrating situations, which are becoming all too common in the managed care arena.

ENVIRONMENTAL CONNECTION

A home visit provides the community health nurse with exceptional opportunities of assessing environmental risks, practicalities of implementing a plan of care, and the limits of patients' ability to care for themselves and for others. The hospital is an artificial environment, created for the convenience of healthcare providers. As nurses, we know very little about how patients live on a daily basis without visiting where they call "home." When the natural environment of home is experienced by the community health nurse during home visits, more realistic and acceptable plans of care *with* the patient can be executed with greater chance of success.

MEDIA MOMENT

Passion Fish (1992)

May-Alice Culhane (Mary McDonnell) is a soap opera star who's left paralyzed after a car accident and, with few other options, returns to her Louisiana home. Her heavy drinking and bad attitude drive away all of her caregivers, until Chantelle (Alfre Woodard) comes to work for her. The two women form an unlikely friendship in this John Sayles film, which earned McDonnell an Oscar nomination for best actress.

At the heart of the movie is the uneasy relationship between May-Alice and Chantelle. May-Alice is used to being willful and spoiled; Chantelle does not find her behavior acceptable. But May-Alice has the money and Chantelle needs the job, for more urgent reasons than we first realize, and so it seems that Chantelle may have to put up with May-Alice's behavior. Yet in a deeper sense—one that reveals itself only gradually to May-Alice—what she needs most of all from Chantelle is the other woman's ability to stand up to her.

ETHICAL CONNECTION

A nurse on a home visit is offered vegetables from the patient's garden. How would you respond to this situation? Is it always appropriate to refuse gifts from a patient? Why or why not?

A nurse on a home visit.

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Distractions in the Home Environment

Conducting a visit in the home, as compared with the nurse-controlled environment of the hospital, is unique in that the nurse must compete with many distractions. Although the distractions that nurses encounter on home visits may seem on the surface negative and interfere with the plan of care, Pruitt, Keller, and Hale (1987) contend that distractions can also provide valuable information about the patient's world. Distractions can generally be classified as environmental, behavioral, or nurse initiated.

Environmental distractions take the form of excessive stimuli, such as television and radio, children playing and making noise, phone calls, traffic, or construction noise. Other environmental sources of distraction may come from crowded or cluttered living conditions; the nurse almost always faces less than ideal living conditions on home visits. Nurses have their own picture of what an ideal living environment should look like, and such values influence the way distractions affect assessment and interventions. For example, the nurse may find a cluttered home a sign of a patient's depression or disinterest in a healthy environment. By remaining open to other explanations, the nurse may discover that the patient feels comforted by the various objects, furniture, and photos. How we "clutter" our homes has much to do with what is important to us—and to our patients—and thus can be a valuable way for us to learn about the patient's values. How we "use" our space, no matter how large or how small, reflects our values and lifestyles (Pruitt et al., 1987). Noticing how the furniture is arranged, the number and kinds of photographs around the home, and the kinds of objects displayed can help nurses understand a patient's family circle and ties as well as those things that bring the patient joy. The "doggie smell" and dog hair throughout the house may be what makes an elderly woman's house a home. Elders often have cluttered homes because they have accumulated the memories and possessions of a lifetime; they also may place furniture close together to make it easier to hear conversations.

The nurse can learn to minimize environmental distractions—for example, by asking to turn down or "mute" the television or avoiding visiting when the patient is most likely to be watching favorite television programs. Experienced home health nurses who visit patients over a long period of time are well aware of how important it is to avoid certain times of the day, such as when the patient's favorite soap operas are on! If interruptions become a problem, observing how the patient reacts can provide the nurse with clues to how much of a threat the distraction is to the patient's health (Pruitt et al., 1987). One solution in visiting a pregnant woman with a 3-year-old child who may be distracting her is to have the child draw a picture for the nurse. Such a strategy can provide the nurse with ample time to perform assessment tasks with the mother. In a multiperson household where privacy is at a premium, retreating to a back room or even outside to a porch is often all that is necessary to obtain a few moments of distraction-free assessment time. Balancing courtesy with objectives for the visit becomes a skill that requires tact, humor, and creativity.

Another type of distraction is **behavioral distractions**. That is, the patient may exhibit behaviors that distract the nurse from the plan of care and goals of the home visit. Patients may avoid talking about health problems for a variety of reasons and may instead engage in social communication. Patients may have very real concerns that are not consistent with what the nurse sees as priority problems (Pruitt et al., 1987). By examining such avoidance, the nurse may find that these concerns should be addressed first. For example, a nurse who is seeing an older woman with diabetes may find that the patient refuses to discuss her daily blood sugars, but instead wants to talk about an auto accident that occurred the night before near the patient's home. Upon closer examination, the nurse finds that the accident has claimed the life of an elderly woman only casually known to the patient, and the patient then remarks, "It isn't too much longer that I will be able to drive, and then what will I do?" The patient was exposing her feelings of vulnerability about losing her mobility and independence. Other behaviors that may hinder the goals of the home visit include blocking or silence in response to inquiries related to health status. The nurse must use appropriate therapeutic communication techniques, such as refocusing, and exhibit patience to provide optimal comfort for the patient in the home environment.

GOT AN ALTERNATIVE?

On a home visit, nurses often find out about folk remedies used by families for common health problems. In determining the appropriate response to these nontraditional or alternative health practices, the nurse should assess whether the practice is harmful, neutral, or beneficial. If the practice is neutral (such as keeping a good-luck charm in the baby's room), should the nurse take action with the family concerning the practice? How should the nurse intervene appropriately when the practice is determined to be harmful (such as pica eating), in contrast to being beneficial to the family's health (such as meditation and chanting)?

Nurse-initiated distractions can evolve from prejudices, fears, preoccupation with the tasks of home visiting, and reactions to lifestyles and living conditions different from the nurse's own. Homes of patients may be cluttered or appear unkempt, and these distractions can result in the nurse making judgments about the patient, even on an unconscious level. This "baggage" that all nurses carry with them on home visits should be carefully acknowledged and examined to prevent negative effects on nurse–patient interactions. Nurses may fear home visiting because of safety concerns, concerns over being alone without colleagues for support and consultation, and fears of being rejected by the patient. Practicing nursing in the uncontrolled environment of a patient's home can threaten even the most secure nurse in terms of autonomy and control. Other distractions that are common are talking on the phone with the home office or other healthcare professionals or making arrangements for other patients while in the patient's home. The nurse must be aware of how such distractions influence the nurse–patient relationship. While in the home, the patient should remain the focus as much as possible. By being preoccupied with staying on schedule, tasks, and documentation of the visit, the effectiveness of home visiting can be seriously threatened.

The nurse may also become frustrated with patients who are labeled as noncompliant or who seem to have contributed in some way to their health problems, such as emphysema in a smoker or liver cancer in an alcoholic. Understanding that these feelings are shared at one time or another by most nurses can be the first step to prevent them from affecting the care delivered. Talking with colleagues and having an open dialogue with other professionals in similar settings can help nurses understand not only the source of these distractions but also helpful ways that others have used to minimize their effects on patient care (Pruitt et al., 1987).

Conclusion

The origins of home visiting began with organized health care. Visiting families and patients in the home can provide the community health nurse with more realistic expectations of the family's needs and more appropriate interventions. Advantages and disadvantages of home visiting should be considered when choosing this setting for community-based nursing care.

APPLICATION TO PRACTICE

A community health nurse is following a child with high blood lead levels. During a follow-up visit to the clinic, the mother was distracted and kept looking at her watch while the nurse explained how important it was to keep the child from coming in contact with leaded paint. The child failed to keep an appointment with a university clinic for a chelation treatment. The community health nurse could not reach the mother because the phone had been disconnected.

On a home visit, the nurse found out that the father had been injured while working at his car repair service shop, located on the same lot as the family's mobile home. He had taken a temporary job while he recovered from the back injury, on an "as-needed" basis for a local garage, and used his own tow truck for jobs. He was on call 24 hours a day. Because of his business, many old cars were scattered all over the yard, explaining a potential source for the lead poisoning in the child. Also, the father's injury had kept him from repairing the family car, so the only transportation was the tow truck.

1. Identify three of the most serious health threats in this family.
2. Identify two nursing goals for this family.
3. What is the first action you would take on the first home visit?
4. What further information would be important to know about these family members?
5. Identify two strengths of this family.

AFFORDABLE CARE ACT (ACA)

The ACA Independence at Home Demonstration Program for chronically ill Medicare beneficiaries began in 2012. This program tests payment incentives and service delivery systems that utilize home-based, physician- and nurse practitioner–directed primary care teams to reduce expenditures and improve health outcomes. The program is seeking to reduce preventable hospitalizations, prevent hospital readmissions, reduce emergency department visits, improve health outcomes, improve the efficiency of care, reduce the cost of Medicare services, and achieve beneficiary and family caregiver satisfaction.

LEVELS OF PREVENTION

Primary: Home visit for a new healthy baby to assist the parents with basic health care and development milestones

Secondary: Home visit for a child with diabetes to assist parents with understanding the management of insulin administration

Tertiary: Home visit for an older woman to assist with post-leg amputation surgery (due to diabetes) care

HEALTHY ME

Have you ever been a patient in a hospital? If so, would you prefer to be taken care of at home for the same condition? Why or why not?

Critical Thinking Activities

1. Read the poem *Home Call: Mother and Child* by Marilyn Krysl earlier in this chapter.
    - How does the mother perceive the nurse in terms of power?
    - Do the status differences in the nurse and the mother affect the outcome of this home visit as intervention?
    - How could the nurse be culturally sensitive in this situation while educating the mother about appropriate child care?
    - How is power represented in this poem?
    - Identify one appropriate nursing intervention in the described home visit.
2. The following questions are common ones that student nurses ask about home visiting. As you read this chapter, reflect on your own responses to the questions.
    - What do patients in the home think of student nurses caring for them, especially if an instructor is not present?
    - What if the patient or family member asks me a question to which I don't know the answer?
    - What will I be expected to do as far as skills in the home setting?
    - What about safety issues?
    - What do I do if a patient "codes" while I am there?
    - Are there specific legal implications that I should be aware of in the home setting?

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Evolving Issues in Health Care

OBJECTIVES

1. Identify several of the current and future issues confronting and changing the healthcare system.
2. Describe the implications of current and future issues for market efficiency of the healthcare system.
3. Discuss the rationale for and implications of a value-added focus for the healthcare system.
4. Explore the implications and potential consequences of consumer engagement in the healthcare system.
5. Assess the implications of alternative financing mechanism for the healthcare industry.

1 INTRODUCTION

The healthcare industry is a major sector in the economy of the United States, accounting for over 17% of the gross domestic product (GDP). Because the healthcare industry represents such a substantial portion of economic activities, it both impacts and is impacted by the general economy. As the healthcare industry continues to grow and evolve, a number of transformational changes are occurring in its organizational structure and in the arrangements of healthcare providers, in its financial systems, in new technologies and advances in medical science, and in the introduction and implementation of new and modifications of existing healthcare policies. Consequently, the healthcare industry continues to present a dynamic environment for the application of economic evaluation and analysis.

2 ISSUES FACING THE HEALTHCARE SYSTEM

The passage of the Patient Protection and Affordable Care Act (P.L. 111–148) in 2010 stimulated significant activity in the healthcare system, as each sector of the healthcare industry reacted to and prepared for the implementation of the various features of the act. A major contributor to the passage of the act was the continued rapid rise in healthcare expenditures and the projections regarding the growth in those expenditures. As the data in Figure 1 illustrate, healthcare costs were projected to continue consuming an ever-increasing percentage of the GDP in the United States.

Every sector of the healthcare industry is facing tremendous pressure to cut costs, improve quality, and prepare for fundamental change in how health care is provided, financed, and consumed. An initial reaction in the hospital industry has been to acquire and merge organizations, and to purchase or develop extensive physician networks. As hospital organizations grow, they have also begun to undertake direct approaches with employers with insurance-like options, eliminating the health insurance plan in the middle. Vertical collaborative arrangements have also been undertaken to integrate better control over the coordination of care across providers and institutions. In addition, insurance plans have increased direct involvement with providers, and employers are seeking different ways to reduce benefit costs for their employees. Government programs are seeking alternative payment methods and reducing payment schedules to providers. Pressures continue to mount to control costs, increase access, and improve the quality of care delivered in the healthcare system.

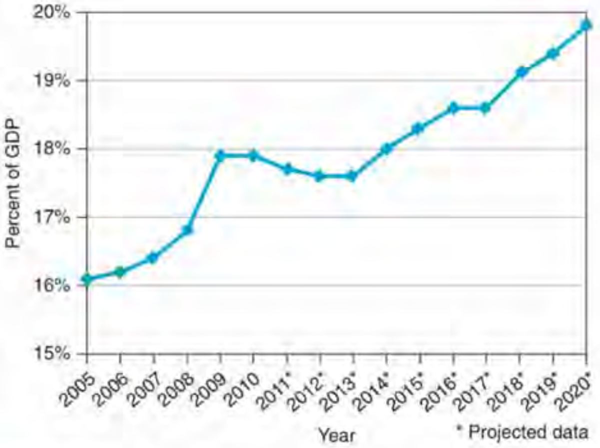

Figure 1 Historical and Projected Health Expenditures as Percent of GDP, 2005–2020

Source: Data from historical data obtained from NHE Summary Including Share of GDP, CY 1960–2010, https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html and from projected data obtained from Table 1: Economic Indicators, Levels and Annual Percent Change: Calendar Years 2005 – 2020. Retrieved on February 12, 2012 from: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html.

2.1 Contributions of Technology

A major contributor to the growth of healthcare expenditures has been the rapid development and widespread diffusion of new medical technologies and services; this is expected to continue or even grow in the future. These procedure, equipment, and process innovations enable the diagnosis and treatment of previously untreatable terminal conditions and acute healthcare problems, and change the diagnosis and treatment of existing healthcare problems by identifying secondary conditions and expanding the indications for treatment. Many of these new innovations require costly new pharmaceuticals, expensive equipment, and a more highly skilled healthcare workforce. These innovations also enable the expansion of the scope of medical interventions into areas outside previous boundaries of the healthcare system. (Kaiser Family Foundation, 2007). Unlike other industries in which the adoption of new innovations typically reduce the per-unit cost of output, many of these innovations in health care usually increase the costs of the output. Economics has an important role in assisting in the evaluation of the value-added of existing and new technologies.

In addition to determining the impact of existing and new innovations on the per-unit cost of output, determining the impact of the innovation on the total healthcare expenditures is another crucial role for economics. In examining the impact, it is important to determine if the innovation supplements an existing treatment, or if it is a partial or total substitute for an existing treatment, and then if the use of the innovation results in higher or lower expenditures for each patient treated.

It is also important to examine the number of patients treated by the new innovation. For example, does the new innovation enable the provision of services to a broader population, either because access is increased or because previously unidentified or untreatable individuals now receive services? Does the innovation allow new populations to be diagnosed for existing treatments, or does it extend existing treatments for new conditions in the population? Or does the new innovation reduce utilization by improving screening and diagnosis capacity, allowing more targeted treatments to be provided to the population?

While it is often possible to identify new innovations and determine when they were first introduced into the healthcare system, it is usually very difficult to measure the impact that the technology has on the costs of health care. One reason for this difficulty is that the introduction and adoption of innovations do not occur in a linear fashion or in similar ways in organizations or systems. Oftentimes, multiple innovations are introduced into the healthcare system in a short time span, and the impacts of the different innovations are often interrelated, making measurement of the impact of a single innovation difficult, if not impossible. In addition, the wide diversity of the innovations and of the structure and organization of the healthcare delivery system makes direct measurement of the impact of a single innovation on the entire system difficult, although assessing the impact of the adoption and implementation on a single organization or practice is more manageable. Economic tools are certainly appropriate and applicable on the micro level, and also make valuable contributions at the macro level.

One of the technologies changing the healthcare industry is health information technology. The introduction of health information technologies was established as a national priority in efforts to assist in the improvement of quality, safety, and efficiency in health care. As electronic health records (EHRs) are adopted, implemented, and used by practices and organizations, they will increase the complexity of changes occurring in the healthcare system. The focus and incentives provided for the adoption and use of EHRs create particular problems for individual and small practices because they often have very limited resources, small staff numbers, and lack the expertise to deploy and integrate these EHRs into their practices. As health information exchanges continue to expand and create the need for interoperability of automated data systems, the expectation is that the sharing of information across organizations will reduce the number of laboratory and imaging procedures, emergency department visits, and the number of provider visits, especially referrals to specialists, significantly impacting the processes of healthcare delivery and outcomes.

If EHRs are to be deployed successfully so that providers achieve meaningful use, then a good understanding of the current processes of delivering care is needed. These processes must be mapped so that they can be changed to adapt to the new requirements of the EHR system. To be successful, support for the technical aspects of the EHR is needed, as well as support for change management within the practices or organizations. Much of this support will need to come from outside sources because the necessary human capital is often not available internally, especially in the small practices or small organizations.

In addition to the EHR, health information technology is also expected to reduce the current lengthy process of translating scientific findings into general clinical practice. Part of these translations into generalizable results involves performing comparative effectiveness research. The tools of health economics are especially relevant in this environment, as the processes, tools, and resources needed for the successful transformation of the healthcare industry must be employed in the translation.

2.2 Hospital Contributions

The hospital industry is certainly a major sector of the healthcare industry. In 2010, expenditures on hospital services were $814 billion, accounting for 31.1% of total expenditures in the healthcare system. This amount translated into $2,637 per capita. The relative size of the industry makes it a focal point of many policies and regulations in the healthcare market. It also means that hospitals undertake a number of different strategies in efforts to reduce their risks and uncertainties. In decisions to implement changes in the hospital sector, systematic economic analysis is crucial.

There has been a flurry of mergers and acquisitions in recent years as the hospital industry reacted to the many changes occurring in health care. In many ways, these activities reflect typical supply and demand theories, as institutions that had investment capital available acquired or merged with other institutions that were short of capital reserves. The increase in such activities following the passage of the Accountable Care Act also reflected more vertical integrations as larger tertiary hospitals purchased smaller referring hospitals and also purchased physician practices to build a more diverse enterprise and ensure a larger market.

The vertical integration movement was also supported by the growth in information technology, which enabled the larger systems to share medical information and develop a unified medical record. These shared records also enabled better communications among physicians and between the hospitals and physicians, leading to opportunities for better coordinated care. The sharing of information allowed economies of scale and economies of scope to occur, adding further value to the consolidation of resources. It was also expected that the improved communications and coordination of care would result in improved health outcomes in the system and lower costs.

As a hospital system grows, it typically expands the geographical boundaries of its market and its share of services provided in the market. This increased market share enables the system to identify and develop high-volume, high-impact programs and to funnel resources into them. This activity involves a systematic assessment of the organization and the environment to ensure success. For mergers and acquisitions to be successful, an understanding of the cultural similarities and differences among the organizations is essential, as is the development of a common set of goals to add value for moving forward.

As the healthcare industry turns its focus to patient-centered care, increased sharing of information and communication is critical. This patient-centered focus reflects a new framework for organizing and evaluating health care. For a patient-centered system to function in a truly efficient and effective way, the organizational structure of the former healthcare system must change. The new organizational structure is reflected in the increase in mergers and acquisitions and in the merging of the previous boundaries separating physicians and hospitals in the market for healthcare services.

In this time of mergers and acquisitions, the historical boundaries between investor-owned and tax-exempt organizations are also becoming blurred. This is partly the result of the mergers and acquisitions of the two types of organizations into a new entity, and partly because the changes in the structure, operations, and financing of tax-exempt organizations is forcing them to function more and more like their investor-owned counterparts. As the number of individuals without health insurance declines with the expanded coverage under health reform, it becomes harder for tax-exempt organizations to be able to demonstrate a sufficient volume of community benefits to maintain their tax-exempt status.

As hospitals acquire more physician practices, the boundaries between the markets for physician and hospital services continue to be blurred. The absorption of physicians into the hospital sector changes referral patterns and utilization of services. The coordination of patient information across previously separate boundaries should decrease duplication of services and the need to perform repeated tests and procedures to obtain needed information. As the medical records of patients with multiple providers are centralized and shared, patient outcomes should improve and costs should decrease.

3 FINANCING MECHANISMS

The healthcare industry has also been facing a number of changes in payment systems recently, and indications are that even more changes are looming in the future. A difficulty emerging is that there is a disconnect between the external payment systems being implemented and the internal methods that have been used to distribute resources within the organization. Historically, the healthcare system has been a production-based system, receiving compensation for services produced. The incentive in any production-based system is simply to produce more units, as long as the cost of production is less than the market price received for the unit. Complicating the production decisions in health care is the existence of insurance programs that isolate production decisions from the cost of services utilized and the ability of insurance companies to simply pass the increased costs on to employers and governments, the purchasers of the majority of insurance plans. As healthcare costs began to impinge significantly on the other sectors of the economy, efforts emerged to change the payment incentives in the healthcare industry, especially as the increasing costs did not result in a concomitant improvement in the health status of the population. As attention has focused on controlling the rate of increase in healthcare expenditures, such alternative payment methods as pay for performance, shared savings, bundled payments, and global capitation have been introduced.

3.1 Pay for Performance

Pay for performance was introduced to provide incentives to providers to improve the quality of care delivered as evidence mounted regarding the underuse, overuse, and misuse of treatments within the healthcare system. The Committee on Redesigning Health Insurance Performance Measures, Payment, and Performance Improvement Programs (2007) defined pay for performance (P4P) as "the systematic and deliberate use of payment incentives that recognize and reward high levels of quality and quality improvement" (p. 5). Pay for performance is designed to offer incentives to encourage the healthcare system to move from its current structure toward different organizational and individual behaviors, which will result in better quality and improved outcomes.

In most markets, incentives induce producers and/or consumers to behave or respond in predictable ways, and desired attributes are identified and rewarded in order to stimulate additional production of those attributes. The goal of the P4P model in health care is to motivate constructive change in the system by explicitly linking incentives to the quality and performance. The difficulty in implementing P4P is in developing a framework that incorporates the complexity of the clinical situations to be included, the diversity of the environments in which care is provided, and the resources necessary to comply with the requirements of the system. A critical and difficult issue in any P4P system is the selection of the priority quality dimensions and the establishment of the measures to be used to assess performance and quality, especially because focusing on one domain of quality may lead to reductions in other domains of quality. Another aspect to be considered is whether the focus should be on improvement or on achieving a recognized threshold of desired quality, or both. The system must also be capable of incorporating new measures as the healthcare system evolves; innovations and discoveries should be encouraged. The incentive created should have a sufficient impact upon the revenues of the provider to influence their decisions.

3.2 Bundled Payments

The bundled payments model is known by a variety of names, such as case rate, global payment, package pricing, episode-based payment, comprehensive care payment, and evidence-based case rate. Regardless of the term used, it is a payment method based on the costs expected to be incurred in the provision of a clinically defined episode of care, adjusted for severity and complexity of a patient's condition. Bundled payments are viewed as a blend of fee-for-service and capitation payments, discouraging the provision of unnecessary care and encouraging the coordination of care across providers, but not penalizing providers who care for sicker patients in their practice. The goal of bundled payment is to reduce fragmentation of care thereby improving quality and reducing costs. The use of bundled payments should encourage providers within the system to reorganize how care is delivered so that it is coordinated and responsive to the needs of patients.

Under a bundled payment system, the services that are required by patients during a single illness or a course of treatment for a chronic disease are defined across providers and settings—the services are bundled into a single package of services. Once the required services are defined, a target price is established for the bundle. This target price reflects the total amount that will be paid for the episode of care, and all providers involved in the provision of services are covered under that price. This comprehensive price provides an incentive for the coordination of care in order to keep the costs of producing the services below the price established. Within the provider network, decisions have to be made on how to allocate the global revenue among the participating providers rendering services to the patient.

A number of barriers are encountered in the development of a bundled payment system. A major problem encountered is deciding just when an episode of care begins and ends. For an acute illness of limited duration, this is manageable. For chronic conditions lasting for extended periods of time, this is difficult to determine because, by definition, a chronic condition is a disease or illness that is persistent and long-lasting. Currently, an episode is typically defined for a specified period of time, such as 30 to 90 days after discharge from an acute care facility or after the first visit to a provider for the condition. The bundled payment is applied only to that particular illness or disease, which differs from capitation, which covers all illnesses experienced by an enrolled member for a specified period of time.

Because the target payment to be made is fixed, providers have an incentive to coordinate care and minimize the provision of any marginal or unnecessary care. A concern raised is that the incentive may encourage providers to underutilize services, negatively impacting the patient's outcome. Careful monitoring is needed to ensure that quality is not negatively impacted and that patients receive necessary care.

3.3 Value-Based Purchasing

Value-based purchasing (VBP) programs are also sometimes known as shared-savings programs, the goals of which are similar to those of the bundled payment programs: to improve care coordination and redesign the processes of care to produce high quality and efficient care delivery. Incentives are created within these programs to provide care that has higher value to the patient and to the system; they move away from paying providers based only on the volume of services provided to patients. Under these programs, if the provider is able to achieve savings and meet the quality performance standards, then the amount of the savings is shared between the providers and the payer. These programs focus on better care for individuals, better health for the population, and reducing the rate of growth in healthcare expenditures.

Similar to bundled payment systems, VBP programs also require the establishment of clinical measures, measures of effective resource utilization, and incentives within the payment structure to link the two measures to the price paid for services. The focus on these systems is to foster joint clinical and financial accountability within the healthcare system. As with any of the performance-based payment systems, it is critical to communicate among the various providers in order to coordinate care. This communication requires electronic health records with interoperability (the ability to link to each other) capability.

VBP programs are demand-side strategies that impact the utilization of healthcare services by rewarding excellence in the healthcare delivery by enhancing revenue through differential payment and by increasing market share by consumer selection. A key component of VBP is the development of standardized performance measures, including involving consumers in changing their lifestyle and self-managing their chronic diseases. The Institute of Medicine (2001) has established the STEEEP—Safe, Timely, Efficient, Effective, Equitable, and Patient-centered—typology of the dimensions of healthcare performance, which need to be incorporated into the system. To be effective, it is necessary to access and aggregate data on these dimensions from different sources and from different providers. As indicated, a key component of this model is patient-centeredness, which involves engaging the consumer in the process.

4 CONSUMER ENGAGEMENT

As efforts continue to improve quality and control the costs of health care, attention is focused on ways of influencing consumers to be more informed decision makers. For consumers to become more engaged in the decision-making process, it is necessary for them to have a better understanding of the availability of alternatives and options, and of the quality of care offered, in order to demand and choose appropriate services. As outlined in Aligning Forces for Quality (AF4Q), sponsored by the Robert Wood Johnson Foundation, to be successful in transforming health care, a communitywide consumer-engagement strategy must help consumers to

- Understand their risks or actual conditions, and take actions to manage them.

- Understand and make informed treatment choices.
- Understand the difference between good care and bad care, and demand good care.
- Advocate for public reporting by hospitals and doctors on nationally recognized indicators of quality care.
- Choose providers based on information about their ability to deliver effective care. (http://www.rwjf.org/qualityequality/af4q/focusareas/consumer.jsp)

For consumers to be informed decision makers in the healthcare system, literacy, and especially health literacy, is critical. A patient's literacy skills are critical in interactions in the healthcare field, impacting the ability of the patient to navigate the services needed and the healthcare delivery system. Literacy skills are also important in enabling the patient to be an advocate for their needs within the system, and the role of consumer self-advocacy is increasingly important. The complexity of the healthcare system and the incentives being created in many of the reform activities increasingly require patients to take a proactive role in the utilization of healthcare services and in the self-management of medical conditions.

As increased emphasis is placed on consumer engagement and access to online information and health information technologies is becoming more widespread, care must be taken that the medically underserved and disadvantaged populations are not further disenfranchised from the system. Health disparities currently exist, and increased reliance on health information technologies for seeking and managing personal health conditions and for communicating between patients and providers may widen the disparity gap rather than solve it. The deployment of health information and health information technology is intended to impact the demand for healthcare services, but care must be taken that this doesn't negatively impact various subgroups of the population.

Patient engagement is also a critical component of the patient-centered medical home model, which involves the provision of quality care that is coordinated, comprehensive, and cost-effective. The patient-centered medical home requires a strong patient-provider relationship through the use of a team approach to care that increases access to care and the continuity of the care provided. In addition to improving quality of care in order to improve health outcomes, the patient-centered medical home is expected to reduce demand for health services through the reduction of duplication of tests, procedures, emergency department visits, hospitalizations, and provider visits as care becomes coordinated across providers.

5 SUMMARY AND CONCLUSIONS

The U.S. healthcare industry continues to be faced with pressures to reduce costs and improve access to and quality of healthcare services. As the industry continues to consume an ever-increasing share of the gross domestic product, federal and state governments and private industry continue to look for ways to reduce the rate of increase in healthcare costs while increasing access to necessary and appropriate healthcare services.

The demand for healthcare services is influenced by a number of factors, including population demographics. The elderly population has poorer health status than other subgroups of the population and use a greater share of health services. This has major implications, as the population 65 and older has been projected to grow almost 90% between 2007 and 2030 as the Baby Boomer generation ages. Without increased personal responsibility for lifestyle and self-management of health, the demand for healthcare services will continue to expand with the growing aging population.

Efforts to contain healthcare costs have also been the focus of legislation and regulations, and such efforts are likely to continue in the future as government payments for healthcare services increase. While some interventions are focused on a reduction in the price per unit of service, much more focus is on reducing the volume of services provided. Providers within the system must develop a decision-making system that enables them to respond appropriately and quickly in order to deliver high-quality health care and achieve positive health outcomes. As the healthcare industry struggles to improve efficiency and efficacy, the need for systematic economic evaluations will grow. While health economics is not viewed as "the" answer to the problems in the healthcare system, it can be used to provide substantial assistance to improved decision making.

EXERCISES

1. What are the major contributors to rising healthcare expenditures, and how can the Patient Protection and Accountable Care Act affect these areas?
2. What is the responsibility of individuals in the healthcare system?
3. What are the incentives created by the various payment methods?
4. How can technology innovations impact healthcare costs?
5. What are the driving forces behind the mergers and acquisitions occurring in the healthcare system?

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Answers

1. A major contributor to the growth in expenditures has been the development and widespread diffusion of new medical technologies and services; another contributor is the growing size and age of the population, increasing the use of hospital services. The Patient Protection and Accountable Care Act may impact rising costs by reducing the fragmentation of health care and reducing the number of uninsured individuals, enabling them to get more timely and appropriate care.
3. Pay for performance provides incentives to providers to improve the quality of care delivered and to move from its current structure toward different organizational and individual behaviors that will result in better quality and improved outcomes. Bundled payment is viewed as a blend between fee-for-service and capitation payments and so will discourage the provision of unnecessary care and encourage the coordination of care across providers. Value-based purchasing, or shared-savings programs, have incentives similar to bundled payments and are designed to improve care coordination and redesign the processes of care to produce high quality and efficient care delivery.
5. The industry is facing tremendous pressure to cut costs, improve quality, and prepare for fundamental change in how health care is provided, financed, and consumed. As an attempt to prepare for these changes, economies of scale and economies of scope are seen as important elements, enabling better control over coordination of care and providers.

Health Services Research

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OVERVIEW

Predicting and responding to the healthcare demands of the 21st century will require resources from many fronts. Interdisciplinary partnerships will be needed to coordinate healthcare needs, to develop models for future needs, to determine appropriate resources, and to measure quality outcomes with respect to cost.

Because health services research is centrally focused on the ability to build knowledge and generate the evidence needed to craft the delivery of high-quality, cost-efficient health care, it will be the heuristic that leads to informed answers. This type of research provides the facts for improving how, when, and where health care is to be delivered; however, determining what criteria constitute "good" research is critical. If the research evidence is valid and reliable, then it has the potential to direct health policy that is innovative and fair, and that has a high level of cost benefit. For the peak and best use of resources, healthcare practices and delivery systems must be tracked and analyzed to determine improvement, progress over time, and most importantly factors that affect both quality and cost.

OBJECTIVES

- To understand the formal definition of health services research
- To determine factors that contribute to research that can serve as the foundation for health policy decisions
- To describe methods and strategies for health services research
- To explain how performance measurement and reporting systems are currently used
- To recognize how performance measurement data influence health policy decisions on process improvements that lead to improved quality and patient safety

(continues)

- To describe how to motivate and include all of the key stakeholders in health services research and improvement activities
- To identify ways to stay on top of new developments in health services research
- To overcome barriers to health services research and reporting

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KEY TERMS

☐ Agency for Healthcare Research and Quality (AHRQ)
☐ Care coordination
☐ Centers for Medicare & Medicaid Services (CMS)
☐ Chronic illness
☐ Evidence-based practice
☐ Health Care Financing Administration
☐ Health disparity
☐ Health inequality
☐ Health policy meta-analysis
☐ Health services research
☐ Large data sets
☐ Process-of-care measures
☐ Quality indicators
☐ Quality measurement and improvement

Definition

Health services research is the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, politics, and personal behaviors affect access to health care and ultimately our health and well-being. The definition of health services research is constantly evolving and has been defined differently by a variety of experts and organizations; however, the most comprehensive definition is one by the Agency for Healthcare Research and Quality (AHRQ). It defines health services research as the analysis of how people get access to health care, how much care costs, and what happens to patients as a result of this care. The main goals of health services research are to identify the most effective ways to organize, manage, finance, and deliver high-quality care, reduce medical errors, and improve patient safety (AHRQ, 2007). Its research domains are individuals, families, organizations, institutions, communities, and populations. To effectively reshape the U.S. healthcare system to focus on objective evidence and outcomes rather than physician preference as the basis for treatment decisions, healthcare clinicians must recognize the importance of evidence-based practice (EBP) to guide healthcare delivery and the movement toward patient-centered care for many of the improvements in healthcare quality and efficiency. Rousseau (2006) describes evidence-based practice as a paradigm for making decisions that integrate the best available research evidence with decision-maker expertise and client/customer preferences to guide practice toward more desirable results. For evidence-based practice to make a difference in client outcome, it must include care coordination as well.

Care coordination ensures that client's needs and preferences are understood and that those needs and preferences are shared between clinicians, clients, and families as the client moves from one healthcare arena to another. As the number of healthcare clinicians and treatments involved in a patient's care has increased, the coordination of care has become more challenging. Less attention is being paid to the care that patients receive as they move from one setting to another (Naylor, 2006). In fact, a recent analysis of Medicare beneficiaries discharged from hospitals with a diagnosis of heart failure showed a 27% readmission rate within 30 days, a 39% readmission within 60 days, and almost 50% within 90 days (Jencks et al., 2009). Research has shown that care must be well coordinated to avoid waste, overuse, underuse, or misuse of prescribed medications and conflicting plans of care (Bodenheimer, 2008). Care coordination has a significant impact on health status and an effect on quality of life, especially for hospitalized older adults (Naylor & Keating, 2008). Older adults who experience several changes related to their care settings are at higher risks for adverse outcomes because of the numerous health issues that persist beyond hospital discharge (Naylor, 2004).

Care coordination becomes an even more important issue given the increasing number of persons with chronic health conditions. Bodenheimer (2008) suggests that clients with chronic health conditions may see up to 16 different physicians a year. When patients receive care from multiple providers, they are at greater risk for fragmented care because of communication breakdown, which often results in poor handoffs (Coleman & Berenson, 2004; Krizner, 2009; Naylor & Keating, 2008). As life expectancy increases so will chronic illnesses. In 2000, 125 million people in the United States were living with at least one chronic illness, a number that is expected to grow to 157 million by 2020. The number of individuals with multiple chronic conditions is expected to reach 81 million by 2020 (Bodenheimer, 2008). As individuals with chronic illness attempt to navigate the complex healthcare system and transition from one care setting to another, they will be unprepared or unable to manage their care. Again, incomplete or inaccurate transfer of information, poor communication, and a lack of appropriate follow-up care can lead to confusion and poor outcomes, including often preventable hospital readmissions and emergency department visits.

The Institute of Medicine has identified care coordination as a priority for national action because of its great importance to improve care (Adams & Corrigan, 2003). In May 2006, the National Quality Forum (NQF) endorsed a definition and framework for care coordination. NQF has defined care coordination as a "function that helps ensure that the patient's needs and preferences for health services and information sharing across people, functions, and sites are met over time" (National Quality Forum, 2009b). This framework includes five key dimensions: healthcare "home"; proactive plan of care and follow-up; communication; information systems; and transitions or hand-offs. These represent essential components and subcomponents for which performance measures are developed if care coordination is to be comprehensively measured and improved (see Table 1).

In 2008, the National Priority Partnership made care coordination one of six national priorities and has committed to working toward the following goals (National Quality Forum, 2009b):

- Improve care and achieve quality by facilitating and carefully considering feedback from all patients regarding coordination of their care
- Improve communication around medication information; work to reduce 30-day readmission rates
- Work to reduce preventable emergency department visits by 50%

Table 1 FRAMEWORK FOR CARE COORDINATION

1. Healthcare "home"—a source of usual care selected by the patient (such as a large or small medical group, a single practitioner, a community health center, or a hospital outpatient clinic). The medical home functions as the central point for coordinating care around the patient's needs and preferences.
2. Proactive plan of care and follow-up—an established and current care plan that anticipates routine needs and actively tracks up-to-date progress toward patient goals.
3. Communication—available to all team members, including patients and family—shared plan of care. All medical home team members work within the same plan of care and are measurably co-accountable for their contributions to the shared plan and achieving the patient's goals.
4. Information systems—the use of standardized, integrated electronic information systems with functionalities essential to care coordination is available to all providers and patients. Important characteristics include seamless interoperability; an evidence-based plan of care management; efficient and effective integration of patient information, laboratory, imaging, referrals, medications, social and community services, and self-management support; patient registries and population-based data, especially those promoted by local, state, and federal public health agencies; support for quality improvement and safety; case/disease management; decision support tools; and provider alerts and patient reminders.
5. Transitions or "hand-offs"—transitions between settings of care are a special case because currently they are fraught with numerous mishaps that can make care uncoordinated, disconnected, and unsafe. Some care processes during transition deserve particular attention:
   - Medication reconciliation
   - Follow-up tests and services
   - Changes in plan of care
   - Involvement of team during hospitalization, nursing home stay and so forth
   - Communications with persons who do not speak English well or at all

Using Research for Changes in Health Services

Health services research attempts to focus on practices that have strong evidence that they are effective in reducing the likelihood of harming a patient, are generalizable (i.e., they may be applied in multiple clinical care settings and/or for multiple types of patients), are likely to have a significant benefit to patient safety if fully implemented, and are usable by consumers, purchasers, providers, and researchers.

The evidence emerging from health services research is predominantly centered on quality measurement and improvement. These findings from quality and performance measures have historical roots within the American healthcare system dating back to the early 1900s. In 1910, Ernest Codman, MD, became one of the first healthcare professionals to propose a quality method system when he introduced what was known as the end-result system of hospital standardization. Codman learned to track every patient to measure the effectiveness of his or her treatment. Later, Codman created the minimum standard for hospitals to help diminish and eliminate substandard care. Only 13% of 692 hospitals initially met the minimum standard of care (Anderson & Schulke, 2008).

Efforts to improve or quality-control healthcare delivery were impacted by the quality movement. This movement which began in the industrial sector is identified with W. Edwards Deming and Joseph M. Juran. Deming is considered the pioneer in the quality management movement. As an advocate for quality, he identified that 80% to 85% of problems are system related with the rest of 15% to 20% associated with human error or worker produced. He advocated and adopted principles of management that encouraged organizations to increase quality while simultaneously reducing costs (by reducing waste, rework, staff attrition, and litigation while increasing customer loyalty). The key, as suggested by Deming, is to practice continual improvement and to think of manufacturing as a system, not as bits and pieces.

Juran's philosophy of quality is focused on three premises: quality planning, quality control, and quality improvement. This quality trilogy (planning, improvement, and control) seeks to define quality as fitness to serve, correct service the first time to meet customer's need and freedom from deficiencies (Anderson & Schulke, 2008). Before 1966, improvements in healthcare quality focused primarily on structure and included such activities as evaluating staffing levels, facility attributes, licensing, and accreditation. With the quality management work of Avedis Donabedian, the concept of quality management expanded to include the evaluation of processes and outcomes. This three-pronged approach (structure, process, and outcomes) launched the development of standards of care and clinical guidelines used by healthcare organizations today. In fact, it is the Donabedian model that drives the IOM in performance measurement with their six aims of quality, including: safe, effective, patient-centered, timely, efficient and equitable (IOM, 2006). Implementation of IOM guidelines by healthcare organizations support the creation of a mission and vision, development of a quality management plan, support for quality, use of evidence-based clinical practice, and utilization management. Studies and reports are available at the IOM Web site, http://www.iom.edu/CMS/8089.aspx.

Public reporting on measurement and outcomes by hospitals is relatively new. The Health Care Financing Administration (now renamed the Centers for Medicare & Medicaid Services [CMS]) was the first to attempt to measure and publicly report hospital outcomes that were reported from 1986 to 1993. The Health Care Financing Administration was forced to withdraw its mortality measures because of the widespread criticism it received from hospital administrators. In 2006, CMS reintroduced outcomes reporting with risk-adjusted mortality rates for heart failure and heart attack. The process-of-care measure shows how often hospitals give recommended treatments known to get the best results for patients with certain medical conditions or surgical procedures. This is one way to compare the quality of care that hospitals give.

The precursors of today's process-of-care quality measures began with the development of a modest set of Medicare quality indicators under the supervision of officials at the Health Standards and Quality Bureau. Indicators reflected a perceived need to acknowledge that the available data focused on care processes and could not capture or describe most of the factors influencing patient outcomes. In addition, quality indicators were developed for self-assessment and internal use by providers, avoiding much of the political pushback associated with public reporting. The indicators themselves were constructed by expert consensus among leading clinicians, based on the strong scientific foundation of large-scale clinical studies such as the Physicians' Health Study—a January 1988 study affirming that aspirin therapy prevents heart attack—and the

August 1988 Second International Study of Infarct Survival, which showed that aspirin therapy reduced heart attack mortality by 23% at a cost of $13 per life saved (Krumholz et al., 1995). Studies showed that about a quarter of patients who appeared to be candidates for aspirin treatment were not receiving it.

In 1999, the Joint Commission on Accreditation of Healthcare Organizations (now simply The Joint Commission) began to develop a set of core measures for hospitals, announcing its measure sets 2 years later. The measures for heart attack, heart failure, and pneumonia were nearly identical to those in nationwide use for 5 years by the Medicare program, but varied slightly in their specifications. The Joint Commission added measures addressing pregnancy and related conditions, extending the reach of quality measures to a large, new population beyond the older and disabled. With two similar public and private measurement systems for care of older persons operating side by side, providers asked for the compromise of a common set of measurement specifications, but it took 2 years of negotiations to produce a single nationally standardized set of 10 core measures in 2002. Agreement on these core measures lessened inefficiencies in hospital data gathering and reporting and coincided with the launch of the public–private Hospital Quality Alliance that called on hospitals to report publicly their performance using the new unified measure set. The core measures were formally adopted by act of Congress in 2003 as the basis for a reimbursement incentive for voluntary performance reporting. Subsequent legislation has repeatedly expanded both the measure set and the extent of the incentive for hospital reporting. All of the Hospital Quality Measures used by The Joint Commission and the CMS are endorsed by the NQF. These measures are also used for the "Hospital Quality Alliance: Improving Care through Information," a voluntary public reporting initiative led by the American Hospital Association, the Federation of American Hospitals, and the Association of American Medical Colleges. This initiative is supported by The Joint Commission, the CMS, the NQF, the AHRQ, the American Federation of Labor and Congress of Industrial Organizations, and the AARP (formerly American Association of Retired Persons). Hospital quality measures and other core measure data are part of the priority focus process that is used by The Joint Commission to help focus onsite survey activities. These data are also publicly reported on The Joint Commission's Quality Check Web site (www.qualitycheck.org). The public availability of performance measurement data facilitates user comparisons of hospital performance and permits comparisons against overall national rates.

Evidence Based Practice

One source of health services research is EBP. This approach to patient care stresses decision making, which is based not only on the available evidence but also on patient characteristics, situations, and preferences. It recognizes that care is individualized and ever changing and involves uncertainties and probabilities. EBP develops individualized guidelines of best practices to inform the improvement of whatever professional task is at hand. EBP is a philosophical approach that is in opposition to tradition. EBP began in 1971 when Professor Archie Cochrane scolded medical practitioners for their approach to care by saying that only health care based on research evidence should be reimbursed (Cochrane, 1971). At the same time, he contended that the only research that should be conducted and used would be the randomized controlled trial (RCT). The RCT is the highest level of research that includes randomization (all participants have an equal chance for assignment to the control and the experimental groups) at all levels of the research design, control, and intervention groups and represents an experimental design for a quantitative study. The key elements for using EBP are to determine the clinical problem or situation requirements, the level of EBP to be used, and how the outcome or evaluation of the intervention will be measured. Levels of EBP range from the RCT to perceptions of factors that influence treatment success by experts.

One of the most powerful approaches in determining factors that affect health and the effect of policy on health is a meta-analysis. A meta-analysis is a type of research in which the results of multiple studies are combined and analyzed to synthesize and summarize the results. In this way, one statistical outcome is produced to indicate the effectiveness of such things as a treatment outcome or factors that place populations at risk for an illness or disease. In order to conduct a meta-analysis, the terminology and definitions need to be systematic and have common meanings. For example, in attempting to present research data on health disparities, there were at least five different definitions of the criteria that constitute a health disparity. As a result, when synthesizing data on health disparities, it is difficult to know which studies to include as well as the frame of reference used to establish the definition.

Systems to stratify evidence by quality have been developed, such as this one by the U.S. Preventive Services Task Force for ranking evidence about the effectiveness of treatments or screening (Melnyk et al., 2005):

- Level I: evidence obtained from at least one properly designed RCT.
- Level II-1: evidence obtained from well-designed controlled trials without randomization.
- Level II-2: evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.
- Level II-3: evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled trials might also be regarded as this type of evidence.
- Level III: opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Exemplar of EBP from a Private Organization: The Cochrane Library

The Cochrane Library consists of reviews of research that are evaluated independently using rigorous criteria for evaluating research that is necessary for making informed decisions about practice by healthcare providers. This is an outstanding repository of seven databases with information that is categorized in many ways, including relevance for specific professions such as nursing, physical therapy, and medicine as well as according to illnesses, body systems, and health promotion/disease prevention. The databases also include research evidence related to patient safety issues, financial and economic reports, and assessment of technology and methodology for conducting EBP. Overall, there are almost 750,000 records related to EBP. By searching for "health policy," 60 entries were returned with titles such as "Policy interventions implemented through sporting organizations for promoting healthy behavior change," "Pharmaceutical policies: effects of cap and co-payment on rational drug use," and "Methods of consumer involvement in developing healthcare policy and research, clinical practice guidelines and patient information material." In summary, the Cochrane Library is an excellent source for research related to health and health services policy. The research is evaluated using high standards and reported in a way that can be applied to interventions by healthcare providers as well as used to guide and direct policy.

FEDERAL EXEMPLAR: AGENCY OF HEALTH CARE RESEARCH AND QUALITY

AHRQ is the lead Federal agency charged with supporting research designed to improve the quality of health care, reduce its cost, address patient safety and medical errors, and broaden access to essential services. AHRQ sponsors and conducts research that provides evidence-based information on healthcare outcomes; quality; and cost, use, and access. The information helps healthcare decision makers—patients and clinicians, health system leaders, and policy makers—to make more informed decisions and improve the quality of healthcare services.

One category of research supported by AHRQ is the Evidence-Based Practice Program. Twelve five-year contracts have been awarded to institutions in the United States and Canada to serve as EBP centers. The EBP centers develop evidence reports and technology assessments based on rigorous, comprehensive syntheses and analyses of relevant scientific literature, emphasizing explicit and detailed documentation of methods, rationale, and assumptions (http://www.ahrq.gov;/2009). Their publications are organized in three categories:

- Evidence reports/technology assessments
- Evidence reports/technology assessment summaries
- Technical reviews and summaries

Beginning in 1999, the first EBP report was published. This first report presented the evidence on systematic review of the literature regarding the diagnosis of sleep apnea (which is identified now as "out of date") and the most recent, number 177, published February 2009 on the topic of complementary and alternative medicine in back pain utilization. The standards for these publications are very specific.

EBP AND SOCIAL POLICY

There are increasing demands for social policy and other decisions related to programs run by government and non-government organizations (NGOs) to be based on sound evidence as to their effectiveness. This has seen an increased emphasis on the use of a wide range of evaluation approaches directed at obtaining evidence about social programs of all types. A research collaboration called the Campbell Collaboration has been set up in the social policy area to provide evidence for evidence-based social policy decision making. This collaboration follows the approach pioneered by the Cochrane Collaboration in the health sciences (Cochrane, 1971). Using an evidence-based approach to social policy has a number of advantages because it has the potential to decrease the tendency to run programs that are socially acceptable (e.g., drug education in schools) but that often prove to be ineffective when evaluated (Frederickson, 2007).

Quality of Care and Equality of Care

A primary area for health services research has been the quality of care provided by healthcare agencies. Healthcare providers are held accountable for the care that is rendered to the public through many mechanisms. Quality of care is evaluated by accrediting agencies, the federal government health-related programs, and the insurance companies. The Institute of Medicine defines quality as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge." Attributes of patient care include improved safety, improved outcomes, and improved satisfaction.

In addition, standards for quality care are a priority for determining equality in health care. For example, in a large data set analysis of three states—California, Florida and New York—it was found that blacks were not afforded the same level of treatment for a myocardial infarction as non-Hispanic whites (Bennett, 2004).

One landmark study conducted by the RAND corporation (McGlynn et al., 2003) in collaboration with the Community Quality Index (a collateral study of the Community Tracking Study) determined the extent to which 439 indicators of quality of care were implemented for 30 acute and chronic illnesses and also included evidence of preventive care. In addition, participants were sampled in 12 large metropolitan areas throughout the United States to determine the extent to which recommended standards of medical care were actually implemented. Through a health history interview and an examination of health records, patient health assessments and interventions were analyzed.

The indicators of quality of care used parts of the RAND Quality Assessment Tools system. The leading causes of illness, death, and seeking health care for different age groups formed the basis for selecting the conditions to be studied, as well as preventive strategies for each of the study conditions. For example, the condition of hypertension had 27 medical care indicators and included interventions such as lifestyle modification for patients with mild hypertension and pharmacotherapy for uncontrolled mild hypertension.

The RAND study serves as an exemplar of health services research because the study exceeded most criteria for quality and reliable research. Beginning with sampling, the study included representative cities throughout the United States, accounting for geographic diversity. Reliability of the data was implemented through the use of two approaches for data collection. Participant interviews were conducted as well as the examination of their health records to corroborate interview data.

Health Disparity

Although there is no universal agreement on a definition of health disparities, the term is generally used to refer to gaps in health care along racial, ethnic, and socioeconomic lines. Health disparities do not encompass all variations in health or health care but, rather, specifically the experience in which less fortunate populations systematically experience worse health or increased health risks than more privileged communities (Braveman, 2006). As defined by The Health Resources and Services Administration, health disparities are "population-specific differences in the presence of disease, health outcomes or access to health care" (Goldberg et al., 2004).

In measuring health inequality, the most common method has been to take more and less advantaged social groups and compare the two. To determine where a social group is situated, socioeconomic advantages are often determined by educational achievement, employment characteristics, income/expenditures, net worth, health insurance, or geographical location. In the United States, because health inequality is most often associated with racial and ethnic differences, health disparities have long been measured by comparing minority groups with whites or non-Hispanic/Latino whites (Braveman, 2006).

The problem with measuring health inequality is the variations in defining terms such as health inequality, health disparities, and racial and ethnic disparities in health care. For research to be useful, a clear identification must be made of what makes a group of people quantifiably measurable against another social group. In order to do so, a proposed definition to guide measurement must be presented that encompasses the significance of social standing as well as comparisons made between groups with different social status. A more concise definition for health disparity than the one presented here might be this: Health disparities are possibly preventable discrepancies in health among groups of people who are more and less privileged socially—differences that systematically place communally less fortunate populations at additional inconvenience on health. This definition succeeds in identifying target populations for comparison and includes both similar and dissimilar social ranks (Braveman, 2006).

When measuring or defining health disparity/inequality, the certain conditions that produce illnesses in one population might not have the same effect in other populations. In addition, the course of an illness or disease differs between a person or a group with full health insurance as compared with those without a similar social safety net. The patient who does not have access to or has limited access to necessary treatment could be forced to pay for their treatments out of pocket, thus forcing them and their family into a state of poverty, bringing on even more lethal health consequences (Fiscella et al., 2000).

Although the term health disparity is used often in the field of public health, there remain many different attitudes on what the term actually means. Based on different dictionary definitions and long-held personal beliefs, these differences have continued to cause problems when surveying research over a wide spectrum. There is, however, no disagreement about what health disparity/inequality ultimately reflects—a problem that needs immediate attention and fixing.

Recognizing the Influence of Culture

Outcomes that either measure health disparities or factors that contribute to health disparities use criteria that are often culture bound. The work of Gilligan (1982) first identified the gender bias of instruments used to measure ethical development. Her work focused on the male orientation that was inherent in both the development and norming of Kohlberg and Lickona's instrument on Moral Development (1976). Gilligan's work represented an early acknowledgment that an important factor in measurement is the conceptual perspective of the instrument as well as the population of origin for instrument development and testing. The focus with health disparities and health policy is directed toward the outcomes and effects of measurement across cultures. For example, to measure health beliefs among Mexican immigrants, or blacks, the psychometric properties will differ according to the specific ethnic group or race, particularly when the instrument was developed and validated on white Americans. For example, Fillenbaum et al. (1990) examined seven cognitive screening or neuropsychological tests in relation to clinical diagnosis. The authors reported that most measures, when adjusted for race and education, had lower specificities for blacks than for whites. They suggested that most measures were culturally or educationally biased. Similarly, Teresi (2001) reviewed studies of Differential Item Functioning and item bias in the direct cognitive assessment measures with respect to race/ethnicity and education. Specifically, item performance varied across groups that differ in terms of education, ethnicity, and race (Jones & Gallo, 2002).

Another factor that influences the value of outcome measures is the validity and reliability of translations. Instruments that have been rated as highly reliable and valid may not be so, once translated. One example is the Mini-Mental State Exam (Teresi et al., 1995), which includes a question about certainty of a fact, stating "no ifs, ands, or buts." This item was more easily understood by Hispanics than by non-Hispanics because the translation into Spanish and the cultural context were more easily understood (Teresi, 2001). As a result, a Hispanic client may be identified as cognitively more coherent than he is, meaning that the Hispanic client would be less likely to receive treatment for confusion or dementia than the one who is non-Hispanic. Research that is based on instruments that have been translated is prone to findings that reflect differences based on subgroups such as race, ethnicity, education, or socioeconomic status.

Another bias that may occur emanates from cultural, ethnic, or differences in backgrounds when research methods include interviewers or raters. In this instance, the evaluators may identify cues that are not culturally congruent, or the evaluator may transmit cues that have very different meanings cross-culturally. van Ryn and Burke (2000) examined the impact of physicians' perceptions and beliefs on patient diagnosis and treatment. They reported that physicians (mainly white) were more likely to rate white patients as more educated and more rational than black patients even after controlling for patient's actual educational level. Although this finding can be simply explained by adherence to stereotypical beliefs that are inherently discriminatory, communication barriers such as differences in the patient's use of language when referring to symptoms or symptom expression and/or interpretation of health-related behavior could possibly influence physicians' ratings across racial groups.

In summary, research that is used to formulate health policies related to health disparities must take into account variables that may have affected outcome such as cultural/racial/ethnic biases in the development and norming of the instrument, translational inconsistencies, and interviewer bias. These inherent differences may account for differences and inconsistencies in diagnoses, treatment, and outcomes.

Chronic Illness

Encompassing a wide range of diseases, chronic refers to all disorders that are long lasting or recurrent. The term is used to specifically describe the track of a disease or its rate of inception and advance. Defined by the U.S. National Center for Health Statistics, a chronic disease is one lasting 3 months or more. Along with being identified by how long they last, chronic illnesses are also most often characterized by an inability to be cured with medication or prevented by vaccine. Each year, millions of Americans suffer through the negative effects of living with chronic illnesses; 133 million people, or almost half of all Americans, live with a chronic condition. That number is projected to increase by more than one percent per year by 2030, resulting in an estimated chronically ill population of 171 million.

Almost half of all people with chronic illness have multiple conditions. As a result, many managed care and integrated delivery systems have taken a great interest in correcting the many deficiencies in current management of diseases such as diabetes, heart disease, depression, asthma, and others (Wagner et al., 1996).

Those deficiencies include the following:

- Rushed practitioners not following established practice guidelines
- A lack of care coordination
- A lack of active follow-up to ensure the best outcomes
- Patients inadequately trained to manage their illnesses

Overcoming these deficiencies will require nothing less than a transformation of health care, from a system that is essentially reactive—responding mainly when a person is sick to one that is proactive and focused on keeping a person as healthy as possible (Wagner et al., 1996).

One approach to chronic illness based on research is the Chronic Care Model (CCM). This model focuses on information and strategies for the management of chronic illnesses and originated from a synthesis of scientific literature undertaken by The MacColl Institute for Healthcare Innovation in the early 1990s. The Robert Wood Johnson Foundation funded further work on the model, which included an extensive review by an advisory panel of experts and was then compared with the features of leading chronic illness management programs across the United States. In 1998, the model was again revised, and the Robert Wood Johnson Foundation incorporated the model as the basis for their program Improving Chronic Illness Care. This center offers research, practice, and dissemination guidelines as well as protocols for quality improvement. The value of the CCM is the utilization of EBP to evaluate current research and incorporate cutting-edge outcomes into the model. These have been identified as the Breakthrough Series Collaborative, which serves as the approach for quality improvement (http://www.improvingchroniccare.org/index.php?p=The_Chronic_Care_Model&s=2). According to the Improving Chronic Illness Care, a chronic condition is any condition that requires ongoing adjustments by the affected person and interactions with the healthcare system.

To speed the transition, Improving Chronic Illness Care created the Chronic Care Model, which summarizes the basic elements for improving care in health systems at the community, organization, practice, and patient levels.

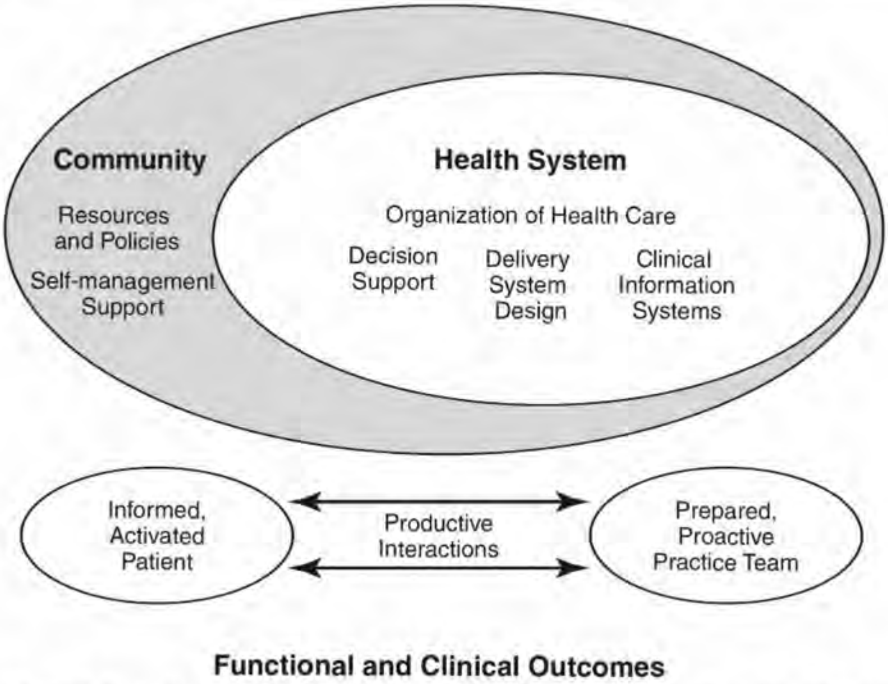
Considering the serious nature of these illnesses, it is alarming to find that numerous reports on medical care have consistently found major holes in the course and result of chronic illness treatment. Whether the patients surveyed were receiving managed care or not, major deficiencies were found. According to evidence, patients suffering from chronic illnesses are often given limited help from their insurance providers as they struggle to keep up basic function and quality of life while managing their diseases. This limited care is sometimes caused, for example, by a doctor's failure to recognize their patient's level of understanding about their condition, ability to function, or their perception of self-management. A deficiency of such things can ultimately lead to a lack of useful care and the want for restorative, supportive, and instructive services. Although managed care continues to grow, at the core it remains a system that persists in delivering subpar treatment for the chronically unwell, threatening the integrity of the entire system.

Although many factors play a role in determining the lack of care a patient is going to receive, most often it is the acute care orientation of medical practice. This approach to medical care severely limits the ability of medical caregivers to adequately fulfill the quantifiable and self-coping requirements of chronically ill patients. Most medical practices are designed and trained to respond to acute medical disorders, which creates a method of diagnosing and treating based on patient initiated visits and goals. These quick meetings, usually lasting in the range of 15 minutes, target the relieving of symptoms rather than evaluation and recovery of purpose. Often physicians are untrained and too overloaded to take up the task of organizing care, advising, and following up treatment.

Conclusion

This chapter provides an introduction into health services research as a multidisciplinary field of scientific investigation that examines how social factors, financing systems, organizational structures and processes, health technologies, and per-

Figure *1* Model for improvement of chronic illness care.



Source: Wagner, E. H. (1998). Chronic disease management: What will it take to improve care for chronic illness? *Eff Clin Pract, 1,* 2–4. Used with permission of the American College of Physicians.

sonal behaviors affect access to health care, the quality and cost of health care, and quantity and quality of life. The focus of research studies in health services are often centered on research issues that examine outcomes of the individual, family, organizational, institutional, community, and population level. For example health service research will seek to examine how people get access to health care, how much care costs, and what happens to patients as a result of this care.

While the primary goal of health services research is to identify the most effective ways to organize, manage, finance, and deliver high quality care; reduce medical errors; and improve patient safety. Health services research is grounded in theory and exists to perform research that can be applied by physicians, nurses, health managers and administrators, and other health professionals and stakeholders who make decisions or deliver care in the healthcare system. Finally, the findings and products that result from health services research can be used to improve the design of healthcare benefits, develop new policies to optimize the way health care is financed and paid for, facilitate access to healthcare services, and improve patient outcomes.

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CASE STUDY

Influence of Politics on Health Care Policy and Research

Carol F. Roye

In recent years, many barriers have been put in the way of women who simply want to obtain reproductive health care. These barriers are politically and ideologically driven. They have nothing to do with optimum health care. In fact, they often stand in the way of good health care. As I write, at the end of 2008, we have been living with increasing politicization of science and healthcare policy, to the detriment of patient well-being. This is not the first historical era when health care has been adversely impacted by politics, but it is certainly the worst that I have experienced.

A main concern for me was the Global Gag Rule. In 1984, President Reagan had implemented a policy at a world population meeting in Mexico City. Formally called the Mexico City Policy, the rule is often referred to as the Gag Rule because, in essence, the policy gags family planning providers. The Gag Rule is a ban on U.S. family planning aid—including shipments of free condoms and contraceptives—to foreign nongovernmental organizations and clinics that even mention the term abortion or advocate legalizing abortion in their country. In 1992, when Bill Clinton was elected, I felt tremendous relief because I knew patients and women around the world would benefit. We were not disappointed. President Clinton rescinded the Gag Rule, but President George W. Bush reinstated it on his first full day in office.

As a result, many clinics in underresourced countries have foregone U.S. aid. They gave up shipments of contraceptives, including condoms, which could have been used to curb the spread of HIV/AIDS and to prevent unwanted pregnancies. Many poor women around the world had come to depend on those shipments for family planning. The result of the Gag Rule has been, no doubt, more unwanted pregnancies, which leads to higher maternal and infant mortality and likely more cases of HIV/AIDS.

I was very acutely aware of the danger of the Gag Rule, as I had worked under what was essentially a domestic Gag Rule in the late 1980s. Between 1988 and 1993, Title X legislation prohibited doctors and nurses from providing information about abortion, even if the patient requested it. Although this domestic gag rule was not enforced nationwide, it was in effect in certain Title X funded clinics, including the inner-city clinic in New York City where I was a nurse practitioner.

Many of my patients were teen mothers. Sometimes they came to see me with a second unwanted pregnancy. When I asked representatives of the federal government who came to our clinic what I could tell a tearful, frightened 16-year-old who asked about abortion, I was told to say that it is "outside the purview of what I can discuss." Essentially, I was being told by representatives of the federal government that I would have to withhold information from my patients. I was not even supposed to refer pregnant patients to a prenatal clinic where a doctor or nurse might mention abortion as an option.

It was a good day for women's health when President Clinton rescinded the Gag Rule. Unfortunately, it was reinstated in January 2001 and has been in place ever since. Many professionals expect that President Obama will rescind the Gag Rule (Roye, 2009).

President Obama will have more health policy issues than the Gag Rule to contend with. President Bush left a parting jab at women's health. On December 18, 2008, just 1 month before the end of the Bush Administration, the Department of Health and Human Services introduced a regulation that was purportedly aimed at protecting workers with moral objections to abortion. The rule says that healthcare workers cannot be discriminated against for refusing to participate in procedures to which they object; however, the rule is so broad that the list of procedures can essentially be limitless, including provision of family planning or even vaccinations for that matter. Similarly, the definition of healthcare worker is so broad that it can include all workers and volunteers in a medical setting, including people who do not provide health care, such as janitors. The regulation went into effect 30 days after December 18, just a few days short of the Obama inauguration. Thus, if a woman goes to a federally funded clinic and requests contraception and the janitor objects to contraception and does not want to clean a facility where contraception is dispensed, his or her objections must be upheld, and the patient is denied care (Berger, 2009). Furthermore, there are already regulations that protect health workers' rights not to violate their religious beliefs.

The impact of this imposition of ideology on health policy is felt in the aggregate, as described previously here. Of course, it also has very personal ramifications for patients.

For example, recently I was sitting at the desk in my exam room in a large pediatric practice in a low-income neighborhood in New York City. The next patient to come in, Jasmine S., was an 18-year-old college freshman. She and her boyfriend had begun having intercourse. She told me that he is her first sexual partner. They use a condom most of the time, but she knows that she is at risk for pregnancy. After I examined her, we chatted about the birth control methods that are currently available. She decided that the vaginal ring would work best for her. I prescribed the ring and urged her to continue using condoms. I told her how to use both methods, and the important role of each in assuring her reproductive health.

Two weeks later, Jasmine came in for a scheduled appointment, to review the results of the laboratory tests we had done. When I asked her how she liked the ring, she told me she could not get it.

The pharmacist had written something on the back of the prescription. She handed it to me, and I saw that he had written "P/A." Not knowing what that meant, I called the pharmacist. He told me that she needed a prior authorization from her insurance company, and I thought I had heard incorrectly. Yes, we needed a prior authorization when my 6-month-old granddaughter needed neurosurgery and my 8-year-old daughter needed eye surgery. But is prior authorization to get the ring necessary? I called her insurance company, Fidelis, a Medicaid HMO in New York. The agent asked me whether the patient needed the ring for contraception or some other reason. I told her that I did not want to discuss the patient's private information with her. Indeed, that would have been violating the patient's confidentiality. She responded that without such information the patient could not get the medication.

Even with that information, the patient could not get the medication. I could have said that the patient has very irregular periods and I want to regulate them with the ring; however, I chose to be honest and, with Jasmine's permission, told the woman on the phone that it was for contraception. Fidelis is a Catholic company and therefore does not pay for contraception. The patient never asked to be put in a Catholic HMO. She was just assigned to that insurance plan. The Fidelis agent told me that another company pays for contraception for Fidelis patients. I spent a half hour on the phone with the other company. It was a long and difficult road to take to get a simple prescription. It was trying even for me, and I know how to navigate the healthcare system. Jasmine would probably never have gotten her contraception if I had not intervened. The barriers would have been insurmountable. Jasmine was not the only one of my patients to have difficulty filling her birth control prescription because of Fidelis.

Now, think about the plight of another patient, Marianna. She is typical of many of the patients I see. Marianna is 12 years old. She had her first period 6 months ago. This month her period has lasted for over 4 weeks and is still not going away. She comes into the clinic, and we check her for anemia. Her hemoglobin is 10.2. Marianna is anemic—no surprise given the fact that she has been bleeding for 4 weeks. How can we treat her? Of course, I will prescribe iron tablets for her, but that is a band aid. We need to stop the bleeding. There is really only one way to stop the bleeding. She needs to take birth control pills. I give Marianna and her mother the prescriptions and sent them out. They are smiling, relieved to know that the bleeding can be stopped.

When they get to the pharmacy, however, the pharmacist wrote P/A on the back of the prescription because Marianna has Fidelis insurance. Perhaps he just refused to give her the birth control pills because he does not believe in contraception and is horrified at the thought that this 12-year-old needs birth control—and her mother is letting her use it. He will not give her the contraception, although he does give her the iron. Marianna's mother has to get to work and cannot afford to take any more time. She will not have a day off for 2 more weeks. Thus, Marianna continues to take her iron, and she continues to bleed; hopefully she will be okay until she can come back to the clinic.

The standards of good health care do not change every 4 to 8 years; however, health policy can change dramatically according to the theology or ideology of the presidential administration. As a result, Americans' health can be jeopardized or enhanced at the whim of the prevailing political winds.

The same holds true on a state-by-state basis, depending on the politics of the state. In New York State, for example, a teenager can obtain an abortion without parental knowledge or consent. The regulation is written that way so that teens are not afraid to seek health care when confronted by an unwanted pregnancy. In other states, however, things are quite different. In 34 states, teens must obtain parental consent. In some states, such as Mississippi, for example, consent of both parents is required. In Mississippi, there is only one clinic where women can obtain an abortion. Thus, women—adolescent or adult—who do not have the wherewithal to travel cannot get an abortion. Are they turning to back alley abortionists? Are they trying to do their own abortions—perhaps with information gleaned on the internet? Possibly. We do not know for sure.

Political winds and whims affect community health and individual health, to be sure; however, it does not stop there. Politics also affects health research. Research sets the stage for healthcare advances in the future; however, over the last 8 years, research into certain politically controversial topics such as HIV prevention in adolescents has been thwarted. For example, during the Clinton administration, I was awarded a grant by the National Institutes of Health to study the effectiveness of a program to promote condom use by sexually active teenage girls who were using hormonal contraception such as birth control pills.

While conducting that study, the Clinton administration ended and that of George W. Bush began. I read in the newspapers about something that was being called "the hit list," which listed several hundred federally funded studies that were considered morally questionable by a group on the far right of the political spectrum. The Traditional Values Coalition took credit for it. Sure that my study was not on the list, I still checked the list on the Internet. I was deeply offended to see my name and my study on the list. The list described my study and then said, in what was clearly meant to be an indictment, that the study promotes condom use. I was, of course, promoting condom use, not sexual activity. My program was aimed at reducing risk for sexually active girls who were at high risk for contracting HIV and other sexually transmitted infections. I knew that Nancy Reagan's "just say no" campaign was not going to prevent infections or pregnancy in this population. As it turns out, the "hit list" was the beginning of the end for my program of research (Roye, 2008). It seems likely that under the Obama Administration scientific inquiry into issues dealing with such "touchy" subjects as sexuality will again return to the United States.

My experience was not at all unique. Scientists whose research came under scrutiny as part of the "hit list" were surveyed and interviewed about the effect that experience had on their research. Most agreed that the controversy had a "chilling effect" on their research. The scientists also reported that they removed certain words from the title of their abstracts, such as anal sex, needle exchange, and harm reduction. Some researchers altered their research programs to be more politically correct, for example, deciding not to study adolescent sexual health. Others decided not to study certain stigmatized groups. The authors of the study concluded that politics can shape what scientists decide to study (Kempner, 2008).

As one of the "hit list" scientists, I expect that politics will have a minimal, if any, influence on scientific research in the near future. I presume that grant proposals will once more be judged solely on merit. In fact, I am planning a proposal investigating understudied areas of adolescent sexual health.

It is important for healthcare providers to understand the influence that politics can have on health care—in the aggregate, for individual patients and for health research. We must be vigilant about advocating for untarnished science and evidence.

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Courtesy of the Visiting Nurse Service of New York.

Evidence-Based Practice From a Public Health Perspective

Joanne K. Singleton
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Paule Valery Joseph

> *It would be an interesting and possibly valuable piece of work if a morbidity study could be made through the hospital records and a similar study of sickness in the homes. Henry Street makes an analysis of the cases that have been under its care and we feel it a pity that these figures are not made more use of. The pneumonia experience alone showed many interesting and telling facts, especially regarding home care for the children.* (Wald, 1917, np)

LEARNING OBJECTIVES

At the completion of this chapter, the reader will be able to:

- Define evidence-based practice.
- Describe the systematic approach to finding best available evidence.
- Explore the application of evidence-based practice to public health issues of health literacy and tobacco use.

KEY TERMS

☐ Evidence-based medicine
☐ Evidence-based practice
☐ Health literacy
☐ Tobacco use

Introduction to Evidence-Based Practice and Public Health

"In a world where public health threats range from AIDS and bioterrorism to an epidemic of obesity, the need for an effective public health system is as urgent as it has ever been" (Gebbie, Rosenstock, & Hernandez, 2003, p. 1). This quotation comes from an Institute of Medicine (IOM, 2002) report, *Who Will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century*. Although this report is aimed primarily at schools of public health, it includes recommendations for schools of nursing and medicine as well. For schools of nursing, the recommendations address the inclusion of an ecological perspective of health in nursing curricula, collaboration among all public health professionals from a variety of disciplines, and the provision of clinical experiences in the public health arena. The 2011 IOM report, *The Future of Nursing: Leading Change, Advancing Health* considers key messages and recommendations that pertain to nursing. One of the key messages specifically addresses the improvement of nursing education to ensure the delivery of "safe, quality, patient-centered care across all settings, especially in such areas as primary care and community and public health" (p. 6). Lipstein, Kellermann, Berkowitz, Sklar, and Thibault (2016) noted in the latest document from the National Academy of Medicine that the very workforce being educated today must be competent in evidence-based practice that is cost-effective.

An important aspect of these recommendations is the acknowledgment of **evidence-based practice (EBP)**. The IOM published *Health Professions Education: A Bridge to Quality* (Griener & Knebel, 2003), which included the following vision for all health professions education: "All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics" (p. 3). This challenge was answered in 2006 with the Quality and Safety Education for Nurses (QSEN) initiative funded by the Robert Wood Johnson Foundation (Quality and Safety Education for Nurses [QSEN], 2007). This initiative sought to identify the knowledge, competencies, and attitudes that nurses need to know to practice with quality and safety in mind. The six major areas of practice include patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics (Cronenwett et al., 2007).

What Is an Evidence-Based Practice Lens for Viewing Population-Based Health Issues?

The term evidence based was first used by medicine in 1992 by Gordon Guyatt, a Canadian physician from McMaster University, and the Evidence-Based Medicine Working Group. Although the term **evidence-based medicine** originated within the medical profession as a new paradigm for medical practice (Oxman, Sackett, & Guyatt, 1992), the essence of this paradigm—using research evidence as the best evidence to guide professional decision-making—has recently spread to other professions both within and outside the healthcare arena. Singleton, Levin, and Keefer (2007) discussed several examples from the disciplines of law, education, and management. In addition, Cullum, Ciliska, Haynes, and Marks (2008) cite the use of the term evidence based in professions such as physiotherapy and police science.

Regardless of the field or discipline in which this paradigm or model is applied, EBP has several conceptual and process components that cross disciplinary boundaries. Evidence-based practice is a framework for decision-making that uses the best available evidence in conjunction with the professional's expertise and the client's, customer's, or consumer's values and preferences to guide problem-solving and judgments about how to best approach a situation to achieve desired outcomes (Melnyk & Fineout-Overholt, 2011; Straus, Richardson, Glasziou, & Haynes, 2005). The key to the EBP model is the systematic approach to finding the best available evidence to answer a focused question and to implement the answer in practice as follows:

1. Ask and frame a clinical question.
2. Find the evidence to answer the question.

3. Appraise the evidence for validity, source reliability, and applicability to practice.
4. Select and synthesize the best evidence for use.
5. Implement the evidence-based intervention in practice.
6. Evaluate the intervention and results.

The search for and retrieval of this evidence is not always approached in the systematic way advocated in the EBP paradigm, which is to try to find the highest level of evidence first and then proceed methodically through the hierarchy of evidence that exists to answer the focused question. Some types of evidence carry more weight than other types of evidence. For example, a single study carries less weight than a systematic review because a systematic review combines the results of several studies on the same clinical question or questions. The highest level of evidence available should be used to guide our clinical practice. Health professionals, therefore, have developed schemata that rank evidence according to levels. The higher the level of evidence, the more confidence we are able to have in a study's validity. There are many different schemata for ranking the level of a piece of evidence. Based on the work of others, Melnyk and Fineout-Overholt (2011) present seven levels in the hierarchy of evidence (see **Box 1**).

Although it is important to determine the levels of evidence upon which a recommendation for practice is based, it is also important to assess the quality of that evidence, whether it is a study or expert opinion. The quality of evidence depends on the critical appraisal of the study or the background of and resources used by an expert panel. The schema shown in **Box 2** provides one

Box 1 Levels of Evidence

Level I: Systematic reviews and/or meta-analysis of randomized controlled trials (RCTs) assessed to be relevant
Level II: Well-designed RCTs
Level III: Nonrandomized, well-designed, controlled trials
Level IV: Well-designed, case-controlled, and/or cohort studies
Level V: Systematic reviews of descriptive and qualitative studies
Level VI: Single descriptive or qualitative studies
Level VII: Expert opinion of individuals or committees

Data from Melnyk, B. M., & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing and healthcare: A guide to best practice* (2nd ed). Philadelphia, PA: Lippincott.

Box 2 Quality Ratings

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approach for assigning a quality rating to a piece of evidence. Using this approach, a rating for any level of evidence may range from A to D and reflects the basic scientific credibility of the overall study/project or other type of evidence.

Leveling schemes and quality ratings may differ according to the agency, organization, or author. Under any circumstances, however, the leveling and determination of the quality of evidence are essential components of this model. Some evidence-based guidelines, such as the tobacco-dependence guidelines introduced later in this chapter, identify and define the strength of evidence for the specific guideline. When reading EBP guidelines, therefore, it is important to identify the criteria used to assess the level, quality, or strength of evidence. This is the approach we have taken in providing readers with the best available evidence on two very important public health challenges: helping people to stop smoking and increasing the health literacy of our population.

Healthy People 2020—Public Health Conditions: An Evidence-Based Perspective

Healthy People 2020 is a federal government initiative that contains health objectives for the citizens of our nation (U.S. Department of Health and Human Services [U.S. DHHS], 2010a). This document is built on past government initiatives intended to guide action that would improve the nation's health. *Healthy People 2020* addresses many objectives. This chapter focuses on two health conditions from a public health perspective: health literacy and tobacco addiction. We discuss the national incidence, prevalence, morbidity, and mortality of these health conditions; the evidence to guide or develop population-focused interventions for these conditions; and specific public health interventions in action for health literacy and tobacco addiction.

The first topic that will be highlighted in this chapter is health communication and health communication technology. This topic, along with its specific objectives, may be viewed in its entirety under the Healthy People tab 2020 Topics and Objectives (U.S. DHHS, 2010b). Under this topic area there are 13 objectives. One of the specific objectives for this topic area focuses on literacy:

> *HC/HIT-1: (Developmental) Improve the health literacy of the population.*

The second issue to be highlighted is under the topic area of tobacco use. This topic, along with specific objectives, may be viewed in its entirety under the Healthy People tab 2020 Topics and Objectives (U.S. DHHS, 2010b). There are a total of 21 objectives under the topic area of **Tobacco Use**. Two of the specific objectives for tobacco use are:

TU-1: Reduce tobacco use by adults.
TU-2: Reduce tobacco use by adolescents.

The focus of this chapter is on an evidence-based approach to these two very important public health topics: health literacy and tobacco use. Before discussing these two public health topics and introducing the EBP approach to understanding them, an overview of population-based concepts will help to put the subsequent discussions about specific public health issues in context.

Health Literacy as a Public Health Condition: Overview and Definition

Before the 1990s, the impact of literacy on population health in the United States was either unappreciated by health professionals or was generally thought of as a problem of an individual; literacy was not considered to be a public health condition. Today, it is known that literacy and its healthcare counterpart, health literacy, have far-reaching effects on both the individual with low health literacy and the U.S. population as a whole (Shohet & Renaud, 2006). *Healthy People 2020* has formally included health literacy as one of the defined objectives for study and intervention for 2010 through 2020 (U.S. DHHS, 2010b).

The definition of **health literacy** is continually being refined. The most widely accepted definition states that health literacy is "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (Nielsen-Bohlman, Panzer, & Kindig, 2004, p. 32; CDC, 2015a). This definition was expanded to reflect the even broader impact that health literacy has on individual lives. "Literacy facilitates access; to information and enables individuals to make informed health decisions, to influence events, and to exert greater control over their lives" (Shohet & Renaud, 2006, p. 10). In more concrete terms, health literacy impacts an individual's ability to access health care, to make choices in obtaining appropriate health insurance coverage, to seek out high-quality facilities to obtain evidence-based health screening and illness care, as well as comprehend health information about disease prevention or self-care of chronic disease. Nine out of 10 English-speaking patients lack proficiency to comprehend everyday health communication (Nielsen-Bohlman et al., 2004; U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2010c). In addition, if an individual is the caregiver of children or elderly family members, the individual needs to advocate and make decisions for those in his or her care. Clearly, health literacy has far-reaching effects on individuals, families, communities, and the U.S. population as a whole.

INCIDENCE, PREVALENCE, MORBIDITY, AND MORTALITY

Incidence and Prevalence

Although low health literacy is now widely recognized to have a significant negative impact on both the individual and public health, tools to measure health literacy and strategies to improve care of the low literacy population have been developed only recently. For the third time in as many decades, the National Center for Education Statistics (2006) measured the English literacy of the U.S. population in the 2003 National Assessment of Adult Literacy. This survey was the first to include measurement of health literacy in addition to overall U.S. English literacy, and it remains the most current assessment. The National Assessment of Adult Literacy surveyed a representative sample of 19,000 U.S. households as well as 1,200 persons in prisons. For the purpose of this study, health literacy was defined using the previously quoted IOM definition (National Center for Education Statistics, 2006).

Health literacy was measured using the three literacy measures used in the overall English literacy assessments by the 2003 National Assessment of Adult Literacy survey: prose, document, and quantitative measures. *Prose literacy* is defined as the ability to search, comprehend, and use information from continuous text. *Document literacy* is defined as the ability to search, comprehend, and use information from noncontinuous text (e.g., application forms or maps). *Quantitative literacy* is defined as the ability to identify and perform computation using numbers embedded in print materials (e.g., balancing a checkbook). In addition, three domains specific to health literacy were identified and measured: clinical, prevention, and navigation of the health system. The *clinical domain* was defined as the activities involved in the provider–patient interaction, such as completing forms and understanding medication dosages. The *prevention domain* was defined as activities related to disease prevention and self-management of illness. Navigation of the health system included activities such as understanding health insurance plans and consent forms.

Results of the 2003 adult health literacy survey showed that 36% of the U.S. population, or approximately 87 million adults, had either below basic (14%) or basic (22%) health literacy levels, defined as

- Below basic: No more than the most basic and concrete literacy skills.
- Basic: Skills necessary to perform simple and basic everyday activities.

Disparities among particular subpopulations were also noted. Hispanic populations had the lowest percentage of health literacy among ethnic groups. More men (16%) than women (12%) had below basic health literacy levels. Persons who did not speak English before attending primary school had lower health literacy than those who spoke English at early ages, and adults over age 65 had lower health literacy than other age groups. Educational attainment was significantly associated with below basic health literacy: 49% of individuals who did not complete either high school or a general educational development (GED) program had below basic health literacy scores. Adults living in poverty had lower health literacy levels than other socioeconomic groups, as did persons who had self-perceived overall health at lower ratings. Persons who had no health insurance or had Medicaid/Medicare had lower health literacy levels. Those who obtained their basic health information from television or radio had lower health literacy than those who obtained information from print media (National Center for Education Statistics, 2006).

Data from the 2003 NAAL continued to be released through 2010. In 2011–12, another large-scale assessment of adult skills called the Program for the International Assessment of Adult Competencies (PIAAC) was administered. The PIACC is the most current indicator of national progress in adult skills in literacy, numeracy, and problem-solving in technology-rich environments. Although a global initiative, involving 24 countries, the data set sample size from the United States included 5,000 subjects, of which 1,300 were prisoners (USDOE, 2016). Data continues to be analyzed, but less than 15% of young adults aged 16 to 24 demonstrate the highest level of literacy proficiency.

Low health literacy may contribute significantly to the notable health disparities across specific populations in the United States. One of the overarching goals of *Healthy People 2020* (U.S. DHHS, 2010d) is to reduce these health disparities, which lead to increased morbidity and mortality as well as inefficient and ineffective use of public resources. Estimates of the cost of low health literacy to U.S. society range from $106 to $238 billion annually (Vernon, Trujillo, Rosenbaum, & DeBuono, 2007). When future and indirect costs are accounted for, this estimate increases to a range from $1.6 to $3.6 trillion annually (Vernon et al., 2007). Clearly, low health literacy is a public health condition of great consequence.

Morbidity, Mortality, and Level of Evidence

Many studies have documented how low health literacy impacts a person's ability to obtain preventive screening services and manage one's chronic diseases. Based on the level of evidence ratings in Box 1, the following evidence is reported. In a systematic review of the literature, Berkman, Sheridan, Donahue, Halpern, and Crotty (2011) found that patients with low health literacy used health resources less frequently than their higher literacy counterparts (level I). Maniaci, Heckman, and Dawson (2008) found that patients with lower levels of health literacy were found to have less medication knowledge after hospital discharge (level IV). In addition, patients with type 2 diabetes mellitus and low health literacy were found to have higher HgA1c levels and higher rates of retinopathy than those with higher health literacy levels (Schillinger et al., 2002) (level IV). Patients with low health literacy were less likely to use preventive services (IOM, 2004) (level V). Higher mortality rates were also associated with lower health literacy scores (Baker et al., 2007) (level IV). Patients with low health literacy have higher rates of hospitalizations, complications, and higher emergency room use (Baker et al., 2002; Baker, Parker, Williams, & Clark, 1998) (level IV). Among elderly patients 65 and older, low health literacy was associated with increased hospitalizations, higher emergency room utilization, poor medication adherence, and impaired ability to interpret health messages (Berkman et al., 2011a) (level I). Moreover, patients with low health literacy were two to three times more likely to experience poor outcomes (DeWalt, Berkman, Sheridan, Lohr, & Pignone, 2004) (level I).

Evidence to Guide Population-Focused Interventions

Evidence on the morbidity and mortality related to health literacy provides guidance on population-focused interventions. The burden of low health literacy on the health of society mandates action to improve the problem. Population-focused interventions occur within the national, state, and local arenas.

In 2010, President Obama signed the Plain Writing Act of 2010, which was designed to promote communication that the public can understand. In response, the U.S. DHHS released a National Action Plan to Improve Health Literacy (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2010e). The National Action Plan aims to eliminate complex medical jargon in health communication. The National Action Plan suggests a universal precautions approach to health literacy and communication. By adopting universal precautions, health professionals use clear communication that is culturally appropriate regardless of the perceived health literacy skills of the client. Health information comes from various sources across multiple disciplines (e.g., websites and social media; health professionals, caregivers, and public health officials; schools; television and radio). As a result of multiple health messages, national evidence-based strategies must be adopted to improve clear communication.

An exemplar health literacy intervention that addresses communication is the three-pronged strategy adopted by The Joint Commission (Murphy-Knoll, 2007). The first strategy makes clear communication an organizational priority. The second strategy mandates that clear communication needs to be addressed across the continuum of care, from the acute care to the primary care setting. The third strategy states that policy changes must be pursued to improve provider–patient communication. Health Literacy Innovations is a computer-based software system used by the National Institutes of Health to improve the readability of health information by translating technical information into simpler terms.

Another national intervention involves increasing access to healthcare coverage for the entire population. During 2010, 50.7 million persons in the United States under the age of 65 were uninsured (DeNavas-Walt, Proctor, & Smith, 2011). An estimated 32 million Americans have been insured by the Affordable Health Care for America Act (ACA), H.R. 3962 (Patient Protection and Affordable Care Act, 2010). The law includes provisions to communicate healthcare information clearly, promote prevention, promote patient-centered interventions and create healthy homes, ensure equity and cultural competence, and deliver high-quality care. The ACA provides that language within state programs must be readable for those with low health literacy as well as culturally and linguistically appropriate.

The ACA also establishes workforce training opportunities to improve the patient–provider interaction. This interaction could be improved by increasing basic health literacy education of primary care providers. The ACA pushes for curriculum changes to teach health professionals skills for communicating with persons of low health literacy. Methods such as *teach back* (Pfizer Clear Health Communication Initiative, 2008) and *ask me three* (National Patient Safety Foundation, 2008) have been shown to improve patient comprehension and ability for self-care. Healthcare providers need to be educated that health education materials should be written in easy-to-use formats, with large font, short sentences, and action-oriented content to improve readability and patient comprehension (CDC, 2014; Doak, Doak, & Root, 1998). Curriculums in health-related professions need to reflect training in culturally diverse education techniques. In a study by Volandes and colleagues (2008), specific teaching techniques were shown to enhance decision-making ability regarding end-of-life care preferences. At the time of writing this chapter the future of ACA remains in question.

Statewide initiatives in health literacy are overseen by the U.S. DHHS Office of Disease and Health Promotion. State and local collaborations between academic, government, and nonprofit organizations with a health literacy focus are funded across five priorities:

1. Incorporate health literacy improvement in mission, planning, and evaluation.
2. Support health literacy research, evaluation, training, and practice.
3. Conduct formative, process, and outcome evaluations to design and assess materials, messages, and resources.
4. Enhance dissemination of timely, accurate, and appropriate health information to health professionals and the public.
5. Design health literacy improvements to healthcare and public health systems that enhance access to health services.

For example, the Institute for Healthcare Advancement (2017) is a not-for-profit, privately operating California initiative that provides translation of patient education materials, delivers primary care in a community health setting, and also provides outreach services within the community.

Within communities, impaired health literacy negatively impacts the self-esteem of individual clients. The literature suggests that individuals do not access health care because of the shame related to their literacy problems. Organizations and healthcare providers can make changes to reduce this negative impact by creating shame-free environments. Providing written materials at low literacy levels and offering assistance for those completing intake forms are suggested methods to remove barriers to care for those with low health literacy. It is important at a local level to assess the learning needs of disparate communities in a culturally competent manner. Multiple instruments (e.g., Newest Vital Sign, Test of Functional Health Literacy in Adults) exist to assess the health literacy of disparate communities and should be incorporated into daily practice to tailor individualized learning plans (Hanchate, Ash, Gasmararian, Wolf, & Paasche-Orlow, 2008; McLeod-Sordjan, 2011; Weiss et al., 2005).

Health Literacy and Tobacco Use: Specific Public Health Interventions (Case Study)

An organization reviews the current tobacco use health education materials it provides to nonsmoking adolescent clients (e.g., Did you know that tobacco addiction is one of the hardest habits to break?). These education materials could be evaluated for both reading level, using the Simplified Measure of Gobbledygook (McLaughlin, 2008), or Fry formula (Doak et al., 1998), and readability, using the suitability of assessment materials, or SAM, tool (Doak et al., 1998). When designing materials for adolescents in particular, it is important that patients see themselves in the illustrations on the material. The SAM tool gives very valuable guidelines that improve design for health education materials that are targeted to a specific audience. Revision of an organization's existing tobacco use materials to reduce reading level, improve readability, and clearly target a specific population is one example of a low-cost and effective means to begin a system-wide movement toward clear communication.

Future Projections

Unfortunately, the problem of low health literacy may worsen in the United States across racial and generational groups. Kutner et al. (2007) reports 66% of adults aged 65 and older were classified with low health literacy. It is projected that Hispanics aged 65 and older are estimated to increase to 19.8% of the U.S. population by the year 2050 (Heron & Smith, 2007). If healthcare systems and individual providers do not make health literacy and clear communication a priority, public health outcomes can be expected to decline over future decades.

Tobacco Dependence as a Public Health Condition: Overview and Definition

Tobacco, a green leafy plant that grows in warm climates, has a long history in the United States.

Figure 1 Cigarette health warnings.

SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy.

SURGEON GENERAL'S WARNING: Quitting Smoking Now Greatly Reduces Serious Risks to Your Health.

SURGEON GENERAL'S WARNING: Smoking by Pregnant Women May Result in Fetal Injury, Premature Birth, and Low Birth Weight.

SURGEON GENERAL'S WARNING: Cigarette Smoke Contains Carbon Monoxide.

Public Law 98–474, Comprehensive Smoking Education Act, 1984. Smoking Tobacco & Health, Centers for Disease Control and Prevention.

Dating back to the first American settlers in 1621 in Jamestown, Virginia, tobacco was the first crop grown for money in North America. Tobacco is dried and can be smoked or chewed. There are over 4,800 chemicals in tobacco and its smoke; nicotine is the chemical that makes tobacco addictive. Although the first settlers used tobacco in small amounts, the invention of the cigarette-making machine in 1881 resulted in widespread cigarette smoking. Nevertheless, it was not until 1964 that the Surgeon General of the United States reported on the dangers of cigarette smoking, identifying that the nicotine and tar in cigarettes may cause lung cancer. The U.S. Congress in 1965 passed the Cigarette Labeling and Advertising Act that required every cigarette pack to carry on its side the warning "Cigarettes may be hazardous to your health." This was followed by later legislation in 1971 banning radio and television advertising of cigarettes. Cigarette companies responded to the government warnings about the hazards of smoking related to tar: By the 1980s, cigarette companies made, sold, and promoted low- and ultra-low-tar cigarettes. Congress passed another law in 1984, the Comprehensive Smoking Education Act, which created four different warning labels (**Figure 1**) and required cigarette companies to rotate among these warnings every three months.

Federal, state, and local governments, as well as private companies, have been taking action since the 1980s to restrict and ban smoking in public places. The American Lung Association tracks and reports tobacco control trends in the United States (see http://stateoftobaccocontrol.org). As of 2010, the American Lung Association's smoke-free map reveals that only 27 states plus the District of Columbia have enacted comprehensive smoke-free laws to protect their citizens. One hundred million Americans remain unprotected by a lack of comprehensive smoke-free laws. On June 12, 2009, President Obama signed the Family Smoking Prevention and Tobacco Control Act (H.R. 1256) into law. The U.S. Food and Drug Administration (FDA) was granted the authority to regulate the sales, advertising, and ingredient content of all tobacco products marketed in the

United States. The law also limits advertising to youth and requires graphic cigarette warning labels to cover 50% of the front and rear of the cigarette pack. In addition, the law created a new prevention and public health fund expanding smoking cessation coverage for pregnant Medicaid beneficiaries and offering financial incentives to states that encourage prevention initiatives for Medicaid beneficiaries (DHHS, 2010). As of the writing of this chapter, there are issues surrounding graphic warning labels that are being challenged in the courts.

Incidence, Prevalence, Morbidity, and Mortality

In the United States, cigarette smoking continues to be identified as the most avoidable cause of death and disability (Centers for Disease Control and Prevention [CDC], 2016). Tobacco use begins in adolescence, with first use almost always occurring before 18 years of age. Cigarette smoking carries a significant disease burden for the primary smoker that may result in respiratory diseases, lung cancer, and/or cardiovascular disease; may have harmful reproductive effects; and results in more than 480,000 deaths per year in the United States (CDC, 2016). Exposure to secondhand smoke for the nonsmoker creates a significant health risk, especially for individuals with respiratory or cardiac conditions, and can result in premature death and disease. In addition, 16 million Americans live with a significant tobacco-related illness (CDC, 2016). According to a CDC (2016) report, direct medical costs in the United States from tobacco dependence are more than $170 billion per year, with an additional $156 billion resulting from lost productivity.

Although most smokers report a desire to quit, most quit attempts fail. New smokers from adults to children are continually recruited. Not only are interventions critical to help those who already smoke to quit, interventions to prevent people, especially children, from starting to smoke are essential to eliminating smoking-related illnesses.

About 45 million adults (21%) in the United States smoke, and each day about 3,200 children ages 12 to 17 smoke their first cigarette, with about 2,100 becoming addicted to tobacco (CDC, 2016) In 25 Gallop poll surveys taken since 1977, 74% of smokers continually say they want to quit smoking. Eighty-five percent of smokers say they have tried at least once to quit, and 45% say they have tried at least three times to quit (Newport, 2013).

Adolescent tobacco use had declined over the past 40 years, yet in 2015, 4.7 million students in middle school and high school were reported to use tobacco (DHHS, 2016). Among high school students, white high school students have a higher incidence of smoking than their black or Hispanic peers (DHHS, 2016). There is a greater prevalence of smoking among high school students who live in nonmetropolitan areas, in the South, and in the Midwest (DHHS, 2016; Keeling, Lusk, & Kulbok, 2017). Teens who smoke report interesting findings. Two-thirds say they would like to quit, while 40% have tried to quit and failed, and 70% say that if they had to do it over they would not choose to smoke. Teens who smoke two to three cigarettes a day can become addicted in as short as two weeks. Quit attempts in adolescents are usually unassisted and unplanned, yet those who enroll in quit programs are twice as likely to succeed as those who are not enrolled (McCuller, Sussman, Wapner, Dent, & Weiss, 2006). It is encouraging that based on the 2012 Tips From Former Smokers campaign, the CDC reports that 100,000 smokers are expected to have achieved permanent smoking cessation (2015b).

An estimated 6 million youths will die prematurely from cigarette-related deaths (U.S. DHHS, 2010e). Over the past 50 years, the prevalence of smoking in the United States has decreased by about 50%, to about one fifth of the population. Men smoke more than women (19% vs. 15%). Native American/Native Alaskans smoke more (29%) than blacks and whites (both at 18%), Hispanics (15%), and Asians/Pacific Islanders (9.5%). In 2005, 19 million adults attempted to quit, but only 4% to 7% are estimated to have been successful (CDC, 2016). In 2009, the rates of teen smoking declined to 20%, yet monitoring teen smoking is important because 80% of adult smokers began before the age of 18 (CDC, 2010b). Although there is a strong evidence-base for first-line smoking cessation interventions, the United States has yet to achieve its goal of tobacco use being a rare behavior (DHHS, 2014).

Evidence to Guide Population-Focused Interventions

Enormous health-related disparities exist in secondhand smoke exposure. Among the highest exposed are children aged 4 to 11 and low-income individuals at 61% and 63%, respectively (CDC, 2008b). Not only does decreasing smoking in public places protect nonsmokers from the effects of secondhand smoke, but it may also promote smoking cessation by restricting smoking behavior. Comprehensive multicomponent strategies to enforce no-smoking policies within organizations were found to be the most effective strategies to decrease smoking in public places. The ACA of 2009 granted the FDA authority to regulate tobacco products to prevent illness within the population. The law creates a prevention and public health fund that provides states with financial incentives to encourage healthy behaviors among Medicaid recipients (U.S. DHHS, 2010e).

The evidence for tobacco cessation is reviewed in *Ending the Tobacco Problem: A Blueprint for the Nation* (IOM, 2007). This publication endorses innovative social policies that translate the scientific evidence into action. Sample interventions include:

- counter-marketing youth-targeted smoking cessation mass advertising,
- adopting comprehensive smoke-free laws,
- increasing healthcare access to smoking cessation programs,
- restricting smoking-related advertisements, and
- increasing the federal excise tax on cigarettes.

A moderate effect was found with the use of educational material and posted warnings to enforce no-smoking policies (Serra, Bonfill, Pladevall, & Cabezas Pena, 2008). Increasing the federal excise tax on cigarettes has shown national benefit. As of June 2016, the following nine states had set excise tax rates of $3 or more per pack: New York ($4.35), Rhode Island ($3.75), Minnesota ($3.00), Connecticut ($3.65), Massachusetts ($3.51), Guam ($3.00), Vermont ($3.08), Washington ($3.03), and Hawaii ($3.20). For every 10% increase in the price of tobacco products, consumption falls by approximately 4% overall, with a greater reduction among youth. In 2009, the ACA enactment of the 62-cent federal cigarette excise tax increase is projected to prevent initiation of smoking by nearly 2 million children, cause more than 1 million adult smokers to quit, and prevent nearly 900,000 smoking-attributed deaths (U.S. DHHS, 2010e). The long-term healthcare savings by reducing tobacco-related healthcare costs is estimated to be $44 billion.

Mass media interventions are used as part of a comprehensive tobacco cessation program, and they can be effective strategies for adults (Bala, Strzeszynski, & Cahill, 2008). Mass media interventions, such as those delivered by leaflets, booklets, posters, billboards, newspapers, radio, and television, are used to promote smoking cessation. One example of this type of intervention is the media campaign initiated by the New York City Department of Mental Health and Hygiene. In 2006, the department launched a television advertising blitz with disturbing images and graphic descriptions of the health consequences of smoking. One vignette showed a man speaking with a robotic voice after a laryngectomy made necessary by throat cancer. This campaign reduced smoking rates overall among men and Hispanic New Yorkers (CDC, 2007). A prominent national campaign resulted in approximately 450,000 fewer adolescents initiating smoking (Farrelly, Nonnemaker, Davis, & Hussin, 2009). A cost-utility analysis found that the campaign recouped the $234 million in media-related costs and just under $1.9 billion in medical expenses averted for society over the lifetimes of the youth who did not become smokers (Holtgrave, Wunderink, Vallone, & Healton, 2009).

In May 2008, the U.S. Public Health Service released the updated guidelines on tobacco use, treatment, and dependence (Fiore et al., 2008). These evidence-based guidelines recommend treatment for individuals who are tobacco dependent. Recommendations from the guidelines represent strength of evidence with A through C ratings. The strongest recommendations, Level A, are based on multiple, well-designed, randomized trials that are directly relevant to the recommendation. Level B ratings indicate that some evidence from randomized clinical trials supported the recommendation, but the scientific support was not optimal. Level C ratings are "reserved for important clinical situations in which the panel achieved consensus on the recommendation in the absence of relevant randomized controlled trials" (Fiore et al., 2008, p. 15). According to the guidelines, "It is difficult to identify any other condition [than tobacco dependence] that presents such a mix of lethality, prevalence, and neglect despite effective and readily available interventions" (Fiore et al., 2008, p. 2).

The guidelines strongly recommend that clinicians screen and document patients' tobacco use status and deliver evidence-based tobacco dependence treatment (strength of evidence A) (Fiore et al., 2008). Simple reminders, such as chart stickers or electronic prompts, can be instituted within an organization to remind clinicians to ask about smoking status. For smokers who are not currently interested in quitting, motivational techniques can be used to encourage a future quit attempt (strength of evidence B). Clinicians and clinicians-in-training should be taught effective smoking cessation strategies to assist individuals who want to make a quit attempt and those who are not yet motivated to do so (strength of evidence B). Furthermore, because the tobacco-dependence treatments identified in the guidelines are cost effective, they should be offered to all smokers (strength of evidence A). Counseling for tobacco-dependent adolescents has been found to be effective and, therefore, is recommended (strength of evidence B). Web-based interventions may be useful in assisting tobacco cessation (strength of evidence B). Cessation counseling has been found to be effective with parents to help protect children from secondhand smoke (strength of evidence B).

More recently, the U.S. DHHS (2010e) strategic plan *Ending the Tobacco Epidemic, A Tobacco Control Strategic Action Plan* focuses on improving American health by strengthening existing EBPs as well as stimulating new tobacco cessation research. This comprehensive, evidenced-based practice plan represented the first-ever national strategic plan for tobacco control. It included 21 action step featured pillars to improve public health and advance research knowledge. In September 2011, the Centers for Disease Control and Prevention (CDC) awarded more than $100 million in community transformation grants for tobacco control initiatives. Moreover, the Food and Drug Administration (FDA) awarded $33 million in contracts to 37 states to diminish tobacco marketing, sale, and distribution to adolescents at retail locations (Koh & Sebelius, 2012).

What Does Additional Evidence Tell Us About Adolescents?

The evidence indicates that tobacco advertising and promotion increase the likelihood that nonsmoking adolescents will become smokers at a later time. The three most heavily branded cigarette companies accounted for 80% of adolescent cigarette brands. Joe the Camel was an example of an advertising strategy that was specifically directed to promote adolescent smoking (CDC, 2012b).

The National Cancer Institute (2008) concluded that there is a causal relationship between smoking initiation in teens and exposure to media depictions of smoking. In a 2010 meta-analysis of four studies, Millett and Glantz found that viewing tobacco use in movies contributed to a 44% rate of smoking initiation among pediatric populations. This prospective relationship between exposure to smoking in movies and smoking initiation was supported by a national cohort of 2,341 adolescents (Dal Cin, Stoolmiller, & Sargent, 2014). Overall, there is weak evidence that mass media can be effective in preventing young adults from starting to smoke, yet media depictions of smoking aimed at predominantly ethnic minorities were associated with higher rates of tobacco risk behaviors (Upson, 2015). Mass media campaigns that developed and focused their message based on their target audience were more effective than those that did not use this strategy. Campaigns of greater intensity and duration were more successful than those that were not (Sowden, 1998).

Media communications has played a key role in branding cigarettes and creating an image for adolescents. Adolescents experience tremendous social marketing and peer pressures that can promote risky behaviors such as smoking. In 2005, tobacco industries spent $13.5 billion in advertisements (National Cancer Institute, 2008). Tobacco advertisers targeted adolescents by aiming their message at the emotional developmental needs of this age group, such as popularity, peer acceptance, and positive self-image. Tobacco print and media ads create the perception that smoking will satisfy these needs.

Many population studies have documented decreases in teen smoking when social media interventions are combined with public health initiatives. In 2000, the American Legacy Foundation began the largest social media effort to prevent teen smoking, entitled "truth" (National Institute for Health Care Management [NIHCM], 2009). Farrelly et al. (2009) concluded that the truth campaign accounted for approximately a 22% decline in adolescent smoking. An example of a media campaign targeting young adults was the billboard advertising in New York City featuring star athletes from various local sports teams. The slogan, "I don't smoke, do you?" was prominently displayed along major highways throughout the city.

Other interventions are directed toward the selling of tobacco. It is believed that if young people are unable to purchase cigarettes, this may reduce the number who start to smoke. Although warnings and fines levied against retailers to discourage the illegal sale of cigarettes were shown to be effective in decreasing sales, the outcome of this intervention has not shown a clear effect (Stead & Lancaster, 2005). Furthermore, it is believed that the behavior of a child's/adolescent's family may influence the likelihood of the child/adolescent starting to smoke. Although there is evidence that family interventions may prevent adolescents from smoking, other evidence showed neutral or negative outcomes (Thomas, Baker, & Lorenzetti, 2007).

Do school-based programs prevent children who are nonsmokers from becoming smokers? Thomas and Perera (2006) reviewed 23 high-quality, randomized controlled trials. The interventions in these studies included information giving, social influence approaches, social skills training, and community interventions. Information giving alone was not supported by the evidence as an effective intervention, and there was limited evidence for the effects of the other interventions. Peterson et al. (2009) demonstrated the effect of motivational interviewing on teen smoking cessation. In a randomized control trial of 50 high schools in Washington, abstinence from smoking increased 4% in teenagers who received personalized telephone calls and motivational interviews.

Through increased implementation of evidence-based interventions, tobacco dependence in adolescents declined 40% from 1997 to 2003. Before 2009, progress stalled, possibly because of decreased state funding for tobacco-dependence prevention programs, increased tobacco industry marketing, and decreased effectiveness of mass media campaigns (CDC, 2007). In 2009, the National Youth Tobacco Survey still revealed a decline in smoking among middle school and high school students. The prevalence of current tobacco use among middle school students declined (15.1% to 8.2%), as did current cigarette use (11.0% to 5.2%) and cigarette smoking experimentation (29.8% to 15.0%). Similar trends were observed for high school students (current tobacco use: 34.5% to 23.9%; current cigarette use: 28.0% to 17.2%; cigarette smoking experimentation: 39.4% to 30.1%). The CDC (2010a) reports that despite the decline in teenage smoking by interventions, state programs remain underfunded. The tobacco epidemic in the United States is an example of how utilizing EBP public health measures at a national level can stop this epidemic and accelerate declines in the related morbidity and mortality associated with tobacco dependence.

Putting Evidence Into Practice

Traditional smoking cessation counter-marketing strategies employed a wide range of efforts, including paid television, radio, billboard, print, and web-based advertising at the state and local levels; media advocacy through public relations efforts, such as press releases; and local events, media literacy, and health promotion activities (Fiore et al., 2008). In today's technologically dependent society, social media has emerged as a popular source of health information. Innovations in tobacco cessation health communication should include targeting smoking audiences through personal communication devices (e.g., text messaging) and online networking environments, as well as fostering dissemination of health messages through innovative channels (such as weblogs or blogs).

Approximately 62% of the U.S. population report that they use the Internet, with greater than 50% of adults reporting health-related information searches (CDC, 2010b). Internet-based interventions provide an excellent public health opportunity to impact tobacco use at a population level. There is a positive association between web-assisted tobacco interventions and successfully quitting (An et al., 2008). A systematic review of web-based interventions demonstrated a 17% increase in six-month tobacco abstinence (Shabab & McEwen, 2009).

An exemplar of a web-assisted, EBP smoking social networking site is QuitNet. QuitNet is an Internet-based intervention that provides telephone intervention, 24-hour social networking, smoking cessation medication, and email support. QuitNet first launched on the World Wide Web in 1995. Dr. Nathan Cobb created the concept, which was later adopted by Join Together, a project of Boston University School of Public Health. With the university's help, QuitNet.com, Inc. was formed in 2000 to take on the role of expanding QuitNet into a self-supporting service operating worldwide. QuitNet is utilized in several statewide smoking initiatives, including Utah and North Dakota. Utah has the lowest smoking rate in the country at 8.8% (Utah Department of Health, 2010). In 2011, 860 Utahans per month were served with free tailored interventions by QuitNet and telephone-based quit interventions. Structured interventions that reach the entire community have shown to improve smoking cessation in Utah: 93% of Utahans have implemented rules against smoking in their homes, and 98% of Utah children are without secondhand exposure in their homes (Utah Department of Health, 2010). Clearly, more research needs to be done to explore outcomes with Internet-based smoking programs, yet web-based interventions are important in population-based strategies for tobacco cessation. The Internet programs can be self-tailored and are an inexpensive way to deliver to large population because they require low personnel costs.

Tobacco Dependence: Future Directions Through Best Practices

According to the U.S. DHHS (2010e), the most effective evidence-based, population-based approaches result from the synergistic effect produced by putting into place the following program components: state and community interventions, health communication interventions, cessation interventions, surveillance and evaluation, and administration and management. The IOM (2007) put forth the goal of reducing smoking so that it is no longer a significant health problem for our nation. The IOM believes, based on substantial evidence, that this can be achieved through state tobacco control programs that are comprehensive, integrated, and maintained over time. The most cost-effective, worldwide strategy to reduce tobacco use has been raising taxes (WHO, 2015). In the past 25 years, cigarette prices rose 350% because of a sixfold increase in federal cigarette tax and a fivefold increase in state tax (WHO, 2015). In this same era, the adult smoking population decreased by nearly 33%, and the number of cigarettes smoked per capita decreased by more than 50% (WHO, 2015). Putting into practice national evidence-based interventions is an example of how to curtail a public health condition such as the tobacco epidemic in the United States.

Additional Resources

Center for Disease Control and Prevention—Smoking & Tobacco Use—State and Community Resources at: http://www.cdc.gov/tobacco/stateandcommunity/

Center for Disease Control and Prevention—Smoking & Tobacco Use—Data and Statistics at: https://www.cdc.gov/tobacco/data_statistics/

Center for Disease Control and Prevention—Health Literacy at: http://www.cdc.gov/healthliteracy/

National Assessment of Adult Literacy at: https://nces.ed.gov/naal/

Agency for Healthcare Research and Quality—Clinical Guidelines and Recommendations at: http://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/index.html

U.S. Preventative Services Task Force at: https://www.uspreventiveservicestaskforce.org/

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Index