

# Newborn Apnea/Hypoxia/Respiratory Distress Syndrome

## **Learning Objectives**

Review the following Learning Objectives as an organized beginning to your study of this module. As you read the Learning Objectives, note key words which will aid you in finding the information in the texts. When you complete the module, revisit this list and check for areas that require further investigation.

- Review Fetal Heart Rate Patterns module and identify indications of hypoxia.
- Understand the baby's physiological attempts to survive a hypoxic episode.
- Differentiate between primary and secondary apnea.
- Understand the use of a fetal scalp blood sample in determining blood pH.
- Identify the risk factors for RDS.
- Identify the symptoms of RDS.
- Understand the available therapy for treating RDS.
- Review the role of surfactant in newborn lung function.
- Review Meconium module and meconium aspiration.
- Define transient tachypnea of the newborn.
- Understand the appropriate application of oxygen therapy in treating newborn apnea and respiratory distress.
- Review of CPR techniques and their application for newborn apnea.
- Identify homeopathic remedies for treating newly born infants in crisis.
- Identify possible iatrogenic effects of ventilations and CPR.
- Demonstrate competent application of resuscitation ventilations.
- Demonstrate competent application of CPR for infants and adults.
- Draft practice guidelines for newborn resuscitation in your own practice.

# Newborn Apnea/Hypoxia/Respiratory Distress Syndrome

## **Study Sources**

The following texts are recommended for completion of this module. Use them to cross reference and build a more comprehensive understanding.

Using key words from the Learning Objectives, search the index. Read those pages listed, and read the chapter in which they are found. Establish a context for the information so that you understand how other topics are related. In addition, read the chapter headings in the Table of Contents, and flip through each text to familiarize yourself with the content of chapters. As you work through Study Group modules, you will eventually read each text in its entirety.

*Varney's Midwifery*

*Myles Textbook for Midwives*

*Human Anatomy and Physiology, Marieb*

*Human Labor and Birth, Oxorne, Foote*

*Birth Emergency Skills Training, Gruenberg*

*Assessment and Care of the Well Newborn, Thureen, Deacon, O'Neal, Hernandez*

*Homeopathic Medicines for Pregnancy and Childbirth, Moskowitz*

Neonatal Resuscitation or CPR instruction book used in training sessions

## **Related Topics For Further Study**

### **Study Group Modules:**

- ◇ Fetal heart rate patterns
- ◇ Fetal / newborn circulation
- ◇ Meconium
- ◇ Transporting
- ◇ Stillbirth

### **Additional Areas of Focus:**

- ◇ CPR
- ◇ Neonatal resuscitation
- ◇ Oxygen use at birth
- ◇ Ischemia
- ◇ Brain damage
- ◇ Prematurity

## Newborn Apnea/Hypoxia/Respiratory Distress Syndrome

1. What is the estimated number of infants who will need some form of resuscitation?
2. List the possible causes of fetal hypoxia.
3. How does the baby's body conserve oxygen when faced with an episode of oxygen deprivation?
4. What three systems are most critically interrelated during a hypoxic episode and the immediate aftermath?
5. List some possible long term effects from a hypoxic episode.
6. Describe primary apnea.
7. Describe secondary apnea.
8. What is another name for respiratory distress syndrome?
9. What is the difference between respiratory distress and respiratory distress syndrome?
10. What are the symptoms of respiratory distress?
11. List the possible causes of respiratory distress.
12. List the risks factors for RDS.
13. In the case of prematurity, what can be done to avoid RDS?
14. List the symptoms of RDS.

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## Newborn Apnea/Hypoxia/Respiratory Distress Questions, cont'd

15. What is the appropriate treatment for respiratory distress syndrome?
16. What are the ABC's of resuscitation?
17. Describe how you can give blow-by or free-flow oxygen.
18. What does the abbreviation PPV represent?
19. What is the ratio and rate of ventilations to compressions for a newborn?
20. What assessment is made to determine that PPV are necessary?
21. In addition to assessing need for intervention, what two actions must be completed as preparation to performing PPV?
22. When giving PPV, what indicates the ventilations are correct and complete?
23. What does an ambu-bag and oxygen tank accomplish that mouth to mouth does not?
24. When using an ambu-bag, at what rate of flow do you set the oxygen flow meter?
25. What newborn heart rate signals the need for chest compressions to begin?
26. What must you provide to maintain correct head position and open airway while performing compressions?
27. What three vital signs do you monitor to evaluate and determine your next move?
28. List the possible iatrogenic complications of providing ventilations and CPR.

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## Newborn Apnea/Hypoxia/Respiratory Distress Questions, cont'd

29. Describe what happens in the development of pneumothorax.
30. When would you summon EMS?
31. Describe the fetal scalp blood sample drawing procedure.
32. How is the fetal scalp blood sample used to determine blood pH?
33. What is considered acceptable fetal blood pH?
34. List indications for use of the following homeopathic remedies in newborn resuscitation:
  - Carbo Veg
  - Camphora
  - Antimonium Tartar
  - Aconitum
35. Describe the relationship of maintaining a baby's body temperature and cardiopulmonary function.
36. Why are babies born to insulin dependent mothers at risk for respiratory distress syndrome?
37. Why are SGA babies thought to be at less risk than AGA babies for respiratory distress?
38. Define transient tachypnea of the newborn.
39. What is the oxygen content of room air?
40. What is the oxygen content of air passed during mouth to mouth resuscitation?

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## Newborn Apnea/Hypoxia/Respiratory Distress Questions, cont'd

**Projects** (send completed projects with the rest of your course work for this module)

1. Complete a class in adult and infant CPR, or adult CPR and Neonatal Resuscitation, and get certified. Copy both sides of your certification card and send with your course work.
2. Draft practice guidelines for newborn resuscitation in your own practice. Include reference to your assistant's qualifications and your transport plan. Submit this draft and include it later in your Practice Guidelines projects (in the Charting and Practice Guidelines Module.)

### **Skills**

Following are excerpts from the NMI forms for assessment of midwifery skills, which include all skills identified and required by NARM. Review the following skills and consider how they each relate to the content of this module. If you are currently working with a preceptor, take this opportunity to focus on these areas. During Supervised Primary Care you will formally evaluate these skills together using the NMI form *Preceptor Evaluation/Student Self-Assessment of Midwifery Skills*.

#### 2. General Health care Skills:

D. Demonstrates the use of instruments and equipment including:

2. Bag and mask resuscitator
7. DeLee® (or other tube/mouth suction device)
12. Infant airway

E. Is trained in adult/infant CPR/neonatal resuscitation (required for completion of program)

F. Uses alternate health care practices (non-allopathic treatments) and modalities

1. Herbs
2. Hydrotherapy (baths, compresses, showers, etc.)

I. Administers Oxygen

K. Administers the following pharmacologic (prescriptive) agents:

2. Medical oxygen

L. Establishes and follows emergency contingency plans for mother and/or newborn

#### 4. Labor, Birth and Immediate Postpartum

C. Demonstrates the ability to evaluate and support a laboring woman during the second stage of labor by:

11. Demonstrating the ability to recognize and respond to labor and birth complications such as:

c) Variations in presentation such as:

- 1) breech presentation
- 3) nuchal cord presentation
  - a) looping a finger under the cord and sliding it over the newborn's face,
  - b) looping finger under the cord, sliding it over the shoulder,
  - c) clamping the cord in two places, cutting the cord between the two clamps,
  - d) preparing to resuscitate the baby

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## Newborn Apnea/Hypoxia/Respiratory Distress Skills, cont'd

- 4) Face and brow presentation:
    - a) preparing for imminent birth by:
      - i) preparing resuscitation equipment,
      - ii) preparing treatment for newborn bruising and swelling,
      - iii) administering Arnica,
      - iv) positioning the mother in a squat,
      - v) performing an episiotomy if needed,
      - vi) preparing for potential eye injury
  - 5) Multiple birth presentation and delivery
  - 6) Shoulder dystocia:
    - a) repositioning shoulder to oblique diameter,
    - b) repositioning the mother to:
      - i) hands and knees (Gaskin maneuver,
      - ii) McRobert's position,
      - iii) end of bed,
      - iv) squat,
    - c) flexing the shoulders of the newborn, then corkscrewing,
    - d) extracting posterior arm,
    - e) applying supra-pubic pressure,
    - f) applying gentle traction while encouraging pushing,
    - g) sweeping arm across newborn's face
    - h) performing and episiotomy to allow the midwife to insert hand,
      - i) performing pelvic press,
      - j) fracturing the newborn's clavical
  - d) Management of meconium stained fluids by:
    - 1) eliciting the mother's cooperation to deliver head quickly,
    - 2) instructing the mother to stop pushing,
    - 3) wiping out the inside of the baby's mouth,
    - 4) clearing the airway with suction of mouth and nose,
    - 5) preparing to resuscitate the baby
- D. Assesses the condition of, and provides care for the newborn by:
- 1 Keeping baby warm,
  - 2 Making initial newborn assessment
  4. Performing routine suctioning
  5. Keeping mother and baby together
  6. Monitoring respiratory and cardiac function by assessing:
    - a) the symmetry of the chest,
    - b) the sound and rate of heart tones and respirations,
    - c) nasal flaring,
    - d) grunting,
    - e) retractions,
    - f) circumoral cyanosis,
    - g) central cyanosis (check color)
  7. Stimulating newborn respiration by:
    - a) rubbing up the baby's spine,
    - b) applying percussion massage for wet lungs,
    - c) encouraging parental touch and calling newborn's name,
    - d) flicking or rubbing the soles of the baby's feet,
    - e) placing baby in towel with hot water bottle or heating pad on top,
    - f) rubbing skin with blanket,
    - g) non-allopathic treatments

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## Newborn Apnea/Hypoxia/Respiratory Distress Skills, cont'd

8. Responding to the need for newborn resuscitation by:
  - a) administering several mouth-to-mouth breaths,
  - b) applying positive pressure ventilation for 15-30 seconds,
  - c) administering oxygen,
  - d) consulting,
  - e) transporting
- E. Demonstrates the ability to recognize and respond to labor and birth complications such as:
  1. Abnormal fetal heart tones and patterns