

# NRP 2011

## Raising the Bar for Providers and Instructors



### What is the same?

1. Minimum course requirement is Lessons 1 through 4 and Lesson 9. The NRP Provider Card requires renewal every 2 years. Your facility may require more frequent renewal.
2. Any person who works with newborns is eligible to take an NRP Provider course; however, the course has little relevance for a person who has never seen a healthy term newborn at birth.
3. All learners may study, practice and demonstrate all NRP skills if desired, including intubation and emergency umbilical venous catheter placement. NRP does not certify or ensure competence to perform these skills in an actual resuscitation.
4. The recommended NRP instructor to learner ratio at a Provider course is 1 instructor: 3-4 learners.

### Programmatic Changes

1. Two new Performance Checklists:
  - a. Lesson 1: Equipment Check
  - b. Lesson 5: Laryngeal Mask Airway Placement
2. **There is no more Renewal Course.** Everyone takes a Provider Course tailored to learners' needs.
3. Each institution determines its own policy about what happens if NRP provider status expires.
4. The Online Examination is required for the 6<sup>th</sup> edition. The 5<sup>th</sup> edition examination may be offered as a hard copy exam or online exam until December 31, 2011. No more hard copy examination is available after December 2011.
5. Provider Course includes little or no lecture, uses course time for hands-on learning, immersive simulations, and constructive debriefings.
  - a. The Performance Skills Stations are optional and used for learning, review, and practice.
  - b. The NRP online examination and Integrated Skills Station (similar to Megacode) are required and used for evaluation.
  - c. The Simulation and Debriefing component is required and used to improve teamwork and communication.
6. Teamwork and communication skills are just as important as cognitive and technical skills. The 10 NRP Key Behavioral Skills are
  - Know your environment.
  - Anticipate and plan.
  - Assume the leadership role.
  - Communicate effectively.
  - Delegate workload optimally.
  - Allocate attention wisely
  - Use all available information.
  - Use all available resources
  - Call for help when needed.
  - Maintain professional behavior.

# Science Changes

1. **The following items are no longer “optional” in the birth setting, and should be available for every birth:**
  - a. Compressed air source
  - b. Oxygen blender to mix oxygen and compressed air with flowmeter
  - c. Pulse oximeter for neonatal use and oximeter probe
  - d. Laryngeal mask airway (size 1)
  
2. There are 2 levels of post-resuscitation care (instead of 3 levels):
  - a. Routine Care: For vigorous term babies with no risk factors and babies who have responded to the initial steps. Babies who required initial steps may not need to be separated from their mothers after birth to receive close monitoring and further stabilization.
  - b. Post-resuscitation care: For babies who have depressed breathing or activity, and/or require supplemental oxygen. Require frequent evaluation. Some may transition to routine care; others will require ongoing support. Transfer to an intensive care nursery may be necessary.
  
3. Prior to beginning the steps in the NRP Flow Diagram, ask the OB provider for relevant perinatal history, including these questions:
  - a. What is the gestational age?
  - b. Is the fluid clear?
  - c. How many babies are expected?
  - d. Are there any additional risk factors?
  
4. At birth, answer 3 questions to determine the need for initial steps at the radiant warmer:
  - a. Is the newborn term?
  - b. Is the newborn breathing or crying?
  - c. Does the newborn have good muscle tone?

*If any answer is “No,” the newborn should receive initial steps at the radiant warmer.*
  
5. **The vigorous meconium-stained newborn need not receive initial steps at the radiant warmer, but may receive routine care (with appropriate monitoring) with his mother.**
  
6. Routine care of newborn staying with mother:
  - a. Warm (skin-to-skin contact is recommended), clear airway by wiping the baby's mouth and nose if necessary, dry the newborn, provide ongoing evaluation of breathing, activity, and color.
  
7. **Suctioning following birth (including bulb suctioning with a bulb syringe) should be reserved for babies who have obvious obstruction to spontaneous breathing or who require positive-pressure ventilation.**
  
8. After clearing the airway as necessary, drying and removing wet linen, repositioning, and stimulating, evaluate respirations and heart rate (**not color**).
  - a. If HR is less than 100 bpm, or if newborn is apneic or gasping, begin positive-pressure ventilation.
  - b. If HR is more than 100 bpm and respirations are labored, consider CPAP, especially for preterm newborns.
  
9. **Subsequently, evaluation and decision-making are based on respirations, HR, and oxygenation (per pulse oximetry).**

10. **Resuscitation of term newborns may begin with 21% oxygen**; resuscitation of preterm newborns may begin with a somewhat higher oxygen concentration.
11. **Use pulse oximetry when:**
  - a. Resuscitation is anticipated
  - b. PPV is required for more than a few breaths
  - c. Central cyanosis is persistent, or you need to confirm your perception of central cyanosis
  - d. Supplemental oxygen is administered
12. **Place the oximeter probe on the newborn's right hand or wrist** (measure pre-ductal saturation) and then connect it to the instrument.
13. **Using pulse oximetry, supplemental oxygen concentration should be adjusted to achieve the target values for pre-ductal saturations summarized in the table on the NRP Flow Diagram.** The table is used for both term and preterm babies.
14. Indications for positive-pressure ventilation:
  - a. Apnea/gasping
  - b. Heart rate below 100 bpm, even if breathing
  - c. Persistent central cyanosis and low oxygen saturation, despite free-flow oxygen increased to 100%.
15. **All positive-pressure devices, including the self-inflating bag, should have an integral pressure gauge**, or if there is a site for attaching a pressure gauge (manometer), it should be attached.
16. When PPV begins, assess for rising heart rate and improving oxygen saturation (per pulse oximetry). If not evident (within 5-10 breaths), ask your assistant to assess bilateral breath sounds and chest movement. If these are not immediately evident, perform as many of the ventilation corrective steps as needed to achieve bilateral breath sounds and chest movement.
17. Note that the timeline down the side of the NRP Flow Diagram stops here, but it may take longer than 30 seconds to establish effective positive-pressure ventilation (defined by bilateral breath sounds and chest movement).
18. **Use MR SOPA to help you remember the ventilation corrective steps in order:**
  - M:** Adjust the **m**ask on the face.
  - R:** **R**eposition the head to ensure an open airway. Re-attempt ventilation.  
*If not effective,*
  - S:** **S**uction the mouth and nose
  - O:** Ventilate with the baby's mouth slightly **o**pen and lift the jaw forward. Re-attempt ventilation  
*If not effective,*
  - P:** Gradually increase **p**ressure every few breaths, (cautiously, and to a maximum of 40 cm H<sub>2</sub>O), until there are bilateral breath sounds and visible chest movement.  
*If still not effective,*
  - A:** Consider airway **a**lternative (endotracheal tube or laryngeal mask airway)
19. Establishing effective ventilations is the highest priority in neonatal resuscitation. Do not start chest compressions without first establishing effective ventilation (defined by audible bilateral breath sounds and chest movement). **If heart rate is still below 60 bpm despite 30 seconds of effective positive-pressure ventilation, increase the oxygen concentration to 100% and begin chest compressions.**
20. When the heart rate is below 60 bpm, the oximeter may not function. When chest compressions begin, increase the oxygen concentration to 100% until the oximeter is giving a reliable signal and can guide the appropriate adjustment of supplemental oxygen.

21. **Intubation is strongly recommended when chest compressions begin** to help ensure effective ventilation.
22. **The intubation procedure ideally should be completed within 30 seconds** (not 20 seconds). Do not administer free-flow oxygen during the intubation procedure to an apneic newborn.
23. Interruption of chest compressions to check the heart rate may result in a decrease of perfusion pressure in the coronary arteries. **Therefore, continue chest compressions and coordinated ventilations for at least 45-60 seconds before stopping briefly to assess the heart rate.**
24. If you anticipate the need to place an emergency umbilical venous catheter, **continue chest compressions by moving to the head of the bed (near the infant's head)** and continuing the 2-thumb technique. This is most easily accomplished if the newborn is intubated.
25. The laryngeal mask airway has been shown to be an effective alternative for assisting ventilation. Use may be indicated when
  - a. Facial or upper airway malformations render ventilation by mask ineffective.
  - b. Positive-pressure ventilation with a face mask fails to achieve effective ventilation and intubation is not possible.
26. **Epinephrine is indicated when the heart rate remains below 60 bpm after 30 seconds of effective assisted ventilation (preferably via endotracheal tube) and at least another 45-60 seconds of coordinated chest compressions and effective ventilation.**
27. The intratracheal route is associated with unreliable absorption and is likely to be ineffective. Nevertheless, since the endotracheal route is the most readily accessible, administration of a dose of epinephrine via an endotracheal tube may be considered while the intravenous route is being established.
28. Epinephrine administration (IV parameters unchanged; **note new dose for intratracheal epinephrine**)
  - a. Recommended concentration: 1:10,000 (0.1 mg/mL)
  - b. Recommended route: Intravenous (umbilical vein). Consider endotracheal route **ONLY** while IV access being obtained
  - c. Give rapidly – as quickly as possible.
  - d. Recommended IV dose: 0.1-0.3 mL/kg of 1:10,000 solution per umbilical vein in a 1-mL syringe. Follow IV administration of epinephrine with 0.5 – 1 mL flush of normal saline.
  - e. **Recommended intratracheal dose: 0.5 – 1 mL/kg** of 1:10,000 solution per endotracheal tube in a 3-6 mL syringe.
  - f. Check the newborn heart rate about 1 minute after administering epinephrine (longer if given endotracheally). Epinephrine dose may be repeated every 3-5 minutes.
29. Therapeutic hypothermia following perinatal asphyxia should be
  - a. Used only for babies  $\geq$  36 weeks' gestation and who meet previously defined criteria for this therapy
  - b. Initiated before 6 hours after birth
  - c. Used only by centers with specialized programs equipped to provide the therapy
30. To help keep the preterm baby warm,
  - a. **Increase the temperature of the delivery room and the area where the baby will be resuscitated to approximately 25°C to 26°C (77°F-79°F)**
  - b. Use polyethylene plastic wrap for babies delivered at less than 29 weeks' gestation (or 28 weeks and less). Use a sheet of plastic food wrap, a food-grade 1-gallon plastic bag, or a commercially available sheet of polyethylene plastic.
  - c. Place a portable warming pad under layers of towels on the resuscitation table.

## Information for NRP Instructors

1. HealthStream is the vendor for the 6<sup>th</sup> edition NRP online examination. The fee for the exam varies depending on how many exams are purchased and how the examination is accessed. If your institution uses HealthStream as its Learning Management System, your learners may receive the examination in the same way other hospital learning programs are obtained. If your institution is not a HealthStream client, you may purchase online examinations in small or large volume purchases. HealthStream will set up a website for your use. Individuals may also purchase an online examination with a personal credit card. For more information, visit [www.aap.org/nrp](http://www.aap.org/nrp) and click on Online Examination.
2. Simulation training is dependent on good methodology, not technology; therefore, sophisticated electronic simulators are not necessary.
3. NRP Instructor Maintenance Requirements (includes Regional Trainers)
  - a. Each current NRP instructor must own a personal copy of the *NRP Instructor DVD: An Interactive Tool for Facilitation of Simulation-based Learning* and complete the post-DVD education activity by **March 1, 2012**. **Your DVD is licensed to one computer and cannot be used on multiple devices** after launching the program. Launch it on the computer where it will be viewed!
  - b. Each instructor must teach or co-teach at least 2 courses in the 2 years for which their instructor card is valid.
  - c. Beginning in January 2013, every NRP instructor must take the online examination (Lessons 1 through 9) prior to their instructor status renewal date. Beginning in spring 2011, every instructor may take the online examination once/calendar year if desired at no charge; however, continuing education credit may be awarded only once every two years.
4. NRP Instructor eligibility
  - a. Only registered nurses (including NNPs, CNMs, etc), physicians (MD or DO), respiratory therapists, and physician assistants are eligible to become NRP instructors. There are no exceptions and no waivers. Professionals who became NRP instructors by waiver in the past will maintain their instructor status as long as maintenance requirements are met.
  - b. NRP instructor candidates are required to meet prerequisites prior to their NRP Instructor Course. Instructor candidates must have current NRP provider status (Lessons 1 through 9), produce a letter of recommendation and support from their manager/hospital administrator, pass the 6<sup>th</sup> edition online examination in the 30 days before their Instructor Course (Lessons 1 through 9), watch the NRP Instructor DVD and complete the post-DVD education activity, and take the Instructor Self-Assessment, which is included in the NRP Instructor Manual.

# NRP 6<sup>th</sup> Edition Flow Diagram

