ETHIOPIA BEMONC

BASIC EMERGENCY OBSTETRIC & NEWBORN CARE (BEmONC)

LRP

Training Manual

Federal Democratic Republic of Ethiopia
Ministry of Health
2013

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Foreword

Acronyms

AMDD	Averting Maternal Death and Disability
AMTSL	Active Management of Third Stage of Labour
ANC	Ante Natal Care
APH	Ante Partum Hemorhage
ART	Anti Retroviral Therapy
ARV	Anti Retro Viral
BEmONC	Basic Emergency Obstetric & Newborn Care
CBT	Competency-based training
CCT	Controlled Cord Traction
CEmONC	Comprehensive Emergency Obstetric & Newborn Care
CPD	Cephalo Pelvic Disproportion
C/S	Cesarean Section
EDD	Expected Date of Delivery
EDHS	Ethiopian Demographic Health Survey
EOC	Emergency Obstetric Care
EONC	Emergency Obstetric & Newborn Care
FANC	Focused antenatal care
FGC	Female Genital Cutting
FGM	Female Genital Mutilation
FHB	Fetal Heart Beat
FP	Family Planning
GA	Gestational Age
GBV	Gender Based Violence
HELLP	Haemolysis Elevated Liver enzymes and Low Platelets
HLD	High Level Disinfection
HTC	HIV Testing and Counseling
ICPD	International Conference on Population and Development
IM	Intra Muscular
IMPAC	Integrated Management of Pregnancy and Childbirth
IMNCI	Integrated Management of Newborn and Childhood Illnesses

IP	InfectionPrevention
ITN	Insecticide Treated (bed) Nets
IUCD	Intra Uterine Contraceptive Device
IUGR	Intra Uterine Growth Restriction
IV	Intra Venous
KMC	Kangaroo Mother Care
LAM	Lactational Amenorrhoea Method
LBW	Low Birth Weight
LNMP	Last Normal Monthly Period
LRP	Learning Resource Package
MDG	Millennium Development Goal
MVA	Manual Vacuum Aspiration
PID	Pelvic Inflammatory Disease
POC	Products Of Conception
PPH	Post Partum Hemorrhage
PS	Patient Safety
SBA	Skilled Birth Attendant
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TOT	Training Of Trainers
TT	Tetanus Toxoid
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VAW	Violence Against Women
WHO	World Health Organization

Acknowledgement

PREFACE

Most pregnancies and births are uneventful with good maternal and perinatal outcome, however, approximately 15% of all pregnant women develop potentially life-threatening complications that call for skilled care and some will require a major obstetrical intervention to survive. This training manual is a component of the **Basic Emergency Obstetric and Newborn Care (BEmONC)** learning resource package (LRP) prepared for use in Ethiopia in in-service training of doctors, midwives, health officers and/or nurses with midwifery skills who, as team members, will provide Basic Emergency Obstetric and Newborn Care (BEmONC) at health centers and district hospitals to avert maternal and newborn mortality & morbidity. Although the learning resource package is developed primarily for use in district hospital and health centers, it can also be used by the same mid level health care providers in higher level facilities to provide initial care and until consultation.

The course follows a modular format and competency-based approach. The content is primarily an adaptation of the LRP, ***"Emergency Obstetric Care for Doctors and Midwives", prepared by the JHPIEGO/MNH Program with support from the Averting Maternal Death and Disability Program at the Mailman School of Public Health, Columbia University which is consistent with the WHO materials in the Integrated Management of Pregnancy and Childbirth (IMPAC) series.*** In addition it uses relevant local guidelines and protocols developed by the federal ministry of health.

Components of the learning resource package are: ***Training manual, Facilitator's hand book, Participant's handout, power point presentations, technical videos and other relevant resources.*** There are five modules in the package and each module describes the learning objectives, learning outlines, learning materials and assessment tools. Module one is introduction to maternal and newborn health, module two on rapid initial assessment and emergency management; module three on care during pregnancy; module four on care during labour and child birth and module five on post partum maternal and newborn care. Modules 3-5 start with basic care and then cover care for life-threatening obstetric emergencies and newborn problems following a symptom-based approach.

The training manual contains updated and summarized essential technical information from the relevant references and is intended to be used as the reference manual by both the facilitators and participants. The facilitator's hand book has two parts; guide for TOT and facilitator's guide. The guide for TOT part has a 6 days curriculum for training of facilitators and programmers. The facilitator's guide part contains the course out lines, learning guides and checklists, exercises, role plays and answer keys for each module and will guide how to facilitate the training. The participant handout is intended primarily to serve for the participant and contains, learning guides and checklists, exercises, role plays and answer keys of each module.

This training is intended to be completed over three weeks period with 8 days classroom theoretical sessions & practice on model and 10 days of clinical practice in selected health facilities.

MODULE -1

INTRODUCTION TO MATERNAL & NEWBORN HEALTH

CONTENTS

UNIT-1: INTRODUCTION TO MATERNAL AND NEWBORN HEALTH

The health of mothers and children is central to global and national concerns, and improvements in maternal and child survival are two important Millennium Development Goals. Apart from the obvious linkages between health programmes, mother and child health is intimately bound up with economic development, education, gender issues and rights. Although most pregnancies and births are uneventful, approximately 15% of all pregnant women develop a potentially life-threatening complication that calls for skilled care and some will require a major obstetrical intervention to survive. For an individual woman, the risk of maternal death is influenced both by the risk associated with pregnancy and by the number of times she becomes pregnant. Each time a woman becomes pregnant, she runs the risk of maternal death again, and the risk adds up over her lifetime. In developing countries, where both mortality and fertility tend to be high, the lifetime risk of maternal death can be astoundingly high.

A **maternal mortality** is defined as 'the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. And, a late **maternal mortality** is defined as the death of a woman or girl from direct or indirect causes more than 42 days but less than one year after termination of pregnancy. There are three main ways in which maternal mortality is measured:

- **Maternal Mortality Rate:** Number of maternal deaths per year for every 100,000 women aged 15-49. This measure reflects both the risk of death among pregnant and recently pregnant women, and the proportion of all women who become pregnant in a given year. But because this denominator is difficult to determine precisely, most widely used is the maternal mortality ratio.

- **"Maternal Mortality Ratio:** Number of maternal deaths per 100,000 live births during a given time period. This measure indicates the risk of maternal death among pregnant and recently pregnant women. It is a measure of obstetric risk

and a reflection of a woman's basic health status, her access to health care, and the quality of service that she receives.

- **Lifetime Risk of maternal death:** This measure reflects the probability of maternal death faced by an average woman cumulated over her entire reproductive life-span. Like the maternal mortality rate, it reflects both a woman's risk of dying from maternal death, as well as her risk of becoming pregnant in the course of a reproductive lifetime.

A maternal death could be due to a direct or an indirect cause. A direct maternal death is an obstetric death resulting from obstetric complications of the pregnancy state, labor, or puerperium. And, an indirect maternal death is an obstetric death resulting from a disease previously existing or developing during the pregnancy, labor, or puerperium; death is not directly due to obstetric causes but may be aggravated by the physiologic effects of pregnancy.

In addition to the women who die, many more suffer from serious but not fatal health problems as a result of pregnancy or childbirth. Most women who have obstetric complications recover, but some suffer long-term disabilities including sterility and obstetric fistula. Obstetric urinary fistula is a condition in which prolonged obstructed labor produces a hole between the vagina and the urinary system, resulting in chronic incontinence. This is not only painful, but if left untreated (as is usually the case in developing countries) it can lead to social stigmatization and isolation. Sterility commonly results from untreated or recurrent pelvic infection. Beyond frustration and disappointment, sterility can have profound social and economic consequences for women in societies where women's value is largely determined by the children they bear. There is little reliable information on the prevalence of maternal morbidity, but the number of women affected is sure to be several times greater than the number who die. Fortunately, interventions that reduce maternal deaths will also reduce maternal morbidity.

Perinatal mortality tends to follow the same geographical pattern as for maternal deaths. Stillbirths, neonatal deaths, and maternal morbidity and mortality fit together as public health priorities. A very large proportion of maternal and perinatal deaths are avoidable. Most deaths occur due to poor service provision, as well as lack of access to and use of these services. Interventions that can prevent mortality from the major causes of death are known, and can be made available even in resource-poor settings. These include focusing on adequate care and preparation in the household, assuring quality services close to where women live and systematically detecting and managing complications at an early stage.

The purpose of this module is to introduce the participant to the global situation of maternal and neonatal mortality & morbidities, overview of best practices in maternal and neonatal care and emergency management principles.

MODULE OBJECTIVES

By the end of this module participants will be able to:

- Appreciate the magnitude of maternal and newborn mortality & morbidity in the developing world generally and in our country specifically.
- Describe the current approach to reduction of maternal and newborn mortality.
- Describe GBV and FGC
- Describe the prevalence and obstetric effects of GBV and FGC.
- Describe the principles of women friendly care.
- Describe best practices in infection prevention.
- Describe the basic elements of initial rapid initial assessment and managing emergencies.
- Demonstrate steps in detection and management of “shock”.

UNIT-2: CURRENT APROACH TO REDUCTION OF MATERNAL AND NEONATAL MORTALITY

2.1. UNIT LEARNING OBJECTIVES

By the end of this unit participants will be able to:

- Recognize the situation of maternal and neonatal mortality & morbidity globally and in our country specifically.
- Describe factors affecting maternal and perinatal mortality and morbidity.
- Review historical and current interventions to reduce maternal and neonatal mortality

2.2. GLOBAL AND NATIONAL SITUATION OF MATERNAL AND PERINATAL MORBIDITY AND MORTALITY

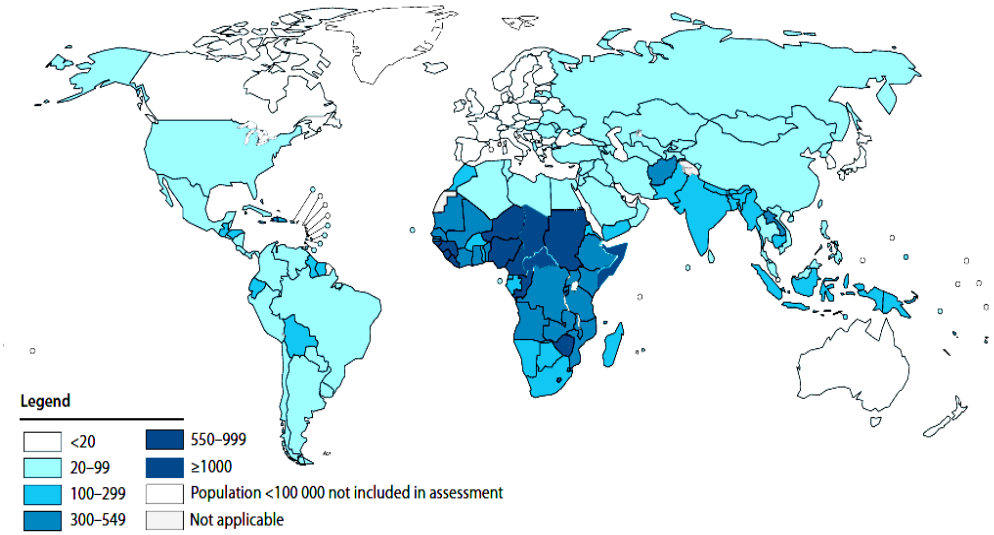
The global maternal mortality is unacceptably high. According to World Health Statistics 2012 released by the World Health Organization: every year some 287 000 women die of complications during pregnancy or childbirth globally, i.e. about ***800 maternal deaths every single day or 1 maternal death every 2 minutes***. Developing countries account for 99% (284 000) of the global maternal deaths, the majority of which are in sub-Saharan Africa (162 000) and Southern Asia (83 000). These two regions accounted for 85% of global burden, with sub-Saharan Africa alone accounting for 56%. Despite a significant reduction in the number of maternal deaths by about 50% – from an estimated 543 000 in 1990 to 287 000 in 2010 – the rate of decline (3.1% per year) is just over half that needed to achieve the relevant MDG target-5 (5.5% per year).

The average maternal mortality ratio in developing countries in 2010 was 240 per 100 000 births versus 16 per 100 000 in developed countries reflecting inequities in access to health services, and highlighting the gap between rich and poor ***(See Figure 1-1)***. Sub-Saharan Africa had the highest maternal mortality ratio at 500 maternal deaths per 100,000 live births. According to a systematic analysis of progress towards Millennium Development Goal 5 (published in THE LANCET on 12 April 2010); more than 50% of all maternal deaths in 2008 were in only six countries (India, Nigeria, Pakistan, Afghanistan, Ethiopia, and the Democratic Republic of the Congo).

The disparity between developed and developing countries is greater for maternal mortality than for any other commonly-used index of health. Whereas levels of infant

mortality are, on average, 10 times higher in developing than in developed countries, maternal mortality in developing countries is more than 100 times higher than in industrialized countries.

Figure 1-1: Maternal mortality ratio, by country, 2010 (WHO-2012 report).

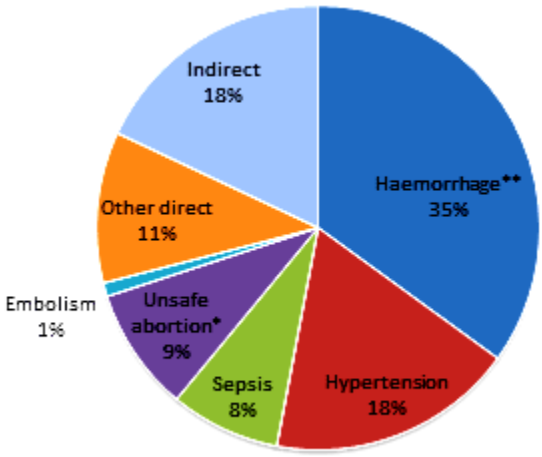


Women die from a wide range of complications in pregnancy, childbirth or the postpartum period. Most of these complications develop because of their pregnant status and some because pregnancy aggravated an existing disease. The five major global causes of maternal death are: severe bleeding (mostly bleeding postpartum), infections (also mostly soon after delivery), unsafe induced abortion, hypertensive disorders in pregnancy (eclampsia) and obstructed labour ***(See Figure 1-2).*** Globally, about 80% of maternal deaths are due to these causes. Hemorrhage alone accounts for one third of all maternal deaths in Africa, yet many of these deaths are preventable. Among the indirect causes (20%) of maternal death are diseases that complicate pregnancy or are aggravated by pregnancy, such as malaria, anemia and heart disease.

Most of the maternal deaths around the world could have been prevented by improving women's access to good-quality reproductive health care and effective interventions. Many women die because of poor health at conception and a lack of adequate care needed for the healthy outcome of the pregnancy for themselves and their babies. The 287 000 maternal deaths are the tip of the iceberg, and many more women are estimated to suffer pregnancy-related illnesses, near-miss events, and other potentially devastating consequences after birth. Obstetric fistula resulting from obstructed labour is a long term complication suffered by as many as two million women. Generally, about

15 percent of all pregnant women have childbirth complications that require emergency obstetric care (EmOC), yet few are able to access such services.

Figure 1-2: Causes of maternal deaths, global.



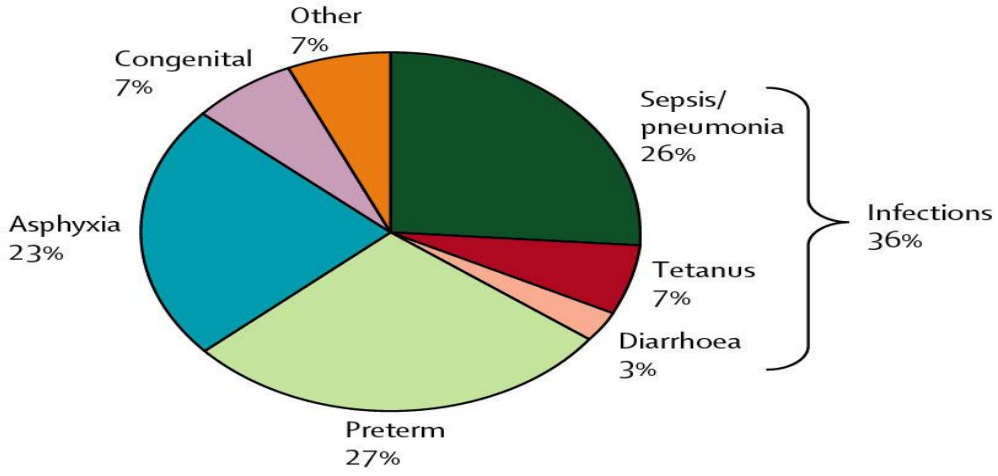
Source: WHO 2010. *Nearly all (99%) abortion deaths are due to unsafe abortion. **This category includes deaths due to obstructed labor or anemia.

Mortality rate in the perinatal period is another important indicator of the quality of care during pregnancy, labour & delivery and the post partum period. It shows the obvious disparity between developed and developing countries and is used to evaluate the outcome of pregnancy and monitor the quality of prenatal and newborn care. The perinatal mortality rate includes both fetal and early neonatal mortality. Fetal death is defined as death of the fetus occurring from 28 weeks of gestation but prior to delivery; while neonatal death is defined as a live born infant who dies before 28 days of age. Neonatal deaths can occur early, within the first seven days after birth, or late, on days eight through 28. Approximately 98% of the 5.7 million perinatal deaths suffered globally occur in developing countries. According to WHO data, 2.7 million babies are born dead each year and another 3 million do not survive beyond the first week of life.

Newborn health and survival are closely linked to care the mother receives before and during pregnancy, childbirth, and the postnatal period. Most of the perinatal deaths are avoidable. Throughout the continuum of care, the period with the highest risk of death and disability for both mothers and newborns is labour, birth, and the first few hours after birth. Complications and lack of care at this crucial time has consequences for mothers and babies. About one-third of perinatal deaths in developing countries are related to intrapartum complications leading to birth asphyxia (See the global causes of newborn causes in ***Figure 1-3***). Preterm birth, malformations, and infections related to pregnancy and birth contribute to the remainder of the early neonatal deaths.

Representing a substantial portion of overall child deaths, early neonatal deaths account for 38% of all infant mortality and 29% of 'under-five' mortality in developing countries. Late neonatal deaths are to some extent due to perinatal conditions, but mostly to infections acquired after birth, many of which are associated with poor hygiene, lack of information on adequate newborn care and/or poor neonatal feeding practices. Often the death of mothers is closely connected with newborn deaths, as maternal mortality and morbidity have a direct negative impact on the survival chances of the newborn.

Figure 1-3: Causes of Newborn Death, global.



Skilled care at birth and immediately thereafter would save the lives of many mothers and babies and prevent countless complications. Yet almost 50 percent of African women give birth without a skilled attendant, the average coverage of births with a skilled attendant on the continent has not increased significantly. Two in three women who need emergency obstetric care do not receive it. Scaling up skilled attendance and emergency obstetric care is fundamental to reaching Millennium Development Goal (MDG) for maternal health, and scaling up care during childbirth will also contribute to MDG 4 for child survival.

The situation in Ethiopia is similar to the situation in many developing countries. Out of the estimated **2,924,225 pregnancies** in 2003E.C, only **20.3%** were attended by a skilled health provider (Health and Health Related Indicators EFY, 2003). Although the countries maternal mortality ratio has decreased from 871/100 000 live births in 2000 to 676/100 000 live births in 2011 (DHS-2011), it is still very high and access to emergency obstetrical care is still limited. According to the systematic analysis of progress towards Millennium Development Goal 5 (THE LANCET on 12 April 2010); although the MMR in Ethiopia has decreased from 1061/100,000 live births in 1980 to

590/100,000, our country is one of the six countries in 2008 which contribute more than 50% of all maternal deaths.

A facility based National Baseline Assessment for **Emergency Obstetric & Newborn Care done in** 2008 has revealed that approximately nine out of ten women with obstetric complications who visited the facilities had direct complications and 9% had indirect complications (***see Table 1.1***). According to the report; APH and PPH/retained placenta were responsible for 12% of all maternal deaths and obstructed/prolonged labor and ruptured uterus for 25%.

Table 1-1: The leading causes of maternal mortality in Ethiopia (a facility based study, 2008).

	Women with Complications (%)	**Maternal Deaths (%)**
Total DIRECT complications/causes	**91**	**69**
• APH	4	5
• PPH/Retained placenta	15	7
• Obstructed/ Prolonged labor/ Ruptured uterus	23	25
• Postpartum sepsis	2	5
• Severe pre-eclampsia / eclampsia	5	11
• Severe complications of abortion	4	6
• Others:		
○ Abortions w/ less severe complications	25	NA
○ Direct complications from other causes	13	9
Total INDIRECT complications/causes	**9**	**21**
• Malaria	1	9
• HIV/AIDS - related	6	4
• Anemia	1	4
• Other indirect causes	1	3
• Undefined cause	**NA**	**10**
TOTAL	**100%**	**100%**

2.3. FACTORS AFFECTING MATERNAL AND PERINATAL MORTALITY AND MORBIDITY

Multiple factors are responsible for the tragic high maternal and perinatal mortality/morbidity in the developing world including our country. These factors lead to delays in appropriate interventions at different levels. The ability of families and communities to recognise and access care quickly in case of an emergency determines the survival and health of both mother and fetus/newborn. For some obstetric complications, particularly haemorrhage, the window of opportunity to respond and save the life of the mother may be measured in hours. For the fetus or the newborn death can come even more quickly. Any delay may have fatal consequences (Box 1-1).

BOX 1-1: Deadly delays

Three delays in care seeking affect the survival of both mothers and newborns.

1. Delays in recognising problems and deciding to seek care
    - Complications not recognised as serious
    - Family members delay care seeking
        - Spiritual or cultural beliefs may reinforce delays or result in other treatments
2. Delays in transportation to reach appropriate care
    - Lack of transport and/or funds
    - Distance and travel time to reach health facilities
3. Delays in receiving appropriate care at the health facility
        - Lack of appropriately trained staff and negative attitudes of health workers
    - Lack of essential equipment, drugs and supplies

The first two delays reveal questions about seeking care at the family and community level. Are families equipped to make healthy choices? Can the family and community support women when transportation and emergency costs are necessary? In many cultures, a woman must receive permission and money from her husband or other family members to seek care when complications take place. Long distance, high cost, and poor quality of care also contribute to the first and second delays. The third delay is related to health care providers, the facility, and the health system. In South Africa, data collected for the national perinatal problem identification programme, which now covers over one third of South Africa's births, show that while the majority of avoidable factors for stillbirths and neonatal deaths are related to poor maternal care during labour and the immediate postnatal period, about one third are due to delays at home and in transportation.

2.4. CURRENT APPROACHES TO REDUCTION OF MATERNAL AND NEONATAL MORTALITY

In September 2000, representatives from 189 countries endorsed the United Nations Millennium Declaration, which included a compact “to have reduced maternal mortality by three quarters by 2015”. Already in 1999, the ICPD + 5 Special Session of the UN General Assembly urged WHO, “to put in place standards for the care and treatment for women and girls … and to advise on functions that health facilities should perform to help guide the development of health systems to reduce the risks associated with pregnancy”. In response, WHO created the initiative to “Make Pregnancy Safer” in order to strengthen countries' health systems at all levels and increase the availability and quality of their maternal and newborn health-care services. In addition, WHO has made significant achievements in generating evidence and developing norms, standards and tools that are crucial to provide countries with guidance on reducing maternal and perinatal mortality and morbidity.

The MPS global strategic approach proposes WHO work with countries and partners to achieve universal coverage of essential maternal and newborn interventions, which includes skilled care for all mothers and newborns. A cornerstone of the global MPS strategic approach is the ***Integrated Management of Pregnancy and Childbirth(IMPAC) approach. IMPAC is a quality policy, technical and managerial approach to maternal and newborn survival and improvement of their health.*** It includes guidance and tools to improve the health system response, health workers skills, and family and community action and care. After the adoption of IMPAC in countries key interventions need to be established and others sustained. A stepwise implementation of the key interventions is recommended, which includes adaptation to local settings and contexts. All IMPAC interventions should aim at achieving total geographical and population coverage in due course. The phase of implementation and the extent of resources available will require national maternal and newborn programmes to carefully prioritize the expansion of coverage. As part of the expansion, key interventions need to be implemented along with other related interventions (e.g. community mobilization, involvement of the nongovernmental organizations [NGOs] and private sector, analysis of cost and financing, operational research). **The overarching goal** of this strategic approach is that all women and newborns will have access to skilled care services during pregnancy, childbirth and the postpartum and newborn periods, thereby minimizing maternal, perinatal and newborn morbidity and mortality.

There is now a global consensus on what must be done to eliminate the menace of maternal and perinatal deaths. Reducing maternal mortality has arrived at the top of health and development agendas. To achieve the Millennium Development Goal of a

75% reduction in the maternal mortality ratio between 1990 and 2015, countries throughout the world are investing more energy and resources into providing equitable, adequate maternal health services. Progress in many countries has led to a growing consensus in the maternal health field that reducing maternal and newborn deaths and disability can be achieved by ensuring

1) Access to family planning,
2) A skilled health professional present at every delivery and
3) Access to emergency obstetric and newborn care (EmONC),

Neonatal deaths are more common than maternal deaths and can be reduced through a range of approaches: institutional or community-based, antepartum, peripartum, and postpartum. Within this spectrum, skilled birth attendance is particularly advantageous for both maternal and neonatal survival. Associations between place of birth (or the presence of a skilled attendant) and neonatal deaths are similar to those for maternal deaths; 90% coverage of facility-based clinical care alone could reduce neonatal mortality by 23–50%. The three biggest causes of neonatal death are preterm delivery, complications of presumptive birth asphyxia, and infection. The first two of these are manifest at the time of birth and about three-quarters of neonatal deaths occur in the first week, most of them in the first 2 days. If we can achieve high coverage of intrapartum care based in health centres, a qualitative change in labour monitoring and in early care for preterm newborn babies is likely to translate into a fall in early neonatal mortality.

In childbearing, women need a continuum of care to ensure the best possible health outcome for them and their newborns. The successful provision of the continuum of care requires a functioning health care system with the necessary infrastructure in place, including transport between the primary level of health care and referral clinics and hospitals. It also needs effective, efficient and proactive collaboration between all those involved in the provision of care to pregnant women and newborns. The skilled attendant is at the centre of the continuum of care. In 1999, a joint WHO/UNFPA/ UNICEF/World Bank statement1 called on countries to “ensure that all women and newborns have skilled care during pregnancy, childbirth and the immediate postnatal period”. Skilled care refers to the care provided to a woman and her newborn during pregnancy, childbirth and immediately after birth by an accredited and competent health care provider who has at her/ his disposal the necessary equipment and the support of a functioning health system, including transport and referral facilities for emergency obstetric care. Since skilled care as defined above can be provided by a range of health professionals, whose titles may vary according to specific country contexts, it has been agreed to refer to this health care provider as the “skilled attendant” or, “skilled birth

attendant", so as to avoid confusion over titles. Thus: a skilled attendant is an accredited health professional — a midwife, doctor, health officer or nurse — who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns.

One way of reducing maternal mortality is by improving the availability, accessibility, quality and use of services for the treatment of complications that arise during pregnancy and childbirth. These services are collectively known as Emergency Obstetric Care (EmOC) (See ***Table 1-2*** for classification and Criteria for EmONC services) . Newborn deaths cannot be substantially reduced without efforts to reduce maternal deaths and improve maternal health. However, care during pregnancy and delivery must be accompanied by appropriate care of newborns and measures to reduce newborn deaths due to postnatal causes such as infections (tetanus, sepsis), hypothermia and asphyxia. Most postnatal deaths are caused by preventable and/or treatable diseases. Preventive interventions are simple, inexpensive, available and cost-effective. Most direct obstetric complications can be treated by a package of interventions identified by the World Health Organization (WHO), the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA) that, taken together, are known as emergency obstetric and newborn care (EmONC).

Table 1-2: Criteria for Basic and Comprehensive EmONC services.

In Primary Health Care Facility **In District Hospital**

Basic EmONC	**Comprehensive EmONC**
• Parenteral antibiotics • Parenteral oxytocics drugs • Parenteral anticonvulsivants • Manual removal of placenta • Removal of retained products of conception • Assisted vaginal delivery (vacuum extraction) • Newborn care	**All Basic EmONC +** • Surgery (caesarean section) • Blood transfustion

UNIT -3: GENDER-BASED VIOLENCE (GBV)

3.1. UNIT LEARNING OBJECTIVES

By the end of this module participants will be able to:

- Define Gender Based Violence (GBV).
- Describe types of GBV.
- Describe the effects and global situation of GBV.

3.2. GENDER-BASED VIOLENCE

Gender-based violence is violence that is directed against a person on the basis of gender or sex. It includes acts that inflict physical, mental or sexual harm or suffering, threats of such acts, coercion and other deprivations of liberty. While women, men, boys and girls can be victims of gender-based violence, women and girls are the primary victims.

Expanded Definition of Sexual and Gender-based Violence used by UNHCR and implementing partners, based on Articles 1 and 2 of the United Nations General Assembly Declaration on the Elimination of Violence against Women (1993):

…any act that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women because of being women and men because of being men, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life.

Sexual violence is ubiquitous; it occurs in every culture, in all levels of society and in every country of the world. Globally, at least one in three women and girls will experience physical or sexual abuse in her lifetime. Data is lacking to indicate Ethiopian national level prevalence with regard to GBV, VAW or Domestic Violence. According to EDHS 2005 the prevalence of FGC is 74%, marriage by Abduction – 8% and 81% of Ethiopian women continue to believe that a husband is justified in beating his wife for one of the following reasons (burns food, argues with him, goes out without telling him, neglects the children, refuses to have sex with him)

Gender-based violence can be:

- **Sexual violence**
  - Harassment
  - Rape
  - Sodomy
  - Marital Rape
  - Abuse/Exploitation
  - Child Sexual Abuse/Incest
  - Sexual Abuse (non-penetrating)
  - Forced prostitution “willing” but involuntary, child prostitution, UAMs,
  - Sexual Trafficking
  - Harmful traditional practices
- **Physical**
  - Spouse beating/Domestic Violence
  - Assault and other physical violence (gender-based)
  - Harmful traditional practices
- **Emotional- mental - psychological—social**
  - Verbal, emotional abuse
  - Humiliation
  - Discrimination
  - Denial of opportunities and/or services
  - Spouse confinement (domestic violence)
  - Harmful traditional practices
- **Economic (Can be a component of any of the above)**

Harmful Traditional Practices fit into each of the three main categories above. When talking about this topic there is a need for cultural understanding, sensitivity and awareness. The discussion should include the challenges of dealing with long standing cultural practices such as:

- FGM/FGC
- Early/forced marriage
- Honor killings

- Dowry abuse
- Widow ceremonies
- Punishments directed at women for crimes against culture
- Denial of education, food for girls/women due to gender role expectations

After-effects and outcomes of GBV: With all types of gender-based violence, there are serious and potentially life threatening health outcomes.

- **Fatal Outcomes:** Homicide, Suicide, Maternal Mortality, Infant Mortality, AIDS-related
- **Not-fatal Outcomes:** Acute physical, Chronic Physical, Reproductive (Miscarriage, Unwanted Pregnancy, Unsafe Abortion, STIs including HIV, Menstrual disorders, Pregnancy complications, Gynecological disorders, Sexual disorders), Mental Health
- Emotional and psychosocial after-effects
- Social Consequences

(Source: Training on care for survivors of sexual violence; Participant Manual, Ethiopia, February 2010)

UNIT -4: FEMALE GENITAL CUTTING (FGC)

4.1. UNIT LEARNING OBJECTIVES

By the end of this module participants will be able to:

- Define Female Genital Cutting (FGC)
- Describe types of FGC.
- Describe the obstetric effects and global situation of FGC.

4.2. FEMALE GENITAL CUTTING (FGC)

Female circumcision, also known as female genital cutting (FGC) or female genital mutilation (FGM) consists of all procedures that involve partial or total removal of the external female genitalia or other injury to the female genital organs whether for cultural or other non-therapeutic reasons. It is common in several countries, predominantly in Africa, and about 140 million girls and women worldwide are currently living with the consequences of FGM. Women's FGC status is defined and typed according to the findings at examination of the external genitalia. WHO classifies FGC in to four types as shown in Box 1-2.

Box 1-2: WHO (2008) classification of female genital cutting (FGC)

Type I:	Partial or total removal of the clitoris and/or the prepuce (**Clitoridectomy**).
Type II:	Partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora **(Excision)**.
Type III:	Narrowing of the vaginal orifice with creation of a covering seal by cutting and appositioning the labia minora and/or the labia majora, with or without excision of the clitoris **(Infibulation)**.
Type IV:	All other harmful procedures to the female genitalia for non-medical purposes, for example: pricking, piercing, incising, scraping and cauterization **(Unclassified).**

Female genital cutting (FGC) is a common practice in many societies in sub-Saharan Africa. In Ethiopia, the age at which FGC is performed varies among the different ethnic groups. In Northern Amhara and Tigray, for example, FGC is performed at infancy and usually on the eighth day after birth (NCTPE, 1998). Data collected in the 2005 EDHS

show that most women age 15-49 have heard of female circumcision. With the exception of differences by region, differences by other background characteristics in the percentage of women who have heard of female circumcision are small. Six percent of circumcised women reported that their vagina was sewn closed (infibulation) during circumcision, which is the most severe form of FGC. Infibulation is most common among women age 25-39, women with no education, and women in the lowest wealth quintile. Rural women are also more likely than urban women to have experienced infibulation. More than four in five circumcised women residing in the Somali Region and three in five in Affar have experienced the most severe form of FGC.

FGM has no health benefits, and it harms girls and women in many ways. It involves removing and damaging healthy and normal female genital tissue, and interferes with the natural functions of girls' and women's bodies. Immediate complications can include severe pain, shock, haemorrhage (bleeding), tetanus or sepsis (bacterial infection), urine retention, open sores in the genital region and injury to nearby genital tissue. And long-term consequences can include: recurrent UTI; infertility; an increased risk of childbirth complications and newborn deaths and the need for later surgeries.

According to a WHO study group on female genital mutilation and obstetric outcome done at 28 obstetric centres in Burkina Faso, Ghana, Kenya, Nigeria, Senegal, and Sudan between November, 2001, and March, 2003, deliveries to women who have undergone FGC are significantly more likely to be complicated by caesarean section, postpartum haemorrhage, episiotomy, extended maternal hospital stay, resuscitation of the infant, and inpatient perinatal death, than deliveries to women who have not had FGC. Women with FGC II and FGC III were significantly more likely to have a caesarean section and post-partum blood loss of 500 mL or greater than were women who had not had FGC. There was no significant association between FGC and the risk of having a low-birth weight infant. There is evidence that FGC is associated with increased rates of genital and urinary-tract infection, which could also have repercussions for obstetric Outcomes.

The mechanism by which FGC might cause adverse obstetric outcomes is unclear. Although practices vary from country to country, FGC is generally done in girls younger than 10 years and leads to varying amounts of scar formation. The presence of this scar tissue, which is less elastic than the perineal and vaginal tissue would normally be, might cause differing degrees of obstruction and tears or episiotomy. A long second stage of labour, along with direct effects on the perineum, could underlie the findings of an increased risk of perineal injury, postpartum haemorrhage, resuscitation of the infant, and fresh stillbirth associated with FGC.

UNIT-5: WOMEN FRIENDLY CARE

5.1. UNIT LEARNING OBJECTIVES

By the end of this unit participants will be able to:

- Define woman friendly care.
- Describe cares which are woman friendly.
- Describe examples of cares which are not woman friendly.

5.2. WOMEN FRIENDLY CARE

Women-friendly care is life-saving as studies have shown that women may refuse to seek care from a provider who “abuses” them or does not treat them well, even if the provider is skilled in preventing and managing of complications.

Woman friendly care is a care that:-

- **Provides services that are acceptable to the woman:**
  - Respects beliefs, traditions, and culture
  - Includes family, partner, or other support person in care
  - Provides relevant and feasible advice
- **Empowers woman and her family to become active participants in care**
- **Considers the rights of the woman:**
  - Right to information about her health
  - Right to be informed about what to expect during visit
  - Obtains permission/consent prior to exams and procedures
- **Ensures that all healthcare staff use good interpersonal communication skills**
- **Considers the emotional, psychological, and social well-being of the woman**

Some examples of care that is women-friendly:-

- Individualizes care to woman’s needs
- Recognizes the richness and spiritual significance of community and culture
  - Is aware of traditional beliefs regarding pregnancy and childbirth

        - Cooperates and liaises with traditional healthcare system when possible
        - Provides culturally sensitive care
    - Respects and supports the mother-newborn dyad:
        - Encourages bonding
        - Keeps newborn with mother
        - Places newborn on mother's abdomen (at breast) immediately after birth
    - Speaks to the woman in her own language
    - Observes rules and norms of her culture as appropriate
    - Is aware of who makes decisions in her life and involves that person in discussions and decisions
    - Works with traditional birth attendants when possible
    - Learns about traditional practices:
        - Promotes/builds on positive traditional practices
        - Offers alternatives to those that are harmful

Some examples of care that is not women-friendly:-

- Does not respect woman or her culture or background
- Rude, offensive, demeaning language by health personnel
- Physically restrains, pushes or hits the woman
- Insists on routine procedures that are convenient for the healthcare provider but may be shameful or disgusting to the woman, eg lithotomy position only, routine episiotomy, frequent vaginal exams, assembly-line fashion of care
- Excludes partner or companion from care
- Separates mother and newborn

UNIT- 6: INFECTION PREVENTION (IP) & PATIENT SAFETY (PS)

6.1. UNIT LEARNING OBJECTIVE

By the end of this unit participants will be able to:

- Describe Infection Prevention and Patient safety
- Describe Infection Prevention and Patient Safety goal and objectives
- Describe disease transmission cycle
- Outline key Infection Prevention and Patient Safety practices
- Demonstrate appropriate hand hygiene practice, use of personal protective equipments and antisepsis,
- Discuss safe sharp and injection device handling, healthcare waste management , Instrument processing, healthcare risk management and Housekeeping practices

6.2. INTRODUCTION TO INFECTION PREVENTION (IP) & PATIENT SAFETY (PS)

Hospital Acquired Infections (HAIs) are common global healthcare problems with magnitudes ranging from as low as 1% in few developed countries to more than 40% in developing countries (Lynch *et al.*, 1997). This difference is mainly due to disparity in infection prevention and Patient Safety practices. Proper infection prevention and Patient Safety practices are fundamental to quality of care, and essential to protect healthcare workers, patients, and communities. Particularly in a country such as Ethiopia, where the prevalence of serious infectious diseases such as Hepatitis B, HIV and MDR-TB is so high, and preventive interventions for both these diseases are minimal, failure to follow proper infection prevention practices puts healthcare workers, patients and the communities at tremendous risk.

WHO launched the world alliance for patients' safety on the 27th of October in 2000 and this Patients Safety Initiative of WHO includes all of the three global health challenges namely: '**Clean care is safer care**', '**safe surgery**' and prevention of '**Anti microbial resistance'.** In regard to that, Ethiopia has ratified the following five action areas:

- Healthcare Associated Infection Prevention
- Medication safety
- Safe surgery
- Research and surveillance
- Healthcare worker protection

The Goal of Infection Prevention and Patient Safety is to make a healthcare facility a better place.

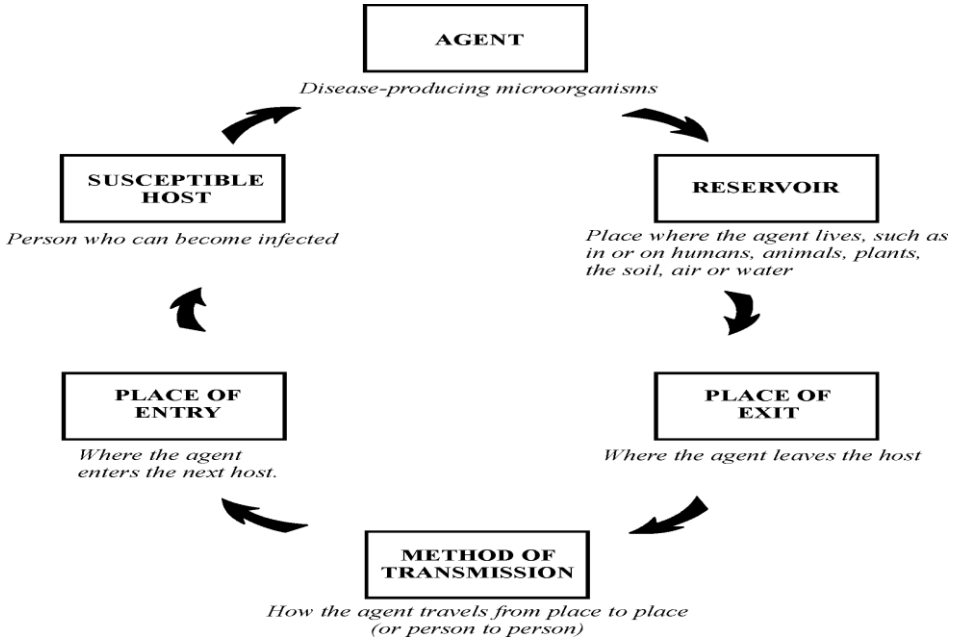
Infection prevention (IP) and Patient Safety (PS) have two primary objectives:

- Prevent major infections when providing services;
- Minimize the risk of transmitting serious diseases such as hepatitis B and HIV/AIDS to the woman, the community and to service providers and staff, including cleaning and housekeeping personnel.

THE DISEASE TRANSMISSION CYCLE:

For bacteria, viruses and other infectious agents to successfully survive and spread, certain factors or conditions must exist. The essential factors in the transmission of disease-producing microorganisms from person to person are illustrated and defined in the following figure.

Figure 1-4 The Disease Transmission Cycle



HOW TO BREAK THE DISEASE TRANSMISSION CYCLE:

Preventing the spread of infectious diseases requires removing one or more of the conditions necessary for transmission of the disease from host or reservoir to the next susceptible host by:

- Inhibiting or killing the agent (e.g., applying an antiseptic agent to the skin before surgery);
- Blocking the agent's means of getting from an infected person to a susceptible person (e.g., hand washing or using a waterless, alcohol-based antiseptic handrub to remove bacteria or viruses);
- Making sure that people, especially healthcare workers, are immune or vaccinated; and
- Providing health workers with the right protective equipment to prevent contact with infectious agents (e.g., heavy-duty gloves for housekeeping and waste removal staff).

The recommended first level IP practices (Standard Precautions) are based on the following principles:

- Every person (patient or staff) must be considered potentially infectious;
- Hand washing is the most practical procedure for preventing cross-contamination;
- Wear gloves before touching anything wet—broken skin, mucous membranes, blood or other body fluids (secretions or excretions);
- Use barriers (protective goggles, face masks or aprons) if splashes and spills of any body fluids (secretions or excretions) are anticipated;
- Use antiseptic agents before invasive procedures
- Use safe work practices, such as not recapping or bending needles, proper instrument processing and proper disposal of medical waste.
- Vaccinate staff who are in direct contact with patients/clients for: hepatitis B, rubella, measles, mumps, influenza

6.3. HAND HYGIENE

Hand hygiene is the single most important Infection Prevention procedure

Hand hygiene is a general term referring to any action of hand cleansing. It includes care of hands, nails and skin. Proper Hand hygiene is one of the key activities of minimizing the spread of disease and maintaining an infection-free environment.

HAND HYGINE TECHNIQUES INCLUDE:

- Routine Hand washing
- Hand Antisepsis
- Antiseptic Handrub
- Surgical Handscrub

HANDWASHING

The purpose of hand washing is to mechanically remove soil and debris from the ksin and reduce the number of transient microorganisms. Appropriate hand hygiene, i.e. vigorously rub together all surfaces of the hands lathered with plain or antimicrobial soap for 15–30 seconds and rinse with a stream of running or poured water, must be carried out:

- Before examining (coming in direct contact with) a client/patient
- Before and after removing gloves
- After any situation in which hands may be contaminated, such as:
    - Handling contaminated objects/instruments, after contact with mucous membrane body fluids ,blood, secretions or excretions (except sweat) and soiled instruments
    - Upon arriving at and before leaving work place

To encourage hand washing, programme managers should make every effort to provide soap and a continuous supply of clean water, either from the tap or a bucket, and single-use towels. Do not use shared towels to dry hands.

ANTISEPTIC HAND RUB/ ALCOHOL BASED SOLUTION FOR HAND RUB

The use of antiseptic hand rub is more effective in killing transient and resident flora than hand washing with antimicrobial agents or plain soap and water unless hands are visibly soiled. It is quick and convenient to perform and gives a greater initial reduction in hand flora.

A non-irritating antiseptic hand rub can be made by adding either Glycerine, Proplyene glycol or Sorbitol to alcohol (2ml. in 100ml. of 60 to 90% Ethyl or Isopropyl alcohol solution) (Larson, 1990 & Pierce, 1990). Use 5ml. (about one teaspoonful) for each application and continue rubbing the solution over the hands until they are dry (15 to 30 seconds). Washing hands with soap and water after every 5-10 application of the solution is generally recommended.

6.4. PERSONAL PROTECTIVE EQUIPMENT

Personal Protective equipments are physical barriers/protection of healthcare providers and patients/clients from pathogenic microorganisms. The commonly used Personal protective equipment includes: gloves, masks/respirators, eyewear (face shields, goggles or glasses), caps, gowns, aprons, boots and other items.

GLOVES

Proper hand hygiene and the use of protective gloves, whether in the operating room for surgery or in housekeeping for handling contaminated materials, are key components in minimizing the spread of disease and in maintaining an infection-free environment.

There are three types of gloves:

- Surgical glove
- Examination glove
- Utility or heavy duty glove

Wear gloves:

- When there is a reasonable chance of hands coming in contact with blood or other body fluids, mucous membranes or non-intact skin;
- Before performing invasive medical procedures (e.g., inserting vascular devices such as peripheral venous lines); or
- Before handling contaminated waste items or touch contaminated surfaces.

What type of gloves to use:

- **Disposable clean examination gloves** are preferred (High-level disinfected reusable gloves are acceptable) when there is contact with mucous membrane and non intact skin (e.g., performing medical examinations and procedures such as pelvic examination).
- **Sterile surgical gloves** should be used when performing surgical procedures.
- **High-level disinfected surgical gloves** are the **only** acceptable alternative if sterile surgical gloves are not available, when performing surgical procedures.
- **Clean, heavy duty household (utility) gloves** should be used for cleaning instruments, equipment, contaminated surfaces, and while handling or disposing of contaminated waste.

Wearing glove does not replace the need for hand washing

General principles for gloves use:

- All staff should wear appropriate gloves prior to contact with blood, body fluids, secretions or excretions from any client/patient (***See Table 1-3***).
- A separate pair of gloves must be used for each client to avoid cross-contamination.
- Wearing gloves does not replace the need for hand washing
- As a general rule, if the risk is to the patient then **"Sterile"** gloves are required. If the risk is to the user then **"Non-Sterile"** gloves will probably be sufficient.
- Gloves should not be worn when it is not required,
- If the gown or aprons worn during delivery has long sleeves, the gloves should be put over the gown sleeve to avoid contamination of the gloves;
- Ensure that gloved hands (high-level disinfected or sterile) are held above the level of the waist and do not come into contact with the gown
- If gloves are to be discarded, briefly immerse them in 0.5% chlorine solution

Double gloving:

Although double gloving is of little benefit in preventing blood exposure if needle sticks or other injuries occur, it may decrease the risk of blood hand contact. Double gloving is recommended in the following conditions:

- For procedures that involves coming in contact with large amount of blood or other body fluid (e.g. vaginal deliveries and cesarean sections) .
- For surgical procedures lasting more than 30 minutes.
- Orthopedic procedures in which sharp bone fragments, wire sutures and other sharp edged materials are likely to be encountered.

Elbow length gloves:

These are sterile type of gloves which extends up to elbow and have important use when the hand and forearm need to be inserted into the vagina (manual removal of a retained placenta) or deep into the uterus to deliver the infant's head (cesarean section). The elbow-length gloves, so-called "gauntlet" gloves, are generally meant to give protection to the mother and the hands including the forearms of the provider. When readymade elbow length gloves are not available, an effective alternative material can easily be made from previously used surgical gloves that have been re-processed (decontaminated, cleaned and dried) following the steps below:-

STEP 1: Cut one or more fingers depending on the size of your hands completely off. Do the same for the other pair of the glove to allow all of the fingers slip into the gloves.

STEP 2: Sterilize or high-level disinfect 2–3 pairs of cut-off (fingerless) gloves according to the recommended process for each method. After final processing, store the gloves in a sterile or high-level disinfected container until needed.

Note: We can also make these types of elbow length gloves from sterile gloves following aseptic technique.

OTHER TYPES PERSONAL PROTECTIVE EQUIPMENTS (PPE):

These include:-

- CAPS
- MASK
- GOWNS
- APRONS
- FOOTWEAR

TABLE 1-3:- Glove and gown requirements for common obstetric procedures

Procedure	**Preferred Gloves[a]**	**Alternative Gloves[b]**	**Gown**
Blood drawing, starting IV infusion	Exam[c]	High-level disinfected surgical[d]	None
Gynecologic pelvic examination	Exam	High-level disinfected surgical	None
Manual vacuum aspiration (using no-touch technique)	Exam	HLD Surgicald	Clean, high-level isinfected or sterile
Dilatation and curettage, colpotomy, repair of cervical or perineal tears.	High-level disinfected surgical	Sterile surgical	Clean, high-level isinfected or sterile
Laparotomy, caesarean section, hysterectomy, repair of ruptured uterus, salpingectomy, uterine artery ligation, delivery, bimanual compression of uterus, manual removal of placenta, correcting uterine inversion, instrumental delivery	Sterile surgical	High-level disinfected surgical	Clean, high-level disinfected or sterile
Handling and cleaning instruments	Utility[e]	Exam or surgical	None
Handling contaminated waste	Utility	Exam or surgical	None
Cleaning blood or body fluid spills	Utility	Exam or surgical	None

[a] Gloves and gowns are not required to be worn to check blood pressure or temperature, or to give injections.
[b] Alternative gloves are generally more expensive and require more preparation than preferred gloves.
[c] Exam gloves are single-use disposable latex gloves. If gloves are reusable, they should be decontaminated, cleaned and either sterilized or high-level disinfected before use.
[d] Surgical gloves are latex gloves that are sized to fit the hand.
[e] Utility gloves are thick household gloves.

6.5. ANTISEPSIS AND BASIC PRINCIPLES FOR CERVIX/ VAGINAL AND SKIN PREPARATIONS BEFORE PROCESURE

Antiseptics (antimicrobial agents) are chemicals that are applied to the skin or other living tissue to inhibit or kill microorganisms (both transient and resident) thereby reducing the total bacterial count). The use of antisepsis include:-

- For hand hygiene practice
- For skin preparation prior to surgical procedure
- For cervical or vaginal preparation
- Skin Preparation for injection

Note:

- While using antiseptic solution for mucus membranes/for cervical or vaginal preparation
    - Ask about allergic reactions
    - Use water-based product (e.g., iodophor or chlorhexidine) and not alcohol or alcohol containing preparation, as alcohols may burn, dry and irritate mucous membranes that in turn promote the growth of microorganisms.
- According to WHO and its safe injections Global Network (SIGN), Swabbing of clean skin with an antiseptic solution- prior to giving an injection is unnecessary.

6.6. HANDLING SHARP INSTRUMENTS AND NEEDLES

There are about 40 blood borne pathogens that can be transmitted via unsafe injections; of all HBV, HCV and HIV are the common once. Each year, 3 million health care workers (HCWs) are reported to have needle stick injuries globally. In another report, the World Health Organization (WHO) estimates that at least 50 percent of all injections are unsafe—posing serious health risks to recipients, health workers, and the public.

Recommended safe work practice in operating theatre and labour ward:-

- The use of “hands-free” technique for passing surgical instruments: The use of a container which is designated as the Safe or Neutral Zone in which sharps are placed before and immediately after use.

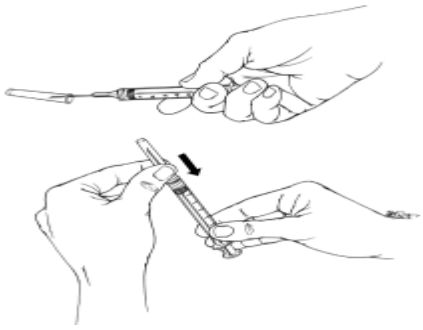
- Use of best practices in injection safety while administering Injections
- Follow principles of safe injection practices: - Safe Injection is the one that is given using appropriate equipment, without harming the recipient, exposing the provider to any avoidable risk and resulting in any waste that is dangerous to the community.

  The basic principles are:-

  1. Use Sterile Injection Equipment
  2. Prevent Contamination of Injection Equipment and Medication
  3. Prevent Injuries to the Provider
     - Do not recap, bend or break needles prior to disposal of single use needles and syringes after giving injections.
     - However, if there is a need to recap a needle for various reasons, needles must be recapped using the "one-handed" recap method as follows:
       - Place the needle cap on a firm and flat surface,
       - Next, with one hand holding the syringe, use the needle to "scoop" up the cap (**Figure 1.5**).
       - With the cap now covering the needle tip, turn the syringe upright (vertical) so the needle and syringe are pointing toward the ceiling.
       - Finally, using the forefinger and thumb of your other hand, grasp the cap just above its open end (**Figure 1.5**) and push the cap firmly down onto the hub.
     - Do not disassemble the needle and syringe after use.
     - All used syringes and needles or any other sharps should be discarded at the point of use in an enclosed sharps container which is puncture and leak proof and s sealed before being completely full.

     Note: During injection, disposable gloves are indicated only if excessive bleeding anticipated.
  4. **Prevent Access to Used Needles and Syringes**

Figure 1-5 Single hand recapping method



6.7 HEALTH CARE WASTE MANAGEMENT

Healthcare Waste refers to all waste stream generated in health care settings, health related research institutions, laboratories and home based healthcare services. Healthcare waste includes both infectious/hazardous and non-infectious/non-hazardous waste and it is considered the second most hazardous waste next to radioactive wastes. Waste from healthcare facilities may be non-contaminated or contaminated (studies in other countries have shown that approximately 85% of the waste generated in the hospitals is non contaminated).

- **Non-contaminated wastes** pose no infectious risk to persons who handle them. Examples of non-contaminated waste include paper, trash, boxes, bottles and plastic containers, which contain products delivered to the clinic.
- **Contaminated waste** potentially infectious or toxic, if not disposed of properly. Contaminated waste include, blood, body fluids, secretions and excretions and items that have come in contact with them, such as sharps and used dressings, as well as medicines, medical supplies or other chemicals that may be toxic.

Healthcare waste management refers to all activities involved in the containment, collection, storage, transport, treatment, and disposal of waste produced at healthcare facilities. The purpose of Healthcare waste Management is to:

- prevent the spread of infection to hospital personnel who handle the waste;
- prevent the spread of infection to the local community;
- protect those who handle waste from accidental injury.

Principle of healthcare waste Management

All healthcare facility and settings staff have a responsibility to dispose waste in a manner that **poses minimal hazard** to patients, visitors, other healthcare workers, and the community. The key steps in the management of healthcare waste are the following:

1. **Waste Minimization/Containment-** This is the first and best way to reduce health care waste quantities, cost and environmental impacts.
2. **Segregation-** Separating waste by type at the place where it is generated.
3. **Waste Handling, Collection and Storage**
4. **Waste Transportation**:- can be either on-site or off-site.
5. **Waste Treatment:** Methods used to render the waste non-hazardous
6. **Waste Disposal:** is a process of eliminating health care wastes without posing any risk to health facility workers and the general public. Dispose of waste at least 50 meters away from water sources. Disposal methods can be burial or incineration.

General Recommendation when we deal with healthcare wastes are:

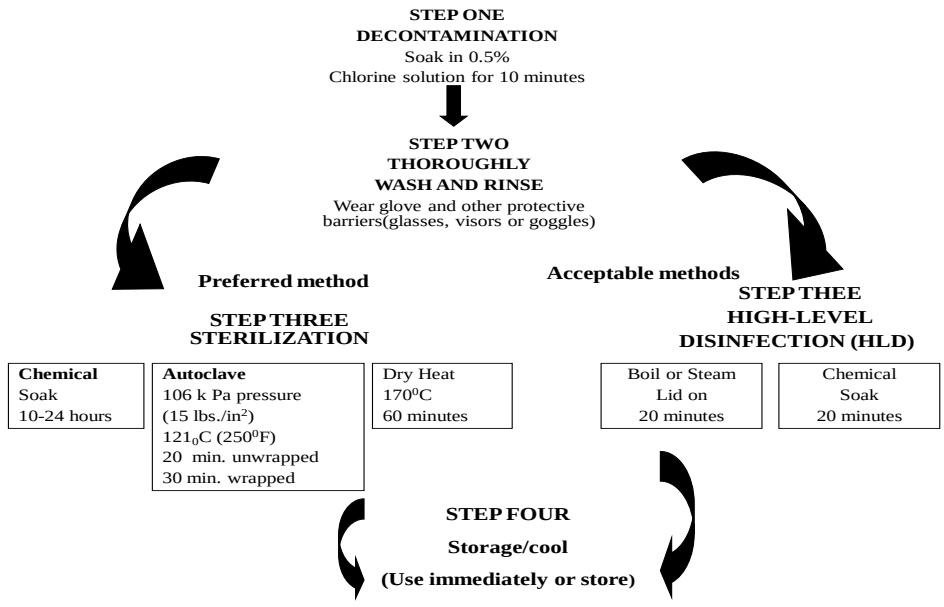
- Proper handling of contaminated waste (blood- or body fluid-contaminated items) is required according to the direction given above
- Wearing utility gloves;
- Transporting solid contaminated waste to the disposal site in covered containers;
- Disposing of all sharp items in puncture-resistant containers;
- Carefully pouring liquid waste down a drain or flushable toilet;
- Burning or burying contaminated solid waste;
- Washing hands, gloves and containers after disposal of infectious waste

6.8. INSTRUMENT PROCESSING

This is a mechanical process which involves making medical instruments free of contamination and making it ready for other procedures

- **Decontamination**- makes inanimate objects safer to be handled by staff before cleaning
- **Cleaning**- physically removes all visible dust, soil, blood or other body fluids from inanimate objects.
- **High-level disinfection** eliminates all organisms (bacteria, viruses, fungi and parasites) except some endospores.
- **Sterilization-** eliminates all organisms including bacterial endospores.

Figure 1-6 Steps in instrument processing



II. **Decontamination** -the objective of decontamination is to protect individuals who handle surgical instruments and other items, which have been in contact with blood or body fluids, from serious diseases such as HIV, HBV and HCV

- Decontamination is placing instruments in a 0.5% chlorine solution
- It inactivates/kills HBV and HIV
- Put all used instruments immediately after use in the Decontaminating solution.
- Appropriate Personal Protective Equipments such as mask, goggles, rubber gloves, waterproof aprons etc should be worn
- Mix in well-ventilated area
- Use a plastic buckets with cover for 0.5% chlorine solution and label the bucket and specify the date of preparation

INSTRUCTIONS FOR PREPARING DILUTE CHLORINE SOLUTIONS

I. **Instructions for Preparing Dilute Chlorine Solutions from Concentrated Chlorine solution**

$$Total\ Parts\ (TP)\ water = \left[\frac{\%\ Concentrate}{\%\ Dilute}\right] - 1$$

- Mix 1 part concentrated bleach with the total parts water required.

Example: Make a dilute solution (0.5%) from 5% concentrated solution

STEP 1: Calculate TP water: $\left[\frac{5.0\%}{0.5\%}\right] - 1 = 10 - 1 = 9$

STEP 2: Take 1 part concentrated solution and add to 9 parts water.

II. **Instructions for Preparing Dilute Chlorine Solution from a Chlorine Powder**

$$\textbf{\textit{Grams/Liter}} = \left[\frac{\%\ Dilute}{\%\ Concentrate}\right] x\ 1000$$

- Mix measured amount of bleach powder with 1 liter of water.

Example: Make a dilute chlorine-releasing solution (0.5%) from a concentrated powder (35%).

STEP 1: Calculate grams/liter: $\left[\frac{0.5\%}{35\%}\right] x\ 1000 = 14.2\ g/L$

STEP 2: Add 14.2 grams (≈14 g) to 1 liter of water.

II. Cleaning

- Wash with detergent and water using a soft brush.
- Removes organic material that are found on the instruments since it protects microorganisms against sterilization and HLD

- Can inactivate disinfectants
- Most effective way to reduce number of organisms
- Removes visible dirt and debris
- Use PPE during cleaning
- Disassemble instruments
- Wash with detergent, water, and a soft brush
- Scrub instruments under the water surface until visibly clean.
- Thoroughly rinse with clean water

III. Sterilization-

- Used for instruments and other items that come in direct contact with the blood stream or tissue under the skin
- Three important methods are there
  - High-Pressure Steam (autoclave)
  - Dry-heat (oven)
  - Chemical
- **High level Disinfection (HLD)- HLD is o**nly acceptable alternative when sterilization equipment is not available
  - Three methods are available
    - Boiling
    - Steaming
    - Chemical

HOUSE KEEPING

Housekeeping refers to the general cleaning of hospitals and clinics, including the floors, walls, certain types of equipment, tables and other surfaces.

The purpose of general housekeeping is to:

- reduce the number of microorganisms that may come in contact with patients, visitors, staff and the community; and
- Provide a clean and pleasant atmosphere for patients and staff.

Each site should follow housekeeping schedule and recommended house keeping practices:

- Always wear utility gloves, apron, mask, boots and all the necessary PPE equipments when cleaning

- Clean from top to bottom
- Ensure that fresh bucket of disinfectant solution is available at all times
- Immediately clean up spills of blood or body fluids
- After each delivery, wipe off beds, tables, and procedure trolleys using disinfectant solution(which is a combination of 0.5% chlorine solution and Detergents)
- Decontaminate cleaning equipment with chlorine solution

MODULE -2

RAPID INITIAL ASSESMENT AND MANAGING EMERGENCIES

CONTENTS

UNIT-1 INTRODUCTION

Responding to an emergency promptly and effectively requires that members of the clinical team know their roles and how the team should function to respond most effectively to emergencies. Rapid initiation of treatment requires immediate recognition of the specific problem and quick action. The skilled provider should perform a rapid initial Assessment to determine what is needed for immediate stabilization, management, and referral.

It is the responsibility of the skilled provider (nurse, Midwife, or physician) to make sure that all staff at the health institution (whether a clerk, guard, doorkeeper, cleaner, etc.) know how to respond to an emergency. The purpose of this module is to introduce participants to an organized and effective approach in providing care to obstetric emergencies.

Module learning objectives:

By the end of this module, the participants will be able to:

1. Describe how to organize the facility to respond to an obstetric emergency.
2. Describe key steps in rapid initial assessment of a woman with emergency problems.
3. Outline key emergency management steps for specific obstetric emergency problems.
4. Describe pre-referral management to a recognized emergency situation

UNIT-2: RAPID INITIAL ASSESMENT AND MANAGING EMERGENCIES

2.1. UNIT LEARNING OBJECTIVES

By the end of this unit participants will be able to:

- Describe key steps in rapid initial assessment of a sick woman.
- Outline key emergency management steps for specific emergency problems
- Describe important elements in assessment and management of shock.

2.2. BEING PREPARED AND RESPONDING TO AN EMERGENCY

Responding to an emergency promptly and effectively requires that members of the clinical team know their roles and how the team should function to respond most effectively to emergencies. Rapid initiation of treatment requires immediate recognition of the specific problem and quick action. The provider and staff should work together to plan for a way to respond to emergencies and all instruments and supplies needed for emergency care should be ready for use all the time.

Every staff at the health facility must be ready to help if a woman arrives with an obstetric emergency or signs and symptoms of advanced labor i.e. a staff person should be able to identify a woman with danger signs of pregnancy or in advanced labor, take her to the treatment area, and call for the skilled provider. To make this possible the skilled provider should give staff the information and training they need to be able to perform their jobs if there is an emergency. All staff at the health facility should be able to perform a Quick Check

QUICK CHECK

- **Look** at the woman:
  - Did someone carry her into the health post? (possible sign of shock)
  - Is there blood on her clothing or on the floor beneath her? (sign of bleeding in pregnancy.)
  - Is she grunting, moaning, or bearing down? (possible signs of advance labor)

- **Ask** the woman or someone who is with her whether she has now or has recently had:
  - Vaginal bleeding
  - Severe headache/blurred vision
  - Convulsions or loss of consciousness
  - Difficulty brathing
  - Fever
  - Severe abdominal pain
  - Labor pains

- **If the woman has or recently had ANY of these danger signs, or signs and symptoms of advanced labor, immediately:**
  - Shout for help.
  - Stay calm. Focus on the woman.
  - Do not leave the woman alone.
  - Notify the skilled provider.

2.3. RAPID INITIAL ASSESMENT

When a woman of childbearing age presents with a problem, perform a rapid initial assessment to determine what is needed for immediate stabilization, management, and referral. Rapidly assess her condition with a quick examination including blood pressure, pulse, respiration, temperature, and skin color to determine her degree of illness. See table 2-1 for specific steps.

TABLE 2-1:- Rapid initial assessment

Assess	Danger Signs	Consider
Airway and breathing	**LOOK FOR**: • cyanosis (blueness) • respiratory distress **EXAMINE**: • skin: pallor • lungs: wheezing or rales	• severe anemia • heart failure • pneumonia • asthma See **Difficulty in breathing,**
Circulation (signs of shock)	**EXAMINE**: • skin: cool and clammy • pulse: fast (110 or more) and weak • blood pressure: low (systolic less than 90 mm Hg)	**Shock,**
Vaginal bleeding (early or late pregnancy or after childbirth)	**ASK IF**: • pregnant, length of gestation • recently given birth • placenta delivered **EXAMINE**: • vulva: amount of bleeding, placenta retained, obvious tears • uterus: atony • bladder: full **DO NOT DO A VAGINAL EXAM AT THIS STAGE**	• abortion • ectopic pregnancy • molar pregnancy (See **Vaginal bleeding in early pregnancy**, • abruptio placentae) • ruptured uterus • placenta praevia (See **Vaginal bleeding in later pregnancy and labour**,) • atonic uterus • tears of cervix and vagina • retained placenta • inverted uterus (See **Vaginal bleeding after childbirth,)**
Unconscious or convulsing	**ASK IF**: • pregnant, length of gestation **EXAMINE**: • blood pressure: high (diastolic 90 mm Hg or More) • temperature: 38°C or more	• eclampsia • malaria • epilepsy • tetanus (**Convulsions or loss of consciousness**,)

[a] This list does not include all the possible problems that a woman may face in a pregnancy or the puerperal period. It is meant to identify those problems that put the woman at greater risk of maternal morbidity and mortality.

TABLE 2-2:- Cont. Rapid initial assessment

Assess	Danger Signs	Consider
Dangerous fever	**ASK IF**: • weak, lethargic • frequent, painful urination **EXAMINE**: • temperature: 38°C or more • unconscious • neck: stiffness • lungs: shallow breathing, consolidation • abdomen: severe tenderness • vulva: purulent discharge • breasts: tender	• urinary tract infection • malaria (See **Fever during pregnancy and labour**,) • metritis • pelvic abscess • peritonitis • breast infection (See **Fever after childbirth)** • complications of abortion (See **Vaginal bleeding in early pregnancy,** • pneumonia) (See **Difficulty in breathing,)**
Abdominal pain	**ASK IF**: • pregnant, length of gestation **EXAMINE**: • blood pressure: low (systolic less than 90 mm Hg) • pulse: fast (110 or more) • temperature: 38°C or more • uterus: state of pregnancy	• ovarian cyst • appendicitis • ectopic pregnancy (See **Abdominal pain in early pregnancy,)** • possible term or preterm labour • amnionitis • abruptio placentae • ruptured uterus (See **Abdominal pain in later pregnancy and after childbirth,)**

The woman also needs **prompt attention** if she has any of the following signs: blood-stained mucus discharge (show) with palpable contractions; ruptured membranes; pallor; weakness; fainting; severe headaches; blurred vision; vomiting; fever or respiratory distress. The woman should be sent to the front of the queue and promptly treated.

IMPLEMENTING A RAPID INITIAL ASSESSMENT SCHEME

Rapid initiation of treatment requires immediate recognition of the specific problem and quick action. This can be done by:

- Training all staff—including clerks, guards, door-keepers or switchboard operators—to react in an agreed upon fashion (“sound the alarm”, call for help)

when a woman arrives at the facility with an obstetric emergency or pregnancy complication or when the facility is notified that a woman is being referred;

- Clinical or emergency drills with staff to ensure their readiness at all levels;
- Ensuring that access is not blocked (keys are available) and equipment is in working order (daily checks) and staff are properly trained to use it;
- Having norms and protocols (and knowing how to use them) to recognize a genuine emergency and know how to react immediately;
- Clearly identifying which women in the waiting room—even those waiting for routine consultations—warrant prompt or immediate attention from the health worker and should therefore pass to the front of the queue (agreeing that women in labour or pregnant women who have any of the problems noted in table1-8 should immediately be seen by a health worker);
- Agreeing on schemes by which women with emergencies can be exempted from payment, at least temporarily (local insurance schemes, health committee emergency funds).

2.4. EMERGENCY MANAGEMENT PRINCIPLES

Emergencies can happen suddenly, as with a convulsion, or they can develop as a result of a complication that is not properly managed or monitored.

PREVENTING EMERGENCIES

Most emergencies can be prevented by:

- careful planning;
- following clinical guidelines;
- close monitoring of the woman.

RESPONDING TO AN EMERGENCY

Responding to an emergency promptly and effectively requires that members of the clinical team know their roles and how the team should function to respond most effectively to emergencies. Team members should also know:

- clinical situations and their diagnoses and treatments;
- drugs and their use, administration and side effects;
- emergency equipment and how it functions.

INITIAL MANAGEMENT

In managing an emergency:

- Stay calm. Think logically and focus on the needs of the woman.
- Do not leave the woman unattended.
- Take charge. Avoid confusion by having one person in charge.
- **SHOUT FOR HELP.** Have one person go for help and have another person gather emergency equipment and supplies (e.g. oxygen cylinder, emergency kit).
- If the **woman is unconscious**, assess the airway, breathing and circulation.
- If **shock is suspected**, immediately begin treatment. Even if signs of shock are not present, keep shock in mind as you evaluate the woman further because her status may worsen rapidly. If **shock develops**, it is important to begin treatment immediately.
- Position the woman lying down on her left side with her feet elevated. Loosen tight clothing.
- Talk to the woman and help her to stay calm. Ask what happened and what symptoms she is experiencing.
- Perform a quick examination including vital signs (blood pressure, pulse, respiration, temperature) and skin colour. Estimate the amount of blood lost and assess symptoms and signs.

REFERRING THE WOMAN FOR CARE

- After emergency management, discuss decision to refer with woman and family.
- Quickly organize transport and possible financial aid.
- Inform the referral center by radio or phone.
- Give the woman a referral slip containing the following information:
  - Name, age, address
  - Obstetric history (parity, gestational age, antenatal complications)
  - Relevant past obstetric complications
  - Specific problem for which she is referred
  - Treatment applied thus far and results
- Send with the woman:
  - A health worker trained in childbirth care
  - Essential emergency drugs and supplies
  - A family member who can donate blood

- If there is a newborn, send with the mother if there is a family member who can go with the mother to care for the neonate.

- During journey:
  - Maintain IV infusion.
  - Keep the woman (and newborn, if born) warn but do not overheat.
  - If journey is long, give appropriate treatment on the way.
  - Keep record of all IV fluids, medications given, time of administration, and woman's condition.

2.5. MANAGING A PATIENT IN "SHOCK"

Shock is characterized by failure of the circulatory system to maintain adequate perfusion of the vital organs. Shock is a **life-threatening condition** that requires **immediate and intensive treatment**.

Suspect or anticipate shock if at least one of the following is present:

- Bleeding in early pregnancy (e.g. abortion, ectopic or molar pregnancy);
- Bleeding in late pregnancy or labour (e.g. placenta praevia, abruptio placentae, ruptured uterus);
- Bleeding after childbirth (e.g. ruptured uterus, uterine atony, tears of genital tract, retained placenta or placental fragments);
- Infection (e.g. unsafe or septic abortion, amnionitis, metritis, pyelonephritis);
- Trauma (e.g. injury to uterus or bowel during abortion, ruptured uterus, tears of genital tract).

SYMPTOMS AND SIGNS

Diagnose shock if the following symptoms and signs are present:

- Fast, weak pulse (110 per minute or more);
- Low blood pressure (systolic less than 90 mm Hg).

Other symptoms and signs of shock include:

- Pallor (especially of inner eyelid, palms or around mouth);
- Sweatiness or cold clammy skin;
- Rapid breathing (rate of 30 breaths per minute or more);
- Anxiousness, confusion or unconsciousness;
- Scanty urine output (less than 30 mL per hour).

MANAGEMENT

IMMEDIATE MANAGEMENT

- **SHOUT FOR HELP.** Urgently mobilize all available personnel.
- Monitor vital signs (pulse, blood pressure, respiration, temperature).
- Turn the woman onto her side to minimize the risk of aspiration if she vomits and to ensure that an airway is open.
- Keep the woman warm but do not overheat her as this will increase peripheral circulation and reduce blood supply to the vital centres.
- Elevate the legs to increase return of blood to the heart (if possible, raise the foot end of the bed).

SPECIFIC MANAGEMENT

- Start an IV infusion (two if possible) using a large-bore (16-gauge or largest available) cannula or needle. Collect blood for estimation of haemoglobin, immediate cross-match and bedside clotting (see below), just before infusion of fluids:
    - Rapidly infuse IV fluids (normal saline or Ringer's lactate) initially at the rate of 1 L in 15–20 minutes;
    - Give at least 2 L of these fluids in the first hour. This is over and above fluid replacement for ongoing losses.

Note: A more rapid rate of infusion is required in the management of shock resulting from bleeding. Aim to replace 2–3 times the estimated blood loss.

Do not give fluids by mouth to a woman in shock.

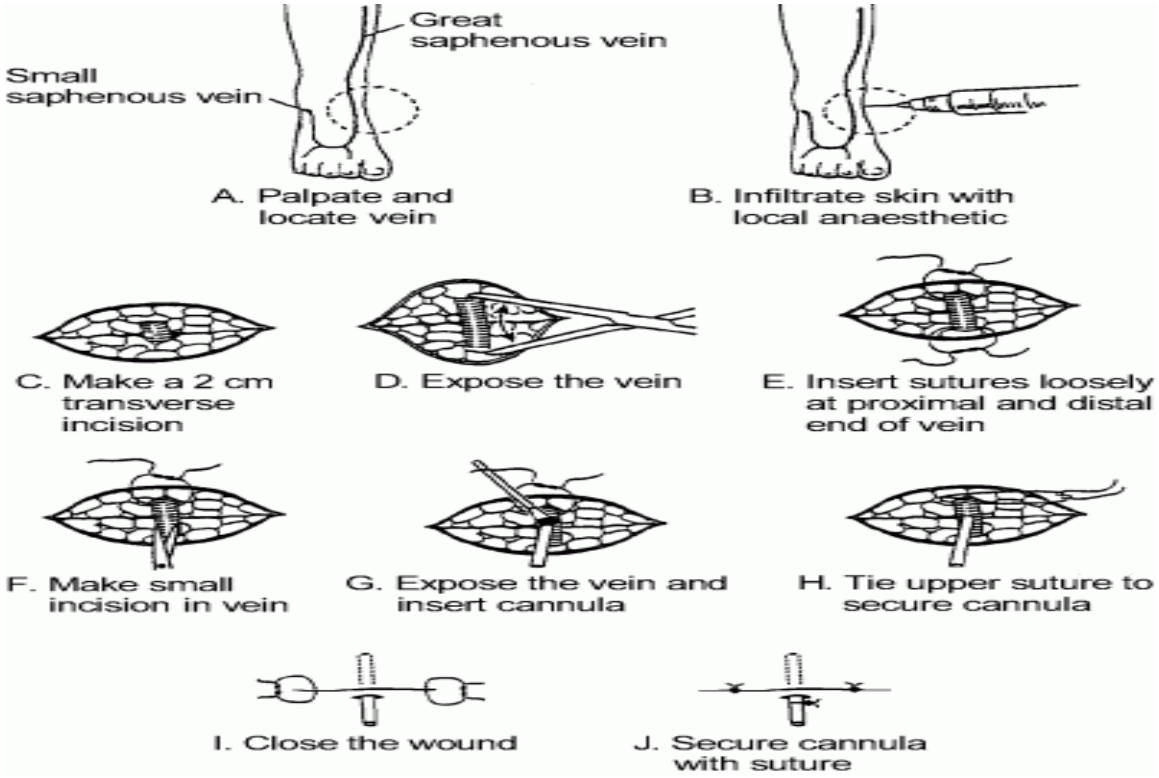
- If a **peripheral vein cannot be cannulated**, perform a venous cut-down (**Fig 1-1**).
- Continue to monitor vital signs (every 15 minutes) and blood loss.
- Catheterize the bladder and monitor fluid intake and urine output.
- Give oxygen at 6–8 L per minute by mask or nasal cannulae.

BEDSIDE CLOTTING TEST:

- Assess clotting status using this **bedside clotting test**:

- Take 2 mL of venous blood into a small, dry, clean, plain glass test tube (approximately 10 mm x 75 mm);
- Hold the tube in your closed fist to keep it warm (+ 37°C);
- After 4 minutes, tip the tube slowly to see if a clot is forming. Then tip it again every minute until the blood clots and the tube can be turned upside down;
- Failure of a clot to form after 7 minutes or a soft clot that breaks down easily suggests coagulopathy.

FIGURE 2-1:- Venous cut-down



DETERMINING AND MANAGING THE CAUSE OF SHOCK

Determine the cause of shock after the woman is stabilized.

- If **heavy bleeding** is suspected as the cause of shock:
  - Take steps simultaneously to stop bleeding (e.g. oxytocics, uterine massage, bimanual compression, aortic compression, preparations for surgical intervention);
  - Determine the cause of bleeding and manage:

        - If **bleeding occurs during first 28 weeks of pregnancy**, suspect abortion, ectopic or molar pregnancy;
        - If **bleeding occurs after 28 weeks or during labour but before delivery**, suspect placenta praevia, abruptio placentae or ruptured uterus;
        - If **bleeding occurs after childbirth**, suspect ruptured uterus, uterine atony, tears of genital tract, retained placenta or placental fragments.
    - Reassess the woman's condition for signs of improvement.
    - Consider consultation/referral for transfusion as soon as possible to replace blood loss;
- If **infection is suspected** as the cause of shock:
    - Collect appropriate samples (blood, urine, pus) for microbial culture before starting antibiotics, if facilities are available;
    - Give the woman a combination of antibiotics to cover aerobic and anaerobic infections and continue until she is fever-free for 48 hours:
        - Penicillin G 2 million units OR ampicillin 2 g IV every 6 hours;
        - PLUS gentamicin 5 mg/kg body weight IV every 24 hours (~80mg tid);
        - PLUS metronidazole 500 mg IV every 8 hours.

Do not give antibiotics by mouth to a woman in shock.

    - Reassess the woman's condition for signs of improvement.
- If **trauma is suspected** as the cause of shock, prepare for surgical intervention.

REASSESSMENT

- Reassess the woman's response to fluids within 30 minutes to determine if her condition is improving. Signs of improvement include:
    - Stabilizing pulse (rate of 90 per minute or less);
    - Increasing blood pressure (systolic 100 mm Hg or more);
    - Improving mental status (less confusion or anxiety);
    - Increasing urine output (30 mL per hour or more).
- If the woman's **condition improves**:
    - Adjust the rate of infusion of IV fluids to 1 L in 6 hours;
    - Continue management for the underlying cause of shock.

- If the woman's condition **fails to improve or stabilize**, she requires further management.

FURTHER MANAGEMENT

- Continue to infuse IV fluids, adjusting the rate of infusion to 1 L in 6 hours and maintain oxygen at 6–8 L per minute.
- Closely monitor the woman's condition.
- Perform laboratory tests including hematocrit, blood grouping and Rh typing and consider referral/consultation for transfusion if needed.

2.6. MANAGING A PATIENT WITH DIFFICULTY IN BREATHING

PROBLEM

- A woman is short of breath during pregnancy, labour or after delivery.

GENERAL MANAGEMENT

- Make a rapid evaluation of the general condition of the woman including vital signs (pulse, blood pressure, respiration, temperature).
- Prop up the woman on her left side.
- Start an IV infusion and infuse IV fluids.
- Give oxygen at 4–6 L per minute by mask or nasal cannulae.
- Obtain haemoglobin estimates.

DIAGNOSIS

See ***Table 2.3*** below for diagnostic approach

TABLE 2-3:- Diagnosis of difficulty in breathing

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
•Difficulty in breathing •Pallor of conjunctiva, tongue, nail beds and/or palms •Haemoglobin 7g per dL or less •Hematocrit 20% or less	•Lethargy and fatigue •Flat or concave nails	**Severe anemia,**
•Symptoms and signs of severe anemia	•Oedema •Cough •Rales •Swelling of legs •Enlarged liver •Prominent neck veins	**Heart failure due to anemia,**
•Difficulty in breathing •Diastolic murmur and/or •Harsh systolic murmur with palpable thrill	•Irregular heart beat •Enlarged heart •Rales •Cyanosis (blueness) •Cough •Swelling of legs •Enlarged liver •Prominent neck veins	**Heart failure due to heart disease,**
•Difficulty in breathing •Fever •Cough with expectoration •Chest pain	•Consolidation •Congested throat •Rapid breathing •Rhonchi/rales	**Pneumonia,**
•Difficulty in breathing •Wheezing	•Cough with expectoration •Rhonchi/rales	**Bronchial asthma,**
•Difficulty in breathing •Hypertension •Proteinuria	•Rales •Frothy cough	**Pulmonary oedema associated with pre-eclampsia**[a]

[a] Withhold fluids and give frusemide 40 mg IV once .

MANAGEMENT

A. SEVERE ANEMIA

- If ***Plasmodium falciparum*** **malaria is suspected**, manage as severe malaria.
- Where **hookworm is endemic** (prevalence of 20% or more), give one of the following anthelmintic treatments:
  - Albendazole 400 mg by mouth once;
  - OR mebendazole 500 mg by mouth once or 100 mg two times per day for 3 days;
  - OR levamisole 2.5 mg/kg body weight by mouth once daily for 3 days;
  - OR pyrantel 10 mg/kg body weight by mouth once daily for 3 days.
- If **hookworm is highly endemic** (prevalence of 50% or more), repeat the anthelmintic treatment 12 weeks after the first dose.
- Consult/refer for transfusion as necessary:

B. HEART FAILURE

HEART FAILURE DUE TO ANEMIA

- Consult/refer for transfusion of packed or sedimented cells (almost always necessary in heart failure due to anemia):

HEART FAILURE DUE TO HEART DISEASE

- Treat acute heart failure. Drugs used may include:
  - Morphine 10 mg IM as a single dose;
  - OR frusemide 40 mg IV, repeated as necessary;
  - OR digoxin 0.5 mg IM as a single dose;
  - OR nitroglycerine 0.3 mg under the tongue, repeated in 15 minutes, if necessary.
- Refer to a higher level if needed.

MANAGEMENT OF HEART FAILURE DURING LABOUR

- Such a case should be referred immediately to a higher facility; but use the following steps if she comes late in labour or in all cases until referral.
- Prop up the woman on her left side.
- Limit infusion of IV fluids to decrease the risk of circulatory overload and maintain a strict fluid balance chart.

- Ensure adequate analgesia.

Note: Do not give ergometrine.

- Have the woman avoid sustained bearing down efforts during the expulsive stage, if possible.
- If **necessary to decrease the woman's workload during delivery**, perform an episiotomy and assist delivery by vacuum extraction or forceps.
- Ensure active management of third stage.

C. PNEUMONIA

Inflammation in pneumonia affects the lung parenchyma and involves respiratory bronchioles and alveoli. There is loss of lung capacity that is less tolerated by pregnant women.

- A radiograph of the chest may be required to confirm the diagnosis of pneumonia.
- Give erythromycin base 500 mg by mouth four times per day for 7 days.
- Give steam inhalation.

Consider the possibility of tuberculosis in areas where it is prevalent.

D. BRONCHIAL ASTHMA

Bronchial asthma complicates 3–4% of pregnancies. Pregnancy is associated with worsening of the symptoms in one-third of affected women.

- If **bronchospasm occurs**, give bronchodilators (e.g. salbutamol 4 mg by mouth every 4 hours or 250 mcg aerosol every 15 minutes for 3 doses).
- If there is **no response to bronchodilators**, give corticosteroids such as hydrocortisone IV 2 mg/kg body weight every 4 hours as needed.
- If **there are signs of infection** (bronchitis), give ampicillin 2 g IV every 6 hours.
- Avoid the use of prostaglandins. For prevention and treatment of postpartum haemorrhage, give oxytocin 10 units IM or give ergometrine 0.2 mg IM.
- After acute exacerbation has been managed, continue treatment with inhaled bronchodilators and inhaled corticosteroids to prevent recurrent acute episodes.

MODULE - 3

PREGNANCY CARE

CONTENTS

UNIT- 1: INTRODUCTION

Good care during pregnancy is important for the health of the mother and the development of the fetus. Pregnancy is a crucial time to promote healthy behavior and parenting skills. Good ANC links the woman and her family with the formal health system, increases the chance of using a skilled attendant at birth and contributes to good health through the life cycle. Inadequate care during this time breaks a critical link in the continuum of care, and affects both women and babies:

It has been estimated that 25 percent of maternal deaths occur during pregnancy, with variability between countries depending on the prevalence of unsafe abortion, violence, and disease in the area. Between a third and a half of maternal deaths are due to causes such as hypertension (pre-eclampsia and eclampsia) and ante partum hemorrhage, which are directly related to inadequate care during pregnancy. Certain pre-existing conditions become more severe during pregnancy. Malaria, HIV/AIDS, anemia and malnutrition are associated with increased maternal and newborn complications as well as death where the prevalence of these conditions is high.

In sub-Saharan Africa, an estimated 900,000 babies die as stillbirths during the last twelve weeks of pregnancy. It is estimated that antepartum stillbirths, account for two-thirds of all stillbirths in countries where the mortality rate is greater than 22 per 1,000 births – nearly all African countries. Ante partum stillbirths have a number of causes, including maternal infections – notably syphilis – and pregnancy complications, but systematic global estimates for causes of ante partum stillbirths are not available. Newborns are affected by problems during pregnancy including preterm birth and restricted fetal growth, as well as other factors affecting the child's development such as congenital infections and fetal alcohol syndrome.

The purpose of this module is to introduce the participant to the evidence based approaches in the care of women during pregnancy to help decrease the existing high maternal and perinatal mortality & morbidity in our country.

Module learning objectives:

By the end of this module, the participants will be able to:

1. Describe focused antenatal care.
2. Provide focused antenatal care to the pregnant woman.

3. Identify and provide care to pregnant women with diseases and complications.
4. Recognize an emergency situation during pregnancy which requires immediate treatment and urgent referral to a higher level health facility.
5. Describe pre-referral management to a recognized emergency situation.

UNIT-2: BASIC CARE DURING PREGNANCY

2.1. LEARNING OBJECTIVES

At the end of this unit, participants will be able to:

- Define focused ANC.
- Appreciate the value of focused ANC
- Describe the basic components of focused ANC

2.2. INTRODUCTION

Preventing maternal and perinatal mortality and morbidity depends on an operational continuum of care with accessible, high quality care before and during pregnancy, childbirth, and the postnatal period. It also depends on the support available to help pregnant women reach services, particularly when complications occur. An important element in this continuum of care is effective antenatal care (ANC). ANC is defined as the complex of interventions that a pregnant woman receives from organized health care services with the objective of assuring every pregnancy to culminate in the delivery of a healthy child without impairing the health of the mother. The goal of the ANC package is to prepare for birth and parenthood as well as prevent, detect, alleviate, or manage the three types of health problems during pregnancy that affect mothers and babies:

- Complications of pregnancy itself,
- Pre-existing conditions that worsen during pregnancy,
- Effects of unhealthy lifestyles.

ANC also provides women and their families with appropriate information and advice for a healthy pregnancy, safe childbirth, and postnatal recovery, including care of the newborn, promotion of early, exclusive breastfeeding, and assistance with deciding on future pregnancies in order to improve pregnancy outcomes. The care should be appropriate, cost-effective and based on individual needs of the mother. An effective ANC package depends on competent health care providers in a functioning health system with referral services and adequate supplies and laboratory support. ANC improves the survival and health of babies directly by reducing stillbirths and neonatal deaths and indirectly by providing an entry point for health contacts with the woman at a key point in the continuum of care.

ANC indirectly saves the lives of mothers and babies by promoting and establishing good health before childbirth and the early postnatal period – the time periods of highest risk. ANC often presents the first contact opportunity for a woman to connect with health services, thus offering an entry point for integrated care, promoting healthy home practices, influencing care seeking behavior, and linking women with pregnancy complications to a referral system. Women are more likely to give birth with a skilled attendant if they have had at least one ANC visit.

While research has demonstrated the benefits of ANC through improved health of mothers and babies, the exact components of ANC and what to do at what time have been matters of debate. In recent years, there has been a shift in thinking from the high risk approach to focused ANC. The high risk approach intended to classify pregnant women as “low risk” or “high risk” based on predetermined criteria and involved many ANC visits. This approach was hard to implement effectively since many women had at least one risk factor, and not all developed complications; at the same time, some low risk women did develop complications, particularly during childbirth.

A recent multi-country randomized control trial led by the WHO and a systematic review showed that essential interventions can be provided over four visits at specified intervals, at least for healthy women with no underlying medical problems. The result of this review has prompted WHO to define a new model of ANC based on four goal-oriented visits. This model has been further defined by what is done in each visit, and is often called ***focused antenatal care*****.** Focused ANC is an approach to ANC that emphasizes on:-

- Individualized & client centered care,
- Fewer but comprehensive visits,
- Disease detection not risk classification and
- Care by a skilled provider.

2.3. FOCUSED ANTENATAL CARE

2.3.1 OVERVIEW

Focused or goal oriented ANC service emphasizes the quality of care rather than the quantity, provides specific evidence-based interventions for all women, carried out at certain critical times in the pregnancy. For normal pregnancies WHO recommends only four antenatal visits. The major goal of focused antenatal care is to help women maintain normal pregnancies through:

- Early detection and treatment of problems and complications
- Prevention of complications and disease

- Birth preparedness and complication readiness
- Health promotion

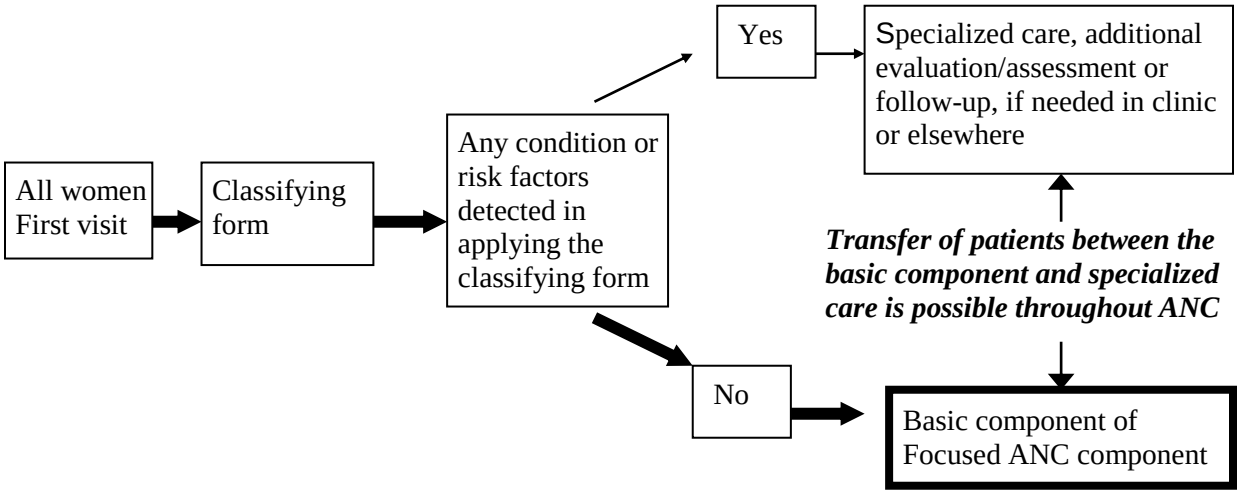
For many of the essential interventions in ANC, it is crucial to have early identification of underlying conditions – for example, prevention of congenital syphilis, control of anemia, and prevention of malaria complications. Hence the first ANC visit should be as early as possible in pregnancy, preferably in the first trimester. The last visit should be at around 37 weeks or near the expected date of birth to ensure that appropriate advice and care have been provided to prevent and manage problems such as multiple births (e.g. twins), post maturity (which carries an increased risk of fetal death), and fetal mal presentations.

At the outset, focused antenatal care segregates pregnant women into two groups based on their specific health conditions or risk factors (***Figure 3-1***):

- Those eligible to receive routine ANC (called the **basic component**); and
- Those who need **special care**

Pre-set criteria are used to determine the eligibility of women for the basic component. The women selected to follow the basic component are considered not to require any further assessment or special care at the time of the first visit regardless of the gestational age at which they start the programme. The remaining women are given care corresponding to their detected condition or risk factor. The women who need special care will represent, on average, approximately 25% of all pregnant women initiating antenatal care.

Figure 3-1: The Focused ANC Model



A **classifying checklist** (***Figure 3-2***) is used at the first antenatal visit to the clinic to decide which women will follow the basic component of the new WHO model and which

will require special care. The form contains 19 checklist questions that require binary responses (yes/no). They cover the patient's obstetric history, their current pregnancy and general medical conditions. Women who answer 'yes' to any of the 19 questions would not be eligible for the basic component of the new WHO antenatal care model; they should receive care corresponding to the detected condition.

Transfer of patients between the basic component and specialized care, however, is possible throughout ANC. A woman in the basic care component category can be transferred any time during ANC follow up to a specialized care category. It is also possible that a woman who is initially referred to a higher level of care because of a condition identified in the classifying form is subsequently considered suitable to follow the basic component of the focused ANC model. In such a situation, the woman would have to undergo all the activities included in the basic component that correspond to her fetus's gestational age. In addition, she would have to undergo all activities that she missed owing to her late entry into the basic component that were not performed during her visit(s) to the higher level of care. The activities included in the basic component fall within three general areas:

- **Problem identification: Screening** for health and socio-economic conditions likely to increase the possibility of specific adverse outcomes;
- **Care provision:** Providing **therapeutic interventions** known to be beneficial; and
- **Health promotion:** health education and educating pregnant women about planning for safe birth, emergencies during pregnancy and how to deal with them (birth planning & emergency preparedness).

The activities distributed over the four visits are presented in the **basic component checklist** (***Figure 3-3***). This checklist should be used to record tests and interventions performed at each ANC visit and should be incorporated into the medical records for each patient. Results of tests or treatments recommended should be recorded in the clinic's medical records as is normally done. The checklist is not intended to replace the clinic's medical records. Rather, it is designed to serve as a reminder of the activities that have been and must be performed. Ideally, the first visit should occur in the first trimester, around, or preferably before, week 12 of pregnancy. However, regardless of the gestational age at first enrolment, all pregnant women coming to the clinic for ANC will be enrolled and examined according to the norms for the first, and subsequent, visits. As the basic component includes only four visits, sufficient time must be made during each visit for discussion of the pregnancy and related issues with the pregnant woman. The first visit can be expected to take 30–40 minutes. Individual interaction between the patient and health care provider is an essential element of focused ANC model. For details of activities see learning guide 3.1 (Participant's handout, page 18) and the national management protocol on selected obstetrics topics.

Figure 3-2:- Focused ANC classifying form;

Federal Ministry of Health
Integrated Antenatal, Labor, Delivery, Newborn and Postnatal Care Card

Date: _____ **ANC Reg.No:** _____ **Medical Record Number (MRN):**_____

Name of Client: _____ **Name of Facility** _____

Woreda: _____ **Kebele:** _____**House No:** _____

Age (Years) _____ **LMP**____/____/____ **EDD** ____/____/____

Gravida____ **Para** _____ **Number of children alive**_____ **Marital Status**_____

INSTRUCTIONS to Fill Classifying form: Answer all of the following questions by placing a cross mark in the corresponding box.

OBSTETRIC HISTORY	**No**	**Yes**
1. Previous stillbirth or neonatal loss?		
2. History of 3 or more consecutive spontaneous abortions?		
3. Birth weight of last baby < 2500g		
4. Birth weight of last baby > 4000g		
5. Last pregnancy: hospital admission for hypertension or pre-eclampsia/eclampsia?		
6. Previous surgery on reproductive tract?(Myomectomy, removal of septum, fistula repair, cone biopsy, CS, repaired rapture, cervical circlage)		
CURRENT PREGNANCY	**No**	**Yes**
7. Diagnosed or suspected multiple pregnancy?		
8. Age less than 16 years?		
9. Age more than 40 years?		
10. Isoimmunization Rh (-) in current or in previous pregnancy		
11. Vaginal bleeding		
12. Pelvic mass		
13. Diastolic blood pressure 90mm Hg or more at booking?		
GENERAL MEDICAL	**No**	**Yes**
14. Diabetes mellitus		
15. Renal disease		
16. Cardiac disease		
17. Chronic Hypertension		
18. Known 'substance' abuse (including heavy alcohol drinking, Smoking)		
19. Any other severe medical disease or condition TB, HIV, Ca, DVT..		

A "Yes" to any ONE of the above questions (i.e. ONE shaded box marked with a cross) means that the woman is not eligible for the basic component of the new antenatal care mode and require more close follow up or referral to specialty care. If she needs more frequent ANC visits use and attach additional recording sheets

Figure 3-3:- New WHO antenatal care model basic component checklist, Integrated client card

II. Initial Evaluation plus Promotive and Preventive Care

General Exam	Gyn Exam	Counseling /Testing, HIV+ Care and follow up
General_____	Vulvar Ulcer Y N	Danger signs in pregnancy & delivery advised Y N
Pallor Y N	Vaginal discharge Y N	Birth Preparedness advised Y N
Jaundice Y N	Pelvic Mass Y N	**MOTHER** HIV test accepted Y N
Chest Abn. Y N	Uterine size (Wks) _____	HIV test result R NR I
Heart abnormality Y N	Cervical Lesion Y N	
HIV test result received with post test counseling Y N		
Counseled on Infant feeding Y N		
Referred for care, treatment and support Y N		
PARTNER Partner HIV test result R NR I		

III.Present Pregnancy: Follow Up

	1st visit (better before 16 wks)	2nd visit (better 24 - 28 wks)	3rd visit (better 30 -32 wks)	4th visit (better 36-40wks)
Date of visit				
Gestation age (LMP)				
BP				
Weight (Kg)				
Pallor				
Uterine height (Wks)				
Fetal heart beat				
Presentation				
Urine test for infection				
Urine test for protein				
Rapid syphilis test				
Hemoglobin				
Blood Group and Rh				
TT (dose)				
Iron/Folic Acid				
Mebendazole				
Use of ITN				
ARV Px (type)				
Remarks				

	First visit	*Second visit*	*Third Visit*	*Fourth Visit*
Danger signs identified and Investigation:				
Action, Advice, counseling				
Appointment for next follow-up				
Name and Sign of Health care Provider				

2.3.2. HEALTH PROMOTION AND DISEASE PREVENTION:

Counseling about important issues affecting a woman's health and the health of the newborn is a critical component of focused ANC. Counsel the woman and provide the services as necessary:

- Protection against iodine deficiency and iron and folate supplementation.
- Immunization against tetanus
- How to recognize danger signs, what to do, and where to get help
- HIV testing and counselling
- The benefit of skilled attendance at birth
- Breastfeeding
- Counsel on family planning
- Protection against malaria with insecticide-treated bed nets
- Good nutrition and the importance of rest
- De-worming with mebendazole.
- Risks of using tobacco, alcohol, local stimulants, and traditional remedies
- Hygiene and infection prevention practices

GIVE PREVENTIVE MEASURES

Give iron and folic acid:-

- To all pregnant, postpartum and post-abortion women:
  - → Routinely 60mg elemental iron and 400 µg folic acid once daily in pregnancy and until 3 months after delivery or abortion.
  - → Twice daily as treatment for anemia (double dose).

  Note: 1 ferrous sulfate tablet = ~60‑mg Iron, folic acid = 400‑µg
- Check woman's supply of iron and folic acid at each visit and dispense 3 months supply.
- To enhance the absorption of iron, instruct mothers to take iron when eating meat or vitamin-rich foods (fruits and vegetables). Avoid tea, coffee, and milk at the same time when taking iron; it interferes with the body's absorption of iron. Iron can also be taken between meals.
- Advise to store iron safely:
  - → Where children cannot get it
  - → In a dry place.

Immunization against tetanus:-

■ Check tetanus toxoid (TT) immunization status.

- if the woman has not previously been vaccinated, or if her immunization status is unknown, give two doses of TT/Td one month apart before delivery, and further doses as per ***Table 3-1***;
- if the woman has had 1–4 doses of tetanus toxoid in the past, give one dose of TT/Td before delivery
- if the woman can show written proof of vaccination in childhood or adolescence with tetanus-containing vaccine (e.g. DTP, DT, Td, TT) administer 1 dose of TT at present contact/pregnancy and a second dose a year later.

■ Give tetanus toxoid if due. For TT administration schedule see table 3-1 below.

Table 3-1:- Schedule for Tetanus Toxoid administration.

Dose	Time for administration	Duration of protection
TT1	At first contact	No protection
TT2	4 weeks after TT1	Three years
TT3	At least 6 months after TT2	Five years
TT4	At least one year TT3	Ten years
TT5	At least one year after TT4	For thirty years (throughout a woman's reproductive life

De-worming:-

- tudies have shown that eradication of hookworms in endemic areas could prevent 41 to 56% of moderate to severe anemia.
- Give mebendazole 500 mg once in second or third trimester to every woman in hookworm endemic areas.

COUNSELING ON FAMILY PLANNING:

Counsel on the importance of family planning

- If appropriate, ask the woman if she would like her partner or another family member to be included in the counselling session.
- Explain that after birth, if she has sex and is not exclusively breastfeeding, she can become pregnant as soon as 4 weeks after delivery. Therefore it is important to start thinking early about what family planning method they will use. For contraceptive options see tables 3-2 and 3-3.

- If she (and her partner) want more children, advise that waiting at least 2-3 years between pregnancies is healthier for the mother and child.
- Information on when to start a method after delivery will vary depending on whether a woman is breastfeeding or not.
- Make arrangements for the woman to see a family planning counsellor, or counsel her directly (see the *Decision-making tool for family planning providers and clients* for information on methods and on the counselling process).

- Advise the correct and consistent use of condoms for dual protection from sexually transmitted infection (STI) or HIV and pregnancy. Promote their use, especially if at risk for sexually transmitted infection (STI) or HIV.
- For HIV-positive women, advise dual protection.
- Her partner can decide to have a vasectomy (male sterilization) at any time.

Special considerations for family planning counselling during pregnancy:

Counselling should be given during the third trimester of pregnancy.

- If the woman chooses female sterilization:
  - can be performed immediately postpartum if no sign of infection (ideally within 2 days, or delay for 6 weeks).
  - plan for delivery in health facility where they are trained to carry out the procedure.
  - ensure counselling and informed consent prior to labour and delivery.
- If the woman chooses an intrauterine device (IUD):
  - can be inserted immediately postpartum if no sign of infection (up to 48 hours, or delay 4 weeks)

Table 3-2:- Method options for the non-breastfeeding woman

Can be used immediately postpartum	• Condoms • Progestogen-only oral contraceptives • Progestogen-only injectables • Implant • Spermicide • Female sterilization (within 7 days or delay 6 weeks) • IUD (within 48 hours or delay 4 weeks)
Delay 3 weeks	• Combined oral contraceptives • Combined injectables • Diaphragm • Fertility awareness methods

Table 3-3:- Method options for the breastfeeding woman

Can be used immediately postpartum	• Lactational amenorrhoea method (LAM) • Condoms • Spermicide • Female sterilisation (within 7 days or delay 6 weeks) • IUD (within 48 hours or delay 4 weeks)
Delay 6 weeks	• Progestogen-only oral contraceptives • Progestogen-only injectables • Implants • Diaphragm
Delay 6 months	• Combined oral contraceptives • Combined injectables • Fertility awareness methods

2.3.3 EARLY DETECTION AND TREATMENT OF COMPLICATIONS AND EXISTING DISEASES:

As part of the initial assessment, the provider talks with the woman and examines her for pre-existing health conditions that may affect the outcome of pregnancy, require immediate treatment or require a more intensive level of monitoring and follow-up care over the course of pregnancy.

2.3.4 DEVELOPING A BIRTH PLAN AND COMPLICATION READINESS

Approximately 15% of women will develop a life-threatening complication during pregnancy, childbirth, and the postpartum/newborn period. Therefore; women and newborns need timely access to skilled care during these periods. Too often, however, their access to care is impeded by delays—delays in deciding to seek care, delays in reaching care, and delays in receiving care. These delays have many causes, including logistical and financial concerns, unsupportive policies, and gaps in services, as well as inadequate community and family awareness and knowledge about maternal and newborn health issues. The causes of these delays are common and predictable. However, in order to address them, women and families—and the communities, providers, and facilities that surround them—must be prepared in advance and ready for rapid emergency action. Birth Preparedness and Complication Readiness is the process of planning for normal birth and anticipating the actions needed in case of an emergency. So, every woman and her family should have a plan for the following:

- A skilled attendant at birth
- The place of birth and how to get there including how to access emergency transportation if needed

- Items needed for the birth
- Money saved to pay for transportation, the skilled provider and for any needed mediations and supplies that may not been provided for free
- Support during and after the birth (e.g., family, friends)
- Potential blood donors in case of emergency.

Assisting the woman to prepare for birth including:

- Items needed for clean birth
- Identification of skilled attendant for the birth
- Plan for reaching skilled attendant at the time of labor and delivery
- Identification of support people to help with transportation, care of children/household, and accompaniment to health facility
- Complication Readiness Plan in case of emergency: emergency funds, transportation, blood donors, and decision-making
- Counseling/educating the woman and family on danger signs, nutrition, family planning, breastfeeding, HIV/AIDS
- Informing woman and family of existence of emergency funds if available
- Referring to higher levels of care when appropriate

Readiness plan

- Identifies transportation systems and where to go in case of emergency, support persons to accompany and stay with family
- Speaks out and acts on behalf of her and her child's health, safety and survival
- Knows that community and facility emergency funds are available
- Ensures personal savings and how to access it in case of need
- Knows who the blood donor is
- Chooses skilled attendant and place of birth in antenatal period.
- Recognizes normal labor and complications

Facility delivery:

Explain why birth in a facility is recommended:-

- Any complication can develop during delivery - they are not always predictable.
- A facility has staff, equipment, supplies and drugs available to provide best care if needed, and a referral system.

Advise how to prepare

- Review the arrangements for delivery:-

Advise when to go:-

- If the woman lives near the facility, she should go at the first signs of labour.
- If living far from the facility, she should go 2-3 weeks before expected date of delivery and stay either at the maternity waiting home or with family or friends near the facility.
- Advise to ask for help from the community, if needed.

Advise what to bring:-

- Home-based maternal record.
- Clean cloths for washing, drying and wrapping the newborn.
- Additional clean cloths to use as sanitary pads after birth.
- Clothes for mother and newborn.
- Food and water for woman and support person.

Advise on danger signs:

Teach the pregnant woman and her family to report any of the following conditions immediately:

- Vaginal bleeding
- Sudden gush of fluid or leaking of fluid from vagina
- Severe headache not relieved by simple analgesics
- Dizziness and blurring of vision
- Sustained vomiting
- Swelling (hands, face, etc.)
- Loss of fetal movements
- Convulsions
- Premature onset of contractions (before 37 weeks)
- Severe or unusual abdominal pain
- Chills or fever

2.4. ANC FOR PMTCT

Provider initiated routine HIV testing and counseling (HTC) using the opt out approach is the recommended approach for all clients seen within the context of maternal care (i.e. at ANC, labor, immediate postpartum). The client is given pre test information in a group or on individual basis on HIV/AIDS and PMTCT and will be told that her routine antenatal laboratory tests will include an HIV test. The provider also must inform the client that, she has the right to say "no" (to opt out), and this by no means affects the services that she is going to get from the health facility. Rapid HIV testing must be used so results can be provided on the same day. (Table 3-4).

Additional Antenatal Care Needs for HIV-positive Women

HIV-positive women need focused antenatal care as described in the previous section, but need *extra* care, including prevention and early treatment of opportunistic infections. This can reduce risk of adverse pregnancy outcomes and the likelihood of mother-to-child HIV transmission. All HIV-positive pregnant women should be eligible to HAART according to the new PMTCT recommendation to implement option B+. CD4 determination is done for follow up either by sending blood samples or referring the client directly to a centre where CD4 testing is available. At each antenatal clinic appointment, HIV-positive mothers should be routinely reassessed for OI prophylaxis**.** HIV infected women and their families should be enrolled in HIV care and treatment services.

Additional history and clinical examination for HIV-positive pregnant women:

- Past history of HIV-related illness and HAART
- Duration of known HIV-positive status
- Assessment for symptoms of AIDS and HIV as per WHO Clinical Staging System for HIV status of other children and partner
- HIV and health status of other children and partner
- Partner disclosure and referral
- Any medications for HIV-related illness taken since beginning of pregnancy (e.g. TB or malaria medications, antiretroviral drugs, antibiotics for opportunistic infections)

Additional laboratory assessment of HIV-positive pregnant women:

- CD4 count/percentage is routinely recommended, where the service is available for follow up. Additional laboratory investigations are recommended as relevant and indicated to diagnose opportunistic infections.

Antiretroviral therapy:

- All HIV-positive women should be on HAART , at point of care or at HIV care/ART clinic.
- link to ART clinic for care and support.

Tuberculosis (TB):

- Screen all pregnant HIV-positive pregnant women for TB

Malaria:

- All pregnant women should be advised to use insecticide treated bed nets to prevent malaria.

Infant Care:

- Counsel pregnant women about infant feeding with emphasis on exclusive breastfeeding for the first six months of life, with introduction of appropriate complementary feedings at six months with continued breastfeeding until 12–18 months. Educate mothers on the importance of infant follow-up, cotrimoxazole preventive therapy and early infant diagnosis.

Counseling on signs and symptoms of HIV/AIDS disease progression:

- Provide information and instructions on seeking care for symptoms of HIV disease progression. HAART is provided at ANC however women should be referred to ART sites for appropriate management of complications, consultation or ongoing care when indicated.

Partners and family:

- Help women through the process of disclosure, involving partner and/or couple counseling, and on effective involvement of the family in care and support.

Support:

- Counsel and refer to community care and support organizations and ensure feedback.

Prevention:

- Counsel: primary prevention, condoms, postpartum contraception including counseling for family planning and provision of contraceptive methods.

Table 3-4:- Counsel all pregnant women for HIV at first visit. Check status during each visit.

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
■ Have you ever been tested for HIV? ■ If yes, do you know the result? (Explain to the woman that she has the right not to disclose the result.) ■ Has the partner been tested?		■ Known HIV-positive.	**HIV-POSITIVE**	■ Ensure that she have received the necessary information about MTCT prevention . ■ Enquire about the ARV treatment and inform her to start HAART right away. ■ Enquire how she will be supplied with the drugs. ■ Enquire about the infant feeding option chosen. ■ Advise on additional care during pregnancy, delivery and postpartum . ■ Advise on correct and consistent use of condoms . ■ Counsel on benefits of involving and testing the partner.
		■ No HIV test results or not willing to disclose result.	**UNKNOWN HIV STATUS**	■ Provide key information on HIV . ■ Inform her about VCT to determine HIV status. ■ Advise on correct and consistent use of condoms. ■ Counsel on benefits of involving and testing the partner .
		■ Known HIV-negative	**HIV-NEGATIVE**	■ Provide key information on HIV . ■ Counsel on benefits of involving and testing her partner . ■ Counsel on the importance of staying negative by correct and consistent use of condoms.

For more information refer to the national PMTCT guideline.

UNIT -3: CARE FOR DISEASES AND COMPLICATIONS DURING PREGNANCY:

3.1. LEARNING OBJECTIVES

At the end of this unit, participants will be able to:

- Describe diseases and complications during pregnancy.
- Describe care required for diseases and complications during pregnancy
- Describe the pre-referal management of severe complications during pregnancy

3.2. ANEMIA DURING PREGNANCY

Iron deficiency in childbearing women increases maternal and perinatal, and prematurity. Forty percent of all maternal perinatal deaths are linked to anemia. Favorable pregnancy outcomes occur 30-45% less often in anaemic mothers, and their infants have less than one-half of normal iron reserves. For screening and treatment of anemia during pregnancy see table 3-5 below.

Table 3-5:- Screen all pregnant women for anemia at every visit.

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
■ Do you tire easily? ■ Are you breathless (short of breath) during routine household work?	**On first visit:** ■ Measure haemoglobin **On subsequent visits:** ■ Look for conjunctival pallor. ■ Look for palmar pallor. If pallor: →Is it severe pallor? →Some pallor? →Count number of breaths in 1 minute.	■ Haemoglobin <7 g/dl. **AND/OR** ■ Severe palmar and conjunctival pallor or ■ Any pallor with any of →>30 breaths per minute →tires easily →breathlessness at rest	**SEVERE ANEMIA**	■ **Refer immediately to hospital**.
		■ Haemoglobin 7-11 g/dl. **OR** ■ Palmar or conjunctival pallor.	**MODERATE ANEMIA**	■ Give double dose of iron (1 tablet twice daily) for 3 months . ■ Counsel on compliance with treatment ■ Give oral antimalarial if appropriate.

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
				■ Reassess at next antenatal visit (4-6 weeks). If anemia persists, refer to hospital.
		■ Haemoglobin >11g/dl. ■ No pallor.	**NO CLINICAL ANEMIA**	■ Give iron 1 tablet once daily for 3 months. ■ Counsel on compliance with treatment.

3.3. VAGINAL BLEEDING IN EARLY PREGNANCY

3.3.1. INTRODUCTION

PROBLEM:

- Vaginal bleeding occurs during the first 28 weeks of pregnancy.

GENERAL MANAGEMENT

- Make a **rapid evaluation** of the general condition of the woman including vital signs (pulse, blood pressure, respiration, temperature).
- If **shock is suspected**, immediately begin treatment. Even if signs of shock are not present, keep shock in mind as you evaluate the woman further because her status may worsen rapidly. If **shock develops**, it is important to begin treatment immediately.
- If the **woman is in shock**, consider ruptured ectopic pregnancy.
- Start an IV infusion and infuse IV fluids.
- Definitive management of abortion depends on a number of factors, including: the type of abortion; the stage of abortion; and the size of the uterus as identified by a pelvic exam.

DIAGNOSIS

- **Consider ectopic pregnancy** in any woman with anemia, pelvic inflammatory disease (PID), threatened abortion or unusual complaints about abdominal pain.
    - **Note**: If **ectopic pregnancy is suspected**, perform bimanual examination gently because an early ectopic pregnancy is easily ruptured.
- **Consider abortion** in any woman of reproductive age who has a missed period (delayed menstrual bleeding with more than a month having passed since her last menstrual period) and has one or more of the following: bleeding, cramping,

partial expulsion of products of conception, dilated cervix or smaller uterus than expected.

- If **abortion is a possible diagnosis**, identify and treat any complications immediately (table 3-6).
- Other causes include: Molar pregnancy, coincidental local genital lesions of the cervix, vagina or vulva (e.g. cervical cancer).

3.3.2. THREATENED ABORTION

- Medical treatment is usually not necessary.
- Advise the woman to avoid strenuous activity and sexual intercourse.
- If **bleeding stops**, follow up in antenatal clinic. Reassess if bleeding recurs.
- If **bleeding persists**, assess for fetal viability (pregnancy test/ultrasound) or ectopic pregnancy (ultrasound). Persistent bleeding, particularly in the presence of a uterus larger than expected, may indicate twins or molar pregnancy.

3.3.3. INEVITABLE ABORTION

- If **pregnancy is less than 12 weeks**, plan for evacuation of uterine contents. If **evacuation is not immediately possible**:
  - Give ergometrine 0.2 mg IM (repeated after 15 minutes if necessary) OR misoprostol 400 mcg by mouth (repeated once after 4 hours if necessary);
  - Arrange for evacuation of uterus as soon as possible.
- If **pregnancy is greater than 12 weeks**:
  - Await spontaneous expulsion of products of conception and then evacuate the uterus to remove any remaining products of conception;
  - If necessary, infuse oxytocin 40 units in 1 L IV fluids (normal saline or Ringer's lactate) at 40 drops per minute to help achieve expulsion of products of conception.
- Ensure follow-up of the woman after treatment.

TABLE 3-6:- Diagnosis of vaginal bleeding in early pregnancy

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Light[a] bleeding • Closed cervix • Uterus corresponds to dates	• Cramping/lower abdominal pain • Uterus softer than normal	**Threatened abortion,**
• Light bleeding • Abdominal pain • Closed cervix • Uterus slightly larger than normal • Uterus softer than normal	• Fainting • Tender adnexal mass • Amenorrhoea • Cervical motion tenderness	**Ectopic pregnancy**
• Light bleeding • Closed cervix • Uterus smaller than dates • Uterus softer than normal	• Light cramping/lower abdominal pain • History of expulsion of products of conception	**Complete abortion,**
• Heavy[b] bleeding • Dilated cervix • Uterus corresponds to dates	• Cramping/lower abdominal pain • Tender uterus • No expulsion of products of conception	**Inevitable abortion,**
• Heavy bleeding • Dilated cervix • Uterus smaller than dates	• Cramping/lower abdominal pain • Partial expulsion of products of conception	**Incomplete abortion,**
• Heavy bleeding • Dilated cervix • Uterus larger than dates • Uterus softer than normal • Partial expulsion of products of conception which resemble grapes	• Nausea/vomiting • Spontaneous abortion • Cramping/lower abdominal pain • Ovarian cysts (easily ruptured) • Early onset pre-eclampsia • No evidence of a fetus	**Molar pregnancy,**

[a] Light bleeding: takes longer than 5 minutes for a clean pad or cloth to be soaked.

[b] Heavy bleeding: takes less than 5 minutes for a clean pad or cloth to be soaked.

3.3.4. INCOMPLETE ABORTION

- If **bleeding is light to moderate** and **pregnancy is less than 12 weeks**, use fingers or ring (or sponge) forceps to remove products of conception protruding through the cervix.
- If **bleeding is heavy** and **pregnancy is less than 12 weeks**, evacuate the uterus:

- Manual vacuum aspiration is the preferred method of evacuation. Evacuation by sharp curettage should only be done if manual vacuum aspiration is not available;
- If **evacuation is not immediately possible**, give ergometrine 0.2 mg IM (repeated after 15 minutes if necessary) OR misoprostol 400 mcg orally (repeated once after 4 hours if necessary).

• If **pregnancy is greater than 12 weeks**:
- Infuse oxytocin 40 units in 1 L IV fluids (normal saline or Ringer's lactate) at 40 drops per minute until expulsion of products of conception occurs;
- If necessary, give misoprostol 200 mcg vaginally every 4 hours until expulsion, but do not administer more than 800 mcg;
- Evacuate any remaining products of conception from the uterus.

• Ensure follow-up of the woman after treatment (see below).

Table 3-7:- Diagnosis and management of complications of abortion

Symptoms and Signs	Complication	Management
• Lower abdominal pain • Rebound tenderness • Tender uterus • Prolonged bleeding • Malaise • Fever • Foul-smelling vaginal discharge • Purulent cervical discharge • Cervical motion tenderness	**Infection/sepsis**	Begin antibiotics[a] as soon as possible before attempting manual vacuum aspiration.
• Cramping/abdominal pain • Rebound tenderness • Abdominal distension • Rigid (tense and hard) abdomen • Shoulder pain • Nausea/vomiting • Fever	**Uterine, vaginal or bowel injuries**	Consult or refer to a higher facility urgently.

[a] Give ampicillin 2 g IV every 6 hours PLUS gentamicin 5 mg/kg body weight IV every 24 hours PLUS metronidazole 500 mg IV every 8 hours until the woman is fever-free for 48 hours.

3.3.5. COMPLETE ABORTION

- Evacuation of the uterus is usually not necessary.
- Observe for heavy bleeding.
- Ensure follow-up of the woman after treatment (see below).

3.3.6. FOLLOW-UP OF WOMEN WHO HAVE HAD AN ABORTION

Before discharge, tell a woman who has had a spontaneous abortion that spontaneous abortion is common and occurs in at least 15% (one in every seven) of clinically recognized pregnancies. Also reassure the woman that the chances for a subsequent successful pregnancy are good unless there has been sepsis or a cause of the abortion is identified that may have an adverse effect on future pregnancies (this is rare).

Some women may want to become pregnant soon after having an incomplete abortion. The woman should be encouraged to delay the next pregnancy until she is completely recovered.

It is important to counsel women who have had an unsafe abortion. If **pregnancy is not desired**, certain methods of family planning can be started immediately (within 7 days) provided:

- There are no severe complications requiring further treatment;
- The woman receives adequate counselling and help in selecting the most appropriate family planning method.

Table 3-8:- Family planning methods

Type of Contraceptive	Advise to Start
Hormonal (pills, injections, implants)	• Immediately
Condoms	• Immediately
Intrauterine device (IUD)	• Immediately • If infection is present or suspected, delay insertion until it is cleared • If Hb is less than 7 g/dL, delay until anemia improves • Provide an interim method (e.g. condom)
Voluntary tubal ligation	• Immediately • If infection is present or suspected, delay surgery until it is cleared • If Hb is less than 7 g/dL, delay until anemia improves • Provide an interim method (e.g. condom)

Also identify any other reproductive health services that a woman may need. For example some women may need:

- Tetanus prophylaxis or tetanus booster;
- Treatment for sexually transmitted diseases (STDs);
- Cervical cancer screening.
- HIV testing and councelling

3.3.7. ECTOPIC PREGNANCY

An ectopic pregnancy is one in which implantation occurs outside the uterine cavity. The fallopian tube is the most common site of ectopic implantation (greater than 90%). Symptoms and signs are extremely variable depending on whether or not the pregnancy has ruptured (table 2-10). The classic triad of symptoms ascribed to ectopic pregnancy is: amenorrhea (symptoms of early pregnancy) followed by vaginal bleeding and abdominal/ pelvic pain. Culdocentesis (cul-de-sac puncture) is an important tool for the diagnosis of ruptured ectopic pregnancy, but is less useful than a serum pregnancy test combined with ultrasonography. If **non-clotting blood is obtained**, begin immediate management.

IMMEDIATE MANAGEMENT

In ruptured ectopic pregnancy, resuscitation is immediately instituted (see section on shock) and
laparotomy is performed as soon as possible. Therefore if ectopic pregnancy is diagnosed/suspected immediately start resuscitation and consult or refer for immediate laparatomy.

Table 3-9:- Symptoms and signs of ruptured and unruptured ectopic pregnancy

Unruptured Ectopic Pregnancy	Ruptured Ectopic Pregnancy
• Symptoms of early pregnancy (irregular spotting or bleeding, nausea, swelling of breasts, bluish discoloration of vagina and cervix, softening of cervix, slight uterine enlargement, increased urinary frequency) • Abdominal and pelvic pain	• Collapse and weakness • Fast, weak pulse (110 per minute or more) • Hypotension • Hypovolaemia • Acute abdominal and pelvic pain • Abdominal distension[a] • Rebound tenderness • Pallor

[a] Distended abdomen with shifting dullness may indicate free blood.

3.3.8. MOLAR PREGNANCY

Molar pregnancy is characterized by an abnormal proliferation of chorionic villi. The diagnosis is certain if vesicles were passed. If the **diagnosis of molar pregnancy is certain**, refer immediately after resuscitation and providing supportive care.

3.4. VAGINAL BLEEDING IN LATER PREGNANCY AND LABOUR

PROBLEMS:

- Vaginal bleeding after 28 weeks of pregnancy, Anatepartum Hemorrhage (APH).
- Vaginal bleeding in labour before delivery.

CAUSES:

- Placental causes
  - Abruptio placentae
  - Placenta previa
  - Rare causes: vasa previa and other placental abnormalities
- Uterine rupture
- Local legions of the cervix, vagina and vulva
- Indeterminate: cause not identified even after delivery and examining the placenta

DIAGNOSIS: (see table below)

Table 3-10:- Diagnosis of antepartum haemorrhage

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Bleeding after 28 weeks gestation (may be retained in the uterus) • Intermittent or constant abdominal pain	• Shock • Tense/tender uterus • Decreased/absent fetal movements • Fetal distress or absent fetal heart sounds	**Abruptio placentae,**
• Bleeding (intra-abdominal and/or vaginal) • Severe abdominal pain (may decrease after rupture)	• Shock • Abdominal distension/ free fluid • Abnormal uterine contour • Tender abdomen • Easily palpable fetal parts • Absent fetal movements and fetal heart sounds • Rapid maternal pulse	**Ruptured uterus,**
• Bleeding after 28 weeks gestation	• Shock • Bleeding may be precipitated by intercourse • Relaxed uterus • Fetal presentation not in pelvis/ lower uterine pole feels empty • Normal fetal condition	**Placenta praevia,**

GENERAL MANAGEMENT:

- **SHOUT FOR HELP.** Urgently mobilize all available personnel.
- Make a rapid evaluation of the general condition of the woman including vital signs (pulse, blood pressure, respiration, temperature).

  Note:- Vaginal or rectal examination should not be done as it can aggravate bleeding.
- If **shock is suspected**, immediately begin treatment. Even if signs of shock are not present, keep shock in mind as you evaluate the woman further because her status may worsen rapidly.
- Start an IV infusion and infuse IV fluids.
- All cases of antepartum haemorhage should be managed in a facility with set up for cesarean delivery; therefore ***refer urgently*** while continuing resuscitation and supportive care.

• If the diagnosis is ruptured uterus (in addition to the above care and before referal):-

  - Catheterize bladder
  - Give loading dose of triple antibiotic
    - Ampicillin 2 gm IVstat
    - Metronidazole 500mg or CAF 2gm IV stat, and
    - Gentamycin 80mg IV stat

3.5. HEADACHE, BLURRED VISION, CONVULSIONS OR LOSS OF CONSCIOUSNESS, ELEVATED BLOOD PRESSURE

3.5.1. INTRODUCTION

PROBLEMS

- A pregnant woman or a woman who recently delivered complains of severe headache or blurred vision.
- A pregnant woman or a woman who recently delivered is found unconscious or having convulsions (seizures).
- A pregnant woman has elevated blood pressure.

GENERAL MANAGEMENT

- If a **woman is unconscious or convulsing, SHOUT FOR HELP.** Urgently mobilize all available personnel.
- Make a rapid evaluation of the general condition of the woman including vital signs (pulse, blood pressure, respiration) while simultaneously finding out the history of her present and past illnesses either from her or from her relatives.
- If she is **not breathing** or **her breathing is shallow**:
  - If she is **not breathing**, assist ventilation using Ambu bag and mask or give oxygen at 4–6 L per minute via nasal cathetor;
  - If she **is breathing**, give oxygen at 4–6 L per minute by mask or nasal cannulae.
- If she is **unconscious**:
  - Check airway and temperature;
  - Position her on her left side;
  - Check for neck rigidity.
- If she is **convulsing**:
  - Position her on her left side to reduce the risk of aspiration of secretions, vomit and blood;
  - Protect her from injuries (fall), but do not attempt to restrain her; Put on air way.
  - Provide constant supervision;
  - If **eclampsia is diagnosed** (Table 3-11), initiate magnesium sulfate (Box 3-3);
  - If the **cause of convulsions has not been determined**, manage as eclampsia and continue to investigate other causes.
- After emergency management and initiating magnesium sulfate refer urgently to a higher facility.

DIAGNOSIS OF HYPERTENSIVE DISORDERS

The hypertensive disorders of pregnancy include pregnancy-induced hypertension and chronic hypertension (elevation of the blood pressure before 20 weeks gestation). Headaches, blurred vision, convulsions and loss of consciousness are often associated with hypertension in pregnancy, but are not necessarily specific to it. Other conditions that may cause convulsions or coma include epilepsy, complicated malaria, head injury, meningitis, encephalitis, etc. See ***Table 2-13*****,** for more information on diagnosis.

PROTEINURIA

The presence of proteinuria changes the diagnosis from pregnancy-induced hypertension to pre-eclampsia. Proteinuria for diagnosis of pre-eclampsia include:

- 0.3 g protein in a 24-hour urine specimen or
- 1+ on dipstick (specific gravity < 1030) or
- 2+ on dipstick

Other conditions cause proteinuria and false positive results are possible. Urinary infection, severe anemia, heart failure and difficult labour may all cause proteinuria.

Diastolic blood pressure alone is an accurate indicator of hypertension in pregnancy. Elevated blood pressure and proteinuria, however, define pre-eclampsia.

3.5.2. PREGNANCY-INDUCED HYPERTENSION

Women with pregnancy-induced hypertension disorders may progress from mild disease to a more serious condition. The classes of pregnancy-induced hypertension are:

- hypertension without proteinuria or oedema;
- mild pre-eclampsia;
- severe pre-eclampsia;
- eclampsia.

A small proportion of women with eclampsia have normal blood pressure. Treat all women with convulsions as if they have eclampsia until another diagnosis is confirmed.

Remember:

- Mild pre-eclampsia often has no symptoms.
- Increasing proteinuria is a sign of worsening pre-eclampsia.

- Oedema of the feet and lower extremities is not considered a reliable sign of pre-eclampsia.

In pregnancy-induced hypertension, there may be no symptoms and the only sign may be hypertension.

- Mild pre-eclampsia may progress rapidly to severe pre-eclampsia. The risk of complications, including eclampsia, increases greatly in severe pre-eclampsia.
- The development of grand mal seizures or coma in a woman with preeclampsia indicates eclampsia. These convulsions:
  - can occur regardless of the severity of hypertension;
  - are difficult to predict and typically occur in the absence of hyperreflexia, headache or visual changes;
  - occur after childbirth in about 25% of cases;
  - are tonic-clonic and resemble grand mal convulsions of epilepsy;
  - may recur in rapid sequence, as in status epilepticus, and may end in death;
  - will not be observed if the woman is alone;
  - may be followed by coma that lasts minutes or hours depending on the frequency of convulsions.
- Complications may cause adverse perinatal and maternal outcomes. Because complications are often difficult to treat, efforts should be made to prevent them by early diagnosis and proper management. Be aware that management can also lead to complications.

Table 3-11:- Diagnosis of headache, blurred vision, convulsions or loss of consciousness, elevated blood pressure

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Diastolic blood pressure 90 mm Hg or more before first 20 weeks of gestation		**Chronic hypertension,**
• Diastolic blood pressure 90–110 mm Hg before 20 weeks of gestation • Proteinuria up to 2+		**Chronic hypertension with superimposed mild pre-eclampsia,**
• Two readings of diastolic blood pressure 90–110 mm Hg 4 hours apart after 20 weeks gestation • No proteinuria		**Pregnancy-induced hypertension,**

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Two readings of diastolic blood pressure 90–110 mm Hg 4 hours apart after 20 weeks gestation • Proteinuria up to 2+		**Mild pre-eclampsia,**
• Diastolic blood pressure 110 mm Hg or more after 20 weeks gestation • Proteinuria 3+ or more	• Hyperreflexia • Headache (increasing frequency, unrelieved by regular analgesics) • Clouding of vision • Oliguria (passing less than 400 mL urine in 24 hours) • Upper abdominal pain (epigastric pain or pain in right upper quadrant) • Pulmonary oedema	**Severe pre-eclampsia[a],**
• Convulsions • Diastolic blood pressure 90 mm Hg or more after 20 weeks gestation • Proteinuria 2+ or more	• Coma (unconscious) • Other symptoms and signs of severe pre-eclampsia	**Eclampsia,**
• Trismus (difficulty opening mouth and chewing)	• Spasms of face, neck, trunk • Arched back • Board-like abdomen • Spontaneous violent spasms	**Tetanus,**
• Convulsions • Past history of convulsions • Normal blood pressure		**Epilepsy[b],**
• Fever • Chills/rigors • Headache • Muscle/joint pain	• Enlarged spleen	**Uncomplicated malaria,**
• Symptoms and signs of uncomplicated malaria • Coma • Anemia	• Convulsions • Jaundice	**Severe/complicated malaria,**
• Headache • Stiff neck • Photophobia • Fever	• Convulsions • Confusion • Drowsiness • Coma	**Meningitis[b],** or **Encephalitis[b]**
• Headache • Blurred vision	• Vomiting	**Migraine[c]**

[a] If a woman has any one of the symptoms or signs listed under severe pre-eclampsia, diagnose severe pre-eclampsia.

[b] If a diagnosis of eclampsia cannot be ruled out, continue treatment for eclampsia.

[c] Give analgesics (e.g. paracetamol 500 mg by mouth as needed).

Do not give ergometrine to women with pre-eclampsia, eclampsia or high blood pressure because it increases the risk of convulsions and cerebrovascular accidents.

MANAGEMENT OF PREGNANCY-INDUCED HYPERTENSION

A. GESTATIONAL HYPERTENSION (HYPERTENSION WITH OUT PROTEINURIA):

Manage on an outpatient basis:

- Monitor blood pressure, urine (for proteinuria) and fetal condition weekly.
- If **blood pressure worsens**, manage as mild pre-eclampsia.
- Counsel the woman and her family about danger signals indicating pre-eclampsia or eclampsia.
- If all **observations remain stable**, allow to proceed with normal labour and childbirth.

B. MILD PRE-ECLAMPSIA:

Gestation less than 37 weeks:-

If **signs remain unchanged or normalize**, follow up twice a week as an outpatient:

- Monitor blood pressure, urine (for proteinuria), reflexes and fetal condition.
- Counsel the woman and her family about danger signals of severe pre-eclampsia or eclampsia.
- Encourage additional periods of rest.
- Encourage the woman to eat a normal diet (salt restriction should be discouraged).
- Orient on fetal movement counting (kick chart) daily, to be reported at ANC visits
- Do not give anticonvulsants, antihypertensives, sedatives or tranquillizers.
- If **follow-up as an outpatient is not possible**, refer her for inpatient follow-up.

  Note: Symptoms and signs of pre-eclampsia do not completely disappear until after pregnancy ends.

Gestation more than 37 completed weeks:-

Refer to a higher facility for management and delivery.

C. SEVERE PRE-ECLAMPSIA AND ECLAMPSIA

Severe pre-eclampsia and eclampsia are managed similarly with the exception that delivery must occur within 12 hours of onset of convulsions in eclampsia. **ALL cases of severe pre-eclampsia should be managed actively**.

If there are symptoms or signs of imminent eclampsia (such as headache, blurred vision, vomiting, right upper quadrant pain, oliguria, exaggerated DTR) manage as in eclampsia. The steps of management include:

- General measures - supporting the specific treatments
- Prevent convulsion with magnesium sulfate or valium
- Control hypertension
- Delivery as soon as possible

General management:-

Manage in left lateral position (relieves pressure on inferior vena cava)

- Set up IV line (using canulla) & infuse fluids to replace estimated loss (from bleeding, vomiting diarrhea, sweating) (500ml in 1st 1/2 hr), then ongoing loss + urine out put + insensible loss (700 ml124 hrs (PO & IV).
- Place an indwelling catheter to monitor urine out put & proteinuria. Urine output should be at least 30 ml/hr. If it is less, run fluids more rapidly (if no still improved, consider renal failure, refer urgently).
- Maintain a strict fluid balance chart, to avoid fluid overload
- Prepare equipment for convulsion management, at bedside (mouthpiece, airway, suction equipment, mask & bag, oxygen)
- Never leave the patient alone (if convulsion occurs, aspiration may cause death)
- Observe vital signs, FHB & reflexes hourly
- Oscultate the lung bases for crepitation indicating pulmonary edema. If they occur, with hold fluids & administer a diuretic (furosemide 40 mg Iv stat) and refer urgently.
- The immediate treatment should include managing symptoms

Anticonvulsive drugs:-

Seizure prophylaxis should be instituted in all pre-eclamptics during labor & continued for 12-24 hrs after delivery and in all severe pre-eclamptics during admission & continued during period of evaluation & observation. **Magnesium sulfate is the drug of choice for preventing and treating convulsions in severe pre-eclampsia and eclampsia (see** Box 3-1 for administration).

Box 3-1:- Magnesium sulfate schedules for severe pre-eclampsia and eclampsia

Loading dose

Magnesium sulfate

- *4 gm magnesium sulfate(Mgso4) as 20% solution IV given over 5 minutes(Mix 8 ml of 50% Mgso4 solution with 12ml ofD5W or 09% Normal saline to make 20% solution)*
- *10 g of 50% magnesium sulfate (Mgso4) solution, 5 g in each buttock as deep IM injection with 1 mL of 2% lignocaine in the same syringe. Ensure that aseptic technique is practiced when giving magnesium sulfate deep IM injection. Warn the woman that a feeling of warmth will be felt when magnesium sulfate is given.*
- *If **convulsions recur after 15 minutes**, give 2 g magnesium sulfate (50% solution) IV over 5 minutes.*

Maintenance dose

- *5 g magnesium sulfate (50% solution) + 1 mL lignocaine 2% IM every 4 hours into alternate buttocks.*
- *Continue treatment with magnesium sulfate for 24 hours after delivery or the last convulsion, whichever occurs last.*

***Before repeat administration, ensure that**:*

- *Respiratory rate is at least 16 per minute.*
- *Patellar reflexes are present.*
- *Urinary output is at least 30 mL per hour over 4 hours.*

***WITHHOLD OR DELAY DRUG IF**:*

- *Respiratory rate falls below 16 per minute.*
- *Patellar reflexes are absent.*
- *Urinary output falls below 30 mL per hour over preceding 4 hours.*

Keep antidote ready

- *In case of respiratory arrest:*
  - *Assist ventilation (mask and bag, anesthesia apparatus, intubation).*
  - *Give calcium gluconate 1 g (10 mL of 10% solution) IV slowly to antagonize the effects of magnesium sulfate.*

If **magnesium sulfate is not available**, diazepam may be used although there is a greater risk for neonatal respiratory depression because diazepam passes the placenta freely. A single dose of diazepam to abort a convulsion seldom causes neonatal respiratory depression. Long-term continuous IV administration increases the risk of respiratory depression. Administration of diazepam is outlined in Box 3-2.

Box 3-2:- Diazepam schedules for severe pre-eclampsia and eclampsia

Intravenous administration

Loading dose

- Diazepam 10 mg IV slowly over 2 minutes.
- If **convulsions recur**, repeat loading dose.

Maintenance dose

- Diazepam 40 mg in 500 mL IV fluids (normal saline or Ringer's lactate) titrated to keep the woman sedated but rousable.
- Maternal respiratory depression may occur when dose exceeds 30 mg in 1 hour:

  Assist ventilation (mask and bag, anesthesia apparatus, intubation), if necessary.

  Do not give more than 100 mg in 24 hours.

Rectal administration

- Give diazepam rectally when IV access is not possible. The loading dose is 20 mg in a 10 mL syringe. Remove the needle, lubricate the barrel and insert the syringe into the rectum to half its length. Discharge the contents and leave the syringe in place, holding the buttocks together for 10 minutes to prevent expulsion of the drug. Alternatively, the drug may be instilled in the rectum through a catheter.
- If **convulsions are not controlled within 10 minutes**, administer an additional 10 mg per hour or more, depending on the size of the woman and her clinical response.

Antihypertensive drugs:-

If the **diastolic pressure is 110 mm Hg or more**, give antihypertensive drugs. The goal is to keep the diastolic pressure between 90 mm Hg and 100 mm Hg to prevent cerebral haemorrhage. Hydralazine is the drug of choice.

- Give hydralazine 5 mg IV slowly (3-4 minutes). If IV not possible give IM. Repeat the dose at 30 minute intervals until diastolic BP is around 90 mmHg. Do not give more than 20 mg in total.
- If **hydralazine is not available**, give:
  - labetolol 10 mg IV:
    - If **response is inadequate** (diastolic blood pressure remains above 110 mm Hg) after 10 minutes, give labetolol 20 mg IV;
    - Increase the dose to 40 mg and then 80 mg if satisfactory response is not obtained after 10 minutes of each dose; OR

- Nifedipine 5 mg under the tongue:
  - It can be used as alternative for acute therapy (though less satisfactory) 5-10 mg sublingually (under the tongue) as initial dose, followed by 5-10mg if response is inadequate (in 30 minutes). Then continue as 10-20 mg PO every 6 hours.
  - For maintenance therapy 10-40mg PO bid
  - Side effects: edema, flushing, headache, palpitation, mgso4 toxicity, tocolytic (may stop labor),

Note: There is concern regarding a possibility for an interaction with magnesium sulfate that can lead to hypotension.

Management during a convulsion:-

- Give anticonvulsive drugs.
- Gather equipment (airway, suction, mask and bag, oxygen) and give oxygen at 4–6 L per minute.
- Protect the woman from injury but do not actively restrain her.
- Place the woman on her left side to reduce risk of aspiration of secretions, vomit and blood.
- After the convulsion, aspirate the mouth and throat as necessary.

Delivery:-

- Delivery should take place as soon as the woman's condition has stabilized. Delivery should occur regardless of the gestational age.
- Consult/refer after initial emergency management if v**aginal delivery is not imminent.**

In severe pre-eclampsia, delivery should occur within 24 hours of the onset of symptoms. In eclampsia, delivery should occur within 12 hours of the onset of convulsions.

Postpartum care:-

- Anticonvulsive therapy should be maintained for 24 hours after delivery or the last convulsion, whichever occurs last.
- Continue antihypertensive therapy as long as the diastolic pressure is 110 mm Hg or more.
- Continue to monitor urine output.

- Consider referral of women who have:
  - Oliguria that persists for 48 hours after delivery;
  - Coagulation failure [e.g. coagulopathy or haemolysis, elevated liver enzymes and low platelets (HELLP) syndrome];
  - Persistent coma lasting more than 24 hours after convulsion.
  - If **heart, kidney or liver failure is suspected**
  - If there is **increasing drowsiness or coma**

For additional information refer to the national protocol for selected obstetric topics.

3.5.3. CHRONIC HYPERTENSION

- Encourage additional periods of rest.
- High levels of blood pressure maintain renal and placental perfusion in chronic hypertension; reducing blood pressure will result in diminished perfusion. Blood pressure should not be lowered below its pre-pregnancy level. There is no evidence that aggressive treatment to lower the blood pressure to normal levels improves either fetal or maternal outcome:
  - If the woman was on **anti-hypertensive medication before pregnancy** and the **disease is well-controlled**, continue the same medication if acceptable in pregnancy;
  - If **diastolic blood pressure is 110 mm Hg or more**, or systolic blood pressure is 160 mm Hg or more, treat with antihypertensive drugs;
  - If **proteinuria or other signs and symptoms are present**, consider superimposed pre-eclampsia and manage as mild severe eclampsia.
- Monitor fetal growth and condition.
- If there are **no complications**, deliver at term.
- If **pre-eclampsia develops**, manage as severe pre-eclampsia.

3.5.4. SEVERE/COMPLICATED MALARIA

Severe malaria in pregnancy may be misdiagnosed as eclampsia. **If a pregnant woman living in a malarial area has fever, headaches or convulsions and malaria cannot be excluded, it is essential to treat the woman for both malaria and eclampsia.**

Pregnant women with severe malaria are particularly prone to hypoglycaemia, pulmonary oedema, anemia and coma.

ANTIMALARIAL DRUGS:

Quinine remains the first line treatment and may be safely used throughout pregnancy. Quinine, in the doses advocated for the treatment of life-threatening malaria, is safe. It has been shown that the initial intravenous infusion of quinine in women who are more than 30 weeks pregnant is not associated with uterine stimulation or foetal distress. Its major adverse effect is hypoglycaemia. See box 3-6 for routes of administration and dosing.

Box 3-6: Quinine Dosage for Severe Falciparum Malaria

Wherever IV administration of quinine is not possible:

1. Quinine dihydrochloride 20 mg salt per kg loading dose intramuscularly (divided in to two sites, anterior thigh)
2. Then quinine dihydrochloride 10 mg salt per kg IM every 8 hours until patient can swallow.

(If possible, for intramuscular use, quinine should be diluted in sterile normal saline to a concentration of 60 mg/ml).

Where IV administration of quinine is possible:

Loading dose:

- Quinine 20 mg salt/kg of body weight by infusion over 4 hours, in 5 % dextrose saline (5- 10 ml/kg of body weight depending on the patient's overall fluid balance).

Maintenance does:

- Twelve hours after the start of the loading dose, give quinine 10 mg salt/kg of body weight in dextrose saline over 4 hours.
- Repeat the same dose of quinine (i.e. 10 mg salt/kg) every 8 hours until until the woman is conscious and able to swallow.
- Then, give quinine tablets 10 mg salt per kg every 8 hours to complete 7 days treatment.

Note:- Monitor blood glucose levels for hypoglycaemia every hour while the woman is receiving quinine IV.

For additional information refer to the national malaria management guideline.

3.6. FEVER DURING PREGNANCY AND LABOUR

3.6.1. INTRODUCTION

PROBLEM

- A woman has a fever (temperature 38°C or more) during pregnancy or labour.

GENERAL MANAGEMENT

- Encourage bed rest.
- Encourage increased fluid intake by mouth.
- Use a fan or tepid sponge to help decrease temperature.
- Treat the specific cause (below)

DIAGNOSIS: see table below

Table 3-12:- Diagnosis of fever during pregnancy and labour

Presenting Symptom and Other Symptom and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Dysuria • Increased frequency and urgency of urination	• Retropubic/suprapubic pain • Abdominal pain	**Cystitis,**
• Dysuria • Spiking fever/chills • Increased frequency and urgency of urination • Abdominal pain	• Retropubic/suprapubic pain • Loin pain/tenderness • Tenderness in rib cage • Anorexia • Nausea/vomiting	**Acute pyelonephritis,**
• Foul-smelling vaginal discharge in first 28 weeks • Fever • Tender uterus	• Lower abdominal pain • Rebound tenderness • Prolonged bleeding • Purulent cervical discharge	**Septic abortion, e**
• Fever/chills • Foul-smelling watery discharge after 22 weeks • Abdominal pain	• History of loss of fluid • Tender uterus • Rapid fetal heart rate • Light vaginal bleeding	**Amnionitis,**
• Fever • Chills/rigors • Headache • Muscle/joint pain	• Enlarged spleen	**Uncomplicated malaria,**
• Symptoms and signs of uncomplicated malaria • Coma • Anemia	• Convulsions • Jaundice	**Severe/complicated malaria, page 3-39**
• Fever, Headache • Dry cough • Malaise, Anorexia • Enlarged spleen	• Confusion • Stupor	**Typhoid**
• Fever, Malaise, Anorexia, Nausea • Dark urine and pale stool • Jaundice • Enlarged liver	• Muscle/joint pain • Urticaria • Enlarged spleen	**Hepatitis**[b]

[b] Provide supportive therapy and observe.

3.6.2. URINARY TRACT INFECTIONS

Assume that a urinary tract infection involves all levels of the tract, from renal calyces to urethral meatus.

TESTS

Dipstick, microscopy and urine culture tests can be used to determine if a urinary tract infection is present, but will not differentiate between cystitis and acute pyelonephritis.

- A dipstick leukocyte esterase test can be used to detect white blood cells and a nitrate reductase test can be used to detect nitrites.
- Microscopy of urine may show white cells in clumps, bacteria and sometimes red cells.

Note: Urine examination requires a clean-catch mid-stream specimen to minimize the possibility of contamination.

CYSTITIS

Cystitis is infection of the bladder.

- Treat with antibiotics:
    - Amoxicillin 500 mg by mouth three times per day for 3 days;

ACUTE PYELONEPHRITIS

Acute pyelonephritis is an acute infection of the upper urinary tract, mainly of the renal pelvis, which may also involve renal parenchyma. If it is not treated properly during pregnancy it can lead to sepsis and preterm labor.

Management:

- If **shock is present or suspected**, initiate immediate treatment.
- Check urine culture and sensitivity, if possible, and treat with an antibiotic appropriate for the organism.
- If **urine culture is unavailable**, treat with antibiotics until the woman is fever-free for 48 hours:
    - ampicillin 2 g IV every 6 hours;
    - PLUS gentamicin 5 mg/kg body weight IV every 24 hours.
- Once the **woman is fever-free for 48 hours**, give amoxicillin 1 g by mouth three times per day to complete 14 days of treatment.

  Note: Clinical response is expected within 48 hours. If there is **no clinical response in 72 hours**, re-evaluate results and antibiotic coverage.

3.6.3. UNCOMPLICATED MALARIA

Pregnant women with malaria must be treated promptly, because the disease is more severe, is associated with high parasitaemia, and is dangerous for mother and foetus. They have an increased risk of abortion, stillbirth, premature delivery and low birth weight of their infant. They are more likely to develop cerebral and other forms of severe malaria, and to suffer a high mortality 2 to 10 times higher than non-pregnant patients are. They are particularly susceptible to hypoglycaemia and acute pulmonary oedema. Falciparum malaria commonly induces uterine contractions and gives rise to premature labour. The frequency and intensity of contractions appear to be related to the height of the fever. Foetal distress is common, but frequently not diagnosed. The prognosis for the foetus is poor in severe disease.

Two species of malaria parasites, *P. falciparum* and *P. vivax*, account for the majority of cases. Symptomatic falciparum malaria in pregnant women may cause severe disease and death if not recognized and treated early. When malaria presents as an acute illness with fever, it cannot be reliably distinguished from many other causes of fever on clinical grounds. Malaria should be considered the most likely diagnosis in a pregnant woman with fever who has been exposed to malaria.

- Women without pre-existing immunity to malaria (living in non-malarial area) are susceptible to the more severe complications of malaria.
- Women with acquired immunity to malaria are at high risk for developing severe anemia and delivering low birth weight babies.

TESTS

- If **facilities for testing are not available**, begin therapy with antimalarial drugs based on clinical suspicion (e.g. headache, fever, joint pain).
- Where available, the following tests will confirm the diagnosis:
  - microscopy of a thick and thin blood film:
    - thick blood film is more sensitive at detecting parasites (absence of parasites does not rule out malaria);
    - thin blood film helps to identify the parasite species.
  - rapid antigen detection tests.

MANAGEMENT:

FALCIPARUM MALARIA

- For the treatment of uncomplicated falciparum malaria in infants less than five kg of body weight and pregnant women, the first line treatment is oral quinine 8 mg/kg administered 3 times a day for seven days.

- For the treatment of sever falciparum malaria, intramuscular or intravenous quinine should be administered according to the national malaria management guideline.

VIVAX MALARIA

Chloroquine alone is the treatment of choice in vivax malaria.

- Give chloroquine base 10 mg/kg body weight by mouth once daily for 2 days followed by 5 mg/kg body weight by mouth on day 3.

AREAS OF MIXED FALCIPARUM-VIVAX MALARIA

In areas of mixed transmission, the proportions of malaria species and their drug sensitivity patterns vary. If **microscopic diagnosis is available**, specific treatment can be prescribed. Where unavailable, assume the infection is due to *P. falciparum* and treat accordingly.

RECOMMENDED INTERVENTIONS FOR MALARIA PREVENTION:

- Use of Insecticide treated bed nets (ITN) and
- Ensure effective case management of illness and Anemia.

Note:

- Use of ITNs and prompt effective case management are recommended for all pregnant women living in malarias area.
- ITN should be provided as early as possible during pregnancy and use should be encouraged by all women.

3.7. ABDOMINAL PAIN IN EARLY PREGNANCY

3.7.1. INTRODUCTION

PROBLEM

- The woman is experiencing abdominal pain in the first 28 weeks of pregnancy. Abdominal pain may be the first presentation in serious complications such as abortion or ectopic pregnancy.

GENERAL MANAGEMENT

- Make a **rapid evaluation** of the general condition of the woman including vital signs (pulse, blood pressure, respiration, temperature).
- If **shock is suspected**, immediately begin treatment. Even if signs of shock are not present, keep shock in mind as you evaluate the woman further because her status may worsen rapidly. If **shock develops**, it is important to begin treatment immediately.

DIAGNOSIS

Table 3-13:- Diagnosis of abdominal pain in early pregnancy

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Abdominal pain • Adnexal mass on vaginal examination	• Palpable, tender discrete mass in lower abdomen • Light[b] vaginal bleeding	**Ovarian cyst[a],**
• Lower abdominal pain • Low-grade fever • Rebound tenderness	• Abdominal distension • Anorexia • Nausea/vomiting • Paralytic ileus • Increased white blood cells • No mass in lower abdomen • Site of pain higher than expected	**Appendicitis,**
• Dysuria • Increased frequency and urgency of urination • Abdominal pain	• Retropubic/suprapubic pain	**Cystitis,**
• Dysuria • Spiking fever/chills • Increased frequency and urgency of urination • Abdominal pain	• Retropubic/suprapubic pain • Loin pain/tenderness • Tenderness in rib cage • Anorexia • Nausea/vomiting	**Acute pyelonephritis,**
• Low-grade fever/chills • Lower abdominal pain	• Rebound tenderness • Abdominal distension	**Peritonitis,**

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Absent bowel sounds	• Anorexia • Nausea/vomiting • Shock	
• Abdominal pain • Light bleeding • Closed cervix • Uterus slightly larger than normal • Uterus softer than normal	• Fainting • Tender adnexal mass • Amenorrhoea • Cervical motion tenderness	**Ectopic pregnancy,**

[a] Ovarian cysts may be asymptomatic and are sometimes first detected on physical examination.
[b] Light bleeding: takes longer than 5 minutes for a clean pad or cloth to be soaked.

Note: Appendicitis should be suspected in any woman having abdominal pain. Appendicitis can be confused with other more common problems in pregnancy which cause abdominal pain (e.g. ectopic pregnancy, abruptio placentae, twisted ovarian cysts, pyelonephritis).

MANAGEMENT

If the diagnosis is appendicitis, pelvic abscess, peritonitis, or the cause can't be identified refer her immediately, after initiating pre referral treatment according to the specific disease condition.

Eg in case of infection initiation of IV antibiotics

3.8. ABDOMINAL PAIN IN LATER PREGNANCY AND AFTER CHILDBIRTH

PROBLEMS

- The woman is experiencing abdominal pain after 28 weeks of pregnancy.
- The woman is experiencing abdominal pain during the first 6 weeks after childbirth.

GENERAL MANAGEMENT

- Make a **rapid evaluation** of the general condition of the woman including vital signs (pulse, blood pressure, respiration, temperature).
- If **shock is suspected**, immediately begin treatment. Even if signs of shock are not present, keep shock in mind as you evaluate the woman further because her status may worsen rapidly. If **shock develops**, it is important to begin treatment immediately.

Note: Appendicitis should be suspected in any woman having abdominal pain. Appendicitis can be confused with other more common problems in pregnancy which causes abdominal pain.

- If the diagnosis is appendicitis, pelvic abscess, peritonitis, abruptio placentae, ruptured uterus or the cause can't be identified refer her immediately, after initiating triple antibiotics IV.

DIAGNOSIS

Table 3-14:- Diagnosis of abdominal pain in later pregnancy and after childbirth

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Palpable contractions • Blood-stained mucus discharge (show) or watery discharge before 37 weeks	• Cervical dilatation and effacement • Light[a] vaginal bleeding	**Possible preterm labour,**
• Palpable contractions • Blood-stained mucus discharge (show) or watery discharge at or after 37 wks	• Cervical dilatation and effacement • Light vaginal bleeding	**Possible term labour,**
• Intermittent or constant abdominal pain • Bleeding after 22 weeks gestation (may be retained in the uterus)	• Shock • Tense/tender uterus • Decreased/absent fetal movements • Fetal distress or absent fetal heart sounds	**Abruptio placentae,**

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Severe abdominal pain (may decrease after rupture) • Bleeding (intra-abdominal and/or vaginal)	• Shock • Abdominal distension/ free fluid • Abnormal uterine contour • Tender abdomen • Easily palpable fetal parts • Absent fetal movements and fetal heart sounds • Rapid maternal pulse	**Ruptured uterus,**
• Abdominal pain • Foul-smelling watery vaginal discharge after 22 weeks gestation • Fever/chills	• History of loss of fluid • Tender uterus • Rapid fetal heart rate • Light vaginal bleeding	**Amnionitis,**
• Abdominal pain • Dysuria • Increased frequency and urgency of urination	• Retropubic/suprapubic pain	**Cystitis,**

[a] Light bleeding: takes longer than 5 minutes for a clean pad or cloth to be soaked.

Table 3-14:- Cont. Diagnosis of abdominal pain in later pregnancy and after childbirth

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Dysuria • Abdominal pain • Spiking fever/chills • Increased frequency and urgency of urination	• Retropubic/suprapubic pain • Loin pain/tenderness • Tenderness in rib cage • Anorexia • Nausea/vomiting	**Acute pyelonephritis,**
• Lower abdominal pain • Low-grade fever • Rebound tenderness	• Abdominal distension • Anorexia • Nausea/vomiting • Paralytic ileus • Increased white blood cells • No mass in lower abdomen • Site of pain higher than expected	**Appendicitis,**
• Lower abdominal pain • Fever/chills	• Light vaginal bleeding • Shock	**Metritis,**

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Purulent, foul-smelling lochia • Tender uterus		
• Lower abdominal pain and distension • Persistent spiking fever/ chills • Tender uterus	• Poor response to antibiotics • Swelling in adnexa or pouch of Douglas • Pus obtained upon culdocentesis	**Pelvic abscess,**
• Lower abdominal pain • Low-grade fever/chills • Absent bowel sounds	• Rebound tenderness • Abdominal distension • Anorexia • Nausea/vomiting • Shock	**Peritonitis,**
• Abdominal pain • Adnexal mass on vaginal examination	• Palpable, tender discrete mass in lower abdomen • Light vaginal bleeding	**Ovarian cyst**[b]**,**

[b] Ovarian cysts may be asymptomatic and are sometimes first detected on physical examination.

MANAGEMENT

If the diagnosis is appendicitis, pelvic abscess, peritonitis, ruptured uterus or the cause can't be identified refer her immediately, after initiating pre referral treatment according to the specific disease condition.

Eg in case of infection initiation of IV antibiotics

3.9. PRELABOUR RUPTURE OF MEMBRANES (PROM)

PROBLEM

- Watery vaginal discharge after 28 weeks gestation due to rupture of the membranes before labour has begun.

GENERAL MANAGEMENT

- Confirm accuracy of calculated gestational age, if possible.
- Use a high-level disinfected speculum to assess vaginal discharge (amount, colour, odour) and exclude urinary incontinence.

CONFIRMING THE DIAGNOSIS

The typical odour of amniotic fluid confirms the diagnosis. See ***table 3-15***.

If **membrane rupture is not recent** or when **leakage is gradual**, confirming the diagnosis may be difficult:

- Place a vaginal pad over the vulva and examine it an hour later visually and by odour.
- Use a high-level disinfected speculum for vaginal examination:
  - Fluid may be seen coming from the cervix or forming a pool in the posterior fornix;
  - Ask the woman to cough; this may cause a gush of fluid.

Do not perform a digital vaginal examination as it does not help establish the diagnosis and can introduce infection.

Table 3-15:- Diagnosis of vaginal discharge during pregnancy.

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Watery vaginal discharge	• Sudden gush or intermittent leaking of fluid • Fluid seen at introitus • No contractions within 1 hour	**Prelabour rupture of membranes,**
• Foul-smelling watery vaginal discharge after 22 weeks • Fever/chills	• History of loss of fluid • Tender uterus • Rapid fetal heart rate	**Amnionitis,**

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Abdominal pain	• Light[a] vaginal bleeding	
• Foul-smelling vaginal discharge • No history of loss of fluid	• Itching • Frothy/curdish discharge • Abdominal pain • Dysuria	**Vaginitis/cervicitis[b]**
• Bloody vaginal discharge	• Abdominal pain • Loss of fetal movements • Heavy, prolonged vaginal bleeding	**Antepartum haemorrhage,**
• Blood-stained mucus or watery vaginal discharge (show)	• Cervical dilatation and effacement • Contractions	**Possible term labour, page 4-6** or **Possible preterm labour,**

[a] Light bleeding: takes longer than 5 minutes for a clean pad or cloth to be soaked.
[b] Determine cause and treat accordingly.

MANAGEMENT

- If there is **vaginal bleeding with intermittent or constant abdominal pain**, suspect abruptio placentae.
- If there are **signs of infection** (fever, foul-smelling vaginal discharge) and not in labor, start antibiotics as for amnionitis and refer immediately.
- If there are **no signs of infection** and the **pregnancy is less than 37 weeks** (when fetal lungs are more likely to be immature):
  - Give antibiotics to reduce maternal and neonatal infective morbidity and to delay delivery:
    - erythromycin base 250 mg by mouth three times per day for 7 days;
    - PLUS amoxicillin 500 mg by mouth three times per day for 7 days;
  - Give corticosteroids to the mother to improve fetal lung maturity:
    - betamethasone 12 mg IM, two doses 12 hours apart;
    - OR dexamethasone 6 mg IM, four doses 6 hours apart.

    Note: Corticosteroids should not be used in the presence of frank infection.

Consider transfer to the most appropriate service for care of the newborn, if possible;

- If there are **no signs of infection** and the **pregnancy is 37 weeks or more**:

- If the **membranes have been ruptured for more than 18 hours**, give prophylactic antibiotics in order to help reduce Group B streptococcus infection in the neonate:
    - Ampicillin 2 g IV every 6 hours;
    - OR penicillin G 2 million units IV every 6 hours until delivery;
    - If there are **no signs of infection after delivery**, discontinue antibiotics.
- If she is not in labor, refer her immediately after nginitiating the above antibiotics.

AMNIONITIS

- If she is in labor:-
    - Give a combination of antibiotics until delivery:
        - ampicillin 2 g IV every 6 hours;
        - PLUS gentamicin 5 mg/kg body weight IV every 24 hours;
        - If the **woman delivers**, continue antibiotics until the woman is fever-free for 48 hours.
- If she is not in labor:-
    - Start the above antibiotics and refer her immediately.

MODULE - 4

CHILD BIRTH CARE
(LABOR, DELIVERY AND IMMEDIATE POST PARTUM)

CONTENTS

UNIT-1 INTRODUCTION

Experiences from around the world suggest that about 15 percent of all pregnant women will develop obstetric complications, and that not all of these complications can be predicted through risk screening. Unless emergency care is available, the woman and the fetus/neonate could either die or develop severe disabilities. The availability and quality of skilled care at birth and immediately after birth is a major determinant of the survival and health of both mothers and babies. With essential preventive care, proper management of labour, and timely management of complications, we can prevent or successfully manage many obstetric and newborn complications as well as intrapartum stillbirths. Almost 60 to 70 percent of cases of eclampsia can be averted by timely intervention when signs and symptoms of preeclampsia appear. Using a partograph to monitor labour will help to identify slow progress in labour, and providing early care and referral (or early consultation when appropriate) can prevent prolonged labour.

Only 42 percent of pregnant women in sub-Saharan Africa give birth with a skilled attendant present. Coverage is lower in the poorest countries: according to health indicators 2000 (2007/8 G.C.) in Ethiopia, for example, only 20.3 percent of births are assisted by a skilled attendant. This module introduces the continuum of care, the care during child birth (labor, delivery and immediate postpartum) to save the lives of mothers and babies and promote overall health.

Module objectives

By the end of this module, the participants will be able to:

1. Provide basic care to the woman and the fetus during labor.
2. Provide basic care to the woman and the fetus during delivery.
3. Provide basic care to the woman in the immediate postpartum period.
4. Provide basic care to the newborn in the immediate postpartum period.
5. Detect and provide care for complications during labor.
6. Detect and provide care for complications during delivery.
7. Detect and provide care for complications to the woman in the immediate postpartum period.
8. Recognize an emergency situation during labor, delivery and immediate postpartum period which requires immediate treatment and, in most cases, urgent referral to a higher level health facility.
9. Provide pre-referral management to a recognized emergency situation.

UNIT-2: BASIC CARE DURING LABOR AND DELIVERY

2.1. LEARNING OBJECTIVES

At the end of this unit, participants will be able to:

- Describe basic care to the woman and fetus during labour.
- Describe basic care to the woman and fetus during delivery.
- Describe basic care to the woman and newborn during the immediate postpartum period.

2.2 ASSESMENT OF A WOMAN IN LABOUR

2.2.1. RAPID ASSESMENT AND MANAGEMENT

First do Rapid assessment and management

- Make a rapid evaluation of the general condition of the woman including vital signs (pulse, blood pressure, respiration, temperature).
- Then use the learning guide 4-1 in participant's handout (page 66) to assess the woman's and fetal status and decide stage of labour.
- Assess fetal condition:
    - Listen to the fetal heart rate immediately after a contraction:
        - Count the fetal heart rate for a full minute at least once every 30 minutes for a parturient without any risk or every 15 min for with a risk condition during the active phase and every 15 min for low-risk fetus or every 5 min for high-risk fetus during the second stage.
        - If there are fetal heart rate abnormalities (less than 100 or more than 180 beats per minute), suspect fetal distress and manage as fetal distress (section- 3.3; page 4-63).
    - If the membranes have ruptured, note the colour of the draining amniotic fluid:
        - Presence of thick meconium indicates the need for close monitoring and possible intervention for management of fetal distress;
        - Absence of fluid draining after rupture of the membranes is an indication of reduced volume of amniotic fluid, which may be associated with fetal distress

2.2.2. DIAGNOSIS OF LABOUR:

Diagnosis of labour includes:

- Diagnosis and confirmation of labour;
- Diagnosis of stage and phase of labour;
- Assessment of engagement and descent of the fetus;
- Identification of presentation and position of the fetus.

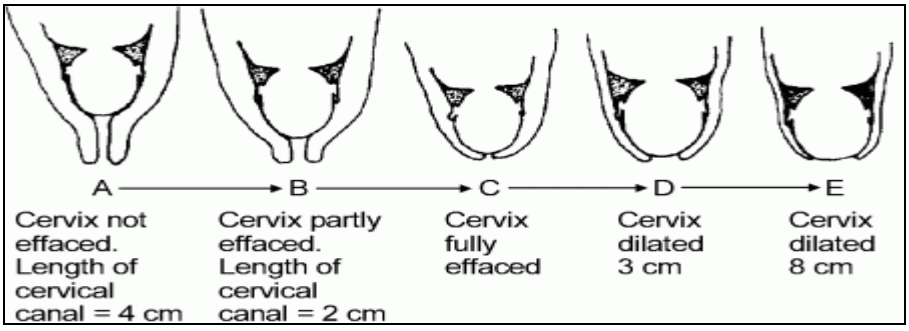
Note: - An incorrect diagnosis of labour can lead to unnecessary anxiety and interventions.

- Labor is considered normal when the following conditions are fulfilled.
  - Parturient without any risk (eg. Pre-eclampsia, Previous scar),
  - Labor should start spontaneously and at term,
  - Fetal presentation must be by vertex,
  - Delivery should be by spontaneous vertex delivery ,
  - All stages of labor are lasting normal duration
  - The neonate is alive, normal and the woman has uncomplicated pueperium

A. Diagnosis and confirmation of labour:

- Suspect or anticipate labour if the woman has:
  - Intermittent abdominal pain after 28 weeks gestation;
  - Pain often associated with blood-stained mucus discharge (show);
  - Watery vaginal discharge or a sudden gush of water.
- Confirm the onset of labour if there is:
  - Pain full regular contractions of at least 2 contractions in 10minute
  - Cervical effacement—the progressive shortening and thinning of the cervix during labour; and (see figure 4-1)
  - Cervical dilatation—the increase in diameter of the cervical opening measured in centimeters. (see figure 4-1)

Figure 4-1:- Effacement and dilatation of the cervix



B. Diagnosis of stage of labour:

See **table 4-1** for diagnosis of stage and phase of labour

Table 4-1:- Diagnosis of stage and phase of labour[a]

Symptoms and Signs	Stage	Phase
• Cervix not dilated	False labour/ Not in labour	
• Cervix dilated less than 4 cm	First	Latent
• Cervix dilated 4–9 cm • Rate of dilatation typically 1 cm per hour or more • Fetal descent begins	First	Active
• Cervix fully dilated (10 cm) • Fetal descent continues • No urge to push	Second	Early (non-expulsive)
• Cervix fully dilated (10 cm) • Presenting part of fetus reaches pelvic floor • Woman has the urge to push	Second	Late (expulsive)

[a] The third stage of labour begins with delivery of the newborn and ends with expulsion of placenta.

C. Assessment of descent:

Abdominal palpation:-

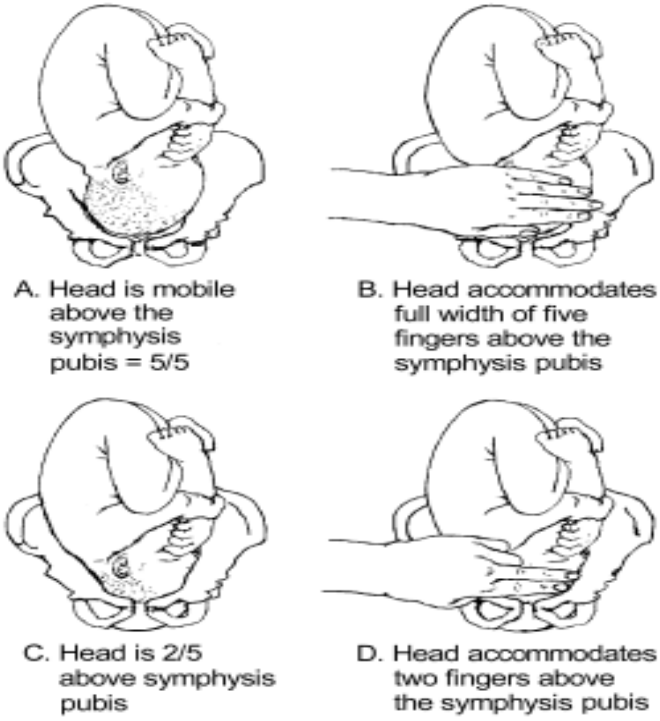
- By abdominal palpation, assess descent in terms of fifths of fetal head palpable above the symphysis pubis: (see figure 4-2)
  - A head that is entirely above the symphysis pubis is five-fifths (5/5) palpable;
  - A head that is entirely below the symphysis pubis is zero-fifths (0/5) palpable.

Vaginal examination:-

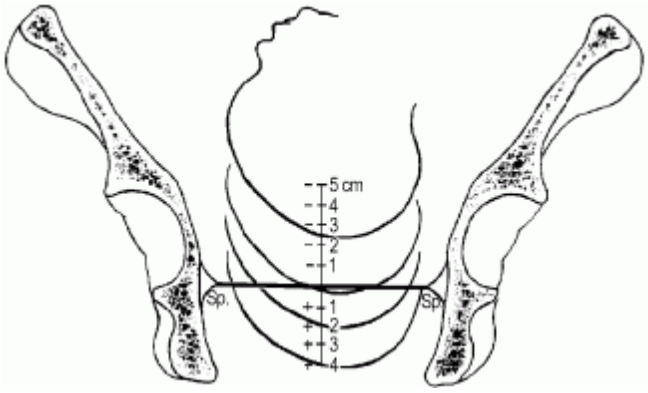
- If necessary, a vaginal examination may be used to assess descent by relating the level of the fetal presenting part to the ischial spines of the maternal pelvis. (see figure 4-3)

Note: When there is a significant degree of caput or moulding, assessment by abdominal palpation using fifths of head palpable is more useful than assessment by vaginal exam.

Figure 4-2:- Abdominal palpation for descent of the fetal head



Fgure 4-3:- Assessing descent of the fetal head by vaginal examination; 0 station is at the level of the ischial spine (Sp).

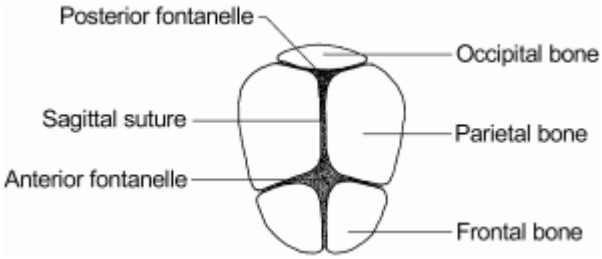


D. Presentation and position:

Determine the presenting part:-

- The most common presenting part is the vertex of the fetal head. If the **vertex is not the presenting part**, manage as a mal presentations.
- **If the** vertex is the presenting part**, use landmarks on the fetal skull to determine the position of the fetal head in relation to the maternal pelvis.**

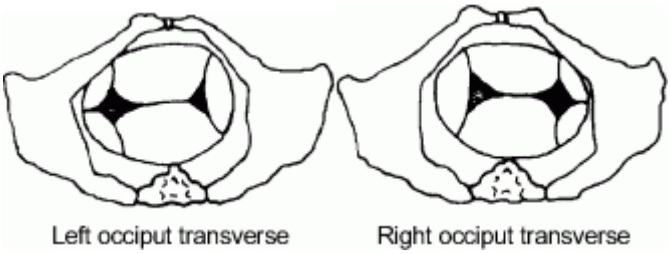
Figure 4-4:- Landmarks of the fetal skull



Determine the position of the fetal head:-

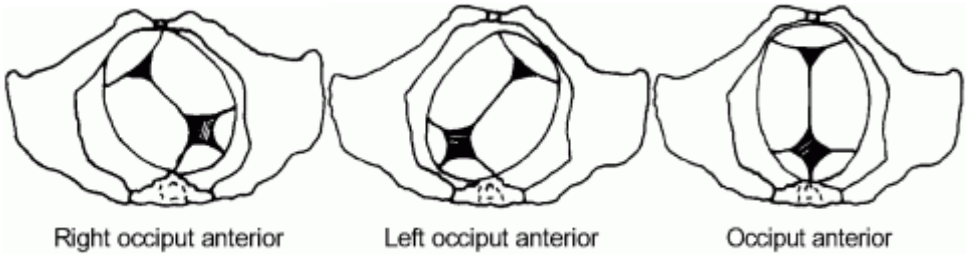
- The fetal head normally engages in the maternal pelvis in an **occiput transverse position**, with the fetal occiput transverse in the maternal pelvis. (See figure 4-5)

Figure 4-5:- Occiput transverse positions



- With descent, the fetal head rotates so that the fetal occiput is anterior in the maternal pelvis (**occiput anterior positions**). Failure of an occiput transverse position to rotate to an occiput anterior position should be managed as an occiput posterior position.(Figure-4-6)

Figure 4-6:- Occiput anterior positions



- An additional feature of a normal presentation is a **well-flexed vertex**, with the occiput lower in the vagina than the sinciput (See figure 4-7).

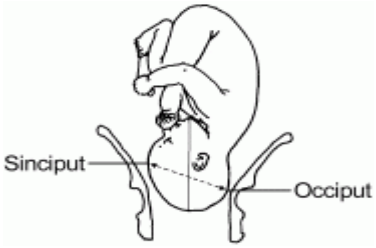


Figure 4-7:- Well-flexed vertex

2.2.3: HIV testing and counselling during labour:

As up to two thirds of pregnant women attend health facilities for the first time when in labour, HIV counselling and testing should be offered routinely for all mothers admitted for delivery. Active identification of women in labour with unknown HIV status and offering of HIV counselling and testing shall be part of standard of care. HIV-positive women identified through this means shall receive prophylactic antiretroviral treatment and be linked to care for themselves and their infants. The right of women to decline HIV testing must always be respected. (National PMTCT Guidelines Sept 2007)

The initial step is to **c**heck the woman's record to see if she has been tested for HIV and if the test result is recorded on the mother's card. The guiding principles of provider-initiated testing and counselling for HIV - confidentiality, informed consent, and post-test support and services - are tailored to the special needs of a woman in labour but not compromised when providing rapid testing in early labour. They still follow the principles of **3 C's: C**onfidentiality, Informed **C**onsent, and **C**ounselling. Because the woman is in labour, there is an additional **C** that is important: **C**omfort of the woman.

Confidentiality: Protecting the confidentiality of the pregnant woman who receives HIV testing during labour is very important. However, in the busy and complex labour and childbirth unit, maintaining confidentiality requires that staff members be knowledgeable and vigilant.

Informed Consent for screening in early labour**:** The second of the guiding principles for testing and counselling for HIV, requires that the patient receives clear and accurate information about HIV testing and that the healthcare worker providing the information respects the individual's right to decide whether to be tested.

Counselling and post-test support and services: The result of HIV testing should always be offered in person. Along with the result, appropriate post-test information, counselling, and linkages with HIV care services should also be offered.

Comfort: The health worker should assess the woman's stage of labour, comfort level, and need for analgesics. Providers need to show empathy while presenting information about rapid HIV testing. The content covered should be short and to the point and should be explained **between contractions**. The health worker should ask the woman to signal for a pause when a contraction is starting. The health worker should always consider the woman's language and culture and, as needed, must adjust the terminology used. The health worker should make sure that the woman being counselled understands the content being covered by checking after each point is made and before beginning the next point to be sure she understands.

For more information refer to the national PMTCT guideline and PMTCT training manual.

2.3. DETECT AND RESPOND TO OBSTETRICAL PROBLEMS ON ADMISSION

Team approach is important in caring for laboring mothers, and all abnormal information should reach to the most senior personnel in charge of the labor ward activity. Use ***table 4-2*** to asses for and respond to obstetric problems at admission.

Table 4-2:- A chart to assess pregnancy and fetal status at admission.

SIGNS	CLASSIFY	TREAT AND ADVISE
■ Transverse lie. ■ Continuos contractions. ■ Constant pain between contractions. ■ Sudden and severe abdominal pain. ■ Horizontal ridge across lower abdomen. ■ Labour >24 hours.	**OBSTRUCTED LABOUR**	■ If distressed, insert an IV line and give fluids . ■ If in labour >24 hours, give appropriate IM/IV antibiotics . ■ Consult or **refer urgently to hospital** .
■ Rupture of membranes and any of: →Fever >38°C →Foul-smelling vaginal discharge. .	**UTERINE AND FETAL INFECTION**	■ Give appropriate IM/IV antibiotics. ■ If late labour, deliver and refer to hospital after delivery. ■ Plan to treat newborn.
■ Rupture of membranes at <8 months of pregnancy.	**RISK OF UTERINE AND FETAL INFECTION**	Give appropriate IM/IV antibiotics. ■ If late labour, deliver. ■ Discontinue antibiotic for mother after delivery if no signs of infection. ■ Plan to treat newborn .
■ Diastolic blood pressure >90 mmHg.	**PRE-ECLAMPSIA**	■ Assess further and manage; page 3-30 .
■ Severe palmar and conjunctival pallor and/or haemoglobin <7 g/dl.	**SEVERE ANEMIA**	■ Manage as severe anemia; page 3-21 .
■ Breech or other malpresentations. ■ Multiple pregnancy. ■ Fetal distress. ■ Prolapsed cord	**OBSTETRICAL COMPLICATION**	■ Follow specific instructions in respective sections. (see page numbers).
■ Warts, keloid tissue that may interfere with delivery. ■ Prior third degree tear.	**RISK OF OBSTETRICAL COMPLICATION**	■ Do a generous episiotomy and carefully control delivery of the head. ■ If late labour, deliver. ■ Have help available during delivery.
■ Labour before 8 completed months of pregnancy (more than one month before estimated date of delivery).	**PRETERM LABOUR**	■ Reassess fetal presentation (breech more common). ■ If woman is lying, encourage her to lie on her left side. ■ Call for help during delivery. ■ Conduct delivery very carefully as small fetus may pop out suddenly. In particular, control delivery of the head. ■ Prepare equipment for resuscitation of newborn.
■ Fetal heart rate <100 or >180 beats per minute.	**POSSIBLE FETAL DISTRESS**	■ Manage as fetal distress; page 4-63.

SIGNS	CLASSIFY	TREAT AND ADVISE
■ Rupture of membranes at term and before labour.	**RUPTURE OF MEMBRANES**	■ Give appropriate IM/IV antibiotics if rupture of membrane >18 hours. ■ Plan to treat the newborn.
■ If two or more of the following signs: →thirsty →sunken eyes →dry mouth →skin pinch goes back slowly.	**DEHYDRATION**	■ Give oral fluids. ■ If not able to drink, give 1 liter IV fluids over 3 hours and then more fluid as necessary.
■ HIV test positive. ■ Counseled on ARV treatment and infant feeding.	**HIV-POSITIVE**	■ Ensure that the woman takes ARV drugs as soon as possible according to the national guideline . ■ Support her choice of infant feeding.
■ No fetal movement, and ■ No fetal heart beat on repeated examination	**POSSIBLE FETAL DEATH**	■ Explain to the parents that the baby is not doing well

2.4 - SUPPORTIVE CARE OF A WOMAN DURING LABOUR AND DELIVERY

Communication

- Warm and friendly acceptance at arrival and admission.
- Ensure good communication and support by staff:
- Explain all procedures, seek permission, and discuss findings with the woman.
- Keep her informed about the progress of labour.
- Praise her, encourage and reassure her that things are going well.
- Ensure and respect privacy during examinations and discussions.

If known HIV positive, find out what she has told the companion. Respect her wishes.

Cleanliness

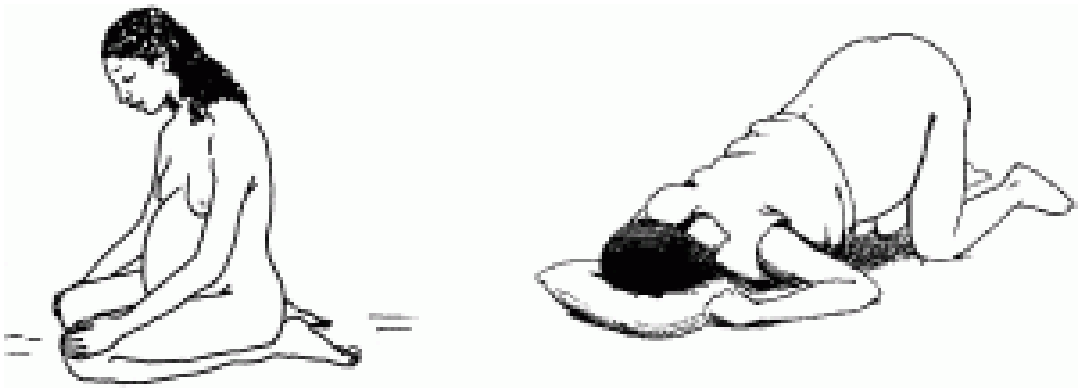
- Maintain cleanliness of the woman and her environment:
  - Encourage the woman to wash herself or bath or shower at the onset of labour;
  - Wash the vulva and perineal areas before each examination;
  - Wash your hands with soap before and after each examination;
  - Ensure cleanliness of labouring and birthing area(s);
  - Clean up all spills immediately

■ **Note: DO NOT** routinely give an enema to women in labour.

Mobility

- Ensure mobility:
    - Encourage the woman to move about freely; during the first stage of labour.
    - Support the woman's choice of position (left lateral, squatting, kneeling, standing supported by the companion) for each stage of labour and delivery. (See figure 4-8)

Figure 4-8:- Positions that a woman may adopt during labour



Urination

- Encourage the woman to empty her bladder regularly/ frequently. Remind her every 2 hours.

Eating, drinking

- In general encourage oral intake of liquid diet (tea, juice) throughout labour but not hard foods.
- Consider fluid diet as a source of water and energy for those mothers staying longer before delivery (e.g. small sips of sweetened tea or water)
- If the woman has visible severe wasting or tires during labour, make sure she drinks.

Breathing technique

- Teach her to notice her normal breathing.
- Encourage her to breathe out more slowly, making a sighing noise, and to relax with each breath.
- If she feels dizzy, unwell, is feeling pins-and-needles (tingling) in her face, hands and feet, encourage her to breathe more slowly.
- To prevent pushing at the end of first stage of labour, teach her to pant, to breathe with an open mouth, to take in 2 short breaths followed by a long breath out.
- During delivery of the head, ask her not to push but to breathe steadily or to pant.

Pain and discomfort relief

- Suggest change of position.
- Encourage mobility, as comfortable for her.
- Encourage companion to:

  →massage the woman's back if she finds this helpful.

  →hold the woman's hand and sponge her face between contractions.
- Encourage her to use the breathing technique.
- Encourage warm bath or shower, if available.
- If necessary, give pethidine 1 mg/kg body weight (but not more than 100 mg) IM or IV slowly or give morphine 0.1 mg/kg body weight IM.
  - Pethidine injection: 50 mg im initially. Assess after ½ hr and if not adequate and side effects not troublesome, repeat 50 mg. Onset of action within 10 -20 min and lasts for 2-4 hours.
- Help the woman in labour who is anxious, fearful or in pain
  - Investigate the cause
  - Give her praise, encouragement and reassurance;
  - Give her information on the process and progress of her labour;
  - Listen to the woman and be sensitive to her feelings

If pain is constant (persisting between contractions) and very severe or sudden in onset, manage as in 2.2.

Personal support (birth companion)

- Encourage the woman to have personal support from a person of her choice throughout labour and birth:
  - Encourage support from the chosen birth companion;
  - Arrange seating for the companion next to the woman;
  - Encourage the companion to give adequate support to the woman during labour and childbirth
- Describe to the birth companion what she or he should do:
  - Always be with the woman.
  - Encourage her.
  - Help her to breathe and relax.
  - Rub her back, wipe her brow with a wet cloth, do other supportive actions.
  - Give support using local practices which do not disturb labour or delivery.

    - Encourage woman to move around freely as she wishes and to adopt the position of her choice.
    - Encourage her to drink fluids and eat as she wishes.
    - Assist her to the toilet when needed.
- Ask the birth companion to call for help if:
    - The woman is bearing down with contractions.
    - There is vaginal bleeding.
    - She is suddenly in much more pain.
    - She loses consciousness or has fits.
    - There is any other concern.
- Tell the birth companion what she or he **SHOULD NOT DO** and explain why:
    - **DO NOT** encourage woman to push.
    - **DO NOT** give advice other than that given by the health worker.
    - **DO NOT** keep woman in bed if she wants to move around.

2.5. – PARTOGRAPHIC FOLLOW UP OF LABOUR

2.5.1. THE PARTOGRAPH

The partograph is the graphic recording of the progress of labour and the salient condition of the mother and the fetus. It serves as an "early warning system" and assists in early decision to transfer/refer, augmentation and termination of labour. Partograph has been modified to make it simpler and easier to use. The latent phase has been removed and plotting on the partograph begins in the active phase when the cervix is 4 cm dilated. A sample partograph is included (**figure 3-9**). Note that the partograph should be enlarged to full size before use. Record the following on the partograph:

Patient information: Fill out name, gravida, para, hospital number, date and time of admission and time of ruptured membranes.

Fetal heart rate: Record every half hour.

Amniotic fluid: Record the colour of amniotic fluid at every vaginal examination:

- I: membranes intact;
- C: membranes ruptured, clear fluid;
- M: meconium-stained fluid;
- B: blood-stained fluid.

Moulding:

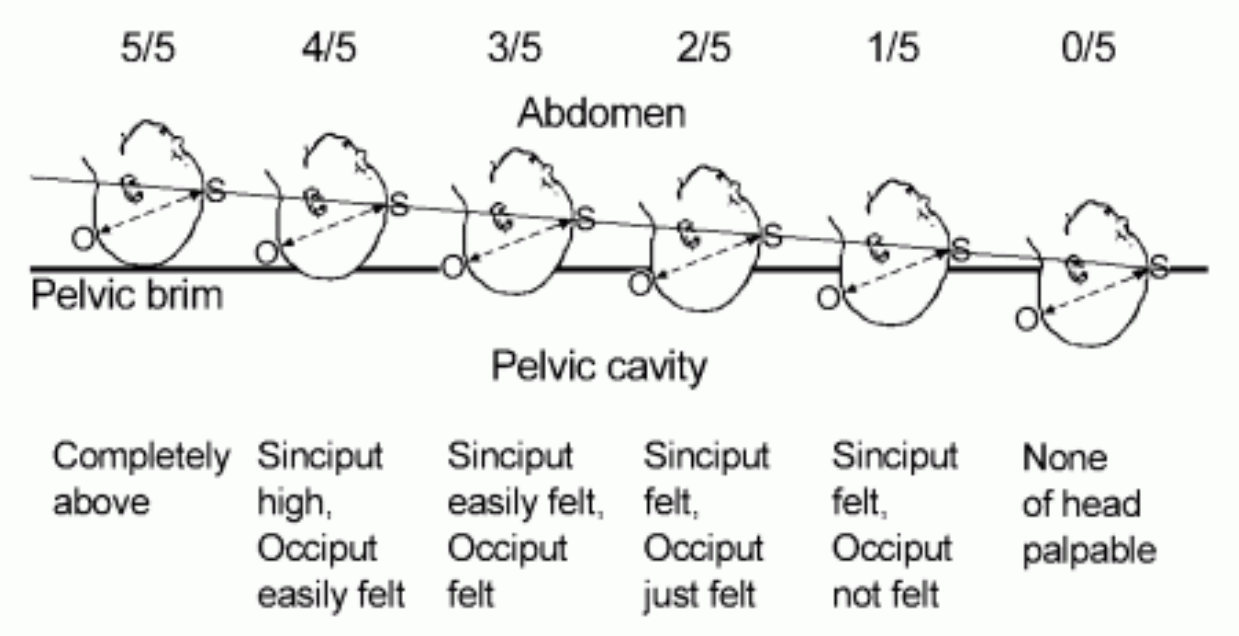
- 1: sutures apposed;
- 2: sutures overlapped but reducible;
- 3: sutures overlapped and not reducible.

Cervical dilatation: Assessed at every vaginal examination and marked with a cross (**X**). Begin plotting on the partograph at 4 cm.

Alert line: A line starts at 4 cm of cervical dilatation to the point of expected full dilatation at the rate of 1 cm per hour.

Action line: Parallel and 4 hours to the right of the alert line.

Descent assessed by abdominal palpation: Refers to the part of the head (divided into 5 parts) palpable above the symphysis pubis; recorded as a circle (**O**) at every vaginal examination. At 0/5, the sinciput (S) is at the level of the symphysis pubis.



Hours: Refers to the time elapsed since onset of active phase of labour (observed or extrapolated).

Time: Record actual time.

Contractions: Chart every half hour; palpate the number of contractions in 10 minutes and their duration in seconds.

- Less than 20 seconds: ⬚
- Between 20 and 40 seconds: ▨
- More than 40 seconds: ■

Oxytocin: Record the amount of oxytocin per volume IV fluids in drops per minute every 30 minutes when used in hospitals.

Drugs given: Record any additional drugs given.

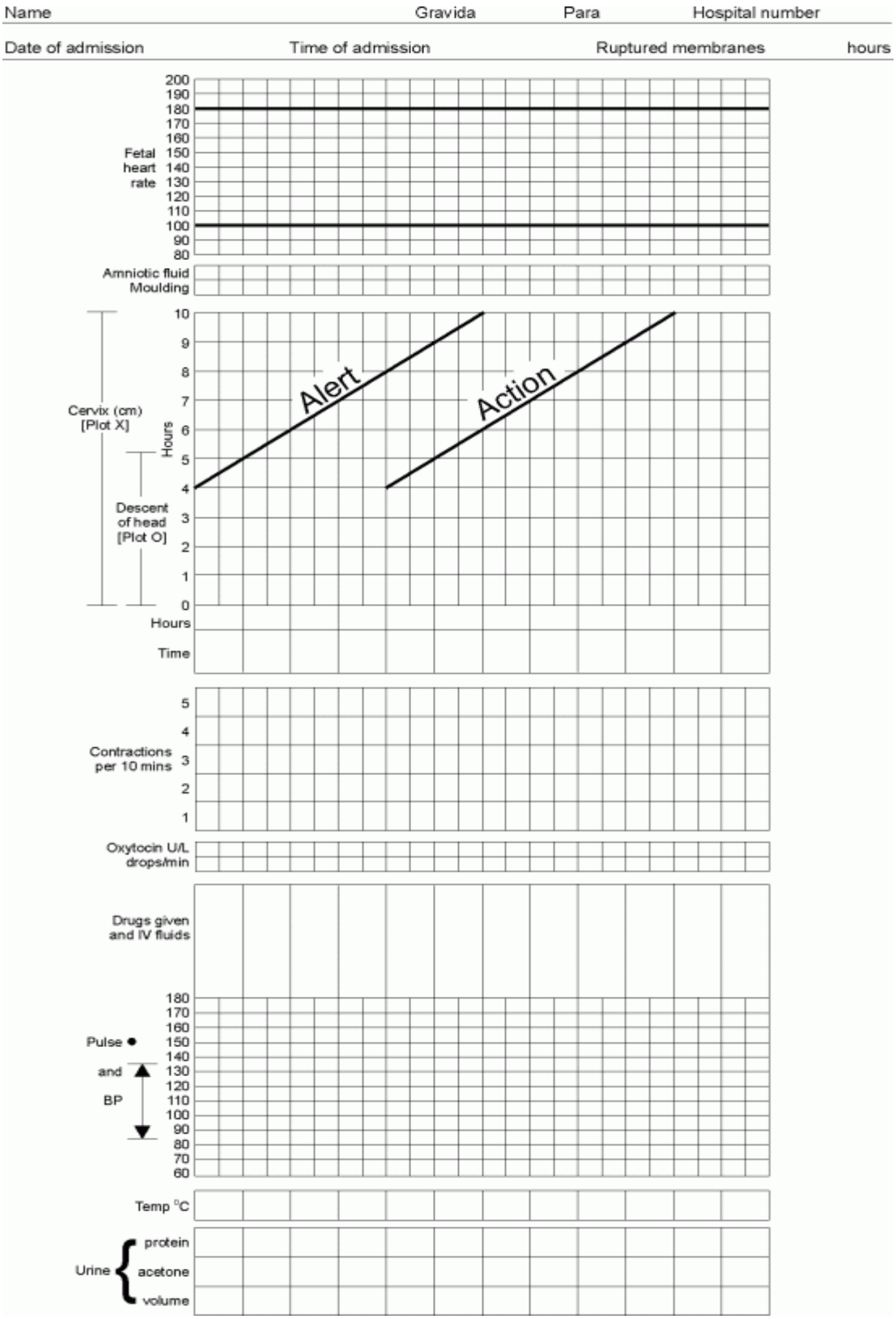
Pulse: Record every 30 minutes and mark with a dot (●).

Blood pressure: Record every 4 hours and mark with arrows.

Temperature: Record every 2 hours.

Protein, acetone and volume: Record every time urine is passed.

Figure 4-9:- The Partograph



2.5.2. FOLLOW-UP OF LABOUR

PROGRESS OF FETAL CONDITION

- If there are **fetal heart rate abnormalities** (less than 100 or more than 180 beats per minute), suspect fetal distress.
- Positions or presentations in labour other than occiput anterior with a well-flexed vertex are considered malpositions or malpresentations.

PROGRESS OF FIRST STAGE OF LABOUR

- Findings suggestive of **satisfactory progress** in first stage of labour are:
  - Regular contractions of progressively increasing frequency and duration;
  - Rate of cervical dilatation at least 1 cm per hour during the active phase of labour (cervical dilatation on or to the left of alert line);
  - Cervix well applied to the presenting part.
- Findings suggestive of **unsatisfactory progress** in first stage of labour are:
  - Irregular and infrequent contractions after the latent phase;
  - OR rate of cervical dilatation slower than 1 cm per hour during the active phase of labour (cervical dilatation to the right of alert line);
  - OR cervix poorly applied to the presenting part.

Unsatisfactory progress in labour can lead to prolonged labour. If **unsatisfactory progress of labour** or **prolonged labour** is suspected, manage the cause of slow progress.

PROGRESS OF SECOND STAGE OF LABOUR

- Findings suggestive of **satisfactory progress** in second stage of labour are:
  - Steady descent of fetus through birth canal;
  - Onset of expulsive (pushing) phase.
- Findings suggestive of **unsatisfactory progress** in second stage of labour are:
  - Lack of descent of fetus through birth canal;
  - Failure of expulsion during the late (expulsive) phase.
    - Diagnosis of prolonged 2nd stage

      Nullipara - 2 hrs without or 3hrs with epidural anesthesia

      Multipara- 1 hrs without or 2hrs with epidural anesthesia

Note: - If second stage is prolonged without visible steady descent of the head, revaluate and deliver using vacuum extractor or **refer urgently to hospital**.

PROGRESS OF MATERNAL CONDITION

Evaluate the woman for signs of distress:

- If the **woman's pulse is increasing**, she may be dehydrated or in pain. Ensure adequate hydration via oral or IV routes and provide adequate analgesia.
- If the **woman's blood pressure decreases**, suspect hemorrhage.
- If **acetone is present in the woman's urine**, suspect poor nutrition and give dextrose IV.

SAMPLE PARTOGRAPHIC FOLLOW-UP OF NORMALLY PROGRESSING LABOR

Figure 4-10**,** is a sample partograph for normal labour:

- A primigravida was admitted in the latent phase of labour at 5 AM:
  - Fetal head 4/5 palpable;
  - Cervix dilated 2 cm;
  - 3 contractions in 10 minutes, each lasting 20 seconds;
  - Normal maternal and fetal condition.

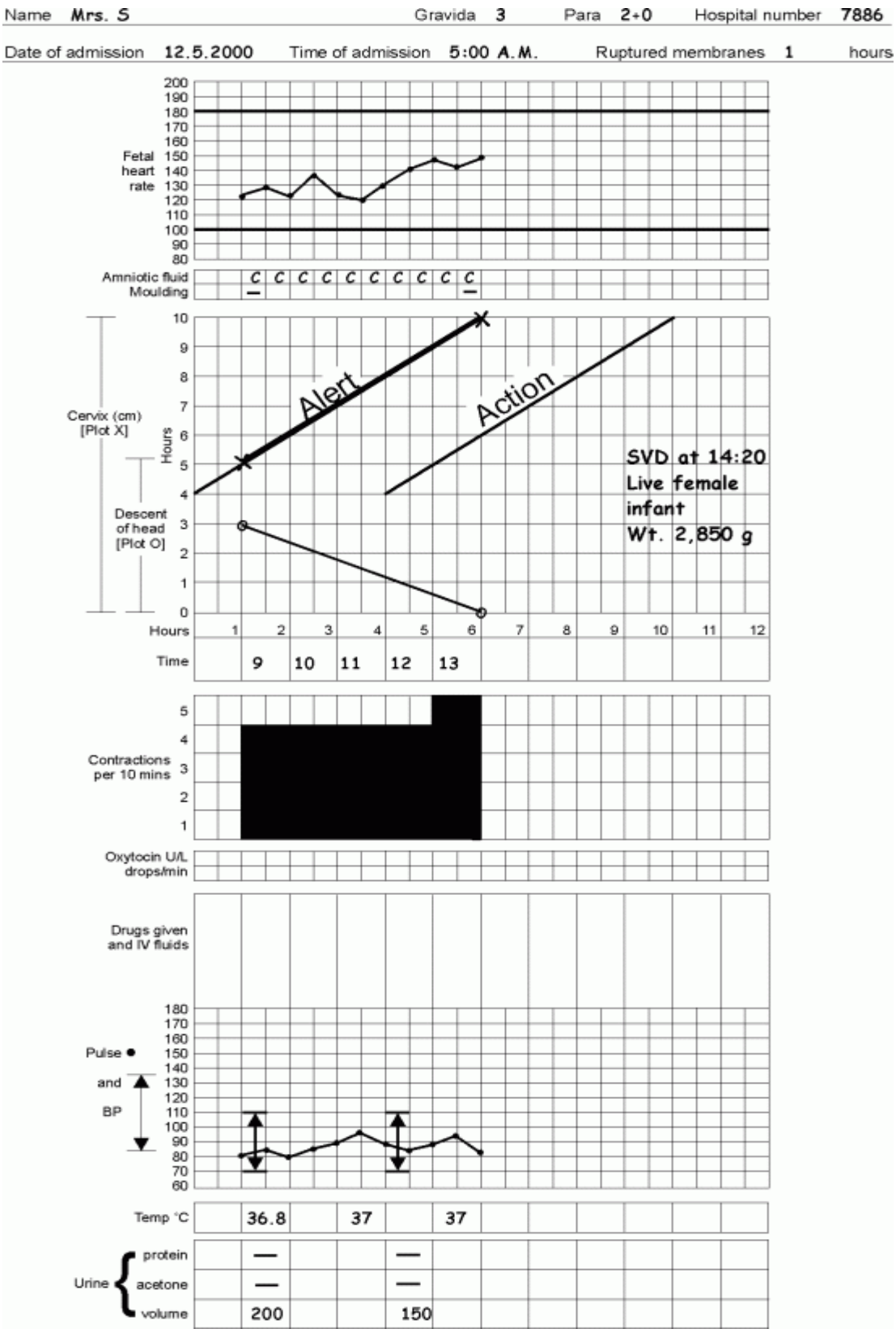
Note: This information is not plotted on the partograph.

- At 9 AM:
  - Fetal head is 3/5 palpable;
  - Cervix dilated 5 cm;

Note: The woman was in the active phase of labour and this information is plotted on the partograph. Cervical dilatation is plotted on the alert line.

  - 4 contractions in 10 minutes, each lasting 40 seconds;
  - Cervical dilatation progressed at the rate of 1 cm per hour.
- At 2 PM:
  - Fetal head is 0/5 palpable;
  - Cervix is fully dilated;
  - 5 contractions in 10 minutes each lasting 40 seconds;
  - Spontaneous vaginal delivery occurred at 2:20 PM.

Figure 4-10:- Sample partograph for normal labour



2.6. INTRAPARTUM CARE FOR PMTCT

2.6.1. INTRODUCTION

Majority of infant born from an HIV positive mothers acquire infection during labor and delivery as compared to that of ANC and post partum. Therefore understanding the standardized approach to attend labor and delivery as well as interventions to PMTCT is very important to have an effective program to avert infection amongst the new generation.

Proper diagnosis and follow up of labor is of paramount importance to minimize maternal morbidity and mortality. In addition to such a benefit it will also help prevent mother to child transmission of HIV during labor and delivery. a very important way of making sure labor is being followed is the use of partograph.

Factors that increase the risk of MTCT of HIV:

There are certain factors that are believed to increase the risk of MTCT of HIV. Some of the factors have strong evidence associated with an increased risk while others have only weaker evidence linking them to an increased risk as outlined in the table 4-3 below

Table 4-3: Factors increasing mother-to-child transmission of HIV during labor and delivery

Strong evidence	Weaker evidence
• High viral load (from recent infection or advanced disease/clinical AIDS) • Prematurity • Vaginal delivery • Rupture of membranes for more than 4 hours • Prolonged labour • Instrumental delivery (forceps or vacuum extraction)	• Chorioamnionitis • Suctioning newborn unless necessary for thick meconium or to resuscitate • Invasive obstetrical procedures – Episiotomy – Artificial rupture of membranes – Frequent vaginal examinations

2.6.2. INTERVENTIONS FOR PMTCT:

- Administer ARV treatment or prophylaxis during labor in accordance with national guideline.
- Continue ARV treatment/prophylaxis or give ARV prophylaxis at labor (single-dose NVP+AZT+ 3TC), to reduce maternal viral load and provide protection to the infant.

Use good infection prevention practices for all patient care

Use standard precautions for infection prevention, which include use of protective gear, safe use and disposal of sharps, sterilization of equipment and safe disposal of contaminated materials.

Minimize cervical examinations

- Perform cervical examination with appropriate clean techniques and only when absolutely necessary.

Avoid prolonged labor

- Consider use of oxytocin to shorten labor when appropriate.
- Use non-invasive fetal monitoring to direct need for early intervention.

Avoid routine rupture of membranes

- Use a partograph to measure the progress of labor.
- Avoid artificial rupture of membranes, unless necessary.

Avoid unnecessary trauma during delivery

- Avoid invasive procedures including use of scalp electrodes or scalp sampling.
- Avoid routine episiotomy.
- Minimize the use of forceps or vacuum extractors If instrumental delivery is a must forceps is preferable

Considerations regarding mode of delivery

Caesarean section, when performed before the onset of labor or rupture of membrane, has been associated with reduced MTCT. But the use of Caesarean section for PMTCT should be given due consideration provided that the limited capacity of most of the health facilities. Nevertheless C-section for other emergency obstetrical indications should proceed emergently regardless of time lag or if ARVs not able to be given.

Consider the benefits and risks of vaginal delivery versus elective caesarean section, including the safety of the blood supply and the risk of complications.

For further reading refer to the national PMTCT guideline.

2.7 - BASIC CARE DURING SECOND STAGE AND ASSISTING NORMAL CHILDBIRTH

Notify nursing staff that delivery is imminent. Ensure all delivery equipment and supplies, including newborn resuscitation equipment in a pre-warmed neonatal corner, are available, and place of delivery is clean and warm (25°C). In addition:

- Ensure bladder is empty.
- Assist the woman into a comfortable position of her choice, as upright as possible (***figure 4-11)***. Avoid supine position till head is visible.
- Stay with her and offer her emotional and physical support.
- Allow her to push as she wishes with contractions avoiding early push; it should start spontaneously.
- Wait until head visible and perineum distending.
- Wash hands with clean water and soap. Put on gloves just before delivery.
- Clean the vulva and perineum with antiseptic (downward and away from the introitus). If pieces of faeces get expelled, wipe them downward.
- See Universal precautions during labour and delivery.
  - Attendant should be dressed and gloved appropriately (gloves, gowns, apron, masks, caps, eye protection)
  - Sterile draping in such a way that only the immediate area about the vulva is exposed.

MONITOR:

- For emergency signs, using rapid assessment (RAM).
- Frequency, intensity and duration of contractions.
- Fetal heart rate every 15 minutes for normal labour.
- Evaluate the degree of descent every 1 hr.
- Perineum thinning and bulging.
- Visible descent of fetal head or during contraction.
- Mood and behavior (distressed, anxious).
- Record findings regularly in Labour record and Partograph
- Give Supportive care.
- Never leave the woman alone.

Figure 4-11:- Positions that a woman may adopt during childbirth

Note: - Episiotomy is no longer recommended as a routine procedure. There is no evidence that routine episiotomy decreases perineal damage, future vaginal prolapse or urinary incontinence. In fact, routine episiotomy is associated with an increase of third and fourth degree tears and subsequent anal sphincter muscle dysfunction.

- Timing of episiotomy – performed when fetal head has distended the vulva 2-3cms unless early delivery is indicated.
- Use analgesia/anesthesia for making episiotomy and repair.

ASSIST DELIVERY OF THE BABY:-

General methods of supportive care during labour are most useful in helping the woman tolerate labour pains

- Once the **cervix is fully dilated** and the woman is **in the expulsive phase of the second stage**, encourage the woman to assume the position she prefers and encourage her to push.

Delivery of the head:

- Ask the woman to pant or give only small pushes with contractions as the fetal head delivers.
- To control birth of the head, place the fingers of one hand against the fetal head to keep it flexed (bent).
- Continue to gently support the perineum as the fetal head delivers. If necessary; assist extension of the head with a hand protected with sterile towel placed on the perineum and the fetal chin palpated and pressed up ward gently effecting extension.
- Once the fetus's head delivers, ask the woman not to push.

- After delivery of the head, wipe the mouth, oro-pharynx first (routine suctioning not recommended).
- Feel around the fetal neck for the umbilical cord:
  - If the **cord is around the neck but is loose**, slip it over the fetus's head;
  - If the **cord is tight around the neck**, doubly clamp and cut it before unwinding it from around the neck.

Completion of delivery:

- Allow the fetal head to turn spontaneously.
- After the head turns, place a hand on each side of the fetus's head. Tell the woman to push gently with the next contraction.
- Reduce tears by delivering one shoulder at a time. Move the fetus's head posteriorly to deliver the shoulder that is anterior.

  Note: If there is **difficulty delivering the shoulders**, suspect shoulder dystocia.
- Lift the fetal head anteriorly to deliver the shoulder that is posterior.
- Support the rest of the fetus's body with one hand as it slides out.
- Place the newborn on the mother's abdomen.

  Note: If placing newborn on abdomen is not acceptable, or the mother cannot hold the newborn, place the newborn in a clean, warm, safe place close to the mother.
- Clamp and cut the cord: Clamp the cord at about 3 cm from the umbilicus and apply second clamp 2cm apart, tie securely between clamps and cut with sterile scissors or blade
- Take cord blood if indicated.
- Thoroughly dry the baby and assess breathing. If baby does not breathe immediately, begins resuscitative measures.
- Remove wet towel and ensure that the baby is kept warm, using skin-to-skin contact on the mother's chest. Cover the baby with a cloth or blanket, including the head (with hat if possible).
- Palpate the mother's abdomen to rule out the presence of additional baby (ies) and proceed with active management of the third stage.

2.8 - ACTIVE MANAGEMENT OF THE THIRD STAGE

Post-partum hemorrhage is the most important single cause of maternal death in the world. The majority of these deaths (88%) occur within 4 hours of delivery (Kane et al 1992), indicating that they are a consequence of events in the third stage of labour. Postpartum haemorrhage is a complication which occurs at the transition between labour and the postpartum period. The causes of hemorrhage are uterine atony and retained placenta in the majority of cases; vaginal or cervical lacerations and (occasionally) uterine rupture or inversion also play a role (Kwast 1991). The first hours post partum are especially critical in the diagnosis and management of abnormal bleeding.

Active management of the third stage (active delivery of the placenta) helps prevent postpartum haemorrhage. Active management of the third stage of labour includes:

- Immediate administration of uterotonic agents (preferentially oxytocin);
- Controlled cord traction; and
- Uterine massage (after the delivery of the placenta).

For every woman who comes for delivery to the health facility, AMTSL is a standard management of third stage of labor.

USE OF UTEROTONIC AGENTS

- Within 1 minute of delivery of the newborn, palpate the abdomen to rule out the presence of an additional fetus(s) and give oxytocin 10 units IM.
- Oxytocin is preferred because it is effective 2 to 3 minutes after injection, has minimal side effects and can be used in all women.
- If **oxytocin is not available:-**
  - Other uterotonics can be used such as: ergometrine 0.2 mg IM, syntometrine (1 ampoule) IM ;or
  - Misoprostol 400-600 mcg orally. Oral administration of misoprostol should be reserved for situations when safe administration and/or appropriate storage conditions for injectable oxytocin and ergot alkaloids are not possible.

- Do not give ergometrine to women with pre-eclampsia, eclampsia or high blood pressure because it increases the risk of convulsions and cerebrovascular accidents.

CONTROLLED CORD TRACTION

- Clamp the cord close to the perineum using sponge forceps. Hold the clamped cord and the end of forceps with one hand.
- Place side of one hand (usually left) above symphysis pubis with palm facing towards the mother's umbilicus. This applies counter traction to the uterus during controlled cord traction. At the same time, apply steady, sustained controlled cord traction. This helps prevent inversion of the uterus.
- Keep slight tension on the cord and await a strong uterine contraction (2–3 minutes).
- With the strong uterine contraction, encourage the mother to push and very gently pull downward on the cord to deliver the placenta. Continue to apply counter traction to the uterus with the other hand.
- If the **placenta does not descend** during 30–40 seconds of controlled cord traction (i.e. there are no signs of placental separation), do not continue to pull on the cord:
  - Gently hold the cord and wait until the uterus is well contracted again. If necessary, use a sponge forceps to clamp the cord closer to the perineum as it lengthens;
  - With the next contraction, repeat controlled cord traction with counter traction.

  NOTE: - If, after 30 minutes of giving oxytocin, the placenta is not delivered and the woman is NOT bleeding:

    → Empty bladder

    → Encourage breastfeeding

    → Repeat controlled cord traction.

  - If woman is bleeding, manage as postpartum haemorhage.
  - If placenta is not delivered in another 30 minutes (1 hour after delivery):

    → Remove placenta manually

    → Give appropriate IM/IV antibiotic.

  - If in 1 hour unable to remove placenta:

    → Refer the woman to hospital

    → Insert an IV line and give fluids with 20 IU of oxytocin at 30 drops per minute during transfer .

  DO NOT *exert excessive traction on the cord.*

  DO NOT *squeeze or push the uterus to deliver the placenta.*

Never apply cord traction (pull) without applying counter traction (push) above the pubic bone with the other hand.

- As the placenta delivers, the thin membranes can tear off. Hold the placenta in two hands and gently turn it until the membranes are twisted.
- Slowly pull to complete the delivery.
- If the **membranes tear**, gently examine the upper vagina and cervix wearing high-level disinfected gloves and use a sponge forceps to remove any pieces of membrane that are present.
- Look carefully at the placenta to be sure none of it is missing. If a **portion of the maternal surface is missing or there are torn membranes with vessels**, suspect retained placental fragments.
- If **uterine inversion occurs**, reposition the uterus.
- If the **cord is pulled off**, manual removal of the placenta may be necessary.

UTERINE MASSAGE

- Immediately massage the fundus of the uterus through the woman's abdomen until the uterus is contracted.
- Repeat uterine massage every 15 minutes for the first 2 hours.
- Ensure that the uterus does not become relaxed (soft) after you stop uterine massage.

EXAMINATION FOR TEARS

- Examine the woman carefully and repair any tears to the cervix or vagina or repair episiotomy.

2.9 - IMMEDIATE / INITIAL BASIC CARE OF THE NEWBORN

Immediate care at birth

Most babies breathe and cry at birth with no help. The care you give immediately after birth is simple but important. Remember that the newborn has just come from the mother's uterus. It was warm and quiet in the uterus and the amniotic fluid and walls of the uterus gently touched the fetus. You too should be gentle with the newborn and keep the newborn warm. Skin-to-skin contact with the mother keeps newborn at the perfect temperature.

The following are the steps of immediate care which should be given to all babies at birth. Steps 4 and 5 will be interrupted by resuscitation if the newborn needs help to start breathing.

Step 1. Deliver newborn onto mother's abdomen or a dry warm surface close to the mother.

Step 2. Dry newborn's body with dry towel. Wrap with another dry warm cloth and cover head.

- Dry the newborn, including the head, immediately. Wipe the eyes. Rub up and down the newborn's back, using a clean, warm cloth. Drying often provides sufficient stimulation for breathing to start in mildly depressed newborn babies. Do your best not to remove the vernix (the creamy, white substance which may be on the skin) as it protects the skin and may help prevent infection. Then wrap the newborn with another dry cloth and cover the head.

Step 3. Assess breathing and color; if not breathing, gasping or < 30 breaths/minute then resuscitate.

- As you dry the newborn, assess its breathing. If a newborn is breathing normally, both sides of the chest will rise and fall equally at around 30-60 times per minute. Thus, check if the newborn is:
  1) breathing normally.
  2) having trouble breathing,
  3) the newborn breaths less than 30 per minute or
  4) not breathing at all.
- If **newborn does not start breathing within 30 seconds**, **SHOUT FOR HELP** and take steps to resuscitate the newborn. Quickly clamp or tie and cut the cord leaving a stump at least 10 cm long for now, stop the subsequent steps of essential newborn care and start resuscitation.

- Functional resuscitation equipment should always be ready and close to the delivery area since you must start resuscitation within 1 minute of birth.

Anticipate the need for resuscitation and have a plan to get assistance for every newborn but especially if the mother has a history of eclampsia, bleeding, prolonged or obstructed labour, preterm birth or infection.

- Thoroughly dry the newborn, wipe the eyes and assess the newborn's breathing:

  Note: Most babies begin crying or breathing spontaneously within 30 seconds of birth.

  - If the **newborn is crying or breathing** (chest rising at least 30 times per minute) leave the newborn with the mother;

Step 4. Tie the cord two fingers from abdomen and another tie two fingers from the first one. Cut the cord between the first and second tie.

i. Tie the cord securely in two places:
   - Tie the first one two fingers away from the newborn's abdomen.
   - Tie the second one four fingers away from the newborn's abdomen.
   - Make sure that tie is well secured.
   - Make sure that the thread you used to tie the cord is clean and safe.

ii. Cut the cord between the ties.
   - Use a new razor blade, or a boiled one if it has been used before, or sterile scissors.
   - Use a small piece of cloth or gauze to cover the part of the cord you are cutting so no blood splashes on you or on others.
   - Be careful not to cut or injure the newborn. Either cut away from the newborn or place your hand between the cutting instrument and the newborn.

iii. Do not put anything on the cord stump

Note: observe for oozing blood: If blood oozing, place a second tie between the skin and the first tie.

Step 5. Place the newborn in skin-to-skin contact and on the breast to initiate breastfeeding

The warmth of the mother passes easily to the newborn and helps stabilize the newborn's temperature.

1. Put the newborn on the mother's chest, between the breasts, for skin-to-skin warmth
2. Cover both mother and newborn together with a warm cloth or blanket
3. Cover the newborn's head

The first skin-to-skin contact should last uninterrupted for at least 1 hour after birth or until after the first breastfeed.

The newborn should not be bathed at birth because a bath can cool him dangerously. After 24 hours, he can have the first sponge bath, if his temperature is stabilized.

If everything is normal, immediately start breastfeeding and continue doing the following recommendation for optimal breastfeeding

1. Help the mother begin breastfeeding within the first hour of birth.
2. Help the mother at the first feed. Make sure the newborn has a good position, attachment, and suck. Do not limit the time the newborn feeds; early and unlimited breastfeeding gives the newborn energy to stay warm, nutrition to grow, and antibodies to fight infection.

Step 6. **Give eye care (while the newborn is held by his mother)**

Shortly after breastfeeding and within 1 hour of age, give the newborn eye care with an antimicrobial medication. Eye care protects the newborn from serious eye infection which can result in blindness or even death.

Steps for giving eye care

1. Wash your hands
2. Tetracycline 1% eye ointment
3. Hold one eye open and apply a rice grain size of ointment along the inside of the lower eyelid. Make sure not to let the medicine dropper or tube touch the newborn's eye or anything else.
4. Repeat this step to put medication into the other eye.
5. Do not rinse out the eye medication.

Step 7. Give Vitamin K, 1mg IM on anterior lateral thigh (while newborn held by his mother)

Step 8. Weigh newborn (if <1,500 gm refer urgently) - Weigh the newborn after an hour of birth or after the first breastfeed.

Provide three postnatal visits, at 6-24 hours, 3 days and 6 weeks.

Newborn danger signs; *refer newborn urgently if any of these is present:*

- Breathing _ 30 or _ 60 breaths per minute, grunting, severe chest indrawing, blue tongue & lips, or gasping
- Unable to suck or sucking poorly
- Feels cold to touch or axillary temperature < 35°C
- Feels hot to touch or axillary temperature _ 37.5°C
- Red swollen eyelids and pus discharge from the eyes
- Convulsion
- Jaundice / yellow skin — at age < 24 hours or > 2 weeks
    - involving soles and palms
- Pallor, bleeding
- Repeated vomiting, swollen abdomen, no stool after 24 hours

Avoid separating mother from newborn whenever possible. Do not leave mother and newborn unattended at any time.

Figure 4-12: Immediate Newborn Care After Birth

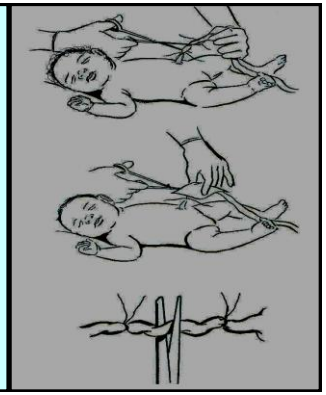
Step 1
Deliver baby on to mother's abdomen or into her arms

Step 2
Dry baby's body with dry towel. Wipe eyes. Wrap with another dry one and cover head

Step 3
Assess breathing and color. If < 30 breaths per minute, blue tongue, lips or trunk or if gasping then start resuscitating

Step 4

Tie the cord two fingers from abdomen and another tie two fingers from the 1st one (if no clamp). Cut the cord between the 1st and 2nd tie (clamp)



Step 5
Place the baby in skin-to-skin contact and on the breast to initiate breastfeeding

Step 6

Apply Tetracycline eye ointment once

Step 7
Give Vitamin K, 1mg IM on anterior mid thigh

Step 8
Weigh baby (if <1500 gm refer urgently)

Delay bathing of the baby for 24 hours after birth
Do not *remove vernix*
Provide three postnatal visits during at 6 - 24 hours, 3 days and 6 weeks

2.10 – NEWBORN RESUSCITATION

The great majority of infants with asphyxia can be successfully managed by appropriate ventilation without drugs, volume expanders or other interventions. Applying the basic principles of resuscitation to all infants at all levels of care will substantially improve newborn health and decrease deaths. Timely and correct resuscitation will not only revive them but will enable them to develop normally. Most will need no further special care after resuscitation.

Every birth attendant should know the basic principles of resuscitation, have basic skills in neonatal resuscitation and have access to appropriate resuscitation equipment. Whenever possible, a person skilled in resuscitation, and who can devote full attention to the infant, should attend deliveries when complications are anticipated. Resuscitation equipment should not only be available in every delivery room, but its presence and proper working order should be verified before every delivery.

Three situations require immediate management:

- No breathing (or gasping, below),
- Cyanosis (blueness) or
- Breathing with difficulty.

2.10.1. NO BREATHING OR GASPING

GENERAL MANAGEMENT

- Dry the newborn, remove the wet cloth and wrap the newborn in a dry, warm cloth.
- Clamp and cut the cord immediately if not already done.
- Move the newborn to a firm, warm surface under a radiant heater for resuscitation.
- Observe standard infection prevention practices when caring for and resuscitating a newborn.

RESUSCITATION

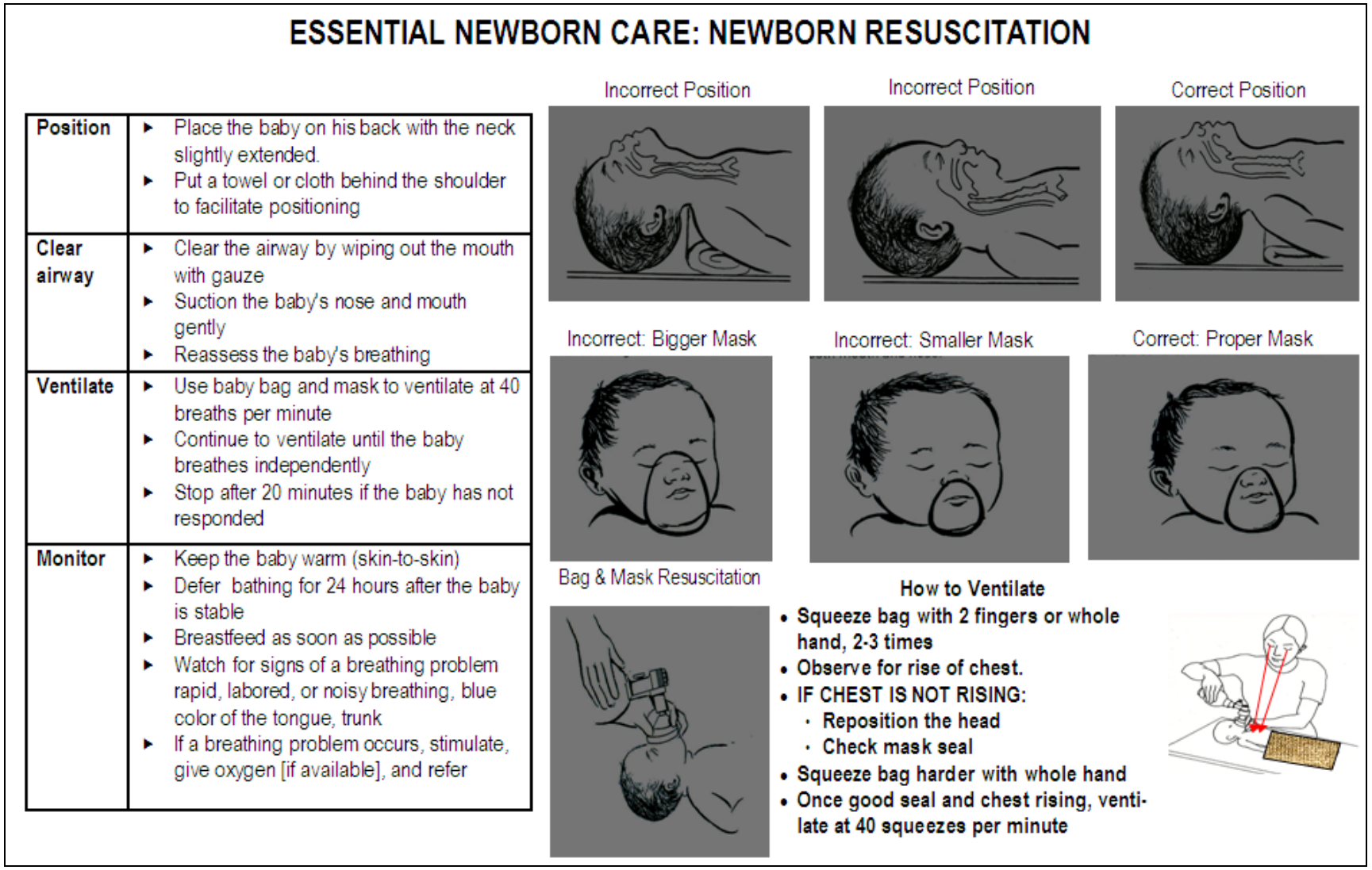
See Box 4-1 for rescitation equipments and figure 4-12 for newborn resuscitation steps

BOX 4-1:- Resuscitation equipment

To avoid delays during an emergency situation, it is vital to ensure that equipment is in good condition before resuscitation is needed:

- Have the appropriate size masks available according to the expected size of the newborn (size 1 for a normal weight newborn and size 0 for a small newborn).
- Block the mask by making a tight seal with the palm of your hand and squeeze the bag:
  - If you feel pressure against your hand, the bag is generating adequate pressure;
  - If the bag reinflates when you release the grip, the bag is functioning properly.

Figure 4-12: Steps in new born resuscitation



- If the **mother of the newborn received pethidine or morphine** prior to delivery, consider administering naloxone **after** vital signs have been established.
- If there is **no gasping or breathing at all after 20 minutes of ventilation**, stop ventilating; the baby is stillborn. Provide emotional support to the family.

Box 4-2:- Counteracting respiratory depression in the newborn caused by narcotic drugs

If the **mother received pethidine or morphine**, naloxone is the antidote for counteracting respiratory depression in the newborn caused by these drugs.

Note: Do not administer naloxone to newborns whose mothers are suspected of having recently abused narcotic drugs.

- If there are **signs of respiratory depression**, begin resuscitation immediately:
  - After vital signs have been established, give naloxone 0.1 mg/kg body weight IV to the newborn;
  - Naloxone may be given IM after successful resuscitation if the infant has adequate peripheral circulation. Repeated doses may be required to prevent recurrent respiratory depression.
- If there are **no signs of respiratory depression**, but **pethidine or morphine was given within 4 hours of delivery**, observe the newborn expectantly for signs of respiratory depression and treat as above if they occur.

Care after successful resuscitation:-

- Prevent heat loss:
  - Place the newborn skin-to-skin on the mother's chest and cover the newborn's body & head;
  - Alternatively, place the newborn under a radiant heater.
- Examine the newborn and count the number of breaths per minute:
  - If the **newborn is cyanotic** (bluish) or is **having difficulty breathing** (less than 30 or more than 60 breaths per minute, indrawing of the chest or grunting), give oxygen by nasal catheter or prongs (below).
- Measure the newborn's axillary temperature:
  - If the **temperature is 36°C or more**, keep the newborn skin-to-skin on the mother's chest and encourage breastfeeding;
  - If the **temperature is less than 36°C**, rewarm the newborn.
- Encourage the mother to begin breastfeeding. A newborn that required resuscitation is at higher risk of developing hypoglycemia:
  - If **suckling is good**, the newborn is recovering well;
  - If **suckling is not good**, transfer the newborn to the appropriate service for the care of sick newborns.

- Ensure frequent monitoring of the newborn during the next 24 hours. If **signs of breathing difficulties recur**, arrange to transfer the newborn to the most appropriate service for the care of sick newborns.

2.10.2- CYANOSIS OR BREATHING DIFFICULTY

- If the **newborn is cyanotic** (bluish) or is **having difficulty breathing** (less than 30 or more than 60 breaths per minute, in drawing of the chest or grunting) give oxygen by nasal catheter or prongs:
  - Suction the mouth and nose to ensure the airways are clear;
  - Give oxygen at 0.5 L per minute by nasal catheter or nasal prongs;
  - Transfer the newborn to the appropriate service for the care of sick newborns.
- Ensure that the newborn is kept warm. Wrap the newborn in a soft, dry cloth, cover with a blanket and ensure the head is covered to prevent heat loss.

Box 4-3:- Use of oxygen

When using oxygen, remember:

- Supplemental oxygen should only be used for difficulty in breathing or cyanosis;
- If the newborn is having **severe indrawing of the chest**, is **gasping for breath** or is **persistently cyanotic**, increase the concentration of oxygen by nasal catheter, nasal prongs or oxygen hood.

Note: Indiscriminate use of supplemental oxygen for premature infants has been associated with the risk of blindness.

Flow rates for oxygen administration:

- **Nasal prongs** and Nasal catheter :-
  - **Low** = 0.5 L /minute, **Moderate** = 0.5 to 1 L/minute, **High** = more than 1L/minute.
- **Head box:-**
  - **Low** = 3 L/minute**, Moderate** = 3 to 5 L/minute, **High** = more than 5 L/minute.
- **Face mask:-**
  - **Low** = 1 L/minute, **Moderate** = 1 to 2 L/minute, **High** = more than 2 L/minute.
- **Incubator :-** If using a head box inside the incubator, see above
  - If connecting oxygen directly to the incubator, follow the manufacturer's instructions

NOTE: The steps in the assessment of the newborn for birth asphyxia and subsequent management approaches is summarized in Figure 4-13 below.

Figure 4-13: Chart to assess the newborn for birth asphyxia.

ASK THE MOTHER WHAT THE YOUNG INFANT'S PROBLEMS ARE

- Determine if this is an initial visit for this problem.
  - initial visit, assess the young infant as follows.

IF YOU ARE ATTENDING DELIVERY or
BABY BROUGHT TO YOU IMMEDIATELY AFTER BIRTH

Assess and check for Birth Asphyxia after drying and wrapping with dry cloth

USE ALL BOXES THAT MATCH INFANT'S SYMPTOMS AND PROBLEMS TO CLASSIFY THE ILLNESS

Assess, Look, Listen

- **Is baby not breathing?**
- **Is baby gasping ?**
- **Count breaths in one minute**

Classify ALL Newborn s

SIGNS	CLASSIFY AS	TREATMENT (Urgent pre-treatments are in bold print)
If any of the following sign: • Not breathing • Gasping • Is breathing poorly (less than 30 per minute)	BIRTH ASPHYXIA	Start resuscitation ► Position the newborn supine with neck slightly extended ► Clear the mouth and nose with gauze or clean cloth ► Ventilate with appropriate size mask and self inflating bag ► If the resuscitation is successful continue giving essential newborn care ► If the newborn remains weak or is having irregular breathing after 20 minutes of resuscitation; refer urgently to hospital ► Stop resuscitation after 20 minutes if no response (no spontaneous breathing) ► Monitor continuously for 6 hours ► Follow after, 12 hrs, 24 hrs, 3 days and 6 weeks
• Strong cry • Breathing more than 30 per minute	NO BIRTH ASPHYXIA	► Cord care ► Eye care ► Vitamin K ► Initiate skin-to-skin contact ► Initiate exclusive breastfeeding ► Advise mother when to return immediately ► Follow after, 6 hrs, 3 days and 6 weeks

2.11 – IMMEDIATE POSTPARTUM CARE

2.11.1. INTRODUCTION TO CARE OF THE MOTHER AND NEWBORN WITHIN FIRST HOUR OF DELIVERY OF PLACENTA

The first hour after delivery of the placenta is one of the critical moments for both the mother and newborn. Use table 3-3 to monitor and provide care.

Table 4-4:- Use this chart for woman and newborn during the first hour after complete delivery of placenta.

MONITOR MOTHER EVERY 15 MINUTES:	**MONITOR NEWBORN EVERY 15 MINUTES:**
▪ For emergency signs, using rapid assessment (RAM). ▪ Feel if uterus is hard and round. ▪ Record findings, treatments and procedures in *Labour record and Partograph*. ▪ Keep mother and newborn in delivery room - **do not separate them**. ▪ **Never leave the woman and newborn alone.**	■ Breathing: listen for grunting, look for chest in-drawing and fast breathing. ■ Warmth: check to see if feet are cold to touch .
CARE OF MOTHER AND NEWBORN	**INTERVENTIONS, IF REQUIRED**
WOMAN	
▪ Assess the amount of vaginal bleeding. ▪ Encourage the woman to eat and drink. ▪ Ask the companion to stay with the mother. ▪ Encourage the woman to pass urine.	▪ If pad soaked in less than 5 minutes, or constant trickle of blood, manage as on. ▪ If uterus soft, manage as on. ▪ If bleeding from a perineal tear, repair if required or **consult/refer to hospital** .
NEWBORN	
▪ Wipe the eyes. ▪ Apply an antimicrobial within 1 hour of birth. →either 1% silver nitrate drops or 2.5% povidone iodine drops or 1% tetracycline ointment. ▪ DO NOT wash away the eye antimicrobial. ▪ If blood or meconium, wipe off with wet cloth and dry. ▪ DO NOT remove vernix or bathe the newborn. ▪ Continue keeping the newborn warm and in skin-to-skin contact with the mother. ▪ Encourage the mother to initiate breastfeeding when newborn shows signs of readiness. Offer her help. ▪ DO NOT give artificial teats or pre-lacteal feeds to the newborn: no water, sugar water, or local feeds. ▪ Examine the mother and newborn one hour after delivery of placenta.	▪ If breathing with difficulty — grunting, chest in-drawing or fast breathing, examine the newborn as on ▪ If feet are cold to touch or mother and newborn are separated: →Ensure the room is warm. Cover mother and newborn with a blanket →Reassess in 1 hour. If still cold, measure temperature. If less than 36.50C, manage as on. ▪ If unable to initiate breastfeeding (mother has complications): →Plan for alternative feeding method. →If mother HIV+ and chooses replacement feeding, feed accordingly. ▪ If baby is stillborn or dead, give supportive care to mother and her family. ▪ **Refer to hospital** now if woman had serious complications at admission or during delivery but was in late labour and no one to consult..

2.11.2. CARE OF THE MOTHER ONE HOUR AFTER DELIVERY OF PLACENTA

A. MONITOR MOTHER AT 2, 3 AND 4 HOURS, THEN EVERY 4 HOURS:

- For emergency signs, using rapid assessment (RAM).
- Feel uterus if hard and round.
- Record findings, treatments and procedures in *Labour record and Partograph*.
- Keep the mother and newborn together.
- **Never leave the woman and newborn alone.**
- **DO NOT** discharge before 6 hours.

Table 4-5:- Use this chart for continuous care of the mother until discharge.

CARE OF MOTHER	INTERVENTIONS, IF REQUIRED
▪ Accompany the mother and newborn to ward. ▪ Advise on *Postpartum care and hygiene.* ▪ Ensure the mother has sanitary napkins or clean material to collect vaginal blood. ▪ Encourage the mother to eat, drink and rest. ▪ Ensure the room is warm (25°C).	▪ Make sure the woman has someone with her and they know when to call for help.
▪ Ask the mother's companion to watch her and call for help if bleeding or pain increases, if mother feels dizzy or has severe headaches, visual disturbance or epigastric distress.	▪ If heavy vaginal bleeding, palpate the uterus. → If uterus not firm, massage the fundus to make it contract and expel any clots . → If pad is soaked in less than 5 minutes, manage as bleeding after child birth. → If bleeding is from perineal tear, repair or refer to hospital.
▪ Encourage the mother to empty her bladder and ensure that she has passed urine.	▪ If the mother cannot pass urine or the bladder is full (swelling over lower abdomen) and she is uncomfortable, help her by gently pouring water on vulva. ▪ **DO NOT** catheterize unless you have to.
▪ Check record and give any treatment or prophylaxis which is due. ▪ Advise the mother on postpartum care and nutrition. ▪ Advise when to seek care. ▪ Counsel on birth spacing and other family planning methods. ▪ Repeat examination of the mother before discharge using *Assess the mother after delivery*. For newborn, see module -5.	▪ If tubal ligation or IUD desired, make plans before discharge. ▪ If mother is on antibiotics because of rupture of membranes >18 hours but shows no signs of infection now, discontinue antibiotics.

B. GIVE PREVENTIVE MEASURES

Table 4-6:- Ensure that all are given before discharge.

ASSESS, CHECK RECORDS	TREAT AND ADVIS
▪ Check RPR status in records. ▪ If no RPR during this pregnancy, do the RPR test.	▪ If RPR positive: →Treat woman and the partner for syphilis according to the national STI management guideline. →Treat the newborn.
▪ Check tetanus toxoid (TT) immunization status. ▪ Check when last dose of mebendazole was given.	▪ Give tetanus toxoid if due. ▪ Give mebendazole once in 6 months.
▪ Check woman's supply of prescribed dose of iron/folate. ▪ Check if vitamin A given.	▪ Give 3 month's supply of iron and counsel on compliance. ▪ Give vitamin A if due
▪ Ask whether woman and newborn are sleeping under insecticide treated bed net. ▪ Counsel and advise all women.	▪ Encourage sleeping under insecticide treated bed net. ▪ Advise on postpartum care. ▪ Counsel on nutrition. ▪ Counsel on birth spacing and family planning. ▪ Counsel on breastfeeding. ▪ Counsel on correct and consistent use of condoms. ▪ Advise on routine and follow-up postpartum visits. ▪ Advise on danger signs. Discuss how to prepare for an emergency in postpartum
■ Record all treatments given	

C. ADVISE ON POSTPARTUM CARE:

Advise on postpartum care and hygiene:

Advise and explain to the woman:

- To always have someone near her for the first 24 hours to respond to any change in her condition.
- Not to insert anything into the vagina.
- To have enough rest and sleep.

- The importance of washing to prevent infection of the mother and her baby:
  - wash hands before handling newborn
  - wash perineum daily and after faecal excretion
  - change perineal pads every 4 to 6 hours, or more frequently if heavy lochia
  - wash used pads or dispose of them safely
  - wash the body daily.
- To avoid sexual intercourse until the perineal wound heals.

Counsel on nutrition:

- Advise the woman to eat a greater amount and variety of healthy foods, such as meat, fish, oils, nuts, seeds, cereals, beans, vegetables, cheese, milk, to help her feel well and strong (give examples of types of food and how much to eat).
- Reassure the mother that she can eat any normal food – these will not harm the breastfeeding newborn.
- Spend more time on nutrition counselling with very thin women and adolescents.
- Determine if there are important taboos about foods which are nutritionally healthy. Advise the woman against these taboos.
- Talk to family members such as partner and mother-in-law, to encourage them to help ensure the woman eats enough and avoids hard physical work.

D. COUNSEL ON BIRTH SPACING AND FAMILY PLANNING:

Counsel on the importance of family planning

See module –two for details

Lactational amenorrhoea method (LAM)

- A breastfeeding woman is protected from pregnancy only if:
  - she is no more than 6 months postpartum, and
  - she is breastfeeding exclusively (8 or more times a day, including at least once at night: no daytime feedings more than 4 hours apart and no night feedings more than 6 hours apart; no complementary foods or fluids), and
  - her menstrual cycle has not returned.
- A breastfeeding woman can also choose any other family planning method, either to use alone or together with LAM (see module –two for method options)

E. ADVISE ON WHEN TO RETURN:

- All mothers in the postpartum period should have at least 2 routine postpartum care visits. Use **table 4-6** for advising on postpartum care visit for problems.

Encourage woman to bring her partner or family member to at least one visit. **Provide four postnatal visits for all mothers in the postnatal period.**

Table 4-7:- Routine postpartum care vis**its**:

Visit	Time
FIRST VISIT	**6-24 hours**
SECOND VISIT	**3 days,**
THIRD VISIT	**7 days**
FOURTH VISIT	**6 weeks**

Advise on danger signs:-

Advise to go to a hospital or health centre immediately, day or night, WITHOUT WAITING, if any of the following signs:

- Vaginal bleeding:
  - more than 2 or 3 pads soaked in 20-30 minutes after delivery **OR**
  - bleeding increases rather than decreases after delivery.
- Convulsions.
- Fast or difficult breathing.
- Fever and too weak to get out of bed.
- Severe abdominal pain.

Go to health centre **as soon as possible** if any of the following signs:

- Fever
- Abdominal pain
- Calf pain, redness or swelling
- Severe headaches accompanied, visual disturbances
- Edema in hands and faceFeels ill
- Breasts swollen, red or tender breasts, or sore nipple
- Urine dribbling or pain on micturition
- Pain in the perineum or draining pus
- Foul-smelling lochia

Discuss how to prepare for an emergency in postpartum:

- Advise to always have someone near for at least 24 hours after delivery to respond to any change in condition.
- Discuss with woman and her partner and family about emergency issues:
  - where to go if danger signs

    - how to reach the hospital
    - costs involved
    - family and community support.
- Advise the woman to ask for help from the community, if needed.
- Advise the woman to bring her home-based maternal record to the health centre, even for an emergency visit.

2.12. BASIC IMMEDIATE / ONGOING POSTNATAL NEWBORN CARE

2.12.1 Monitoring & assessment (history and physical examination) of wellbeing

Examine all newborn babies within an hour of birth, (**Figures 5-1 and 5-2)** for immediate evaluation and care of new born and before discharge; also as follow-up of postnatal visits in the first weeks of life and whenever, there is concern**.**

Preterm delivery (<37 weeks) occurs in 5-9% of all pregnancies. Survival of preterm infants, especially with very low birth weight, is lower since the special care required for their survival is very limited. The rate of preterm babies in developing countries has been estimated to be higher due to different causes.. Assess and classify the newborn for birth weight and gestational age using **Figure 5-3.**

Low birth weight (LBW, <2500 g, as defined by WHO) may be due to preterm delivery or smallness for gestational age (intra-uterine growth retardation), or to a combination of both. A very high proportion of infants in developing countries are born with low birth weight. Regardless of the cause, all small newborns need frequent feeding, thermal protection and growth monitoring.

Congenital anomalies or malformations are important causes of perinatal and neonatal deaths. Congenital anomalies, major and minor, occur in 3-4% of births. Often therapy for the malformation is difficult; however, early recognition and care are important steps to significantly reduce associated morbidities, mortalities and disabilities (To assess, classify and treat the newborn with malformation, use **Table 5-1**). The psychosocial care for the parents is equally important as the birth of a severely malformed infant need close attention.

Perinatal trauma (birth injuries) may result from difficult deliveries. This includes haematomas, fractures, intracranial haemorrhage and damage to peripheral nerves (brachial plexus injury). After a major trauma the infant needs referral to a centre where special care is provided (To assess, classify and treat the newborn with birth injuries use **Table 5-1**). The best prevention of birth injuries is appropriate management of labour and delivery.

Early initiation of breastfeeding provides the newborn with colostrums; this offers the newborn protection from infection, gives important nutrients, and has a beneficial effect on maternal uterine contractions Early contact (immediately after birth) between the mother and the newborn has a beneficial effect on breast-feeding.. Breast milk provides optimal nutrition and promotes the child's growth and development. By breast-feeding, a mother begins the immunization process at birth and protects her child against a variety of viral and bacterial pathogens before the acquisition of active immunity through vaccination.

Important factors in establishing and maintaining exclusive breast-feeding after birth are: giving the first feed within one hour of birth, correct positioning that enables good attachment of the newborn, frequent feeds, with no prelactal feeds or other supplements. Assess breastfeeding in every newborn (use **Figure 5-4:** to assess the newborn for feeding problem. and as part of the maternal postnatal care assessment, examine the breast for any problem and concern.

Figure 4-14: Use this chart to assess and classify the newborn for birth weight and gestational age

USE ALL BOXES THAT MATCH INFANT'S SYMPTOMS AND PROBLEMS TO CLASSIFY THE ILLNESS

Assess, Look

- **Ask the gestational age**
- **Ask for birth weight or**
- **Weigh the baby (with in 7 days of life)**

Classify ALL Newborn Babies

SIGNS	CLASSIFY AS	TREATMENT
Weight < 1,500gm or Gestational age < 32 weeks	VERY LOW BIRTH WEIGHT AND/OR VERY PRETERM	□ Give first dose of intramuscular Ampicillin and Gentamycin □ Continue feeding with expressed breastmilk □ Continue Kangaroo Mother Care □ Give Vitamin K 1mg IM on anterior mid thigh □ Refer URGENTLY with mother to hospital
Weight 1500 to < 2,500 gm or Gestational age 32-37 weeks	LOW BIRTH WEIGHT AND/OR PRETERM	□ Kangaroo Mother Care (KMC) □ Counsel on optimal breastfeeding □ Counsel mother/family on prevention of infection □ Give Vitamin K 1mg IM on anterior mid thigh □ Provide follow-up visits at age 6 hrs, 2 days & then every week for 6 weeks □ Advise mother when to return immediately
Weight ≥ 2,500 gm or Gestational age ≥ 37 weeks	NORMAL WEIGHT AND/OR TERM	□ Counsel on optimal breastfeeding □ Counsel mother/family on prevention of infection □ Provide three follow-up visits at age 6-24 hrs, 3 days & 6 weeks □ Give Vitamin K 1mg IM on anterior mid thigh □ Advise mother when to return immediately

Table 4-8:- Use this chart to assess, classify and treat the newborn with swelling, bruises or malformation.

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
Assisted/instrumental delivery? • Face or Breech birth? • Instrumental delivery? • Difficult birth? • Resuscitated at birth?	■ Look at the movements: are they normal or symmetrical? ■ Look at the presenting part —is there swelling and bruises? ■ Look for : ✓ pallor ✓ cyanosis ✓ jaundice ✓ convulsion	■ Bruises, swelling on face or buttocks. ■small swelling on scalp (bump on one not crossing the suture line) ■ Abnormal position of legs (after breech presentation)	**Minor BIRTH INJURY**	• Explain to parents that the situation will subside by itself and no special treatment is needed. • Advise to return after one week for follow-up • Advice to return immediately if any of the danger signs occur.
		• Large swelling over the head – (bump on one or both sides of head crossing the suture line) or • Asymmetrical arm movement, or both arms do not move or • Unable to wrinkle forhead or close the eye or unable to suckle without dribbling milk • Severe pallor or cyanosis or • Jaundice or • convulsion	**Major BIRTH INJURY**	■ DO NOT force legs into a different position. ■ Gently handle the limb that is not moving, do not pull. • Refer for special treatment
Common Congenital anomalies	• Symmetry of feet (introversion or extroversions)	• abnormal position of feet	■ Club foot	■ Confort the mother or care taker ■ REFER for further management
	• Mouth for defect over the lips and palate • Difficult in suckling • Abnormal external features	• fissure on lips/palate • dribbling of milk during feeding Severe morphological defects	■ Cleft palate or lip ■ Dysmorphism	

Figure 4-15: Chart to assess the newborn for feeding problem or birth weight

Assess breastfeeding in every baby as part of the examination.

If mother is complaining of nipple or breast pain, also assess the mother's breasts

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
Ask the mother · How is the breastfeeding going? · Has your baby fed in the previous hour? · Is there any difficulty? · Is your baby satisfied with the feed? · Have you fed your baby any other foods or drinks? · How do your breasts feel? · Do you have any concerns?	· O bserve a breastfeed. If the baby has not fed in the previous hour, ask the mother to put the baby on her breasts and observe breastfeeding for about 5 minutes. Look · Is the baby able to attach correctly? · Is the baby well-positioned? · Is the baby suckling effectively?	Suckling effectively. · Breastfeeding 8 times in 24 hours on demand day and night	Feeding well	Encourage the mother to continue breastfeeding on • demand
		Not yet breastfed (first hours of life). · Not well attached. · Not suckling effectively. · Breastfeeding less than 8 times per 24 hours. · Receiving other foods or drinks. · Several days old and inadequate weight gain.	Feeding difficulty	Support exclusive breastfeeding. · Help the mother to initiate breastfeeding · Teach correct positioning and attachment · Advise to feed more frequently, day and night. Reassure her that she has enough milk. · Advise the mother to stop feeding the baby other foods or drinks. • · Reassess at the next feed or follow-up visit in 2 days.
If baby more than one day old: · How many times has your baby fed in 24 hours?	If mother has fed in the last hour, ask her to tell you when her baby is willing • to feed again.	Not suckling (after 6 hours of age). · Stopped feeding.	Not able to feed	· Refer baby urgently to hospital

2.12.2. ONGOING SUPPORTIVE NEW BORN CARE

2.12.2.1. KEEP THE NEWBORN WARM

- **Warm the** room with the temperature of 25-28ºC, no air current.
- **Always keep the newborn covered with dry and warm clothing**.
- **Skin-to-skin contact:** bed in the newborn with the mother. If the mother cannot keep the newborn skin-to-skin because of problems, wrap the newborn in a clean, dry, warm cloth and place in a cot covered with a blanket.
- Explain to the mother that keeping newborn warm is important for the newborn to remain healthy before discharge.
    - In areas where prevalence of malaria is high, advice to mother-newborn pair to sleep under insectide treated bednet.

Do not *put the newborn on any cold or wet surface.*

Do not *bath the newborn at birth. Delay bathing for 24 hours.*

2.12.2.2. COUNSEL AND SUPPORT SAFE INFANT FEEDING

I. BREAST FEEDING:

In module three you have learned counselling pregnant women on breastfeeding. In this module we shall emphasis on the importance of exclusive breast feeding after birth to lactating mothers including partner or care takers within the family.

Explain to the mother that:

- Breast milk contains most optimal level of nutrients to satisfy the newborn needs. It is easily digestible and protects the newborn against infection.
- Exclusive breastfeeding should be initiated within 1 hour of birth. This means babies should not have any other food or drink up to the age of six months.
- Breastfeeding helps newborn's growth and development and promotes mother-newborn bonding.
- Encourage breastfeeding on demand, day and night, as long as the newborn wants*, 8 or more times in 24 hours*

  Note: Exclusive breastfeeding helps delay a new pregnancy (see for breastfeeding and family planning).
- Check that position and attachment are correct at the first feed. Offer assistance any time when the mother needs.

- Offer the breasts alternatively until each breast empties
- If the mother is ill and unable to breastfeed, help her to express breast milk and feed the baby by cup.
- Advise the mother on medication and breastfeeding:
  - Commonly given drugs to lactating mothers are generally considered safe; thus the baby can continue to breastfed. However, if mother is taking some drugs, cotrimoxazole, fansidar or the like, monitor newborn for jaundice and any other abnormal signs.
- If mother is not around, let her express breast milk and let somebody else feed the expressed breast milk to the newborn by cup.

Reminders:

DO NOT *force the newborn to take the breast.*

DO NOT *interrupt newborn's feeding.*

DO NOT *give any other feeds or water.*

DO NOT *use artificial teats or pacifiers.*

II. FEEDING METHOD FOR LOW BIRTH WEIGHT NEONATE:

Help a mother breastfeed her low birth weight newborn:

- Express a few drops of milk on the bay's lip to help the newborn start nursing.
- Give the baby short rests during a breastfeed; feeding is hard work for LBW baby.
- If the baby coughs, gags, or spits up when starting to breastfeed, the milk may be letting down too fast for the little baby. Teach the mother to take the baby off the breast if this happens.
- Hold the baby against her chest until the baby can breathe well again then put it back to the breast after the let-down of milk has passed.
- If the LBW baby does not have enough energy to suck for long or a strong enough sucking reflex: Teach the mother to express her breast milk and feed the baby with cup.

Steps for expressing breast milk (can take 20-30 minutes or longer in the beginning)

- Wash hands with soap and water
- Prepare a cleaned and boiled cup or container with a wide opening.
- Sit comfortably and lean slightly toward the container. Hold the breast in a "C-hold".

- Gently massage and pat the breast from all directions.
- Press thumb and fingers toward the chest wall, role thumb forward as if taking a thumb print so that milk is expressed from all areas of the breast.
- Express the milk from one breast for at least 3-4 minutes until the flow slows and shift to the other breast.

How to feed a newborn with a cup:

- Hold the newborn sitting upright or semi-upright on your lap
- Hold a small cup of milk to the newborn's lips
  - Tip the cup so the milk just touches the newborn's lips
  - The cup rests gently on the newborn's lower lip and the edges of the cup and touch the outer part of the newborn's upper lip
  - The newborn becomes alert and opens his mouth and eyes
- Do not pour the milk into the newborn's mouth. A young infant starts to take the milk with the tongue. An older/ bigger newborn sucks the milk, spilling some of it
- When the newborn has had enough he closes his mouth and will not take any more. If the newborn has not taken the required amount, wait and then offer the cup again or feed more frequently

Storing and using stored breast milk:

Fresh breast milk has the highest quality. If the breast milk must be saved, advise the mother and family to:

- Use either a glass or hard plastic container with a large opening and a tight lid to store breast milk.
- Use a container and lid which have been boiled for 10 minutes.
- If the mother is literate, teach her to write the time and date the milk was expressed (or morning, afternoon, evening) on the container before storing.
- Empty the breast and store the milk in the coolest place possible.

III: GIVE SPECIAL SUPPORT TO BREASTFED TWINS:

COUNSEL THE MOTHER:

- Reassure the mother that she has enough breast milk for two babies.
- Encourage her that twins may take longer to establish breastfeeding since they are frequently born preterm and with low birth weight.

HELP THE MOTHER:

- Start feeding one newborn at a time until breastfeeding is well established.
- Help the mother find the best method to feed the twins:
  - → If one is weaker, encourage her to make sure that the weaker twin gets enough milk.
  - → If necessary, she can express milk for her/him and feed her/him by cup after initial breastfeeding.
  - → Daily alternate the side each newborn is offered.

IV: MOTHERS WITH SPECIAL CONDITIONS

Babies born to mothers who may be unable to breast feed due to special conditions (loss of consciouness, severe psychiatric problems, or HIV positive mothers who chose replacement feeding, death, and others) may require replacement feeding. (Refer to IMNCI and PMTCT guidelines for further detail in preparation and feeding)

Immunize the newborn:

- Give BCG, OPV-0 vaccine in the first week of life, preferably before discharge.
- If un-immunized newborn first seen in the first two weeks of age, give BCG only and give appointment to return after 4 weeks.
- Record on immunization card and child record.
- Advise when to return for next immunization.

Advise the mother to seek immediate care for the newborn for the following danger signs:

- difficulty breathing
- convulsions
- fever or feels cold
- bleeding
- diarrhoea
- very small, just born
- not feeding at all
- difficulty feeding
- pus discharging from the eyes
- many skin pustules
- yellow skin
- a cord stump which is red or draining pus
- Movement less than normal (lethargy)

2.12.2.3. Care for preterm and low birth weight babies

Keep the small newborn warm:

- The room must be warmer when changing, washing, bathing and examining a small newborn.
- The room for the newborn should be warm (not less than 25°C) with no draught.
- Explain to the mother the importance of warmth for a small newborn.
- After birth, encourage the mother to keep the newborn in skin-to-skin contact as long as possible.
- Advise to use extra clothes, socks and a cap, blankets, to keep the newborn warm or when the newborn is not with the mother.
- Wash or bath a newborn in a very warm room, in warm water. After bathing, dry immediately and thoroughly. Keep the newborn warm after the bath. Avoid bathing small babies before 24 hours.
- Check frequently if feet are warm. If cold, rewarm the newborn (see below).
- Seek care if the newborn's feet remain cold after re-warming.

Re-warm the newborn skin-to-skin:

- Before rewarming, remove the newborn's cold clothing.
- Place the newborn skin-to-skin on the mother's chest dressed in a pre-warmed shirt open at the front, a nappy (diaper), hat and socks.
- Cover the infant on the mother's chest with her clothes and an additional (pre-warmed) blanket.
- Check the temperature every hour until normal.
- Keep the newborn with the mother until the newborn's body temperature is in normal range.
- If the newborn is small, encourage the mother to keep the newborn in skin-to-skin contact for as long as possible, day and night.
- Be sure the temperature of the room where the rewarming takes place is at least 25°C.
- If the newborn's temperature is not 36.5ºC or more after 2 hours of rewarming, reassess the newborn .
- If referral needed, keep the newborn in skin-to-skin position/contact with the mother or other person accompanying the newborn.

2.12.2.4 KANGAROO MOTHER CARE

Warm the young infant using skin-to-skin contact (Kangaroo Mother Care)

Provide privacy to the mother. If mother is not available, skin-to-skin contact may be provided by the father or any other adult.

- Request the mother to sit or recline comfortably
- Undress the baby gently, except for cap, nappy and socks
- Place the newborn prone on mother's chest in an upright and extended posture, between her breasts, in skin-to-skin contact; turn newborn's head to one side to keep airways clear. Keep the baby in this position for 24 hrs every day
- Cover the newborn with mother's blouse, 'pallu' or gown; wrap the baby-mother together with an added blanket, "Gabi" or shawl.
- Breastfeed the baby frequently
- If possible, warm the room
- Provide follow-up

UNIT-3: CARE AND REFERAL FOR DISEASES AND COMPLICATIONS DURING CHILD BIRTH:

3.1 – LEARNING OBJECTIVES

At the end of this unit, participants will be able to:

- Describe common diseases and complications during labour and delivery.
- Describe common diseases and complications during the immediate postpartum period.
- Describe additional care required for diseases and complications during labour and delivery
- Describe additional care required for diseases and complications during the immediate postpartum period.
- Describe the pre-referal management of severe complications during labour, delivery and immediate post partum.

3.2 - UNSATISFACTORY PROGRESS OF LABOUR

3.2.1. PROBLEMS:

- The latent phase is cervical dilation below 4 cm after 8 hours of *true labor*.
- Cervical dilatation is to the right of the alert line on the partograph.
- The woman has been experiencing labour pains for 12 hours or more without delivery (prolonged labour).

3.2.2. GENERAL MANAGEMENT:

- Make a rapid evaluation of the condition of the woman and fetus and provide supportive care.
- Test urine for ketones and treat with IV fluids if ketotic.
- Review partograph.

3.2.3. DIAGNOSIS:

See table 4-8 below to diagnose unsatisfactory progress of labour.

Table 4-9:- Diagnosis of unsatisfactory progress of labour

Findings	Diagnosis
• Cervix not dilated • No palpable contractions/infrequent contractions	• False labour,
• Cervix not dilated beyond 4 cm after 8 hours of regular contractions	• Prolonged latent phase,
• Cervical dilatation to the right of the alert line on the partograph	• Prolonged active phase
• Secondary arrest of cervical dilatation and descent of presenting part in presence of good contractions	• Cephalopelvic disproportion,
• Secondary arrest of cervical dilatation and descent of presenting part with large caput, third degree moulding, cervix poorly applied to presenting part, oedematous cervix, ballooning of lower uterine segment, formation of retraction band, maternal and fetal distress	• Obstruction,
• Less than three contractions in 10 minutes, each lasting less than 40 seconds	• Inadequate uterine activity,
• Presentation other than vertex with occiput anterior	• Malpresentation or malposition,
• Cervix fully dilated and woman has urge to push, but there is no descent	• Prolonged expulsive phase,

3.2.4. MANAGEMENT:

A. FALSE LABOUR

Examine for urinary tract or other infection or ruptured membranes and treat accordingly. If none of these are present, discharge the woman and encourage her to return if signs of labour recur.

B. PROLONGED LATENT PHASE

The diagnosis of prolonged latent phase is made retrospectively. When contractions cease, the woman is said to have had false labour. When contractions become regular and dilatation progresses beyond 4 cm, the woman is said to have been in the latent phase.

Note: Misdiagnosing false labour or prolonged latent phase leads to unnecessary induction or augmentation, which may fail. This may lead to unnecessary caesarean section and ammonites.

If a **woman has been in the latent phase for more than 8 hours** and there is **little sign of progress**, reassess the situation by assessing the cervix:

- If there has been **no change in cervical effacement or dilatation** and there is no fetal distress, review the diagnosis. The woman may not be in labour.
- If contraction persist for 8 hours and cervical dilatation remains less than 4 cm, the diagnosis is prolonged latent phase. Refer her to a higher facility.

C. PROLONGED ACTIVE PHASE:

In the active phase of labor, plotting of the cervical dilatation usually remains on, or to warning that the labor may be prolonged. A thorough assessment of the mother, fetus and progress using the partogram may indicate the cause.

- If there are **no signs of cephalopelvic disproportion or obstruction,** assess uterine contractions:
  - If **contractions are inefficient** (less than three contractions in 10 minutes, each lasting less than 40 seconds), suspect inadequate uterine activity;

  ➔ General methods of labour support may improve contractions and accelerate progress. The support includes: rehydration, emptying the bladder andencouraging the woman to be more active and move around or adopt an upright position will speed up the progress of labor and normal progress will continue.
- If **contractions are efficient** (three contractions in 10 minutes, each lasting more than 40 seconds) suspect cephalopelvic disproportion, obstruction, malpositions or malpresentation (see below) ***refer to a higher facility***.
  - CEPHALOPELVIC DISPROPORTION:

    Cephalopelvic disproportion occurs because the fetus is relatively too large or the maternal pelvis is too small. If **labour persists with Cephalopelvic disproportion**, it may become arrested or obstructed. The best test to determine if a pelvis is adequate is a trial of labour. Clinical pelvimetry is of limited value.
  - OBSTRUCTION:

    Note: Rupture of an unscarred uterus is usually caused by obstructed labour.

D. PROLONGED SECOND STAGE/EXPULSIVE PHASE

Maternal expulsive efforts increase fetal risk by reducing the delivery of oxygen to the placenta. Allow spontaneous maternal “pushing”, but do not encourage prolonged effort and holding the breath. The management of protracted second stage depends on the identified cause and complications.

- If the presentation is vertex with live fetus and station at or below O (O/5) delivery can be assisted/tried with forceps.
    - In tight perineum : vaginal delivery may be achieved with vaginal procedure such as episiotomy
- All other conditions require immediate referral to a higher facility.

3.3. FETAL DISTRESS IN LABOUR

PROBLEMS

- Abnormal fetal heart rate (less than 100 or more than 180 beats per minute).
- Thick meconium-stained amniotic fluid.

GENERAL MANAGEMENT

- Prop up the woman or place her on her left side.
- Stop oxytocin if it is being administered.
- Open IV line to hydrate.
- Look for possible causes like cord prolapse.
- Start intranasal oxygen

ABNORMAL FETAL HEART RATE

Box 4-4:- Abnormal fetal heart rate

- A **normal fetal heart rate** may slow during a contraction but usually recovers to normal as soon as the uterus relaxes.
- A **very slow fetal heart rate** in the absence of contractions or persisting after contractions is suggestive of fetal distress.
- A **rapid fetal heart rate** may be a response to maternal fever, drugs causing rapid maternal heart rate (e.g. tocolytic drugs), hypertension or amnionitis. In the absence of a rapid maternal heart rate, a rapid fetal heart rate should be considered a sign of fetal distress.

- If a **maternal cause is identified** (e.g. maternal fever, drugs), initiate appropriate management.
- If a **maternal cause is not identified** and the **fetal heart rate remains abnormal** throughout at least three contractions, perform a vaginal examination to check for explanatory signs of distress:
  - If there is **bleeding with intermittent or constant pain**, suspect abruptio placentae;
  - If there are **signs of infection** (fever, foul-smelling vaginal discharge) give antibiotics as for amnionitis;
  - If the **cord is below the presenting part** or **in the vagina**, manage as prolapsed cord.

- If **fetal heart rate abnormalities persist** or there are **additional signs of distress** (thick meconium-stained fluid):
  - Plan delivery if the **cervix is fully dilated** and the **fetal head is not more than 1/5 above** the symphysis pubis or the leading bony edge of the **head is at or below 0 station**, deliver by vacuum extraction or forceps;
  - If the **cervix is not fully dilated** or the **fetal head is more than 1/5 above** the symphysis pubis or the leading bony edge of the **head is above 0 station**, consult/refer for delivery by caesarean section.

MECONIUM

- Meconium staining of amniotic fluid is seen frequently as the fetus matures and by itself is not an indicator of fetal distress. A slight degree of meconium without fetal heart rate abnormalities is a warning of the need for vigilance.
- **Thick meconium** suggests passage of meconium in reduced amniotic fluid and may indicate the need for expedited delivery and meconium management of the neonatal upper airway at birth to prevent meconium aspiration.
- In **breech presentation**, meconium is passed in labour because of compression of the fetal abdomen during delivery. This is not a sign of distress unless it occurs in early labour.

3.4. EPISIOTOMY

3.4.1. INTRODUCTION

Episiotomy is no longer recommended as a routine procedure. There is no evidence that routine episiotomy decreases perineal damage, future vaginal prolapse or urinary incontinence. In fact, routine episiotomy is associated with an increase of third and fourth degree tears and subsequent anal sphincter muscle dysfunction.

- Review for indications.

Episiotomy should be considered only in the case of:

- Complicated vaginal delivery (breech, shoulder dystocia, forceps, vacuum);
- Scarring from female genital cutting or poorly healed third or fourth degree tears;
- Fetal distress.

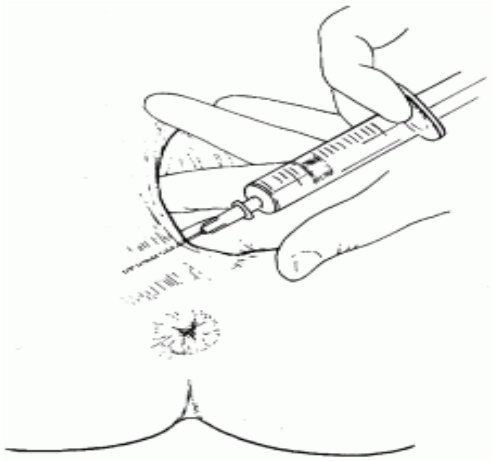
- Review general care principles and apply antiseptic solution to the perineal area.
- Provide emotional support and encouragement. Use local infiltration with lignocaine or a pudendal block.
- Make sure there are no known allergies to lignocaine or related drugs.
- Infiltrate beneath the vaginal mucosa, beneath the skin of the perineum and deeply into the perineal muscle using about 10 mL 0.5% lignocaine solution ***(Figure 4-16)***.

  Note: Aspirate (pull back on the plunger) to be sure that no vessel has been penetrated. If **blood is returned in the syringe with aspiration**, remove the needle. Recheck the position carefully and try again. Never inject if blood is aspirated. **The woman can suffer seizures and death if IV injection of lignocaine occurs.**
- At the conclusion of the set of injections, wait 2 minutes and then pinch the incision site with forceps. If the **woman feels the pinch**, wait 2 more minutes and then retest.

Anaesthetize early to provide sufficient time for effect.

- Wait to perform episiotomy until:
  - The perineum is thinned out; and
  - The head crowns i.e. 3–4 cm of the fetus's head is visible during a contraction.

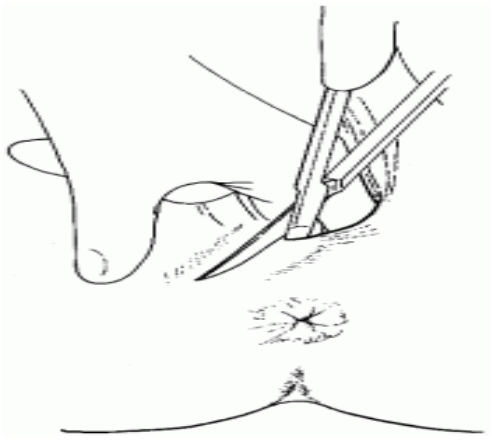
Figure 4-16:- Infiltration of perineal tissue with local anaesthetic



Performing an episiotomy will cause bleeding. It should not, therefore, be done too early.

- Wearing high-level disinfected gloves, place two fingers between the baby's head and the perineum ***(Figure 4-17)***.
- Use scissors to cut the perineum about 3–4 cm in the medio-lateral direction.
- Use scissors to cut 2–3 cm up the middle of the posterior vagina.
- Control the fetal head and shoulders as they deliver, ensuring that the shoulders have rotated to the midline to prevent an extension of the episiotomy.
- Carefully examine for extensions and other tears and repair (see below).

Figure 4-17:- Making the incision while inserting two fingers to protect the fetal head

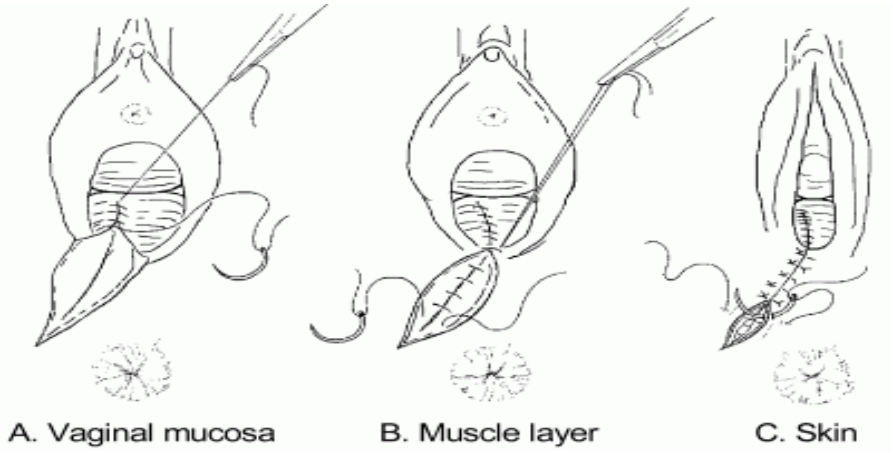


3.4.2. REPAIR OF EPISIOTOMY:

Note: It is important that absorbable sutures be used for closure. Polyglycolic sutures are preferred over chromic catgut for their tensile strength, non-allergenic properties and lower probability of infectious complications and episiotomy breakdown. Chromic catgut is an acceptable alternative, but is not ideal.

- Clean with guaze the area around the episiotomy.
- If the **episiotomy is extended** through the anal sphincter or rectal mucosa, manage as third or fourth degree tears, respectively (i.e. refer if consultation not possible)
- Close the vaginal mucosa using continuous 2-0 suture: (see ***Figure 4-18***)
  - Start the repair about 1 cm above the apex (top) of the episiotomy. Continue the suture to the level of the vaginal opening;
  - At the opening of the vagina, bring together the cut edges of the vaginal opening;
  - Bring the needle under the vaginal opening and out through the incision and tie.
- Close the perineal muscle using interrupted 2-0 sutures.
- Close the skin using interrupted (or subcuticular) 2-0 sutures.

Figure 4-18:- Repair of episiotomy



3.5.6. COMPLICATIONS:

- If a **haematoma occurs**, open and drain. If there are **no signs of infection** and **bleeding has stopped**, reclose the episiotomy.
- If there are **signs of infection**, open and drain the wound. Remove infected sutures and debride the wound:

- If the **infection is mild**, antibiotics are not required;
- If the **infection is severe but does not involve deep tissues**, give a combination of antibiotics:
    - Ampicillin 500 mg by mouth four times per day for 5 days;
    - PLUS metronidazole 400 mg by mouth three times per day for 5 days.
- If the **infection is deep, involves muscles and is causing necrosis** (necrotizing fasciitis), give a combination of antibiotics until necrotic tissue has been removed and the woman is fever-free for 48 hours:
    - Penicillin G 2 million units IV every 6 hours;
    - PLUS gentamicin 5 mg/kg body weight IV every 24 hours;
    - PLUS metronidazole 500 mg IV every 8 hours;
    - Once the **woman is fever-free for 48 hours**, give:
        - Ampicillin 500 mg by mouth four times per day for 5 days;
        - PLUS metronidazole 400 mg by mouth three times per day for 5 days;

Note: Necrotizing fasciitis requires wide surgical debridement. Perform secondary closure in 2–4 weeks (depending on resolution of the infection).

3.5. RESPOND TO PROBLEMS IN THE IMMEDIATE POSTPARTUM

Use **table 4-10** as general guide to respond to problems in the immediate postpartum period.

Table 4-10:- Respond to problems in the immediate postpartum

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
IF VAGINAL BLEEDING				
	■ A pad is soaked in less than 5 minutes.	■ More than 1 pad soaked in 5 minutes ■ Uterus not hard and not round	**HEAVY BLEEDING**	■ See for treatment. ■ **Consult or Refer urgently to hospital** .
IF FEVER (TEMPERATURE >38ºC)				
■ Time since rupture of membranes ■ Abdominal pain ■ Chills	■ Repeat temperature measurement after 2 hours ■ If temperature is still >38ºC →Look for abnormal vaginal discharge. →Listen to fetal heart rate →feel lower abdomen for Tender ness	■ Temperature still >380C and any of: → Chills → Foul-smelling vaginal discharge →Low abdomen tenderness →FHR remains >160 after 30 minutes of observation →rupture of membranes >18 hours	**UTERINE AND FETAL INFECTION**	■ Insert an IV line and give fluids rapidly . ■ Give appropriate IM/IV antibiotics ■ If fetus and placenta delivered →Give oxytocin 10 IU IM . ■ **Consult or Refer woman urgently to hospital** . ■ Assess the newborn . Treat if any sign of infection.
		■ Temperature still >380C	**RISK OF UTERINE AND FETAL INFECTION**	■ Encourage woman to drink plenty of fluids. ■ Measure temperature every 4 hours. ■ If temperature persists for >12 hours, is very high or rises rapidly, give appropriate antibiotic and Consult or **refer to hospital**
IF PERINEAL TEAR OR EPISIOTOMY (DONE FOR LIFESAVING CIRCUMSTANCES)				
	■ Is there bleeding from the tear or episiotomy ■ Does it extend to anus or rectum?	■ Tear extending to anus or rectum.	**THIRD DEGREE TEAR**	■ **Consult or Refer woman urgently to hospital** .
		■ Perineal tear ■ Episiotomy	**SMALL PERINEAL TEAR**	■ If bleeding persists, repair the tear or episiotomy

Table 4-10:- Respond to problems in the immediate postpartum contd.

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
IF ELEVATED DIASTOLIC BLOOD PRESSURE				
	■ If diastolic blood pressure is ≥90 mmHg, repeat after 1 hour rest. ■ If diastolic blood pressure is still ≥90 mmHg, ask the woman if she has: →severe headache →blurred vision →epigastric pain and →check protein in urine	■ Diastolic blood pressure ≥110 mmHg OR ■ Diastolic blood pressure ≥90 mmHg and 2+ proteinuria and any of: →severe headache →blurred vision →epigastric pain.	**SEVERE PRE-ECLAMPSIA**	■ Give magnesium sulphate ■ If in early labour or postpartum, **consult or refer urgently to hospital** . ■ **If late labour:** →continue magnesium sulphate treatment →monitor blood pressure every hour. →**DO NOT** give ergometrine after delivery. ■ **Consult or Refer urgently to hospital after delivery**
		■ Diastolic blood pressure 90-110 mmHg on two readings. ■ 2+ proteinuria (on admission).	**PRE-ECLAMPSIA**	■ If early labour, **consult or refer urgently to hospital** . ■ If late labour: →monitor blood pressure every hour →**DO NOT** give ergometrine after delivery. ■ If BP remains elevated after delivery, **consult or refer to hospital .**
		■ Diastolic blood pressure ≥90 mmHg on 2 readings.	**HYPERTENSION**	■ Monitor blood pressure every hour. ■ **DO NOT** give ergometrine after delivery. ■ If blood pressure remains elevated after delivery, **Consult or refer to hospital**

Table 4-10:- Respond to problems in the immediate postpartum contd.

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
IF PALLOR ON SCREENING, CHECK FOR ANEMIA				
■ Bleeding during labour, delivery or postpartum.	■ Measure haemoglobin, if possible. ■ Look for conjunctival pallor. ■ Look for palmar pallor. If pallor: →Is it severe pallor? →Some pallor? →Count number of breaths in 1 minute	■ Haemoglobin <7 g/dl. **AND/OR** ■ Severe palmar and conjunctival pallor or ■ Any pallor with >30 breaths per minute.	**SEVERE ANEMIA**	■ **If early labour** or post partum, **refer urgently to hospital** . ■ **If late labour:** →monitor intensively →minimize blood loss →**refer urgently to hospital after delivery**
		■ Any bleeding. ■ Haemoglobin 7-11 g/dl.	**MODERATE ANEMIA**	■ **DO NOT** discharge before 24 hours. ■ Check haemoglobin after 3 days. ■ Give double dose of iron for 3 months. ■ Follow up in 4 weeks.
		■ Palmar or conjunctival pallor. ■ Haemoglobin >11g/dl ■ No pallor.	**NO ANEMIA**	■ Give iron/folate for 3 months
IF MOTHER SEVERELY ILL OR SEPARATED FROM THE NEWBORN				
				■ Teach mother to express breast milk every 3 hours . ■ Help her to express breast milk if necessary. Ensure newborn receives mother's milk . ■ Help her to establish or re-establish breastfeeding as soon as possible.See
IF BABY STILLBORN OR DEAD				
				■ Give supportive care: →Inform the parents as soon as possible after the baby's death. →Show the baby to the mother, give the baby to the mother to hold, where culturally appropriate. →Offer the parents and family to be with the dead baby in privacy as long as they need. →Discuss with them the events before the death and the possible causes of death. ■ Advise the mother on breast care . ■ Counsel on appropriate family planningmethod ■ Provide certificate of death and notify authorities as required

3.6. VAGINAL BLEEDING AFTER CHILDBIRTH

3.6.1. INTRODUCTION

Vaginal bleeding in excess of 500 mL after childbirth is defined as postpartum hemorrhage (PPH). There are, however, some problems with this definition:

- Estimates of blood loss are notoriously low, often half the actual loss. Blood is mixed with amniotic fluid and sometimes with urine. It is dispersed on sponges, towels and linens, in buckets and on the floor.
- The importance of a given volume of blood loss varies with the woman's hemoglobin level. A woman with a normal hemoglobin level will tolerate blood loss that would be fatal for an anaemic woman.

Even healthy, non-anaemic women can have catastrophic blood loss.

- Bleeding may occur at a slow rate over several hours and the condition may not be recognized until the woman suddenly enters shock.

Therefore, PPH can also be defined as any amount of vaginal bleeding after child birth that is sufficient enough to make the patient symptomatic &/or results in signs of hypovolemia.

Risk assessment in the antenatal period does not effectively predict those women who will have PPH. Active management of the third stage should be practiced on all women in labor since it reduces the incidence of PPH due to uterine atony. All postpartum women must be closely monitored to determine those that have PPH.

PROBLEMS:

- Increased vaginal bleeding within the first 24 hours after childbirth (immediate PPH), also called primary PPH.

Continuous slow bleeding or sudden bleeding is an emergency; intervene early and aggressively.

- Increased vaginal bleeding following the first 24 hours after childbirth (delayed PPH).

CAUSES:

- Atonic uterus
- Genital trauma
- Retained placenta
- Coagulation failure
- Acute inversion of the uterus

See table 4-11.

GENERAL MANAGEMENT:

- SHOUT FOR HELP. Urgently mobilize all available personnel.
- Make a rapid evaluation of the general condition of the woman including vital signs (pulse, blood pressure, respiration, temperature).
- If shock is suspected, immediately begin treatment. Even if signs of shock are not present, keep shock in mind as you evaluate the woman further because her status may worsen rapidly. If shock develops, it is important to begin treatment immediately.
- Massage the uterus to expel blood and blood clots. Blood clots trapped in the uterus will inhibit effective uterine contractions.
- Give oxytocin 10 units IM.
- Start an IV infusion and infuse IV fluids. Establish two IV lines if necessary.
- Take blood (5 mL) for hemoglobin (Hg)/ hematocrit (Hct) etc
- Catheterize the bladder.
- Check to see if the placenta has been expelled and examine the placenta to be certain it is complete.
- Examine the cervix, vagina and perineum for tears.
- Provide specific treatment for the specific cause identified (see below).
- After bleeding is controlled (24 hours after bleeding stops), determine haemoglobin or hematocrit to check for anemia:
    - If haemoglobin is below 7 g/dL or hematocrit is below 20% (severe anemia):
        - → Treat with iron if clinically stable.
        - → Refer immediately for transfusion if signs and symptoms of de-compensation develop.
    - If haemoglobin is between 7–11 g/dL, treat with iron.
    - Where hookworm is endemic (prevalence of 20% or more), give one of the following anthelmintics:
        - → Albendazole 400 mg PO stat
        - → Mebendazole 500 mg PO stat or 100mg PO bid for three days.
    - If hookworm is highly endemic (prevalence of 50% or more), repeat the anthelmintic treatment 12 weeks after the first dose.

DIAGNOSIS:

For diagnosis of vaginal bleeding after childbirth use Table 4-11 below.

Table 4-11:- Diagnosis of vaginal bleeding after childbirth

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Immediate PPH[a] • Uterus soft and not contracted	• Shock	**Atonic uterus,**
• Immediate PPH[a]	• Complete placenta • Uterus contracted	**Tears of cervix, vagina or perineum,**
• Placenta not delivered within 30 minutes after delivery	• Immediate PPH[a] • Uterus contracted	**Retained placenta,**
• Portion of maternal surface of placenta missing or torn membranes with vessels	• Immediate PPH[a] • Uterus contracted	**Retained placental fragments,**
• Uterine fundus not felt on abdominal palpation • Slight or intense pain	• Inverted uterus apparent at vulva • Immediate PPH[b]	**Inverted uterus,**
• Bleeding occurs more than 24 hours after delivery • Uterus softer and larger than expected for elapsed time since delivery	• Bleeding is variable (light or heavy, continuous or irregular) and foul-smelling • Anemia	**Delayed PPH,**
• Immediate PPH[a] (bleeding is intra-abdominal and/or vaginal) • Severe abdominal pain (may decrease after rupture)	• Shock • Tender abdomen • Rapid maternal pulse	**Ruptured uterus,**

[a] Bleeding may be light if a clot blocks the cervix or if the woman is lying on her back.
[b] There may be no bleeding with complete inversion.

3.6.2. ATONIC UTERUS

An atonic uterus fails to contract after delivery. Atonic uterus is the most common cause of primary PPH.

- Continue to massage the uterus.
- Use oxytocic drugs which can be given together or sequentially (Table 4-12).

Table 4-12:- Use of oxytocic drugs

	Oxytocin	Ergometrine/ Methyl-ergometrine	MISOPROSTOL (CYTOTEC)
Dose and route	IV: Infuse 20 units in 1 L IV fluids at 60 drops per minute IM: 10 units	IM or IV (slowly): 0.2 mg	ORAL/SL INTRAVAG RECTAL 800mcg
Continuing dose	IV: Infuse 20 units in 1 L IV fluids at 40 drops per minute	Repeat 0.2 mg IM after 15 minutes If required, give 0.2 mg IM or IV (slowly) every 4 hours	200mg Every 4 hours
Maximum dose	Not more than 3 L of IV fluids containing oxytocin	5 doses (Total 1.0 mg)	2000mg
Precautions/ Contra-indications	Do not give as an IV bolus	Pre-eclampsia, hypertension, heart disease	Asthma Heart Dis*

- If bleeding continues:
  - Check placenta again for completeness;
  - If there are signs of retained placental fragments (absence of a portion of maternal surface or torn membranes with vessels), remove remaining placental tissue;
  - Assess clotting status using a bedside clotting test. Failure of a clot to form after 7 minutes or a soft clot that breaks down easily suggests coagulopathy.
- If bleeding continues in spite of management above:
  - Perform bimanual compression of the uterus (Fig 4-19):
    - Wearing high-level disinfected gloves, insert a hand into the vagina and form a fist;
    - Place the fist into the anterior fornix and apply pressure against the anterior wall of the uterus;
    - With the other hand, press deeply into the abdomen behind the uterus, applying pressure against the posterior wall of the uterus;
    - Maintain compression until bleeding is controlled and the uterus contracts.
  - Alternatively, compress the aorta (fig 4-20):

- Apply downward pressure with a closed fist over the abdominal aorta directly through the abdominal wall:
  → The point of compression is just above the umbilicus and slightly to the left;
  → Aortic pulsations can be felt easily through the anterior abdominal wall in the immediate postpartum period.
- With the other hand, palpate the femoral pulse to check the adequacy of compression:
  → If the pulse is palpable during compression, the pressure exerted by the fist is inadequate;
  → If the femoral pulse is not palpable, the pressure exerted is adequate;
- Maintain compression until bleeding is controlled.

Figure 4-19:-Bimanual compression of the uterus

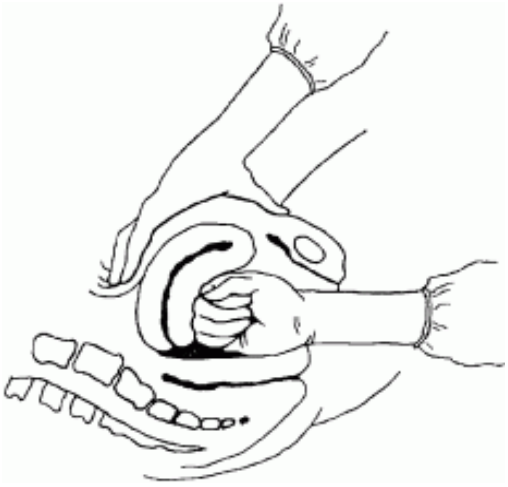


Figure 4-20:-Compression of Abdominal aorta and palpation of femoral pulse

Packing the uterus is ineffective and wastes precious time.

- If **bleeding continues** in spite of compression: refer immediately accompanying her and continuing providing the above measures.

3.6.3. TEARS OF CERVIX, VAGINA OR PERINEUM

Tears of the birth canal are the second most frequent cause of PPH. Tears may coexist with atonic uterus. Postpartum bleeding with a contracted uterus is usually due to a cervical or vaginal tear.

- Examine the woman carefully and repair tears to the cervix or vagina and perineum.
- If **bleeding continues**, assess clotting status using a bedside clotting test. Failure of a clot to form after 7 minutes or a soft clot that breaks down easily suggests coagulopathy.
  - If coagulopathy is diagnosed refer urgently accompanying her and providing the above basic support.

3.6.4. RETAINED PLACENTA

There may be no bleeding with retained placenta.

- If **you can see the placenta**, ask the woman to push it out. If **you can feel the placenta** in the vagina, remove it.
- Ensure that the bladder is empty. Catheterize the bladder, if necessary.
- If the **placenta is not expelled and no active bleeding**, give oxytocin 10 units IM if not already done for active management of the third stage, attempt controlled cord traction.

  Note: Avoid forceful cord traction and fundal pressure as they may cause uterine inversion.

Do not give ergometrine because it causes tonic uterine contraction, which may delay expulsion.

- If there is active bleeding or the **placenta is undelivered after 30 minutes of oxytocin** stimulation and c**ontrolled cord traction**, attempt manual removal of placenta.
  - If placenta is delivered and uterus well contracted, closely monitor and continue with frequent rubbing of the uterus
  - In case the placenta is delivered but the uterus remains hypotonic and bleeding continues, manage as atonic uterus.
- If **there are signs of infection** (fever, foul-smelling vaginal discharge), give antibiotics as for metritis.

3.6.5. RETAINED PLACENTAL FRAGMENTS

There may be no bleeding with retained placental fragments.

When a portion of the placenta—one or more lobes—is retained, it prevents the uterus from contracting effectively.

- Feel inside the uterus for placental fragments. Manual exploration of the uterus is similar to the technique described for removal of the retained placenta.
- Remove placental fragments by hand, ovum forceps or large curette.

Note: Very adherent tissue may be placenta accreta. Efforts to extract fragments that do not separate easily may result in heavy bleeding or uterine perforation, therefore stop the procedure and refer urgently providing supportive care.

3.6.6. INVERTED UTERUS

The uterus is said to be inverted if it turns inside-out during delivery of the placenta. Repositioning the uterus should be performed immediately. With the passage of time the constricting ring around the inverted uterus becomes more rigid and the uterus more engorged with blood.

- If the **woman is in severe pain**, give pethidine 1 mg/kg body weight (but not more than 100 mg) IM or IV slowly or give morphine 0.1 mg/kg body weight IM.

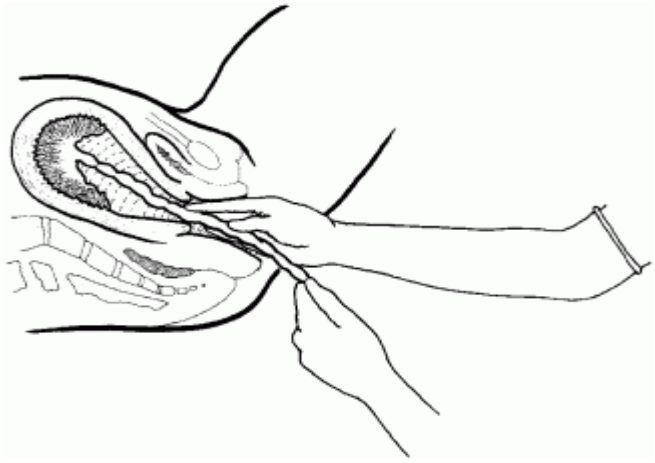
Note: Do not give oxytocic drugs until the inversion is corrected.

- Immediately after diagnosis, it is often possible to replace the uterus by applying gentle trans-vaginal pressure. The Johnson technique calls for lifting the uterus and the cervix into the abdominal cavity with the fingers in the fornix and the inverted uterine fundus on the palm. The fundus is then gently pushed back through the cervix. The operator's hand should be kept in the uterus until the fundus begins to climb up. If the placenta is still attached, it should not be removed until after the uterus is replaced through the cervix.
  - If vaginal replacement is unsuccessful (as may occur in delayed recognition and treatment), refer urgently providing basic support.
- Give a single dose of prophylactic antibiotics after correcting the inverted uterus:
  - Ampicillin 2 g IV PLUS Metronidazole 500 mg IV;
  - OR cefazolin 1 g IV PLUS Metronidazole 500 mg IV.
- If **there are signs of infection** (fever, foul-smelling vaginal discharge), give antibiotics as for metritis.
- If **necrosis is suspected**, referral to a tertiary care centre.

3.7. MANUAL REMOVAL OF PLACENTA

- Review for indications.
- Review general care principles and start an IV infusion.
- Provide emotional support and encouragement. Give pethidine and diazepam IV slowly (do not mix in the same syringe) or use Ketamine.
- Give a single dose of prophylactic antibiotics:
    - Ampicillin 2 g IV PLUS Metronidazole 500 mg IV;
    - OR cefazolin 1 g IV PLUS Metronidazole 500 mg IV.
- Hold the umbilical cord with a clamp. Pull the cord gently until it is parallel to the floor.
- Wearing high-level disinfected long sleeve gloves or similar modification, insert a hand into the vagina and up into the uterus. (Figure 4-21)

Figure 4-21:- Introducing one hand into the vagina along cord

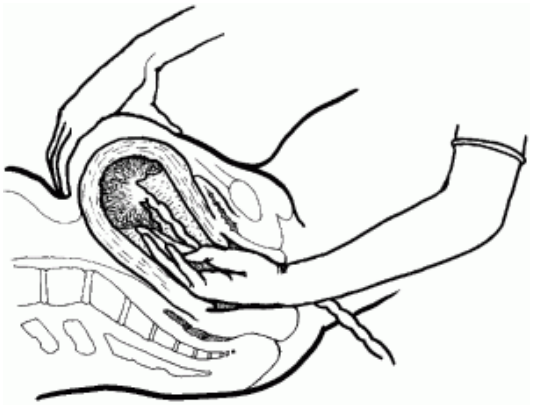


- Let go of the cord and move the hand up over the abdomen in order to support the fundus of the uterus and to provide counter-traction during removal to prevent inversion of the uterus.

Note: If **uterine inversion occurs**, reposition the uterus.

- Move the fingers of the hand laterally until the edge of the placenta is located.
- If the **cord has been detached previously**, insert a hand into the uterine cavity. Explore the entire cavity until a line of cleavage is identified between the placenta and the uterine wall.

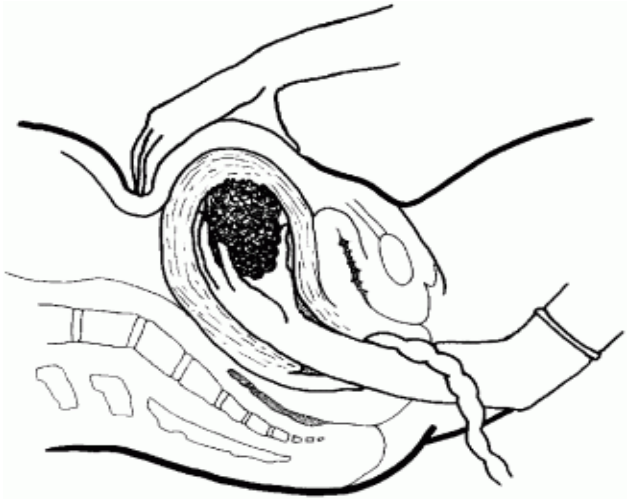
Figure 4-22:- Supporting the fundus while detaching the placenta



- Detach the placenta from the implantation site by keeping the fingers tightly together and using the edge of the hand to gradually make a space between the placenta and the uterine wall.
- Proceed slowly all around the placental bed until the whole placenta is detached from the uterine wall.

  NOTE: If the **placenta does not separate from the uterine surface** by gentle lateral movement of the fingertips at the line of cleavage, suspect adherent placenta, stop the procedure and urgently refer providing supportive care.
- Hold the placenta and slowly withdraw the hand from the uterus, bringing the placenta with it.
- With the other hand, continue to provide counter-traction to the fundus by pushing it in the opposite direction of the hand that is being withdrawn.

Figure 4-23:- Withdrawing the hand from the uterus



- Palpate the inside of the uterine cavity to ensure that all placental tissue has been removed.
- Give oxytocin 20 units in 1 L IV fluids (normal saline or Ringer's lactate) at 60 drops per minute.
- Have an assistant massage the fundus of the uterus to encourage a tonic uterine contraction.
- If there is **continued heavy bleeding**, give ergometrine 0.2 mg IM or prostaglandins.
- Examine the uterine surface of the placenta to ensure that it is complete. If any **placental lobe or tissue is missing**, explore the uterine cavity to remove it.
- Examine the woman carefully and repair any tears to the cervix or vagina, or repair episiotomy.

POST-PROCEDURE CARE

- Observe the woman closely in labor ward or where she can be monitored closely for at least 6 hours or until stable.
- Check and rub the uterus every 15 minute for the next two hours.
- Monitor the vital signs (pulse, blood pressure, respiration) every 30 minutes for the next 6 hours
- Continue with IV fluid and oxytocin drip for next 4-6 hours.
- Continue infusion of IV fluids.
- If patient is stabilized, assist her to initiate breast feeding if appropriate

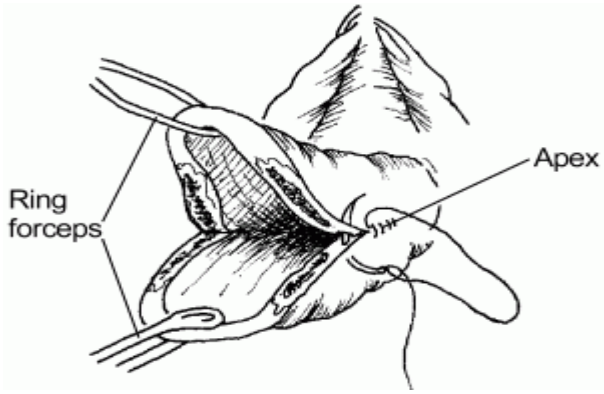
3.8. REPAIR OF GENITAL TEARS

3.8.1. REPAIR OF CERVICAL TEARS

- Review general care principles and apply antiseptic solution to the vagina and cervix.
- Provide emotional support and encouragement. Anesthesia is not required for most cervical tears. For tears that are high and extensive, give pethidine and diazepam IV slowly (do not mix in the same syringe).
- Ask an assistant to massage the uterus and provide fundal pressure.
- Gently grasp the cervix with ring or sponge forceps. Apply the forceps on both sides of the tear and gently pull in various directions to see the entire cervix. There may be several tears.
- Close the cervical tears with continuous 0 chromic catgut (or polyglycolic) suture starting at the apex (upper edge of tear), which is often the source of bleeding.
- If a **long section of the rim of the cervix is tattered**, under-run it with continuous 0 chromic catgut (or polyglycolic) suture.
- If the **apex is difficult to reach and ligate**, it may be possible to grasp it with artery or ring forceps. Leave the forceps in place for 4 hours. Do not persist in attempts to ligate the bleeding points as such attempts may increase the bleeding. Then:
    - After 4 hours, open the forceps partially but do not remove;
    - After another 4 hours, remove the forceps completely.

  If the apex of the cervical tear is not visible, the tear may have involved the uterus. A laparotomy may be required to repair a cervical tear that has extended deep beyond the vaginal vault. Hence, in such condition, refer urgently or consult as appropriate.

Figure 4-24:- Repair of a cervical tear



3.8.2. REPAIR OF VAGINAL AND PERINEAL TEARS

There are four degrees of tears that can occur during delivery:

- ***First degree tears*** involve the vaginal mucosa and connective tissue.
- ***Second degree tears*** involve the vaginal mucosa, connective tissue and underlying muscles.
- ***Third degree tears*** involve complete transection of the anal sphincter.
- ***Fourth degree tears*** involve the rectal mucosa.

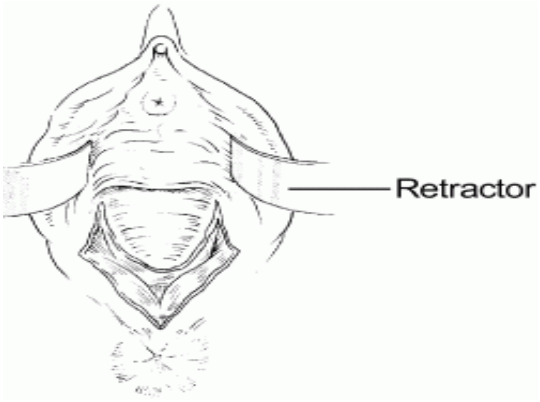
Note: It is important that absorbable sutures be used for closure. Polyglycolic sutures are preferred over chromic catgut for their tensile strength, non-allergenic properties and lower probability of infectious complications. Chromic catgut is an acceptable alternative, but is not ideal.

REPAIR OF FIRST AND SECOND DEGREE TEARS:

Most first degree tears close spontaneously without sutures.

- Review general care principles.
- Provide emotional support and encouragement. Use local infiltration with lignocaine. If necessary, use a pudendal block.
- Ask an assistant to massage the uterus and provide fundal pressure.
- Carefully examine the vagina, perineum and cervix.
- If the **tear is long and deep through the perineum**, inspect to be sure there is no third or fourth degree tear:
    - Place a gloved finger in the anus;
    - Gently lift the finger and identify the sphincter;
    - Feel for the tone or tightness of the sphincter.
- Change to clean, high-level disinfected gloves.
- If the **sphincter is not injured**, proceed with repair.

Figure 4-25:- Exposing a perineal tear



- Clean the area around the tear.
- Make sure there are no known allergies to lignocaine or related drugs.

  Note: If **more than 40 mL of lignocaine** solution will be needed for the repair, add adrenaline to the solution.
- Infiltrate beneath the vaginal mucosa, beneath the skin of the perineum and deeply into the perineal muscle using about 10 mL 0.5% lignocaine solution.

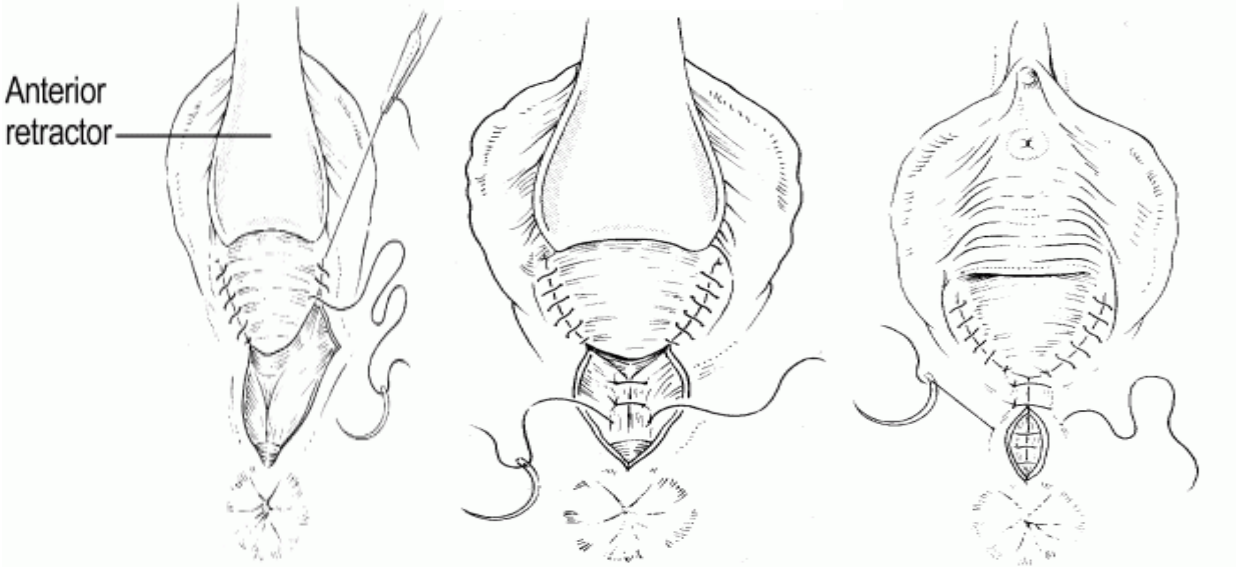
  Note: Aspirate (pull back on the plunger) to be sure that no vessel has been penetrated. If **blood is returned in the syringe with aspiration**, remove the needle. Recheck the position carefully and try again. Never inject if blood is aspirated.
- At the conclusion of the set of injections, wait 2 minutes and then pinch the area with forceps. If the **woman feels the pinch**, wait 2 more minutes and then retest.

Anesthetize early to provide sufficient time for effect.

- Repair the vaginal mucosa using a continuous 2-0 suture:
  - Start the repair about 1 cm above the apex (top) of the vaginal tear. Continue the suture to the level of the vaginal opening;
  - At the opening of the vagina, bring together the cut edges of the vaginal opening;
  - Bring the needle under the vaginal opening and out through the perineal tear and tie.
- Repair the perineal muscles using interrupted 2-0 suture. If the **tear is deep**, place a second layer of the same stitch to close the space.
- Repair the skin using interrupted (or subcuticular) 2-0 sutures starting at the vaginal opening.

- **If the** tear was deep**, perform a rectal examination. Make sure no stitches are in the rectum**

Figure 4-26:- Repairing the vaginal mucosa(A), perineal muscles(B) and the skin(C)



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THIRD AND FOURTH DEGREE PERINEAL TEARS

The woman may suffer loss of control over bowel movements and gas if a torn anal sphincter is not repaired correctly. If a **tear in the rectum is not repaired**, the woman can suffer from infection and recto-vaginal fistula (passage of stool through the vagina). Repair of such tears should be done in the operating room, therefore refer her immediately.

3.9. BREECH DELIVERY

3.9.1. GENERAL

Breech presentation is a longitudinal lie of the fetus with the caudal pole (buttock or lower extremity) occupying the lower part of the uterus and cephalic pole in the uterine fundus. The breech of the fetus is palpated at the pelvic brim. Breech presentation may be caused by an underlying fetal or maternal abnormality, or may be an apparently chance occurrence, or related to an otherwise benign variant such as cornual placental position.

Diagnosis:

The history may reveal:

- discomfort under the rib (due to the hard head)
- feeling of more fetal movement in the lower segment

On abdominal palpation (Leopold's maneuvers):

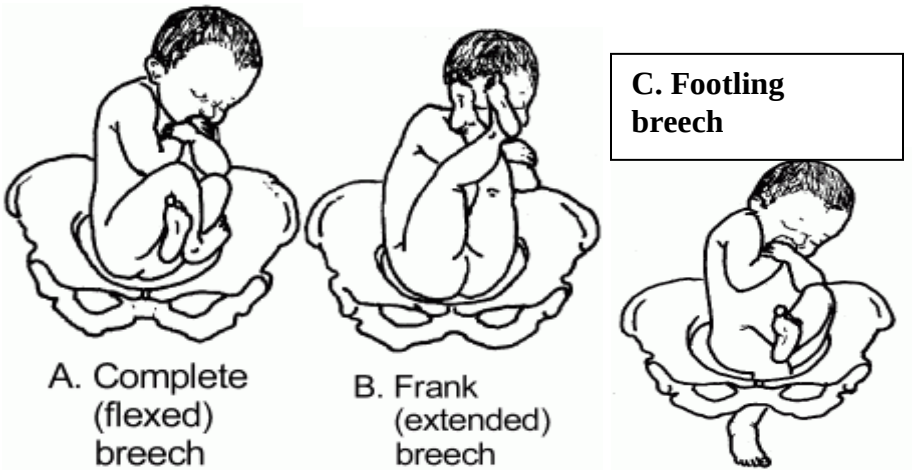
- A round hard and smooth mass (head) occupying the fundus
- A soft, broad, indefinite and non ballotable mass (the breech) occupying the lower pole of the uterus
- FHB loudest just above the umbilicus (may be lower with engagement

Vaginal examination:

- Ischial tuberocities, sacrum and its spines, genitals and the anus (are usually palpable in frank breech)
- The foot distinguished by the heel should be searched for round the breech to determine the type ***(See Figure 4-27)***:
  - Complete breech: feet are felt along side the buttock
  - Frank breech
  - Footling breech: one or both feet are inferior to the buttock
- Ischial tuberosity and anus are in straight line (where as the malar eminence & mouth form a triangle in face presentation)
- Suckling in live fetus (but not by the anus in breech)

The examination should also include pelvic assessment and cord presentation or prolapse.

Figure 4-27:- Breech presentation



Management:

- Review for indications. Ensure that all conditions for safe vaginal breech delivery are met.
- Refer urgently if the following specific breech-related conditions are identified:
  - Footling breech
  - Estimated fetal weight of > 3500 gm
  - Extended or deflexed neck, or
  - The presence of compounding factor such as
    - Previous CS
    - Elderly primigravidity
    - Infertility
    - Bad obstetrics history
    - Severe IUGR
    - Rh-isoimmunization
    - Any degree of CPD
    - Uterine dysfunction, prolonged labor or failure to progress in labor
- Review general care principles and start an IV infusion.
- Provide emotional support and encouragement. If necessary, use a pudendal block.
- Perform all manoeuvres gently without undue force.

3.9.2. COMPLETE OR FRANK BREECH

Delivery of the buttocks and legs:

- Once the buttocks have entered the vagina and the cervix is fully dilated, tell the woman she can bear down with the contractions.
- If the perineum is very tight, perform an episiotomy.

- Let the buttocks deliver until the lower back and then the shoulder blades are seen.
- Gently hold the buttocks in one hand, but do not pull.
- If the legs do not deliver spontaneously, deliver one leg at a time:
    - Push behind the knee to bend the leg;
    - Grasp the ankle and deliver the foot and leg;
    - Repeat for the other leg.

Do not pull the baby while the legs are being delivered.

- Hold the fetus by the hips, as shown in Fig 4-28. Do not hold the baby by the flanks or abdomen as this may cause kidney or liver damage.

Delivery of the arms:

Arms are felt on chest:-

- Allow the arms to disengage spontaneously one by one. Only assist if necessary.
- After spontaneous delivery of the first arm, lift the buttocks towards the mother's abdomen to enable the second arm to deliver spontaneously.
- If the arm does not spontaneously deliver, place one or two fingers in the elbow and bend the arm, bringing the hand down over the fetus's face.

Figure 4-28:- Hold the fetus at the hips, but do not pull

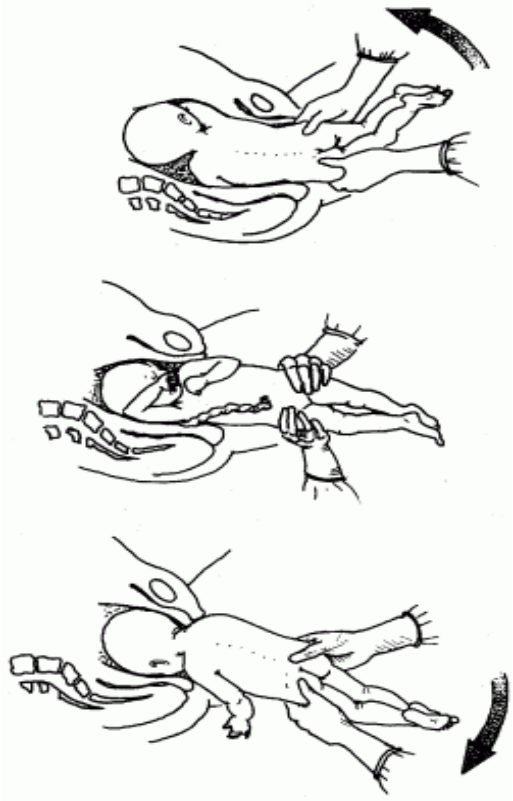
Arms are stretched above the head or folded around the neck:

Use the Lovset's manoeuvre (Fig 4-29):

- Hold the fetus by the hips and turn half a circle, keeping the back uppermost and applying downward traction at the same time, so that the arm that was posterior becomes anterior and can be delivered under the pubic arch.

- Assist delivery of the arm by placing one or two fingers on the upper part of the arm. Draw the arm down over the chest as the elbow is flexed, with the hand sweeping over the face.
- To deliver the second arm, turn the baby back half a circle, keeping the back uppermost and applying downward traction, and deliver the second arm in the same way under the pubic arch.

Figure 4-29:- Lovset's manoeuvre

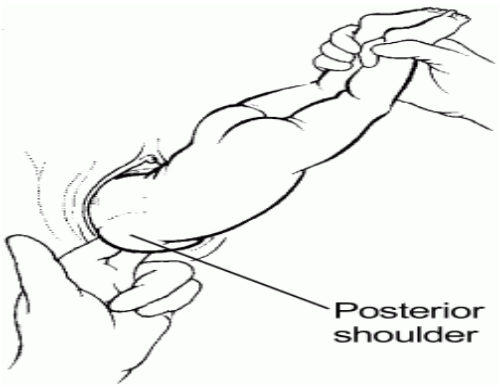


BABY'S BODY CANNOT BE TURNED:

If the baby's body cannot be turned to deliver the arm that is anterior first, deliver the shoulder that is posterior (Fig 4-30):

- Hold and lift the baby up by the ankles.
- Move the baby's chest towards the woman's inner leg. The shoulder that is posterior should deliver.
- Deliver the arm and hand.
- Lay the baby back down by the ankles. The shoulder that is anterior should now deliver.
- Deliver the arm and hand.

Figure 4-30:- Delivery of the shoulder that is posterior



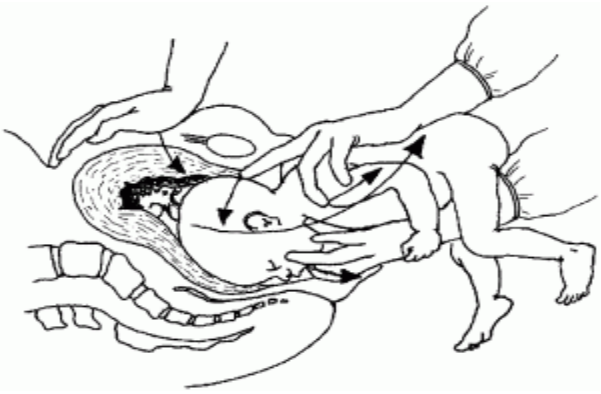
DELIVERY OF THE HEAD

Deliver the head by the Mauriceau Smellie Veit manoeuvre (Fig 4-31) as follows:

- Lay the baby face down with the length of its body over your hand and arm.
- Place the first and third fingers of this hand on the baby's cheekbones and place the second finger in the baby's mouth to pull the jaw down and flex the head.
- Use the other hand to grasp the baby's shoulders.
- With two fingers of this hand, gently flex the baby's head towards the chest, while applying downward pressure on the jaw to bring the baby's head down until the hairline is visible.
- Pull gently to deliver the head.

  Note: Ask an assistant to push above the mother's pubic bone as the head delivers. This helps to keep the baby's head flexed.
- Raise the baby, still astride the arm, until the mouth and nose are free.

Figure 4-31 :- The Mauriceau Smellie Veit manoeuvre



ENTRAPPED (STUCK) HEAD:

- Catheterize the bladder.
- Be sure the cervix is fully dilated.

Apply firm pressure above the mother's pubic bone to flex the baby's head and push it through the pelvis.

3.10. VACUUM EXTRACTION

In general, vacuum devices are easier to apply, place less force on the fetal head, require less maternal anesthesia, result in less maternal soft tissue trauma, and do not affect the diameter of the fetal head compared to forceps. Vacuum delivery is effected using the ventouse (vacuum extractor).The main action of the ventouse is traction with an additional effect of rotation. Its main components are the suction cup, vacuum pump and traction devices.

Indications

1. Prolonged second stage of labor
2. Fetal distress and cord prolapse in second stage of labor.

Contraindications:

- CPD,
- Non-vertex presentation such face, breech (after-coming head)

Prerequisites

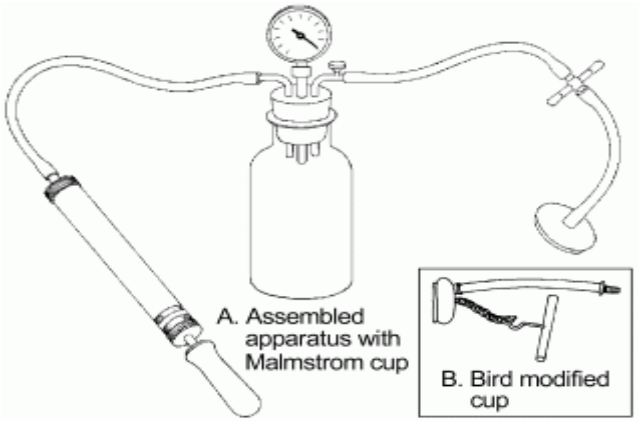
- Vertex presentation with fetal position identified
- Fully dilated cervix
- Engaged head: station at 0 or not more than 2/5 above symphysis pupis
- Ruptured membranes
- Live fetus
- Term fetus

Preparation

- Empty bladder
- Local anesthesia infiltration for episiotomy
- Assembled and tested vacuum extractor

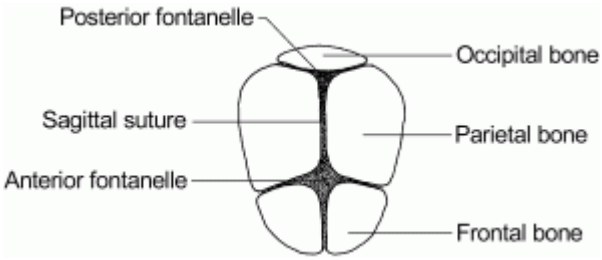
Figure 4-32 shows the essential components of the vacuum extractor.

Figure 4-32:- Vacuum extractor



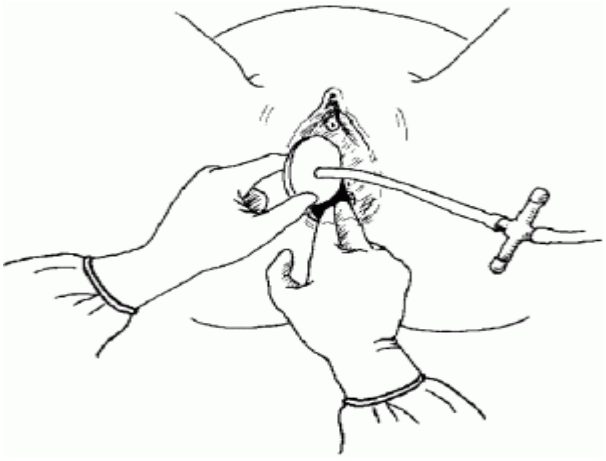
- Check all connections and test the vacuum on a gloved hand.
- Provide emotional support and encouragement. If necessary, use a pudendal block.
- Assess the position of the fetal head by feeling the sagittal suture line and the fontanelles.
- Identify the posterior fontanel.

Figure 4-33:- Landmarks of the fetal skull



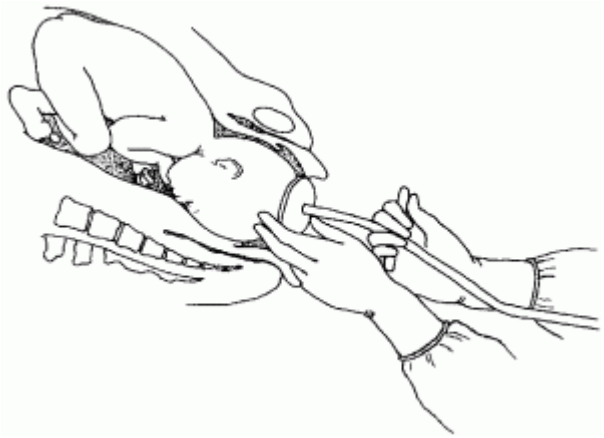
- Apply the largest cup that will fit, with the center of the cup over the flexion point, where the edge of the cup will be about 1 cm anterior to the posterior fontanel. This placement will promote flexion, descent and autorotation with traction.
- An episiotomy may be needed for proper placement at this time. If an episiotomy is not necessary for placement, delay the episiotomy until the head stretches the perineum or the perineum interferes with the axis of traction. This will avoid unnecessary blood loss.
- Check the application. Ensure there is no maternal soft tissue (cervix or vagina) within the rim.
- With the pump, create a vacuum of 0.2 kg/cm^2 negative pressure and check the application.
- Increase the vacuum to 0.8 kg/cm^2 and check the application.

Figure 4-34:- Applying the Malmstrom cup



- After maximum negative pressure, start traction in the line of the pelvic axis and perpendicular to the cup. If the fetal head is tilted to one side or not flexed well, traction should be directed in a line that will try to correct the tilt or deflexion of the head (i.e. to one side or the other, not necessarily in the midline).
- With each contraction, apply traction in a line perpendicular to the plane of the cup rim. Wearing high-level disinfected gloves, place a finger on the scalp next to the cup during traction to assess potential slippage and descent of the vertex.
- Between contractions check:
    - Fetal heart rate;
    - Application of the cup.

Figure 4-35:- Applying traction



TIPS

- Never use the cup to actively rotate the baby's head. Rotation of the baby's head will occur with traction.
- The first pulls help to find the proper direction for pulling.
- Do not continue to pull between contractions and expulsive efforts.
- With progress, and in the absence of fetal distress, continue the "guiding" pulls for a maximum of 30 minutes.

FAILURE

- Vacuum extraction failed if:
    - The head does not advance with each pull;
    - The fetus is undelivered after three pulls with no descent, or after 30 minutes;
    - The cup slips off the head twice at the proper direction of pull with a maximum negative pressure.

- Every application should be considered a trial of vacuum extraction. Do not persist if there is no descent with every pull.
- If vacuum extraction fails, refer her urgently providing basic support.

COMPLICATIONS

Complications usually result from not observing the conditions of application or from continuing efforts beyond the time limits stated above.

Fetal complications

- Localized scalp oedema (artificial caput or chignon) under the vacuum cup is harmless and disappears in a few hours.
- Cephalohaematoma requires observation and usually will clear in 3–4 weeks.
- Scalp abrasions (common and harmless) and lacerations may occur. Clean and examine lacerations to determine if sutures are necessary. Necrosis is extremely rare.
- Intracranial bleeding is extremely rare and requires immediate intensive neonatal care.

Maternal complications

- Tears of the genital tract may occur. Examine the woman carefully and repair any tears to the cervix or vagina or repair episiotomy.

MODULE - 5

POSTPARTUM MATERNAL (UP-TO 6 WEEKS) AND NEWBORN CARE

CONTENTS

UNIT-1 INTRODUCTION

The postpartum period covers a critical transitional time for a woman, her newborn and her family, on a physiological, emotional and social level. The postpartum period is a social as well as a personal event and has meaning well beyond the simple physiological events which mark it. For the most part it holds no great dramas and is a reason for celebration and a sense of achievement, although for some the loss of a child or its birth with severe abnormality brings grief and pain. Nonetheless, in both developing and developed countries women's needs during this period and those of their newborns have been all too often eclipsed by the attention given to pregnancy and birth. Such an eclipse ignores the fact that the majority of maternal and neonatal deaths, as well as a significant burden of long term morbidity occur during the postpartum period.

There is a close association between maternal and newborn health outcomes. The majority of newborn problems are specific to the perinatal period. Almost-two thirds of newborn deaths were within one week of birth, and deaths of many babies after the first week were attributed also to perinatal causes. In addition to care during pregnancy and delivery, there must be appropriate care of newborns and measures to reduce newborn deaths due to postnatal causes such as infections (tetanus, sepsis), hypothermia and asphyxia. Most postnatal deaths of newborns are caused by preventable and/or treatable diseases.

Skilled care and early identification of problems in both the mother and the newborn could reduce the incidence of death and disability, together with the access to functional referral services with effective blood transfusion and surgical capacity. Increased awareness of warning signals and appropriate intervention is needed at all levels. The development of a complete functional chain of referral from community to the health facility and back is one of the major tasks in the prevention of maternal and newborn deaths. Poor quality care reduces opportunities for health promotion and for the early detection and adequate management of problems and disease.

This module describes the aims and standards of postpartum care for both the mothers and their newborns, based on the needs, evidences and challenges. It offers guidance on the way postpartum care could be organized. With respect to clinical problems, attention is focused on primary care, directed at the prevention, early diagnosis and

treatment of common selected maternal and newborn diseases and complications, and at referral to hospital if necessary.

Module objectives

By the end of this module, the participants will be able to:

1. Provide basic care to the woman in post-partum period.
2. Detect and provide care for diseases and complications in the post-partum period.
3. Recognize an emergency situation in the women during the postpartum period which requires immediate treatment and, in most cases, urgent referral to a higher level health facility.
4. Explain the basic care of neonates presenting to the health facility in the postnatal period
5. Describe steps contained in the initial rapid assessment and emergency management of a sick neonate presenting to the health facility
6. Detect and provide care for sick neonates presenting to the health facility with illnesses and complications during the postnatal period.

UNIT-2: BASIC POST-PARTUM MATERNAL CARE

2.1. LEARNING OBJECTIVES

At the end of this unit, participants will be able to:

- Define post-partum period.
- Understand the value/significance of proper postnatal follow-up.
- Describe the basic components of post-partum care for all mothers and immediate post-partum care of their newborns.
- Describe problems and complications of the post-partum period for the mother and newborn.

2.2. BASICS OF POSTPARTUM PERIOD

2.2.1. THE POSTPARTUM PERIOD

The words "postpartum" and "postnatal" are sometimes used interchangeably. The postpartum period (also called the puerperium) is defined as the period from one hour after delivery of the placenta up to 6 weeks (42 days). The one hour interval is considered to be part of childbirth; during that time the immediate care of the mother (e.g. assessment of her condition, suturing, control of blood loss) and the infant (assessment of its condition, maintaining body temperature, initiating breastfeeding, etc.) take place. The period of 6 weeks fits very well into cultural traditions in many countries, where often the first 40 days after birth are considered a time of convalescence for the mother and her newborn infant.

In many countries at that time a routine postnatal visit and examination are planned. Six weeks after delivery, the body of the woman has largely returned to the non-pregnant state. The uterus and vagina have regained their pre-pregnant proportions. Physiological changes during pregnancy, such as increased cardiac output and blood volume, increased extracellular fluid (edema) and changes in the composition of the blood have subsided. The sudden disappearance of placental hormones after delivery, and the start of lactation have caused drastic endocrinological changes in the first weeks, but after six weeks a steady state has been reached. The psychosocial adaptation of the mother, the newborn and the family to the new situation usually has attained a new balance.

However, this does not mean that the pre-pregnant state has completely returned: lactation usually continues, often the menstrual cycle has not yet normalized, and sexual activity may not have been resumed yet. Contraception, though an important need, may be problematic for many couples at this time. For the infant the age of six weeks is not a decisive turning point in his or her life, but the continuation or discontinuation of breastfeeding is directly related to the social and economic activities of the mother and her choice of contraceptive method. Although the main focus is on the first six weeks postpartum, it is fully recognized that the life of the woman and her baby is a continuum, and discussions will be extended to the following weeks and months where appropriate.

2.2.2. AIMS AND TIMING OF POSTPARTUM CARE

The postpartum period is a very special phase in the life of a woman and her newborn. For women experiencing childbirth for the first time, it marks probably the most significant and life-changing event they have yet lived. It is marked by strong emotions, dramatic physical changes, new and altered relationships and the assumption of and adjustment to new roles. It is a time of profound transition, making great demands on the woman's resilience and capacity to adapt. Postpartum care all too often does not incorporate all the essential elements required for the health of a woman or her newborn in a comprehensive package. Quality postpartum services are a long-term investment in the future health of women and their newborn.

The aims of care in the postpartum period are:

- Support of the mother and her family in the transition to a new family constellation, and response to their needs
- Prevention, early diagnosis and treatment of complications of mother and infant, including the prevention of vertical transmission of diseases from mother to infant
- Referral of mother and infant for specialist care when necessary
- Counseling on baby care
- Support of breastfeeding
- Counseling on maternal nutrition, and supplementation if necessary
- Counseling and service provision for contraception and the resumption of sexual activity
- Immunization of the infant.

Components of postpartum care:

1. Early detection and management of complications
2. Promoting health and preventing disease
3. Providing woman-centered education and counseling

1. Early detection and management of complications

The postpartum evaluation starts by reviewing the parturient clinical document including antepartum and intrapartum records. Complications such as cardiac disease, preeclampsia, obstructed labor, cesarean delivery that require close monitoring and treatment are identified in the patient's medical document. Besides reviewing the clinical records, the parturient should be evaluated thoroughly during the immediate postpartum period, 3rd -6th day and 6th week postpartum visits. Generally, the postpartum evaluation of the *woman* during hospital discharge, or subsequent postpartum visits includes:

- How she feels; ask for pain, bleeding, difficulty in urination, breast feeding, any other concern she may have
- General physical
- Depression /psychosis. mood
- Malnutrition: general health, night blindness, goiter
- BP, pulse, temperature
- Anemia: conjunctiva/tongue/palms, hemoglobin (if necessary)
- Condition of the breast and nipple; establishment of proper breastfeeding
- Checking for bladder distension and urine passed, incontinence/ fistula
- Fundal height and uterine consistency
- Inspecting the vaginal, perineum: episiotomy, lochia, bleeding, discharge, hematoma
- Thrombophlebitis: Homan's sign, inspection of legs
- The uterus involutes progressively:
    - After 5 to 7 days, it is firm and no longer tender, extending midway between the symphysis and umbilicus.
    - By the second week, it is no longer palpable abdominally.

Usually, no specific tests are required in the postpartum period if all the basic investigations are done in the ANC and intrapartum care. In case these tests were not undertaken, they have to be done before discharge. Besides, tests required in the management of any complication have to be undertaken as required. If the HIV status of the parturient is unknown, offer her testing. After thorough evaluation and review of the parturient's antepartum and intrapartum records, parturients with complication are provided with emergency care and then specific treatment or referral for specialized care to higher centers. Women with normal conditions are managed in the labor ward or postpartum clinic and get the basic postpartum care.

2. Promoting health and preventing disease

- Iron/ folate: 1 tablet to be taken by mouth once a day for 3 months postpartum.
- I**odine s**upplementation: 400–600 mg by mouth or IM as soon as possible after childbirth if never given, or if given before the third trimester (only in areas where deficiencies exist)
- Six monthly presumptive treatments with broad-spectrum anti-helminthics in areas of significant prevalence
- Sleeping under a bed net (ITN) in malarious areas
- Tetanus toxoid
- VDRL/ RPR
- HIV testing (opt-out)

3. Providing woman-centered education and counseling

The education and counseling should address postpartum needs such as nutrition, breastfeeding, family planning, sexual activity, early symptoms of complications and preparations for possible complications. The counseling should take place at a private area to allow women to ask questions and express their concerns freely. It is advisable to involve husbands (after the permission of the woman) in this counseling and in receiving instructions before discharge.

Specific postpartum care and treatment

Nutrition:

- A regular diet should be offered as soon as the woman requests food and is conscious.
- Intake should be increased by 10% (not physically active) to 20% (moderately or very active) to cover energy cost of lactation.
- Women should be advised to eat a diet that is rich in proteins and fluids.
- Eating more of staple food (cereal or tuber)
- Greater consumption of non-saturated fats
- Encourage foods rich in iron (e.g., liver, dark green leafy vegetables, etc.)
- Avoid all dietary restrictions

Breastfeeding

- Early skin to skin contact of mother and newborn and immediate initiation of breast feeding
    - Incase breast feeding can't be started due to either maternal or newborn illness, feeding the newborn has to be initiated if possible by milk sucked from the mother herself.
- Rooming in throughout the facility stay of mother and newborn
- Women should be encouraged to maintain exclusive breast feeding for six months and should be educated about effective breastfeeding practices, as well as common breastfeeding problems, how to continue breast feeding for two years and to start complementary feeding after six months. See PMTCT section on breast feeding advice regarding HIV infected women. Postpartum education and counseling includes:
    - Correct positioning of the newborn at the breast
    - Exclusive breast feeding.: No other fluids e.g. herbs, glucose, or sugar water should be given
    - Encouraging breast feeding on demand
- If there is a medical contraindication to breastfeeding, firm support of the breasts can suppress lactation. For many women, tight binding of the breasts, cold packs, and analgesics followed by firm support effectively control temporary symptoms while lactation is being suppressed

Postpartum family planning

- All postpartum women should receive family planning education and counseling before discharge.
- Ideally, counseling for postpartum contraception should start during the antenatal period, and should be an integral part of antenatal care.
- Women who had no antenatal care and those who did not receive counseling during the ante natal period, should be counseled for family planning in the immediate post partum period, after their own and their newborn's condition have stabilized.
- Women should be informed about the advantages of birth spacing for at least two (2-5 years) years before getting pregnant again and about different family planning options.

- Women should also be given a choice of receiving a family planning method in the labor ward before discharge from hospital or at a family planning clinic within the first 40 days postpartum.
- Facilitate free informed choice for all women: The provider should make sure that the mother is not in pain and that her other concerns have been addressed. It is preferable to offer family planning counseling some time before discharge from hospital so as to give the woman time to make a free decision and to consider different contraceptive options.
- Family planning services should be provided by the attending doctor and nurse in the ward as well as FP workers.
- In settings where family planning methods are not available on the ward, the health provider should provide family planning counseling and refer the woman either to the hospital family planning clinic (if the women is interested in immediate initiation) or to a family planning clinic near her residence.
- Reinforce that non-hormonal methods (lactational amenorrhea, barrier methods, IUD and sterilization) are best options for lactating mothers
- Initiate progestogen-only methods after 6 weeks postpartum to breastfeeding women, if woman chooses a hormonal method
- Advise against use of combined oral contraceptives in breastfeeding women in the first 6 months after childbirth or until weaning, whichever comes first
- Women who are interested in immediate initiation of contraception should be offered a family planning method before discharge.
- Women who were counseled during antenatal care and who had indicated a desire for postpartum IUD insertion or tubal ligation could have an IUD inserted within 48 hours after delivery (postplacental IUD insertion) or referred for minilap for tubal ligation.

Exercise

- Normal activities may be resumed as soon as the woman feels ready.
- When to start an exercise routine depends on the woman; its safety depends on whether complications or disorders are present. Usually, exercises to strengthen abdominal muscles can be started once the discomfort of delivery (vaginal or cesarean) has subsided, typically within one day for women who deliver vaginally and later for those who deliver by cesarean section.
- Sit-ups or curl-ups, (rising from supine to semi-setting position), done in bed with the hips and knees flexed, tighten only abdominal muscles, usually without causing backache.

- Negel's exercise are also recommended to strengthen the pelvic floor

Personal hygiene and perineal care

- If delivery was uncomplicated, showering and bathing are allowed.
- Vaginal douching is avoided in early puerperium, till after bleeding stops completely and all wounds are healed.
- The vulva should be cleaned from front to back.
- Women are encouraged to defecate before leaving the hospital, although with early discharge, this recommendation is often impractical.
- Maintaining good bowel function can prevent or help relieve existing hemorrhoids, which can be treated with warm sitz baths.

Emotional support

- Transient depression (baby blues) is common during the first week after delivery.
  - Symptoms are typically mild and usually subside by 7 to 10 days.
  - Treatment is supportive care and reassurance.
- Persistent depression, lack of interest in the infant, suicidal or homicidal thoughts, hallucinations, delusions, or psychotic behavior may require intensive counseling and antidepressants or antipsychotic.
- Women with a preexisting mental disorder are at high risk of recurrence or exacerbation during the puerperium and should be monitored closely.

Sexual activity

Intercourse may be resumed after cessation of bleeding and discharge, and as soon as desired and comfortable to the woman. However, a delay in sexual activity should be considered for women who need to heal from lacerations or episiotomy repairs. Sexual activity after childbirth may be affected due to decreased sexual desire (due to fatigue and disturbed sleep patterns, genital lacerations/episiotomy), hypo-estrogenization of the vagina, and power issues in marriage.

Bladder care:

- Avoid distention & encourage urination: voiding must be encouraged and monitored to prevent asymptomatic bladder overfilling.
- Do not routinely catheterize unless retention necessitates catheterization (e.g. retention of urine due to pain from peri urethral laceration at vaginal delivery)
- Rapid diuresis may occur, especially when oxytocin is stopped.

Pain management

Common causes: after-pain and episiotomy

- Episiotomy pain: immediately after delivery, ice packs may help reduce pain and edema at the site of an episiotomy or repaired laceration; later, warm sitz baths several times a day can be used. Analgesics are used if not relieved.
- Contractions of the involution uterus, if painful (after-pains), may require analgesics. Commonly used analgesics include:
    - Aspirin 600 mg,
    - Acetaminophen 650 mg
    - Ibuprofen 400 mg orally every 4 to 6 hours

Rh-negative blood group

Women with Rh-negative blood group, who have an infant with Rh-positive blood and are not sensitized, should be given Rh0(D) immune globulin 300 µg IM, as soon as possible (preferably within 72 hours of delivery) to prevent sensitization.

Hospital stay and follow up

Hospital stay:

Hospital stay after delivery varies depending on the parturients' condition. Women with complications stay longer period. Most women have normal pregnancy, labor, delivery and postpartum period; and usually they are discharged within a day of delivery. The minimum in-hospital say is 6 hours after which the risk of life endangering conditions such as PPH due to atonic uterus or genital trauma, postpartum eclampsia etc. are less likely. The use of this hospital stay should be well organized so that all parturients and their babies get the basic postpartum care. At the time of discharge, the evaluation should be thorough; the parturient and her baby should get all the basic postpartum care; and appointment be given. Providing women with a summary of their condition, especially for those with complication, is essential.

Follow-up visit:

Women should be informed that they should make a follow up visit to the health facility or to a health unit on 3^{rd}-6^{th} day and at six weeks postpartum. The schedule should not be rigid. The summary of care to be provided during each visit is shown in table 5-1. It should incorporate maternal (family) convenience and medical condition. They should also be informed to come back to the health facility if they feel any symptoms that worry them. The education regarding complication and preparedness includes:

Danger signals for woman

- Sudden and profuse blood loss, persistent or increased blood loss
- Fainting, dizziness, palpitations
- Fever, shivering, abdominal pain, and/or offensive vaginal discharge
- Painful or hot breast(s)
- Abdominal pain
- Calf pain, redness or swelling
- Shortness of breath or chest pain
- Excessive tiredness
- Severe headaches accompanied, visual disturbances
- Edema in hands and face

Danger signals for newborn

- Cord red or draining pus
- Suckling poorly
- Eyes swollen, sticky or draining pus
- Cold to touch in spite of re-warming
- Hot to touch in spite of undressing
- Difficulty breathing
- Lethargy
- Convulsions

Complication readiness

- Establish savings plan/ scheme
- Make plan for decision-making
- Arrange system of transport
- Establish plan for blood donation

The vast majority of women and newborns needing care are in the community, whether urban or rural, throughout the postpartum period, and many will not access the formal health system for care even if it is available. Complex patterns of traditional support exist in many societies to provide protection and nurture for around seven to forty days. Formal care provision can build on this pattern.

Table 5-1: Summary of care that can be offered at each point of contact during the puerperium.

Postpartum Care of All Women and their Babies

At 6 Hours

Mother

Assess maternal well-being

- Measure blood pressure and body temperature
- Assess for vaginal bleeding, uterine contraction and fundal height.
- Identify any signs of serious maternal complications (hemorrhage, eclampsia, and infection) and initiate treatment
- Suture the episiotomy or perineum as appropriate.
- Counseling on safe disposal of potentially infectious soiled pads or other materials.
- Advice on where to call for help in case of emergency (for home based delivery)
- Immunize with Tetanus Toxoid if it was not done during pregnancy
- Support initiation of breastfeeding*
- Offering HIV testing if not done already

Schedule return visit

Baby

- Warm baby by keeping mother and baby together (Bedding in, Rooming in)
- Frequent and exclusive breast feeding*
- Keeping baby clean and clean cord care
- Weighing the baby
- Examination of the newborn for health as per standards
- Frequent observation of baby by the mother for danger signs
- Immunization with BCG, and OPV_0
- Schedule return visit

At 3-6 Days

Mother

General well-being, micturation, & other possible complaints

- Fundal height, distended bladder
- Perineum, vaginal bleeding, lochia, haemorrhoids
- Thrombophlebitis, signs of thrombosis
- Temperature, if infection is suspected
- Supplementation of micronutrients (iron, folate, iodized salt)
- Counseling on safe disposal of potentially infectious soiled pads or other materials
- Advice/counseling on maternal and newborn nutritional, physical, psychological and cultural needs
- Advice/counseling on nutrition and breastfeeding
- Information regarding warning signs, where to seek help
- Counseling on sexual issues related to postpartum period, including family planning and provision on contraceptive methods
- Immunization of newborn and women as applicable
- Offering HIV testing if not done already

Baby

Concerns about breastfeeding and growth of baby as mother perceives it

- Assess general condition of baby: Active, feeding well, frequently
- Observe how baby is breast feeding*
- Observe skin for signs of pallor and jaundice
- Assess vital sign if baby is not active
- Immunization with BCG, and OPV_1 if not provided already
- Advise on direct sunlight exposure

At 6 weeks

- Routine postpartum physical examination
- Assessment for signs of postpartum complications
- Counseling on appropriate nutrition, and micronutrient supplementation
- Counseling on family planning and safe sex practices
- Counseling on breastfeeding and support as needed
- Counseling on personal hygiene and disposal of soiled pads. Micronutrient supplementation as appropriate
- Encourage on continued use of ITN for women living in malaria endemic areas
- Routine offering of HIV testing if not already done
- Plan for revisit and immunization of baby
- Identify warning signs of complications
- Routine examination of the baby
- Advise on direct sunlight exposure
- Immunization: OPV_1, $Pentavalent_1$

2.3. ASSESMENT (HISTORY AND PHYSICAL EXAMINATION) AND CARE OF A POSTPARTUM WOMAN

Postpartum care is a continuum of care which should start immediately after expulsion of placenta. The health care provider should be very efficient in assessing the woman to identify signs and symptoms that indicate complications/problems and provide basic care to all mothers. Use **Table 5-2** for examining the mother who presented after discharge from a facility or after home delivery. If she delivered less than a week ago without a skilled attendant, use table (Assess the mother after delivery)– in **module-4 (page 4-41).**

Use **Module -3 Section 2.3.2 (page 3-11)** to counsel on breast feeding, baby care, danger signs, maternal nutrition, family planning and infant immunization; and provide preventive measures.

Table 5-2:- POSTPARTUM EXAMINATION OF THE MOTHER (UP TO 6 WEEKS)

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
■ When and where did you deliver? ■ How are you feeling? ■ Have you had any pain or fever or bleeding since delivery? ■ Do you have any problem with passing urine? ■ Have you decided on any contraception? ■ How do your breasts feel? ■ Do you have any other concerns? ■ Check records: →Any complications during delivery? →Receiving any treatments? →HIV status.	■ Measure blood pressure and temperature. ■ Feel uterus. Is it hard and round? ■ Look at vulva and perineum for: →tear →swelling →pus. ■ Look at pad for bleeding and lochia. →Does it smell? →Is it profuse? ■ Look for pallor.	■ Mother feeling well. ■ Did not bleed >250 ml. ■ Uterus well contracted and hard. ■ No perineal swelling. ■ Blood pressure, pulse and temperature normal. ■ No pallor. ■ No breast problem, is breastfeeding well. ■ No fever or pain or concern. ■ No problem with urination	**NORMAL POSTPARTUM**	■ Make sure woman and family know what to watch for and when to seek care . ■ Advise on Postpartum care and hygiene, and counsel on nutrition ■ Counsel on the importance of birth spacing and family planning Refer for family planning counselling. ■ Dispense 3 months iron supply and counsel on compliance . ■ Give any treatment or prophylaxis due: →tetanus immunization if she has not had full course . ■ Promote use of impregnated bednet for the mother and baby. ■ Record on the mother's home-based maternal record. ■ Advise to return to health centre within 4-6 weeks.

Table 5-2:- POSTPARTUM EXAMINATION OF THE MOTHER (UP TO 6 WEEKS) contd..

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
IF PALLOR ON SCREENING, CHECK FOR ANEMIA				
■ Check record for bleeding in pregnancy, delivery or postpartum. ■ Have you had heavy bleeding since delivery? ■ Do you tire easily? ■ Are you breathless (short of breath) during routine housework?	■ Measure haemoglobin, if history of bleeding. ■ Look for conjunctival pallor. ■ Look for palmar pallor. If pallor: →Is it severe pallor? →Some pallor? →Count number of breaths in 1 minute	■ Haemoglobin <7 g/dl. **AND/OR** ■ Severe palmar and conjunctival pallor or · Any pallor and any of: → >30 breaths per minute → tires easily → breathlessness at rest.	**SEVERE ANEMIA**	■ Give double dose of iron (1 tablet 60 mg twice daily for 3 months) . ■ **Consult or refer urgently to hospital**. ■ Follow up in 2 weeks to check clinical progress and compliance with treatment.
		■ Haemoglobin 7-11 g/dl. **OR** ■ Palmar or conjunctival pallor.	**MODERATE ANEMIA**	■ Give double dose of iron for 3 months . ■ Reassess at next postnatal visit (in 4 weeks). If anemia persists, refer to hospital.
		■ Haemoglobin >11g/dl ■ No pallor.	**NO ANEMIA**	■ Continue treatment with iron for 3 months altogether Give iron/folate for 3 months
IF HEAVY VAGINAL BLEEDING				
		More than 1 pad soaked in 5 minutes.	**POSTPARTUM BLEEDING**	· Give 0.2 mg ergometrine IM. ■ Give appropriate IM/IV antibiotics . ■ Manage as in *Rapid assessment and managemen*. ■ **Consult or refer urgently to hospital** .
IF ELEVATED DIASTOLIC BLOOD PRESSURE				
History of pre-eclampsia or eclampsia in pregnancy, delivery or after delivery?	If diastolic blood pressure is ≥90 mmHg , repeat after a 1 hour rest.	■ Diastolic blood pressure ≥110 mmHg.	**SEVERE HYPERTENSION**	■ Give appropriate antihypertensive . ■ Manage as in module 3, section 3-5. ■**Consult or refer urgently to hospital** .
		■ Diastolic blood pressure ≥90 mmHg on 2 readings.	**MODERATE HYPERTENSION**	■ Reassess in 1 week. If hypertension persists, refer to hospital.
		■ Diastolic blood pressure <90 mmHg after 2 readings	**BLOOD PRESSURE NORMAL**	■ No additional treatment

Table 5-2:- POSTPARTUM EXAMINATION OF THE MOTHER (UP TO 6 WEEKS) contd..

ASK, CHECK RECORD	LOOK, LISTEN, FEEL	SIGNS	CLASSIFY	TREAT AND ADVISE
IF FEVER OR FOUL-SMELLING LOCHIA				
■ Have you had: →heavy bleeding? →foul-smelling lochia? →burning on urination?	■ Feel lower abdomen and flanks for tenderness. ■ Look for abnormal lochia. ■ Measure temperature. ■ Look or feel for stiff neck. ■ Look for lethargy.	■ Temperature >38°C and any of: →very weak →abdominal tenderness →foul-smelling lochia →profuse lochia →uterus not well contracted →lower abdominal pain →history of heavy vaginal bleeding.	**UTERINE INFECTION**	■ Insert an IV line and give fluids rapidly . ■ Give appropriate IM/IV antibiotics . ■ Consult or r**efer urgently to hospital** .
		■ Fever >38ºC and any of: →burning on urination →flank pain.	**UPPER URINARY TRACT INFECTION**	■ Give appropriate IM/IV antibiotics . ■ **Consult or refer urgently to hospital** .
		■ Burning on urination.	**LOWER URINARY TRACT INFECTION**	■ Give appropriate oral antibiotic . ■ Encourage her to drink more fluids. ■ Follow up in 2 days. If no improvement, refer to hospital.
		■ Temperature >38°C and any of: →stiff neck →lethargy.	**VERY SEVERE FEBRILE DISEASE**	■ Insert an IV line . ■ Give appropriate IM/IV antibiotics . ■ Give artemether IM (or quinine IM if artemether not available) and glucose or ■ **Consult or r**efer urgently to hospital .
		■ Fever >38°C	**MALARIA**	■ Give oral antimalarial . ■ Follow up in 2 days. If no improvement, refer to hospital.
IF DRIBBLING URINE				
		■ Dribbling or leaking urine.	**URINARY INCONTINENCE**	■ Check perineal trauma. ■ Give appropriate oral antibiotics for lower urinary tract infection . ■ If conditions persists more than 1 week, refer the woman to hospital
IF PUS OR PERINEAL PAIN				
		· Excessive swelling of vulva or perineum.	**PERINEAL TRAUMA**	■ Refer the woman to hospital.
		· Pus in perineum. · Pain in perineum.	**PERINEAL INFEC -TION OR PAIN**	■ Remove sutures, if present. ■ Clean wound. Counsel on care and hygiene . ■ Give paracetamol for pain . ■ Follow up in 2 days. If no improvement, refer to hospital

2.4. POSTPARTUM CARE FOR PMTCT

A comprehensive and integrated PMTCT intervention does not end at administering anti-retroviral drugs during pregnancy and delivery but must extend beyond these periods. The postpartum period is a critical bridge for the continuum of care that needs to be provided for HIV positive women, their babies and families. In the postpartum period, a mother with HIV infection should receive care that supports her health, prevents complications, and improves the family's ability to live positively with HIV infection.

In addition to the minimum package which should be provided for all mothers and their newborns irrespective of the HIV status, HIV infected mothers and their babies need specific additional attentions. The additional care HIV positive mothers and their newborns should get in the postpartum period are related to HIV infection and its progress. These include

- Prevention and treatment of opportunistic infection
- Family planning methods
- Antiretroviral therapy
- Positive living
- Nutritional supplements and
- Social and psychological support.

Prevention and Treatment of Opportunistic Infections:

Helping the HIV-positive mother stay healthier by providing appropriate preventive management of opportunistic infection is a vital component of a quality postpartum care. Pulmonary tuberculosis (TB), *Pneumocystis Jeroveci* Pneumonia (PCP), Toxoplasmosis, and Cryptococcus meningitis are the common opportunistic infections in Ethiopia. Most of the opportunistic infections occur when the CD4 count is below 200/mm^3.

Family planning:

Preventing unintended pregnancies in HIV infected women has to take into considerations different cultural, religious and social factors. HIV infected women and their partners decision to have babies depend on many factors. In addition to considering the different factors for and against use of family planning for HIV-positive women, health care providers should be familiar with the different potential drug- drug interactions that could occur with use of ARV drugs and contraceptives.

- **Dual protection should be recommended for all women on HAART.** Effective and appropriate contraception should be available, specifically for women who are on HAART with Nevirapine (NVP), Lopinavir/Ritonavir (LPV/r), Nelfinavir (NLF) and Ritonavir (RTV). It is also recommended that women on COCs need to be monitored closely.
- **Considerations for HIV positive women on Rifampicin and COC.**

Rifampicin, which is often used to treat tuberculosis in HIV+ clients, also decreases the effectiveness of COCs by reducing circulating estrogen. Any woman on Rifampicin and COCs should use dual protection.

In all circumstances the health care provider has to provide up-to-date and unbiased information to the client and must follow confidentiality. All the time the client's choice has to be respected unless there is clear evidence based medical contraindications. The health care provider should encourage dual protection and/or dual method use for all client's living with the virus.

Anti-Retroviral Therapy:

A health care provider should offer HIV testing and counseling for a woman who comes for postpartum care with unknown HIV status. If she is found to be HIV positive, assessment for ART eligibility must be done using immunological and clinical criteria. For eligible women, the health care provider has to facilitate access to ART either in the facility or through referral.

Positive Living:

Most women diagnosed to be HIV-positive through the PMTCT programs are quite healthy and have no, or few, symptoms.

There are things that mothers and community can do to maintain or improve health. These include:

- Eating variety diet.
- Cook meat and eggs thoroughly and wash fruits and raw vegetables with potable water or treated water before eating (1 teaspoon of bleach per liter of water).
- Maintaining good personal hygiene with particular attention to oral hygiene, fingernails, toenails, and private areas.
- Getting immediate and proper treatment for every infection or illness.
- Avoiding drinking alcohol and smoking cigarettes.
- Using birth control to avoid unintended pregnancies
- Practicing safer sex. Using condoms consistently and regularly to avoid re-infection or infecting a partner, and avoiding sex during menses or when either

partner has symptoms of a sexually transmitted infection (STI). Getting STIs treated promptly.

- Preventing malaria infection through the use of impregnated bed nets, clearing bushes around the house, etc.
- Exercise and rest (most women's regular daily work schedule is exercise enough, but they need to rest and at least 8 hours' sleep a night).
- Accepting her condition and understanding the implications.
- Obtaining medical care promptly when she gets sick.
- Working toward disclosing her status to her partner and family.
- Planning for the future of her children and family (succession planning) including will-making.
- Taking care of herself mentally and spiritually by obtaining regular counseling, from religious counselors and participating in a support group.
- Continuing to participate in community activities.
- Developing or consolidating her support network and participating in a support group for HIV-positive women.
- Challenging stigma and discrimination against persons living with HIV/AIDS.

Nutrition:

Eating variety of food is very important for HIV-positive mothers and especially for those who are breast-feeding. Breast-feeding mothers should continue taking micronutrients such as vitamins, follate, iron and iodized salt, and should have two extra meals a day. Nutrition counseling is especially important for persons living with HIV/AIDS, caregivers, family members, and HIV-exposed or -infected infants and children. HIV/AIDS and malnutrition are closely interrelated. HIV infection causes malnutrition through multiple mechanisms:

- Negative impact on food intake
- Losses through diarrhea and vomiting
- Reduction of nutrient absorption
- Increase of energy requirements

Social and psychological support:

The follow-up treatment, care and support for women who are HIV-infected and the care of their children and families, can be strengthened if linkages are made with comprehensive community health services. It is important that treatment and care extend beyond PMTCT prophylaxis for women, infants, and family members at risk for or infected with HIV. In order to offer comprehensive care, health facilities must function

in partnership with governmental, non-governmental, community-based, private organizations that provide care, treatment, and support services for mothers who are HIV-infected and their family members. Linkages provide clients with comprehensive care and enable healthcare workers to feel part of the broader strategy to improve the health of the community and, as such, increase staff motivation and satisfaction.

Peer/ Mother Support Groups:

Support groups provide opportunities for ongoing support, information/education, skills building, peer support and encouragement, and follow-up medical care for HIV-positive mothers and their babies. Mothers who have not joined support groups should have the opportunity to do so at any time during follow-up.

Peer support group such as mothers-to-mothers groups help HIV-positive women to demand their rights and to access appropriate treatment and care. Moreover, they empower the women's negotiation skills which help them to disclose their status to their partners, family members and to the community at large. In addition to the above mentioned benefits these support are found to be effective in ensuring initiation of ARVs and adherence to treatment. Peer/mother support group can also play the major role in sharing experiences that include problem solving, palliative care (home-based care. It can also empower women on self-care.

UNIT -3: CARE FOR DISEASES AND COMPLICATIONS DURING THE POST-PARTUM PERIOD:

3.1. LEARNING OBJECTIVES

At the end of this unit, participants will be able to:

- Describe diseases and complications during the postpartum period.
- Describe care required for diseases and complications during the postpartum period.
- Describe the pre-referral management of severe complications in the post partum period.

3.2. DELAYED ("SECONDARY") POSTPARTUM HAEMORRHAGE

Secondary PPH (2^0 PPH) is abnormal bleeding occurring from the second day to the sixth week postpartum.

CAUSES:

Bleeding in the first 3 weeks after the first day of delivery is mainly due to:

- Sub-involution of the uterus
- Infection
- Retained pieces of placental tissue or clot
- Breakdown of the uterine wound after Cesarean delivery or ruptured uterus
- After obstructed labor, bleeding may occur due to sloughing of dead vaginal tissue (cervix, vagina, bladder, and rectum).

- Bleeding from the third week to sixth week is mainly due to:

- Choriocarcinoma (rare)
- Local causes (vaginal or cervical) such as severe infection, malignancies, trauma
- Early onset menstruation

MANAGEMENT:

- Usually sub-involution of the uterus, intrauterine infection and retained pieces of placental tissue are considered as a triad of causes for bleeding in the first two

weeks especially from the 5th to 10th day postpartum. All the three conditions are treated together:

- Oxitocics in drip or ergometerine (PO 1 tablet twice a day for 2-3 day)
- Semi-sitting position to enhance drainage from the uterus
- Antibiotics against common organisms of the vagina
- If the **cervix is dilated**, explore by hand to remove large clots and placental fragments. *Manual exploration of the uterus is similar to the technique described for removal of the retained placenta.*
- If the **cervix is not dilated**, evacuate the uterus to remove placental fragments. using 'finger curettage', vacuum aspiration or large blunt curette
- Treat anemia and shock as appropriate

NOTE: Very rarely, bleeding persists and needs referral to a higher facility.

- When bleeding occurs late in the postpartum period, (3rd - 6th week), pregnancy test has to be performed to role out choriocarcinoma. Specimen of uterine evacuation must be submitted for histological examination.
- In non-breast feeding woman, it may be the first menstrual bleeding postpartum. Local legion of the vagina or cervix are excluded by speculum examination.

- If **anemia is severe** (haemoglobin less than 7 g/dL or hematocrit less than 20%), provide oral iron and folic acid and consider referral for a transfusion.
- If **there are signs of infection** (fever, foul-smelling vaginal discharge), give antibiotics as for metritis.

Prolonged or delayed PPH may be a sign of metritis.

3.3. FEVER AFTER CHILDBIRTH

Today puerperal infections are still a major cause of maternal mortality in developing countries and, to a lesser degree, in developed countries. Predisposing factors for puerperal genital infections are prolonged labor, prelabour rupture of the membranes, frequent vaginal examination, internal (vaginal) electronic fetal monitoring and caesarean section. In Caesarean section the risk of genital infection is clearly increased compared to vaginal delivery (Gibbs 1980, Simpson 1988). The most important causative agents of genital infections are *E.coli,* streptococci, anaerobic microorganisms like *Bacteroides*, and gonococci. *Chlamydia trachomatis* often causes a genital infection with relatively mild symptoms, but later a localized peritonitis may occur, with perihepatitis and obstructed fallopian tubes. The clinical picture of genital infections is fairly uniform. Fever (temperature >38.0°C) is the main clinical symptom.

PROBLEM

- A woman has a fever (temperature 38°C or more) occurring more than 24 hours after delivery.

GENERAL MANAGEMENT

- Encourage bed rest.
- Ensure adequate hydration by mouth or IV.
- Use a fan or tepid sponge to help decrease temperature.
- If **shock is suspected**, immediately begin treatment. Even if signs of shock are not present, keep shock in mind as you evaluate the woman further because her status may worsen rapidly. If **shock develops**, it is important to begin treatment immediately.

DIAGNOSIS

Use table 5-3 for diagnostic approach

Table 5-3:- Diagnosis of fever after childbirth

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Fever/chills • Lower abdominal pain • Purulent, foul-smelling lochia • Tender uterus	• Light[a] vaginal bleeding • Shock	**Metritis**
• Lower abdominal pain and distension • Persistent spiking fever/chills • Tender uterus	• Poor response to antibiotics • Swelling in adnexa or pouch of Douglas • Pus obtained upon culdocentesis	**Pelvic abscess**
• Low-grade fever/chills • Lower abdominal pain • Absent bowel sounds	• Rebound tenderness • Abdominal distension • Anorexia • Nausea/vomiting • Shock	**Peritonitis**
• Breast pain and tenderness • 3–5 days after delivery	• Hard enlarged breasts • Both breasts affected	**Breast engorgement**
• Breast pain and tenderness • Reddened, wedge-shaped area on breast • 3–4 weeks after delivery	• Inflammation preceded by engorgement • Usually only one breast affected	**Mastitis**
• Firm, very tender breast • Overlying erythema	• Fluctuant swelling in breast • Draining pus	**Breast abscess**
• Unusually tender wound with bloody or serous discharge	• Slight erythema extending beyond edge of incision	**Wound abscess, wound seroma or wound haematoma,**
• Painful and tender wound • Erythema and oedema beyond edge of incision	• Hardened wound • Purulent discharge • Reddened area around wound	**Wound cellulitis,**
• Dysuria • Increased frequency and urgency of urination	• Retropubic/suprapubic pain • Abdominal pain	**Cystitis,**
• Dysuria • Spiking fever/chills • Increased frequency and urgency of urination • Abdominal pain	• Retropubic/suprapubic pain • Loin pain/tenderness • Tenderness in rib cage • Anorexia • Nausea/vomiting	**Acute pyelonephritis,**
• Spiking fever despite antibiotics	• Calf muscle tenderness	**Deep vein thrombosis**[b]

[a] Light bleeding: takes longer than 5 minutes for a clean pad or cloth to be soaked.

[b] Give heparin infusion.

Table 5-3:- Diagnosis of fever after childbirth Contd.

Presenting Symptom and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
• Fever • Difficulty in breathing • Cough with expectoration • Chest pain	• Consolidation • Congested throat • Rapid breathing • Rhonchi/rales	**Pneumonia**
• Fever • Decreased breath sounds	• Typically occurs postoperative	**Atelectasis**[a]
• Fever • Chills/rigors • Headache • Muscle/joint pain	• Enlarged spleen	**Uncomplicated malaria,**
• Symptoms and signs of uncomplicated malaria • Coma • Anemia	• Convulsions • Jaundice	**Severe/complicated malaria,**
• Fever • Headache • Dry cough • Malaise • Anorexia • Enlarged spleen	• Confusion • Stupor	**Typhoid**[b]
• Fever, • Malaise • Anorexia • Nausea • Dark urine and pale stool • Jaundice • Enlarged liver	• Muscle/joint pain • Urticaria • Enlarged spleen	**Hepatitis**[c]

[a] Encourage ambulation and deep breathing. Antibiotics are not necessary.
[b] Give ampicillin 1 g by mouth four times per day OR amoxicillin 1 g by mouth three times per day for 14 days. Alternative therapy will depend on local sensitivity patterns.
[c] Provide supportive therapy and observe.

MANAGEMENT

a. METRITIS

Metritis is infection of the uterus after delivery and is a major cause of maternal death. Delayed or inadequate treatment of metritis may result in pelvic abscess, peritonitis, septic shock, deep vein thrombosis, pulmonary embolism, chronic pelvic infection with recurrent pelvic pain and dyspareunia, tubal blockage and infertility.

- Give a combination of antibiotics until the woman is fever-free for 48 hours:

- **Ampicillin** 2 g IV every 6 hours;
- PLUS **Gentamicin** 5 mg/kg body weight IV every 24 hours;
- PLUS **Metronidazole** 500 mg IV every 8 hours;
- If **fever is still present 72 hours after initiating antibiotics**, re-evaluate and revise diagnosis.

- If **retained placental fragments** are suspected, perform a digital exploration of the uterus to remove clots and large pieces. Use ovum forceps or a large curette if required.
- If there is **no improvement** with conservative measures and there are **signs of general peritonitis** (fever, rebound tenderness, abdominal pain), refer immediately to a higher facility.

PELVIC ABSCESS / PERITONITIS

- Initiate emergency management
- Start IV fluids.
- Give a combination of antibiotics (before referral):
  - Ampicillin 2 g IV every 6 hours;
  - PLUS Gentamicin 5 mg/kg body weight IV every 24 hours;
  - PLUS Metronidazole 500 mg IV every 8 hours.
- Refer urgently to a hospital.

BREAST ENGORGEMENT

Breast engorgement is an exaggeration of the lymphatic and venous engorgement that occurs prior to lactation. It is not the result of over distension of the breast with milk.

BREASTFEEDING:

- If the **woman is breastfeeding** and the **baby is not able to suckle**, encourage the woman to express milk by hand or with a pump.
- If the **woman is breastfeeding** and the **baby is able to suckle**:
  - Encourage to breastfeed more frequently, using both breasts at each feeding;
  - Show the woman how to hold the newborn and help it attach;
  - Relief measures before feeding may include:
    - Apply warm compresses to the breasts just before breastfeeding, or encourage the woman to take a warm shower;
    - Support breasts with a binder or brassiere;

- Apply cold compress to the breasts between feedings to reduce swelling and pain;
- Give Paracetamol 500 mg by mouth as needed;

- Follow up 3 days after initiating management to ensure response.

NOT BREASTFEEDING:

- If the **woman is not breastfeeding**:
  - Support breasts with a binder or brassiere;
  - Apply cold compresses to the breasts to reduce swelling and pain;
  - Avoid massaging or applying heat to the breasts;
  - Avoid stimulating the nipples;
  - Give paracetamol 500 mg by mouth as needed;
  - Follow up 3 days after initiating management to ensure response.

BREAST INFECTION

MASTITIS:

- Treat with antibiotics:
  - **Cloxacillin** 500 mg by mouth four times per day for 10 days;
  - OR **erythromycin** 250 mg by mouth three times per day for 10 days.
- Encourage the woman to:
  - continue breastfeeding;
  - support breasts with a binder or brassiere;
  - apply cold compresses to the breasts between feedings to reduce swelling and pain.
- Give paracetamol 500 mg by mouth as needed.
- Follow up 3 days after initiating management to ensure response.

BREAST ABSCESS:

- Treat with antibiotics:
  - Cloxacillin 500 mg by mouth four times per day for 10 days;
  - OR erythromycin 250 mg by mouth three times per day for 10 days.
- Drain the abscess:
  - General anesthesia (e.g. ketamine) is usually required;

- Make the incision radially extending from near the alveolar margin towards the periphery of the breast to avoid injury to the milk ducts; use a gloved finger or tissue forceps to break up the pockets of pus;
- Loosely pack the cavity with gauze;
- Remove the gauze pack after 24 hours and replace with a smaller gauze pack.

- If there is **still pus in the cavity**, place a small gauze pack in the cavity and bring the edge out through the wound as a wick to facilitate drainage of any remaining pus.
- Encourage the woman to:
  - support breasts with a binder or brassiere;
  - apply cold compresses to the breasts between feedings to reduce swelling and pain.
- Give paracetamol 500 mg by mouth as needed.
- Follow up 3 days after initiating management to ensure response.

INFECTION OF PERINEAL AND ABDOMINAL WOUNDS

- If there is superficial **fluid or pus**, open and drain the wound.
- Remove infected skin or subcutaneous sutures and debride the wound. Do not remove fascial sutures.
- If **infection is superficial and does not involve deep tissues**, monitor for development of an abscess and give a combination of antibiotics:
  - **Ampicillin** 500 mg by mouth four times per day for 5 days;
  - PLUS **metronidazole** 400 mg by mouth three times per day for 5 days.
  - Place a damp dressing in the wound and have the woman return to change the dressing every 24 hours.
- If the **infection is deep, involves muscles and is causing necrosis** (necrotizing fasciitis), start a combination of antibiotics (below) and refer urgently to a higher facility:
  - Ampicillin 2gm IV every 6 hours;
  - PLUS **gentamicin** 5 mg/kg body weight IV every 24 hours;
  - PLUS **metronidazole** 500 mg IV every 8 hours;

UNIT 4: POST NATAL NEWBORN CARE (VISIT FROM/AT HOME)

4.1. LEARNING OBJECTIVES

At the end of this unit, participants will be able to:

- Describe how to organize care of the sick or small new born
- Describe the steps and principles of rapid initial assessment and immediate management.
- Describe further basic assessment (history and physical examination) and management of the newborn.

4.2. ORGANIZING CARE OF THE SICK OR SMALL NEWBORN

Whether babies who need care are brought to the health facility from home or transferred from another institution, the care management involves a cycle of planning (preparedness), monitoring (assessing status and/or progress), implementing (decision for action), and re-evaluating the condition before discharge. The care that the newborn receives at the health facility follows several steps described below:

Note: *Before undertaking any intervention, make sure to follow the principles and practices of infection prevention; especially hand washing before and after examining clients at all times, when examining and treating babies. (Example: if the newborn has diarrhea or a possible infection of the skin, eye, or umbilicus)*

ARRIVAL, RAPID ASSESSMENT, AND IMMEDIATE MANAGEMENT:

- There must be Health provider to attend the sick and small newborns at all time (from arrival to the site of care) and prioritize for immediate care.
- Ensure that the admission and reception area is organized so that every baby can be seen without undue delay
- Assessment and care of the newborn should be initiated even before any administrative procedures
- Start by assessing the baby for danger signs to curb further damage and preventable deaths.

While looking for danger signs introduce yourself to the mother (or caretaker): and ask her

- *What is wrong with the baby?*
- *When did the problem(s) first start?*
- *What are the names of the mother and baby?*
- *How old is the baby?*
- *Was the baby brought in from outside the health care facility?*
- *Keep the baby with the mother, if possible, and allow her to be present during the assessment and for any procedures, if appropriate.*

4.3. RAPID ASSESSMENT AND IMMEDIATE MANAGEMENT

Few babies may have emergency signs that indicate a problem that is life threatening. Therefore this section of the unit will assist you to rapidly assess the baby and provide immediate lifesaving care.

Note: ***Examine the newborn immediately for the following emergency signs, and provide immediate management (refer to Table 5.1):***

- *Not breathing at all; gasping; or if the heart beat is less than 100 bpm; OR*
- *Bleeding; OR*
- *Shock (pallor/cyanotic, cold to the touch, heart rate less than 100 beats per minute, extremely lethargic /floppy or unconscious).*

4.3.1. RAPID ASSESSMENT

a) If newborn has Breathing difficulty

- Place the baby on a warm surface and with good light. For example under a radiant heat warmer, or use pre-warmed towel/linen (using hot water bottle).
- Assess immediately if newborn:
  - *is not breathing at all, after cleaning the air ways and stimulation ; OR*
  - *is gasping; OR*
  - *has a health rate less than 100 beats per minute (bpm)*
- Start ventilating the newborn using bag and mask until the heart rate is >100bpm. Always check for the heart rate or umbilical pulse rate every 30 seconds and decide on to the next action.
- If there is no response after resuscitation through ventilation, i.e. heart rate is <60 per minute and did not start spontaneous breathing, then call for assistance
- If there is no change; continue the procedure for 20 minutes until the heart rate started to rise
- If no further response refer immediately.

Refer to module four for further details

b) If newborn has Bleeding

- Assess & check for signs of bleeding including weighing the baby
- Stop visible bleeding, if possible; (e.g. if there is **bleeding from the umbilicus**, re-clamp or retie the umbilical stump; if the **bleeding is from a cut or male circumcision site**, press on the bleeding site by applying a sterile dressing….);
- Administer vitamin K 1 mg IM on the anterior thigh if it had not been given
- Monitor the vital signs and if there is sign of shock (pallor, cyanotic, cold to touch, heart rate <100 bpm or > than 160 bpm and skin is clammy)
- Establish intravenous line with Normal Saline or Ringers lactate 10ml/kg over 10 minutes and repeat once after 10 minutes if your facility is able to do so;
- Take a blood sample from the heel prick to type and cross-match, and measure hemoglobin
- **Urgently refer** the newborn if no improvement

c) If newborn has Convulsion

If the **baby is having a convulsion or spasm**, or twitching after the above emergency management, check for hypoglycemia (blood glucose level < 45mg/dl) and administer bolus dose of 2mg/kg of 10% glucose iv slowly over 5 minutes. If these are not possible REFER urgently.

4.3.2. FURTHER ASSESSMENT AND MANAGEMENT

After examining and managing the emergencies signs (i.e. not breathing, gasping, heart rate less than 100 beats per minute, bleeding, or shock) and if the newborn is not being referred, continue to assess the newborn and proceed to the next action.

- Obtain complete history of the newborn and the mother;
- Use the findings from the history and examination to decide on the most appropriate intervention;
- Complete additional examinations, if necessary, and determine the required laboratory investigations;
- Perform appropriate laboratory investigations, and treat the newborn (and/or the mother or her partner(s), as necessary);

- Record all information, including:
    - *The findings of the history, examination, and laboratory investigations;*
    - *Treatment given;*
    - *Changes in the newborn's condition.*

BABY

Ask the mother or caretaker the following:

- What is the problem? Why did you bring the baby?
- When did the problem first start?
- Has the baby's condition changed since the problem was first noted? Is the problem getting worse? If so, how rapidly and in what way?
- What kind of care, including specific treatment, has the baby already received?
- How old is the baby?
- How much did the baby weigh at birth?
- Was the baby born at term? If not, at how many weeks gestation was the baby born?
- Where was the baby born? Did anybody assist the birth?
- How was the baby immediately after birth?
    - *Did the baby spontaneously breathe at birth?*
    - *Did the baby require resuscitation? If so, what was the length of time before spontaneous breathing was established?*
    - *Did the baby move and cry normally?*
- Is the baby having problems in feeding, including any of the following?
    - *Poor or no feeding since birth or after a period of feeding normally;*
    - *coughing or choking during feeding;*
    - *vomiting after a feeding*
- Ask the mother if she has any questions or concerns (e.g. special concerns or anxiety about breastfeeding
- If the **mother is not present**, determine where she is, what her condition is, and whether she will be able to care for the baby, including breastfeeding or expressing breast milk.

MOTHER

• Review the mother's medical, obstetric, and social history.

- Duration pregnancy; any complication during your pregnancy and treatment taken
- Chronic illnesses: including hepatitis B, Tuberculosis, diabetes, or syphilis , symptomatic or seropositive HIV
- Any complication during labor and delivery (uterine infection or fever at onset of labor and 3days after giving birth. Ask about the rupture of membrane or fetal distress; prolonged labor; caesarean section; instrumental vaginal delivery (e.g. forceps or vacuum extraction); mal-position or mal-presentation of the baby (e.g. breech); any other complications after birth.

4.3.3 IMMEDIATE ACTIONS ONCE ASSESSMENT IS COMPLETE

Determine appropriate Classification and management according to the tables (Table 5.4a and Table 5.4b) below:

Figure 5-4a: Chart to assess, classify and treat for possible bacterial infection and jaundice

ASSESS **CLASSIFY** **IDENTIFY TREATMENT**

USE ALL BOXES THAT MATCH INFANT'S SYMPTOMS AND PROBLEMS TO CLASSIFY THE ILLNESS

CHECK FOR POSSIBLE BACTERIAL INFECTION AND JAUNDICE

Ask

- Has the infant had convulsions ?
- Is there difficulty feeding?

Look, Listen, Feel:

- Count the breaths in one minute. Repeat the count if elevated.
- Look for severe chest indrawing.
- Look and listen for grunting.
- See if the young infant is not feeding.
- See if the infant is convulsing now.
- Look at the umbilicus. Is it red or draining pus?
- Measure temperature (or feel for fever or low body temperature)
- Look for skin pustules.
- Look at the young infant's movements.
  Does the infant move only when stimulated?
  Does the infant not move even when stimulated?
- Look for jaundice:
  Are the palms and soles yellow?
  Are skin on the face or eyes yellow?

YOUNG INFANT MUST BE CALM

Classify all young infants

And if temp. is between 35.5-

* These thresholds are based on axillary temperature. The thresholds for rectal temperature readings are approximately 0.5 °C higher.

SIGNS	CLASSIFY AS	TREATMENT (Urgent pre-referral treatments are in bold print)
☐ Not feeding well or ☐ Convulsions/convulsing now or ☐ Fast breathing (60 breaths per minute or more) or ☐ Severe chest indrawing or ☐ Grunting or ☐ Fever (37.5°C* or above or feels hot) or ☐ Low body temperature (less than 35.5°C* or feels cold) or ☐ Movement only when stimulated or no movement even when stimulated.	**POSSIBLE SERIOUS BACTERIAL INFECTION** **Or** **VERY SEVERE DISEASE**	☐ **Give first dose of intramuscular Ampicillin and Gentamycin** ☐ **Treat to prevent low blood sugar** ☐ **Warm the young infant by skin-to-skin contact if temperature is less than 36.5°C (or feels cold to touch) while arranging referral** ☐ **Advise mother how to keep the young infant warm on the way to the hospital** ☐ **Refer URGENTLY to hospital**
☐ Red umbilicus or draining pus or ☐ Skin pustules	**LOCAL BACTERIAL INFECTION**	☐ **Give Cotrimoxazole or Amoxycillin for 5 days** ☐ Teach the mother to treat local infections at home ☐ Advise mother when to return immediately ☐ Follow-up in 2 days
☐ None of the signs of possible serious bacterial infection or local bacterial infection	**SEVERE DISEASE, or LOCAL INFECTION UNLIKELY**	☐ Advise mother to give home care for the young infant
☐ Temperature between 35.5°C – 36.4°C (both values inclusive)	**LOW BODY TEMPERATURE**	☐ **Treat to prevent low blood sugar** ☐ **Warm the young infant using skin-to-skin contact for one hour and re-assess. If temperature remains same or worse, refer.** ☐ Advise mother when to return immediately ☐ Follow-up in 2 days
☐ Palms and/or soles yellow OR ☐ Age < 24 hrs OR ☐ Age 14 days or more	**SEVERE JAUNDICE**	☐ **Treat to prevent low blood sugar** ☐ **Warm the young infant by skin-to-skin contact if temperature is less than 36.5°C (or feels cold to touch) while arranging referral** ☐ **Advise mother how to keep the young infant warm on the way to the hospital** ☐ **Refer URGENTLY to hospital**
☐ Only skin or eyes yellow	**JAUNDICE**	☐ Advise mother to give home care for the young infant ☐ Advise mother when to return immediately ☐ Follow-up in 2 days

Figure 5-4b: Chart to assess, classify and treat newborn who presented with diarrhea.

THEN ASK:
Does the Young Infant Have Diarrhoea?

Ask

- For how long?
- Is there blood in the stool?

Look and Feel:

- Look at the young infant's general condition.
  Does the infant move only when stimulated?
  Does the infant not move even when stimulated?
  Is the infant restless and irritable?
- Look for sunken eyes
- Pinch the skin of the abdomen.
  Does it go back:
  Very slowly (longer than 2 sec.)?
  Slowly?

Classify DIARRHOEA

*** What is diarrhoea in young infant?**
If the stools have changed from usual pattern: many and watery (more water than fecal matter). The frequent and loose stools of a breastfed baby are normal and are not diarrhoea

SIGNS	CLASSIFY AS	TREATMENT (Urgent pre-referral treatments are in bold print)
for dehydration Two of the following signs: • Movement only when stimulated or no movement even when stimulated • Sunken eyes • Skin pinch goes back very slowly	**SEVERE DEHYDRATION**	► **Give first dose of intramuscular Ampicillin and Gentamycin** ► **If infant has another severe classification:** **- Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way** **- Advise mother to continue breastfeeding more frequently** **- Advise mother how to keep the young infant warm on the way to hospital** OR ► If infant does not have low weight or any other severe classification; give fluid for severe dehydration (Plan C) and refer to hospital after rehydration
Two of the following signs: • Restless, irritable • Sunken eyes • Skin pinch goes back slowly	**SOME DEHYDRATION**	► **If infant has another severe classification:** **- Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way** **- Advise mother to continue breastfeeding more frequently** **- Advise mother how to keep the young infant warm on the way to hospital** ► If infant does not have low weight or any other severe classification; - Give fluid for some dehydration (Plan B) - Advise mother when to return immediately - Follow-up in 2 days
Not enough signs to classify as some or severe dehydration	**NO DEHYDRATION**	► Advise mother when to return immediately ► Follow-up in 5 days if not improving ► Give fluids to treat diarrhoea at home (Plan A)
and if diarrhoea 14 days or more • Diarrhoea lasting 14 days or more	**SEVERE PERSISTENT DIARRHOEA**	► **Give first dose of intramuscular Ampicillin and Gentamycin** ► **Treat to prevent low blood sugar** ► **Advise how to keep infant warm on the way to the hospital** ► **Refer to hospital**
and if blood in stool • Blood in stool	**DYSENTERY**	► **Give first dose of intramuscular Ampicillin and Gentamycin** ► **Treat to prevent low blood sugar** ► **Advise how to keep infant warm on the way to the hospital** ► **Refer to hospital**

4.4. FOLLOW-UP CARE FOR THE SICK NEWBORN

General consideration for follow-up care:

Advise mother to give home care for the neonate. Advise her to breastfeed frequently, as often and for as long as the infant wants, day or night, during sickness and health; but more frequently during sickness.

When to Return:

See table 5-5 and box 5-1 for follow up schedules and advise.

Table 5-5: Schedule for follow-up visit in specific conditions:

If the infant has:	Return for follow-up in:
LOCAL BACTERIAL INFECTION ANY FEEDING PROBLEM THRUSH LBW/PRETERM JAUNDICE SOME DEHYDRATION LOW BODY TEMPERATURE	2 days
BIRTH ASPHYXIA ALL NEWBORNS	3 days
LOW WEIGHT FOR AGE HIV INFECTION / EXPOSED	14 days

Box 5-1: When to return immediately

Advise the mother to return immediately if the young infant has any of these signs:

- Breastfeeding or drinking poorly
- Becomes sicker
- Develops a fever or feels cold to touch
- Fast breathing
- Difficult breathing
- Blood in stool
- Deepening of yellow colour of the skin
- Redness, swollen discharging eyes
- Redness, pus of foul smell around the cord

Note: *after providing emergency management for the sick newborn the follow-up of the health care shall be undertaken as per the IMNCI strategy manual in the under-five clinic*

ANNEX

REFERENCES

1. Clark, A. Grab Bag of questions adapted from Grab Bag developed by A. Clark/ACNM
2. *Ethiopia Demographic and Health Survey 2005: Central Statistical Agency, Addis Ababa, Ethiopia; ORC Macro Calverton, Maryland, USA. September 2006*
3. *Ethiopia Demographic and Health Survey 2011:* Central Statistical Agency,Addis Ababa, Ethiopia; ICF International, Calverton, Maryland, USA. March 2012
4. *Family Planning, A GLOBAL HANDBOOK FOR PROVIDERS (WHO):* 2011 Update.
5. FMoH, (2011), Infection Prevention and Patient Safety Reference Manual for Service providers and Mangers in healthcare facilities of Ethiopia, Addis Ababa, Ethiopia
6. Ganges, F. Infection Prevention, a presentation in Accra, Ghana in Maternal and Newborn Care Technial Update. April, 2006.
7. *Guidelines For Prevention of Mother-to-Child Transmission of HIV In Ethiopia: (Federal HIV/AIDS Prevention and Control Office Federal Ministry of Health), 2011.*
8. *Health and Health Related Indicators EFY, 2003:* Federal Democratic Republic of Ethiopia, Ministry of Health, Addis Ababa.
9. http://www.reproline.jhu.edu/english/4morerh/4ip/IP_manual/ipmanual.htm
10. Lynch, P. *et al*., (1997). Infection Prevention with Limited Resources. ETNA communication: Chicago: ETNA communications
11. *Malaria Diagnosis And Treatment Guidelines For Health Workers In Ethiopia: 2nd edition, July 2004* (The Federal Ministry of Health)
12. *Malaria Diagnosis and Treatment Guidelines for Health Workers in Ethiopia, Second edition:* Federal Democratic Republic of Ethiopia, Ministry of Health, Addis Ababa. July 2004.
13. *Management Protocol on Selected obstetrics topics: Federal Democratic Republic of Ethiopia, Ministry of Health.* January 2010.
14. *Management protocol on selected obstetrics topics:* Federal Democratic Republic of Ethiopia, Ministry of Health. January, 2010.
15. *Managing Complications in Pregnancy and Childbirth: A Guide for Midwives and Doctors* (WHO 2000)
16. *Managing Newborn Problems (Integrated management of pregnancy and childbirth): a guide for doctors, nurses, and midwives* (WHO 2004)

17. National baseline assessment on BEmONC assessment in Ethiopia 2008.
18. *NATIONAL MALARIA GUIDELINES, Third Edition:* Federal Democratic Republic of Ethiopia, Ministry of Health, Addis Ababa. January, 2012.
19. *Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice* (WHO 2006)
20. *Technical and Procedural Guidelines for Safe Abortion Services in Ethiopia:* Federal Ministry of Health; May 2006
21. Tietjen, L *et al.,* Infection Prevention Guidelines for Healthcare Facilities with Limited Resources. JHPIEGO. 2003 accessed at
22. World health statistics 2012: World Health Organization 2012.