



NEONATAL RESUSCITATION PROGRAM 2015, 7TH EDITION

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NEONATAL BIRTHS AND MORTALITY

- Approximately 10% of newborns require some assistance to begin breathing at birth
- Less than 1% require extensive resuscitation measures, such as cardiac compressions and medications
- There is a large total number of births, so a significant number will require some degree of resuscitation

YEAR	AL NUMBER OF BIRTHS	AL BIRTH RATE	US BIRTH RATE
2013	58,162	12.0	12.5

YEAR	AL NEONATAL DEATHS	AL NEONATAL MORTALITY RATE	US NEONATAL MORTALITY RATE
2013	322	5.5	3.8

ANTICIPATION OF RESUSCITATION NEED

- Assessment of perinatal risk
 - Gestational Age
 - Amniotic Fluid
 - Number of Babies
 - Additional Risk Factors
- A system to assemble the appropriate personnel based on risk
 - Every birth should be attended by at least 1 person who can perform the initial steps of newborn resuscitation and PPV, and whose only responsibility is the care of the newborn
 - In the presence of perinatal risk factors, additional personnel with resuscitation skills should be immediately available
 - Each institution should have a procedure in place for rapidly mobilizing a team with complete resuscitation skills for any birth
- Organized method for ensuring immediate access to supplies and equipment
- Standardization of behavioral skills that help ensure effective teamwork and communication
- Pre-resuscitation briefing with team leader and teammates



Preparing for Resuscitation

Resuscitation team is requested to attend a birth

Ask the Four Pre-birth Questions to Assess Perinatal Risk



1

What is the expected gestational age?

2

Is the amniotic fluid clear?

3

How many babies are expected?

4

Are there any additional risk factors?



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Assemble Team



Choose a team leader



Delegate tasks



Anticipate complications

Check Equipment



Scenario Begins

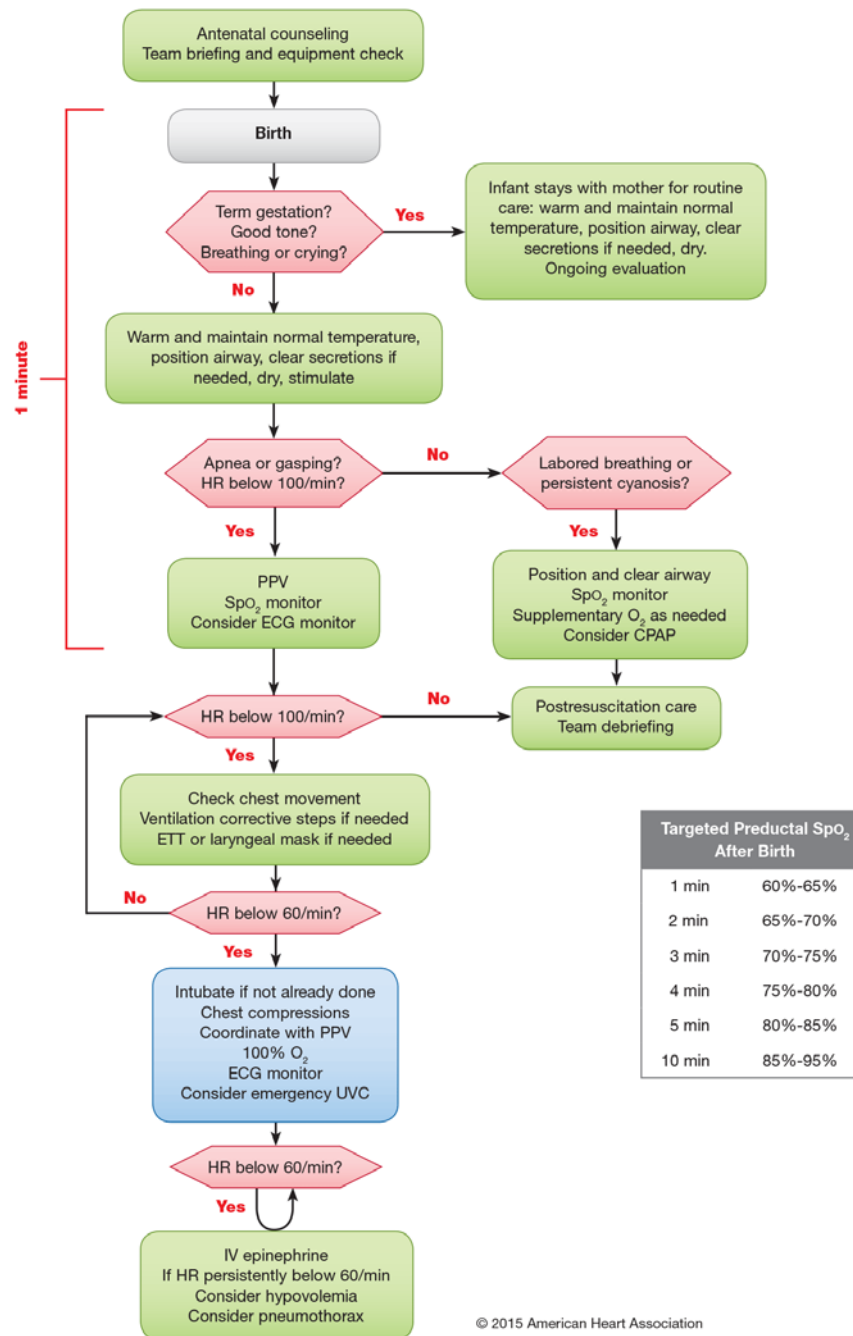


Approach OB provider to discuss plan of care, including delayed cord clamping

CHANGES TO THE NRP FLOW DIAGRAM

- Begin Resuscitation with antenatal counseling (when appropriate) and a team briefing and equipment check
- Maintain the newborn's normal body temperature during resuscitation
- Consider using a cardiac monitor when PPV begins
- Ensure ventilation that inflates and moves the chest
- Recommendation to intubate prior to beginning chest compressions
- Recommendation to use cardiac monitoring to accurately assess heart rate during chest compressions
- End the resuscitation with team debriefing

Neonatal Resuscitation Algorithm—2015 Update



Targeted Preductal SpO ₂ After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

CLASS (STRENGTH OF RECOMMENDATION)

CLASS I (STRONG) Benefit >>> Risk	CLASS IIa (MODERATE) Benefit >> Risk	CLASS IIb (WEAK) Benefit ≥ Risk
Suggested phrases for writing recommendations: <ul style="list-style-type: none">■ Is recommended■ Is indicated/useful/effective/beneficial■ Should be performed/administered/other■ Comparative-Effectiveness Phrases†:<ul style="list-style-type: none">■ Treatment/strategy A is recommended/indicated in preference to treatment B■ Treatment A should be chosen over treatment B	Suggested phrases for writing recommendations: <ul style="list-style-type: none">■ Is reasonable■ Can be useful/effective/beneficial■ Comparative-Effectiveness Phrases†:<ul style="list-style-type: none">■ Treatment/strategy A is probably recommended/indicated in preference to treatment B■ It is reasonable to choose treatment A over treatment B	Suggested phrases for writing recommendations: <ul style="list-style-type: none">■ May/might be reasonable■ May/might be considered■ Usefulness/effectiveness is unknown/unclear/uncertain or not well established
CLASS III: No Benefit (MODERATE) Benefit = Risk (Generally, LOE A or B use only)		CLASS III: Harm (STRONG) Risk > Benefit
Suggested phrases for writing recommendations: <ul style="list-style-type: none">■ Is not recommended■ Is not indicated/useful/effective/beneficial■ Should not be performed/administered/other		Suggested phrases for writing recommendations: <ul style="list-style-type: none">■ Potentially harmful■ Causes harm■ Associated with excess morbidity/mortality■ Should not be performed/administered/other

LEVEL (QUALITY) OF EVIDENCE

Level A	Level B-R (Randomized)	Level B-NR (Nonrandomized)
<ul style="list-style-type: none">■ High-quality evidence‡ from more than 1 RCTs■ Meta-analyses of high-quality RCTs■ One or more RCTs corroborated by high-quality registry studies	<ul style="list-style-type: none">■ Moderate-quality evidence‡ from 1 or more RCTs■ Meta-analyses of moderate-quality RCTs	<ul style="list-style-type: none">■ Moderate-quality evidence‡ from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies■ Meta-analyses of such studies
Level C-LD (Limited Data)		Level C-EO (Expert Opinion)
<ul style="list-style-type: none">■ Randomized or nonrandomized observational or registry studies with limitations of design or execution■ Meta-analyses of such studies■ Physiological or mechanistic studies in human subjects		Consensus of expert opinion based on clinical experience

DELAYED CORD CLAMPING

- For 30-60 seconds
- Term and preterm not requiring resuscitation at birth
- If placental circulation compromised (ex. placental abruption) then clamp immediately
- Insufficient evidence to recommend cord clamping for newborn requiring resuscitation (Class IIa, LOE C-LD)

RATIONALE

In infants who do not require resuscitation, delayed cord clamping is associated with less intraventricular hemorrhage, higher blood pressure and blood volume, less need for transfusion after birth, and less necrotizing enterocolitis. The only adverse reaction was a slightly increased level of bilirubin, associated with more need for phototherapy.

3 ASSESSMENT QUESTIONS

Old

1. Term?
2. Breathing or crying?
3. Good tone?

New

1. Term?
2. Good tone?
3. Breathing or crying?

If answer to all 3 questions is “yes”, then newly born infant may stay with mother for routine care. Routine care means the infant is dried, placed skin to skin with mother, and covered with dry linen to maintain normal temperature. Observation of breathing, activity, and color must be ongoing,

INITIAL STEPS

- If the answer to any of the assessment questions is “NO”, then infant should be moved to a radiant warmer to receive 1 or more of the following 4 actions in sequence:
 - A. Initial steps in stabilization
 - Warm and maintain normal temperature, position, clear secretions only if copious and obstructing the airway, dry, and stimulate
 - B. Ventilate and oxygenate
 - C. Initiation chest compressions
 - D. Administer epinephrine and/or volume

- Approximately 60 seconds (“The Golden Minute”) are allotted for completing the initials steps, reevaluating and beginning ventilation, if required

GOLDEN MINUTE

- Emphasis is placed on the initial 60 seconds
- Completing initial steps
- Evaluation
- Beginning ventilation (if required)
- Important to avoid unnecessary delay in initiation of ventilation, since this is *THE MOST IMPORTANT* step for successful resuscitation of the newborn that has not responded to the initial steps.
- The decision to progress beyond the initial steps is based on a simultaneous assessment of 2 vital characteristics:
 - Respirations (apnea, gasping, or labored or unlabored breathing)
 - Heart rate (less than 100/min)

THERMOREGULATION

- Record temp for prediction of outcome and as a quality indicator (Class I, LOE B-NR)
- Newly born, non-asphyxiated infant should be maintained 36.5°C-37.5°C (Class I, LOE C-LD)
- Strategies for preventing hypothermia in preterm (<32 weeks gestation)
- Radiant warmers, plastic wrap, cap, thermal mattress, increased room temp (74°F-77°F) , use of warmed humidified resuscitation gases (Class IIb, LOE B-R, B-NR, C-L)
- Simple techniques to prevent hypothermia in first hours of life may reduce mortality
 - In resource-limited settings may use plastic wrap or skin-skin contact/kangaroo mother care (Class IIb, LOE C-LD)
- Hyperthermia (>38.0 °C) should be avoided due to the potential associated risks (Class III, Harm, LOE C-EO)

WARMING HYPOTHERMIC NEWBORNS

- The traditional recommendation for the method of rewarming neonates who are hypothermic after resuscitation has been that slower is preferable to faster rewarming to avoid complications such as apnea and arrhythmias
- However, there is insufficient current evidence to recommend a preference for either rapid ($0.5^{\circ}\text{C}/\text{h}$ or greater) or slow rewarming (less than $0.5^{\circ}\text{C}/\text{h}$) of unintentionally hypothermic newborns (temperature less than 36°C) at hospital admission
- Either approach to rewarming may be reasonable (Class IIb, LOE C-LD)

AMNIOTIC FLUID CLEAR

- Suctioning immediately following birth (including suctioning with a bulb syringe) should be reserved for babies who have obvious obstruction to spontaneous breathing or who require PPV (Class IIb, LOE C)

RATIONALE

Avoiding unnecessary suctioning helps prevent the risk of induced bradycardia due to suctioning of the nasopharynx. Deterioration of pulmonary compliance, oxygenation, and cerebral blood flow velocity shown to accompany tracheal suction in intubated infants in the neonatal intensive care unit also suggests the need for caution in the use of suction immediately after birth.

MECONIUM

- Infant with meconium stained amniotic fluid presents with poor muscle tone and inadequate breathing efforts, the initial steps of resuscitation should be completed under the radiant warmer.
- PPV should be initiated if the infant is not breathing, or heart rate is less than 100/min after the initial steps are completed.
- Routine intubation for tracheal suctioning is no longer suggested (Class IIb, LOE C-LD)
- Meconium-stained amniotic fluid is a perinatal risk factor. Someone with skills to intubate should be present, if needed.

RATIONALE

In making this suggested change, greater value has been placed on harm avoidance (i.e., delays in providing bag mask ventilation, potential harm of the procedure) over the unknown benefit of the intervention of routine tracheal intubation and suctioning. Therefore, emphasis should be made on initiating ventilation within the first minute of life in non-breathing or ineffectively breathing infants.

HEART RATE

- Assessment of HR in first minute is critical
- Use of 3 lead ECG is recommended for the rapid and accurate measurement of a newborn's heart rate (Class IIb, LOE C-LD)
- The use of the ECG does not replace the need for the pulse oximetry to evaluate the newborn's oxygenation

RATIONALE

Clinical assessment of heart rate in the delivery room has been found to be both unreliable and inaccurate. Underestimation of the heart rate may lead to unnecessary resuscitation. The ECG has been found to display an accurate heart rate faster than pulse oximetry. Pulse oximetry more often displayed a lower rate in the first 2 minutes of life, often at levels that suggest a need for resuscitation.

OXYGEN FOR TERM NEWBORNS

- Pulse oximetry should be used when resuscitation is anticipated, when PPV is administered, when central cyanosis persists beyond the first 5 to 10 minutes of life, or when supplementary oxygen is administered
- It is reasonable to initiate resuscitation with air (21%). If blended oxygen is not available, resuscitation should be initiated with air (Class IIb, LOE B)
- In the absence of studies comparing outcomes of neonatal resuscitation initiated with other oxygen concentrations or targeted at various oxyhemoglobin saturations, it is recommended that the goal in babies being resuscitated at birth, whether term or preterm, should be an oxygen saturation value in the interquartile range of pre-ductal saturations measured in healthy term babies following vaginal birth (Class IIb, LOE B)
- These targets may be achieved by initiating resuscitation with air or blended oxygen and titrating the oxygen concentration to achieve an SpO₂ in the target range as described using pulse oximetry (Class IIb, LOE C)

OXYGEN FOR PRETERM NEWBORNS

- <35 weeks initiate with low oxygen
 - 21%-30%
- Oxygen titrated to achieve pre-ductal saturations in target zone (Class I, LOE B-R)
- Initiating resuscitation of preterm newborns with high oxygen (>65%) is not recommended (Class III-No Benefit, LOE B-R)

RATIONALE

Data from meta-analysis of 7 randomized studies demonstrates that there is no benefit in survival to hospital discharge, prevention of bronchopulmonary dysplasia, intraventricular hemorrhage, or retinopathy of prematurity when preterm newborns (less than 35 weeks of gestation) were resuscitated with high (65% or greater) compared to low (21%-30%) oxygen concentration.

TARGETED PREDUCTAL SPO₂ AFTER BIRTH

Pre-ductal Spo ₂ Target	
1 min	60%–65%
2 min	65%–70%
3 min	70%–75%
4 min	75%–80%
5 min	80%–85%
10 min	85%–95%

RATIONALE

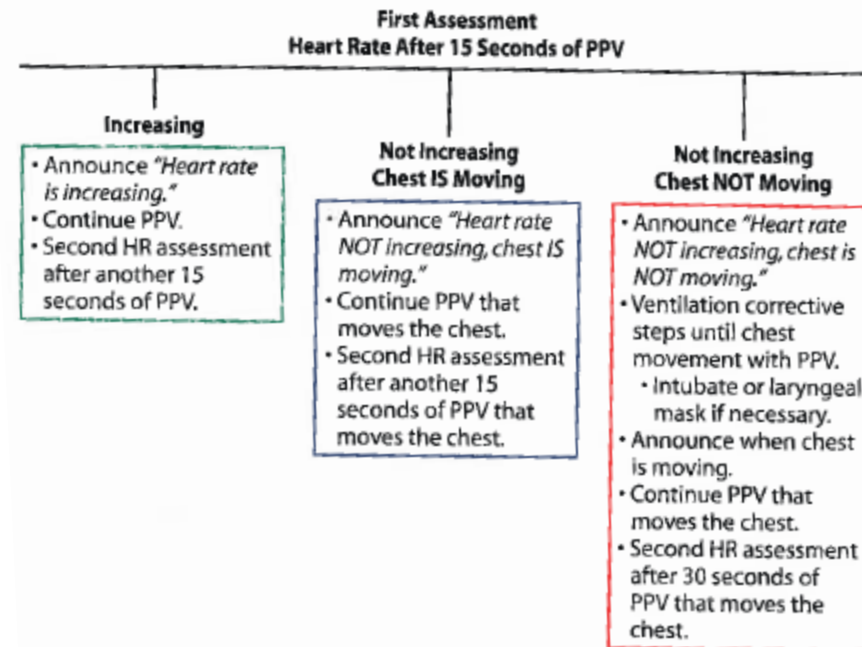
There is a large body of evidence that blood oxygen levels in uncompromised babies generally do not reach extrauterine values until approximately 10 minutes following birth. Oxyhemoglobin saturation may normally remain in the 70% to 80% range for several minutes following birth, thus resulting in the appearance of cyanosis during that time. Other studies have shown that clinical assessment of skin color is a very poor indicator of oxyhemoglobin saturation during the immediate neonatal period. There is growing experimental evidence, as well as evidence from studies of babies receiving resuscitation, that adverse outcomes may result from even brief exposure to excessive oxygen during and following resuscitation.

POSITIVE PRESSURE VENTILATION

- Assisted ventilation rate of 40 to 60 breaths per minute to maintain heart rate $>100/\text{min}$ (Class IIb, LOE C)
- **The primary measure of initial ventilation is prompt improvement in heart rate**
- Chest wall movement should be assessed if heart rate does not improve
- The initial peak inflating pressures needed are variable and unpredictable and should be individualized to achieve an increase in heart rate or movement of chest wall with each breath
- Inflation pressure should be monitored; an initial inflation pressure of 20 cm H₂O may be effective, but 30 to 40 cm H₂O may be required in some term babies without spontaneous ventilation (Class IIb, LOE C)

POSITIVE PRESSURE VENTILATION

- A device that can provide PEEP is preferable if PPV required for preterm infant
- Approximately 5 cm H₂O is suggested (Class IIb, LOE B-R)
- PPV can be delivered with a flow-inflating bag, self-inflating bag, or T-piece resuscitator (Class IIa, LOE B-R)



LARYNGEAL MASK AIRWAY

- Laryngeal masks, which fit over the laryngeal inlet, can achieve effective ventilation in term and preterm newborns at 34 weeks or more of gestation.
- Data is limited for their use in preterm infants delivered at less than 34 weeks of gestation that weigh less than 2000g
- A laryngeal mask may be considered as an alternative to tracheal intubation if face-mask ventilation is unsuccessful in achieving effective ventilation (Class IIb, LOE B-R)
- A laryngeal mask is recommended during resuscitation of term and preterm newborns at 34 weeks or more of gestation when tracheal intubation is unsuccessful or not feasible (Class I, LOE C-EO)

ENDOTRACHEAL TUBE PLACEMENT

- When PPV is provided through an endotracheal tube, the best indicator of successful endotracheal intubation with successful inflation and aeration of the lungs is a prompt increase in heart rate
- Exhaled CO₂ detection is effective confirmation of endotracheal tube placement in infants, including very low-birth-weight infants (Class IIa, LOE B)
- Clinical assessment such as chest movement, presence of equal breath sounds bilaterally, and condensation in the endotracheal tube are additional indicators of correct endotracheal tube placement
- Spontaneously breathing preterm infants with respiratory distress may be supported with CPAP initially rather than routine intubation for administering PPV (Class IIb, LOE B-R)

MR. SOPA

Table 4-2. The 6 Ventilation Corrective Steps: MR. SOPA

	Corrective Steps	Actions
M	Mask adjustment.	Reapply the mask. Consider the 2-hand technique.
R.	Reposition airway.	Place head neutral or slightly extended.
<i>Try PPV and reassess chest movement.</i>		
S	Suction mouth and nose.	Use a bulb syringe or suction catheter.
O	Open mouth.	Open the mouth and lift the jaw forward.
<i>Try PPV and reassess chest movement.</i>		
P	Pressure increase.	Increase pressure in 5 to 10 cm H ₂ O increments, maximum 40 cm H ₂ O.
<i>Try PPV and reassess chest movement.</i>		
A	Alternative Airway	Place an endotracheal tube or laryngeal mask.
<i>Try PPV and assess chest movement and breath sounds.</i>		

CHEST COMPRESSIONS

- **Intubation strongly recommended prior to beginning chest compressions**
- **Make sure that assisted ventilation is being delivered optimally before starting chest compressions**
- **Increase oxygen concentration to 100% whenever chest compressions are provided** (Class Iia, LOE C-EO)
- If heart rate is less than 60/min despite adequate ventilation, chest compressions are indicated
- Because the 2-thumb technique generates higher blood pressures and coronary perfusion pressure with less rescuer fatigue, the 2 thumb-encircling technique is suggested as the preferred method (Class IIb, LOE C-LD)

CHEST COMPRESSIONS

- Compressions are delivered on the lower third of sternum to a depth of approximately one third of the anterior-posterior diameter of the chest (Class IIb, LOE C-LD)
- It is still suggested that compressions and ventilations be coordinated to avoid simultaneous delivery. The chest should be allowed to re-expand fully during relaxation, but the rescuer's thumbs should not leave the chest.
- The 3:1 ratio of compressions to ventilations, with 90 compressions and 30 breaths to achieve approximately 120 events per minute to maximize ventilation at an achievable rate is recommended (Class IIa, LOE C-LD)

CHEST COMPRESSIONS

- Continue for 60 seconds before reassessing heart rate (>60 /min) (Class IIb, LOE C)
- Frequent interruptions of compressions should be avoided, as they will compromise artificial maintenance of systemic perfusion and maintenance of coronary blood flow (Class IIb, LOE C)
- To reduce the risks of complications associated with hyperoxia the supplementary oxygen concentration should be weaned as soon as the heart rate recovers (Class I, LOE C-LD)

MEDICATION

- Drugs are rarely indicated in resuscitation of the newly born infant
- Bradycardia in the newborn infant is usually the result of inadequate lung inflation or profound hypoxemia and establishing **adequate ventilation is the most important step** to correct it
- If heart rate is less than 60/min despite adequate ventilation with 100% oxygen (preferably through an endotracheal tube) and chest compressions, then administration of epinephrine or volume, or both, is indicated
- All medications and fluids should be infused through IV access if possible

EPINEPRINE

- Epinephrine is recommended to be administered intravenously (Class IIb, LOE C)
- Given the lack of supportive data for endotracheal epinephrine, the IV route should be used as soon as venous access is established (Class IIb, LOE C)
- The recommended dose for IV administration is 0.01 to 0.03 mg/kg per dose (preferred route)
- The recommended dose for ET administration is 0.05 to 0.1 mg/kg per dose (Class IIb, LOE C)
- The concentration of epinephrine for either route should be 1:10,000 (0.1 mg/ml)

VOLUME EXPANSION

- Volume expansion should be considered when blood loss is known or suspected (pale skin, poor perfusion, weak pulse) and the infant's heart rate has not responded adequately to other resuscitative measures (Class IIb, LOE C)
- An isotonic crystalloid solution or blood may be useful for volume expansion in the delivery room (Class IIb, LOE C)
- Recommended solution for acutely treating hypovolemia is normal saline or O- blood. Ringer's lactate is no longer recommended
- The recommended dose is 10 ml/kg, which may need to be repeated. When resuscitating premature infants, care should be taken to avoid giving volume expanders rapidly, because rapid infusions of large volumes have been associated with IVH (Class IIb, LOE C)

POST-RESUCITATION CARE

- Infants who require resuscitation are at risk of deterioration after their vital signs have returned to normal
- Once effective ventilation and/or the circulation has been established, the infant should be maintained in or transferred to an environment where close monitoring and anticipatory care can be provided

GLUCOSE

- In the 2010 Guidelines, the potential role of glucose in modulating neurologic outcome after hypoxia-ischemia was identified
- Lower glucose levels were associated with an increased risk for brain injury, while increased glucose levels may be protective
- However, it was not possible to recommend a specific protective target glucose concentration range
- Intravenous glucose infusion should be considered as soon as practical after resuscitation, with the goal of avoiding hypoglycemia (Class IIb, LOE C)
- Neonatal hypoglycemia levels
 - Term: <40 mg/dL
 - Preterm: <30 mg/dL

INDUCED THERAPEUTIC HYPOTHERMIA

RESOURCE-ABUNDANT AREAS

- It is recommended that infants born at more than 36 weeks of gestation with evolving moderate-to severe hypoxic-ischemic encephalopathy should be offered therapeutic hypothermia under clearly defined protocols similar to those used in published clinical trials and in facilities with the capabilities for multidisciplinary care and longitudinal follow-up (Class IIa, LOE A)

INDUCED THERAPEUTIC HYPOTHERMIA

RESOURCE-LIMITED AREAS

- Evidence suggests that use of therapeutic hypothermia in resource-limited settings (ie, lack of qualified staff, inadequate equipment, etc.) may be considered and offered under clearly defined protocols similar to those used in published clinical trials and in facilities with the capabilities for multidisciplinary care and longitudinal follow-up (Class IIb, LOE-B-R)

ETHICS AND CARE AT THE END OF LIFE

- OK not to initiate resuscitation <25 weeks and some congenital malformation and chromosomal anomalies
 - It is also recognized that decisions about appropriateness of resuscitation below 25 weeks of gestation will be influenced by region-specific guidelines (Class IIb, LOE C-LD)
 - USACW guidelines <22 weeks
- When possible discuss the risks and benefits of life-sustaining treatment and allow parent to participate in decision
- It is ethical to provide compassionate palliative care and not initiate resuscitation if intensive medical care won't improve chances of survival or poses an unacceptable burden on the child

DISCONTINUING RESUSCITATIVE EFFORTS

- An Apgar score of 0 at 10 minutes is a strong predictor of mortality and morbidity in late preterm and term infants
- In infants with an Apgar score of 0 after 10 minutes of resuscitation, if the heart rate remains undetectable, it may be reasonable to stop assisted ventilation
- However, the decision to continue or discontinue resuscitative efforts must be individualized
- Variables to be considered may include whether the resuscitation was considered optimal; availability of advanced neonatal care, such as therapeutic hypothermia; specific circumstances before delivery (e.g., known timing of the insult); and wishes expressed by the family (Class IIb, LOE C-LD)

BRIEFING/DEBRIEFING

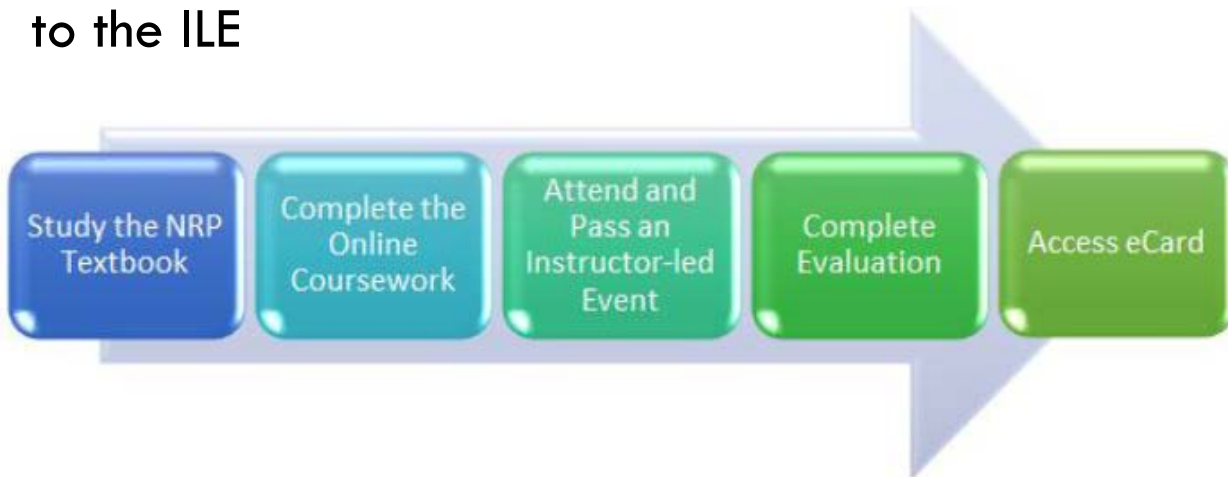
- Studies examining briefings or debriefings of resuscitation team performance have generally shown improved knowledge and/or skills
- Based on available evidence, it is recommended that the AAP/AHA Neonatal Resuscitation Program adopt simulation, briefing, and debriefing techniques in designing an education program for the acquisition and maintenance of the skills necessary for effective neonatal resuscitation (Class IIb, LOE C)

SIMULATION TRAINING

- Studies that explored how frequently healthcare providers or healthcare students should train showed no differences in patient outcomes (LOE C-EO) but were able to show some advantages in psychomotor performance (LOE B-R) and knowledge and confidence (LOE C-LD) when focused training occurred every 6 months or more frequently (Class IIb, LOE B-R)
- It is therefore suggested that neonatal resuscitation task training occur more frequently than the current 2-year interval (Class IIb, LOE B-R)

HOW TO BECOME AN NRP PROVIDER: PART 1

- Complete Part 1 of the NRP Provider course in Healthstream or LMS
 - Online Examination
 - E-sim cases
 - Evaluation of Part 1 course
- Register for Part 2 Instructor-Led Event (ILE)
- Print Part 1 certificate of completion and bring to the ILE








Course Overview

7th Edition NRP Provider Course Part 1

Estimated Course Length: 253 minutes

Course Learning Activities

-  Terms of Use Agreement*
-  Provider Exam Section 1 (25 Questions)*
-  Provider Exam Section 2 (25 Questions)*
-  eSim Cases*
-  Provider Exam and eSim Evaluation*

HOW TO BECOME AN NRP PROVIDER: PART 2


- Providers must successfully complete the ILE session within 90 days of their completion of the Part 1 course
- Part 1 completion check
- Complete Part 2 of course, which includes ILE
- Evaluation of ILE
- Online access to eCard

Course Overview

7th Edition NRP Provider Course Part 2

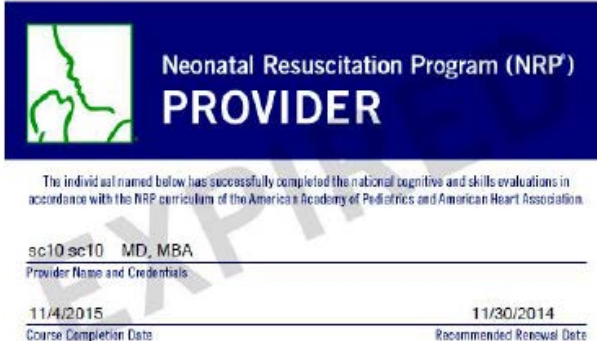
Estimated Course Length: 253 minutes

Course Learning Activities

 Instructor-Led Event (Hands-On Session)*

 Check for Part 1 Completion*

 Instructor-Led Event Evaluation*

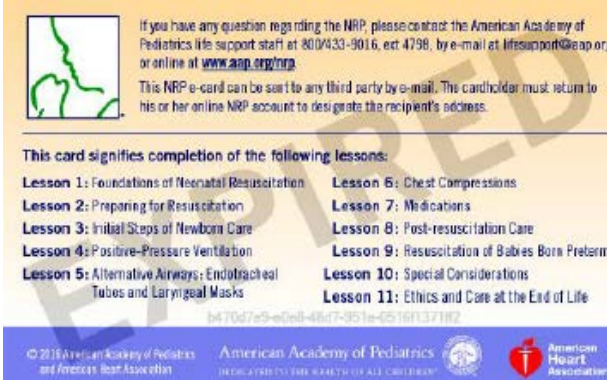


**Neonatal Resuscitation Program (NRP)
PROVIDER**

The individual named below has successfully completed the national cognitive and skills evaluations in accordance with the NRP curriculum of the American Academy of Pediatrics and American Heart Association.

sc10.sc10 MD, MBA
Provider Name and Credentials

11/4/2015 11/30/2014
Course Completion Date Recommended Renewal Date



If you have any question regarding the NRP, please contact the American Academy of Pediatrics life support staff at 800/433-9016, ext 4798, by e-mail at lifesupport@AAP.org or online at www.aap.org/nrp.

This NRP e-card can be sent to any third party by e-mail. The cardholder must return to his or her online NRP account to designate the recipient's address.

This card signifies completion of the following lessons:

Lesson 1: Foundations of Neonatal Resuscitation	Lesson 6: Chest Compressions
Lesson 2: Preparing for Resuscitation	Lesson 7: Medications
Lesson 3: Initial Steps of Newborn Care	Lesson 8: Post-resuscitation Care
Lesson 4: Positive-Pressure Ventilation	Lesson 9: Resuscitation of Babies Born Preterm
Lesson 5: Alternative Airways: Endotracheal Tubes and Laryngeal Masks	Lesson 10: Special Considerations
	Lesson 11: Ethics and Care at the End of Life

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American Heart Association

HOW TO BECOME AN NRP INSTRUCTOR CANDIDATE

- Instructor candidates must enroll in the curriculum within 30 days of their application approval date
- Complete the “Check for Instructor Candidates Pre-Requisites” learning activity in the Part 1 course
- Complete the “Check for Active Instructor Candidate Rank” learning activity in the Part 2 course
- Must co-teach 2 ILE with instructor mentor
- Instructor candidates must complete the curriculum within 1 year of its start date

Curriculum Details 7th Edition NRP Instructor Candidate

Courses:

- [7th Edition NRP Instructor Candidate Course Part 1](#)
 - Check for Instructor Candidate Pre-Requisites
 - Terms of Use Agreement
 - Pre Evaluation
 - Instructor Toolkit
 - NRP Instructor Course Learning Activity
 - Instructor Exam Section 1 (25 Questions)
 - Instructor Exam Section 2 (25 Questions)
 - Instructor Exam Section 3 (20 Questions)
 - eSim Cases
 - NRP Instructor Course Learning Activity and Instructor Exam Evaluation
- [7th Edition NRP Instructor Candidate Course Part 2](#)
 - Check for Active Instructor Candidate Rank
 - Instructor-Led Event 1 (Hands-On Session)
 - Instructor-Led Event Evaluation 1
 - Instructor-Led Event 2 (Hands-On Session)
 - Instructor-Led Event Evaluation 2
 - Check for Part 1 Completion
 - Debrief the Debriefer

NRP ONLINE PROVIDER EXAM

The 2 sections in the exam are as follows:

SECTION	NUMBER OF QUESTIONS	LESSON
1	25	7 th ed. NRP Textbook, Lessons 1-5
2	25	7 th ed. NRP Textbook, Lessons 6-11

- Learners have unlimited attempts to complete each section.
- Once a section is passed successfully (80%), the learner cannot return to that section.
- When a learner successfully passes a section, they will see the questions missed and the corresponding lesson numbers from the textbook.
- If learners do not successfully pass a section, they will see only the missed questions.
- Learners are encouraged to use your textbook during the exam.
- The exam is not timed. It may be paused as needed.

E-SIM CASES

- A series of 5 online neonatal resuscitation scenarios
- These cases allow learners to practice the steps in the [NRP Flow Diagram](#) in a virtual environment
- Each learner is required to complete the “Baby Jai” case and 2 other cases.
- After completing a case, learners will receive feedback about their performance.
- Learners may repeat any or all of the eSim cases as many times as they like.



Baby Jai (Practice Case and Required Case) | Spontaneous Vaginal Birth

You have been called to attend a delivery.

The obstetric provider tells you that the baby is 33 weeks' gestation. There is 1 baby. The amniotic fluid is clear. There is a category II fetal heart rate tracing and a suspected placental abruption. A C-section is anticipated.

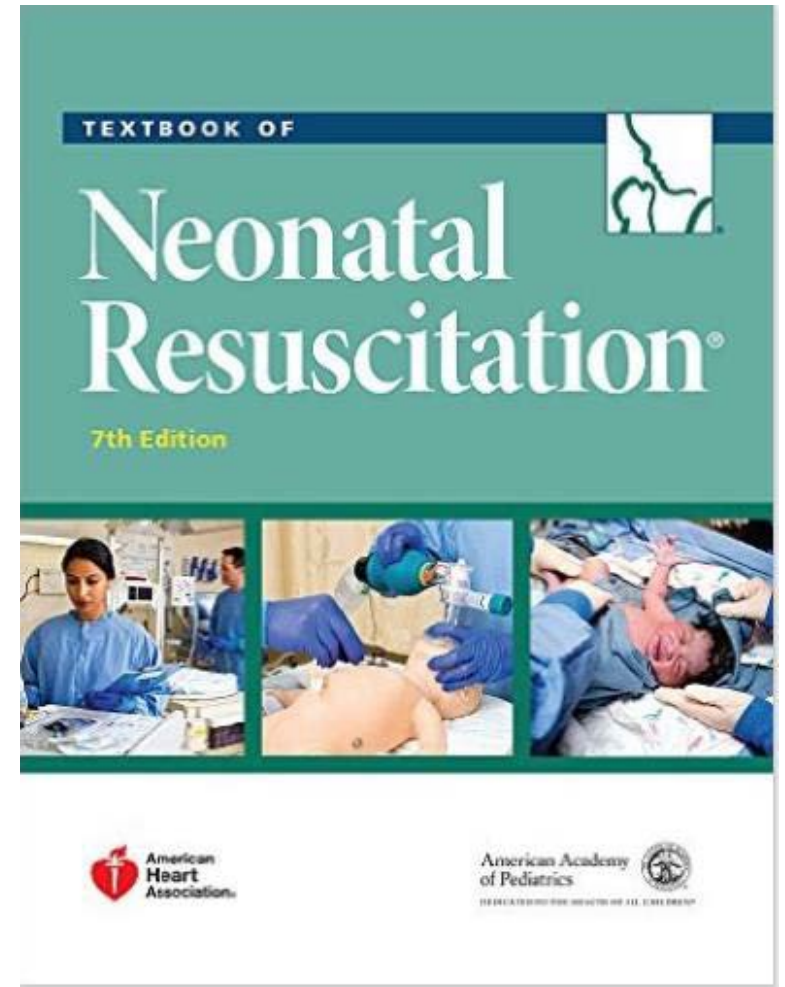
Complete the equipment check and prepare to resuscitate the baby according to the NRP flow diagram.

Visit www2.aap.org/nrp to access the practice case!

LESSONS

The *Textbook of Neonatal Resuscitation, 7th Edition* has 11 lessons:

1. Foundations of Neonatal Resuscitation
2. Preparation for Resuscitation
3. Initial Steps of Newborn Care
4. Positive-pressure Ventilation
5. Alternative Airways: Endotracheal Tubes and Laryngeal Masks
6. Chest Compressions
7. Medications
8. Post-resuscitation Care
9. Resuscitation and Stabilization of Babies Born Preterm
10. Special Considerations
11. Ethics and Care at the End of Life



PERFORMANCE SKILLS STATIONS

Performance Skills Station	Textbook Lesson	Description
Preparing for Resuscitation	2	Practice scenario that includes the 4 pre-birth questions, assembling the team, team briefing, and equipment checklist
Initial Steps of Newborn Care	3	Practice scenarios that include preparing for resuscitation and conducting initial steps of newborn care for vigorous newborns who require pulse oximetry
Positive-Pressure Ventilation	4	Practice scenarios that integrate skills from Lesson 2 and 3 plus PPV
Alternative Airways: Endotracheal Intubation and Laryngeal Mask Airway	6	Practice scenarios that integrates skills from Lesson 2 through 4 plus insertion of the ETT and LMA either as operator or assistant
Chest Compressions	6	Practice scenarios that integrate skills from Lesson 2 through 5 plus chest compressions
Medication Administration	7	Practice scenarios that integrate skills from Lesson 2 through 6 plus umbilical venous catheter placement and medication and volume administration

INTEGRATED SKILLS

- Combined skills in a scenario
- Like the “megacode”
- Used to evaluate each learner’s ability to incorporate all relevant NEP resuscitation skills into a scenario without instructor assistance or coaching from team members

BRIEFING

- Presentation of scenario(s)
- Presentation of simulation training principle
- Discussion of key behavioral skills
- Discussion of simulation guidelines
 - What happens in simulation, stays in simulation
 - Practice like you play
 - Debriefing is not a finger pointing, blame session
- Introduction to high-fidelity mannequin
- Overview of simulation rules
 - Circle of trust

Simulations are for learning and that the best way to prepare for a mission and ensure its success lies in the process of failing and learning from those failures - NASA

BEHAVIORAL SKILLS

- Communicate effectively
- Know your environment
- Anticipate and plan
- Assume the leadership role
- Distribute work load optimally
- Allocate attention wisely
- Utilize all available information
- Utilize all available resources
- Call for help early enough
- Maintain professional behavior

SIMULATION

- Integrates everything
 - Cognitive skills
 - Knowledge about newborn physiology and evidence-based resuscitation practices
 - Technical skills
 - Hands-on skills, such as positive-pressure ventilation (PPV)
 - Behavioral skills
 - Skills described in NRP Key Behavioral Skills in Action that help ensure effective communication and teamwork
- Focus on teamwork and communication
- Realistic visual, auditory, and tactile cues
- Scenario proceeds in real time
- Minimize interference
- Videotaped

DEBRIEFING

- Debriefing is where majority of learning occurs
- Establish a shared mental model – What happened?
- Discuss what went well, what didn't go well, and what can we improve upon for next time
- Learners reflect on their individual and team performance
- Team-centered discussion
- Facilitated by instructor



QUESTIONS? |

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