

Protocol 8-3

SECTION: Pediatric Cardiovascular Emergencies

PROTOCOL TITLE: Medical - Newborn/Neonatal Resuscitation

REVISED: 06/2017

NEONATAL RESUSCITATION

OVERVIEW:

The majority of newborns will require only warmth, stimulation, and occasionally some oxygen after birth. That treatment is recommended before attempting the more aggressive interventions of positive-pressure ventilation (PPV) and chest compressions. Remember that a newborn's cardiac output is rate dependent. Bradycardia usually is the result of hypoxia. Once the hypoxia is corrected, the heart rate may spontaneously correct itself. A "newborn" is defined as within one month of age post delivery.

	EMR	EMT	A	I	P
1. If obvious obstruction to spontaneous breathing or requires positive pressure ventilation, gently suction the newborn's mouth, then nostrils, with a bulb syringe for 3 to 5 seconds. Don't routinely suction an active baby.	•	•	•	•	•
2. If meconium staining is present:					
a. If the newborn is vigorous (strong respiratory effort, good muscle tone, and a heart rate greater than 100 bpm), no routine suctioning is required.	•	•	•	•	•
b. If the newborn is NOT vigorous (poor or absent respiratory effort, flaccid, lethargic), consider immediate MECONIUM ASPIRATION via endotracheal suctioning. Suctioning of meconium should not distract from the need for emergent oxygenation and ventilation of the newly born. In the patient with meconium aspiration and respiratory failure or apnea, quickly suction meconium and then begin BVM ventilations.				•	•
3. If meconium staining is not present, rub the newborn's back vigorously. Simultaneously begin drying and warming measures.	•	•	•	•	•
4. <i>KEEP THE NEWBORN WARM AND DRY.</i>	•	•	•	•	•
5. Evaluate respirations, heart rate (apical pulse or pulse at the base of the umbilical cord), and state of oxygenation. Obtain 1 minute APGAR.	•	•	•	•	•
6. If respirations are inadequate, HR > 100 bpm:					
a. Initiate positive-pressure ventilation with a BVM NOT attached to oxygen. Deliver 40 to 60 breaths per minute. Use only enough volume to make the newborn's chest rise.	•	•	•	•	•
7. If respirations are inadequate and HR less than 100 bpm:					

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NEONATAL RESUSCITATION

	EMR	EMT	A	I	P
a. Initiate positive-pressure ventilation with a BVM on room air. If no increase in HR after 90 seconds, administer 100% oxygen.	•	•	•	•	•
b. If HR is below 60 bpm, begin compressions.	•	•	•	•	•

APGAR Score – 1st and 5th Minute Post Birth

Sign	0 Points	1 Point	2 Points
Activity (Muscle Tone)	Flaccid	Some Flexion	Active Motion
Pulse	Absent	< 100	> 100
Grimace (Reflex Irritability)	No Response	Some	Vigorous
Appearance (Skin Color)	Blue, Pale	Blue Extremities	Fully Pink
Respirations	Absent	Slow, Irregular	Strong Cry

Supportive Care

- Maintain airway. Suction as needed with bulb syringe.
- Obtain blood glucose sample. If BGL is < 40 mg/dL, administer Dextrose 10% 2cc / kg (0.5 g / kg) slow IV / IO push. Repeat as necessary.
- Maintain warmth via blankets and Porta-Warm mattress or skin-to-skin.

Procedure for making Dextrose 10%

In 50 ml syringe, mix 10 ml of Dextrose 50% with 40 ml Normal Saline.
Mixture will yield 50 ml of Dextrose 10%

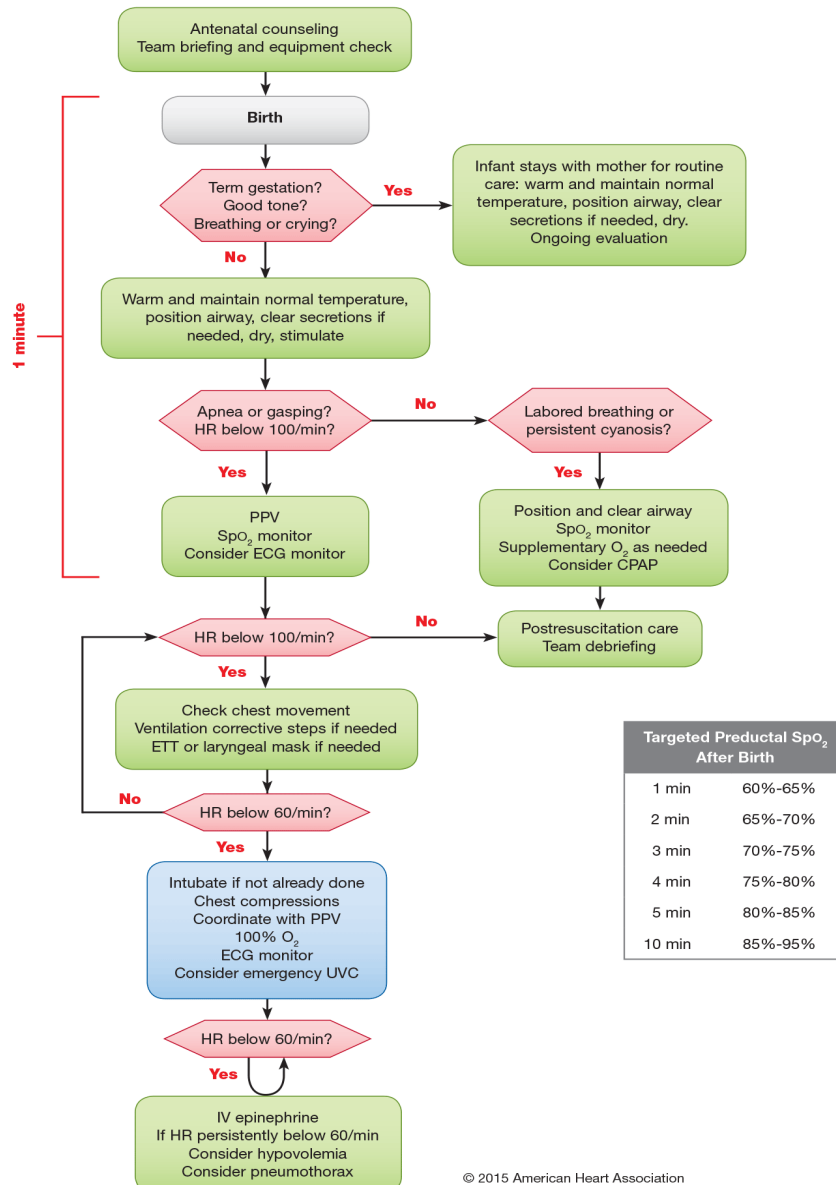
Age	Pre-Term	Term
Weight (lb / kg)	3.3 lbs 1.5 kg	6.6 lbs 3.0 kg
Epinephrine 1:10,000 (1 mg / 10 ml) 0.01 mg / kg	0.015 mg	0.03 mg
Dextrose 10% 2.0 ml / kg	3.0 ml	6.0 ml

PEARLS:

1. The primary measure of adequate initial ventilation is prompt improvement in heart rate.
2. In the presence of thick meconium and an infant who is limp, aggressive suctioning is required.
3. A 3:1 ratio of compressions to ventilations with 90 compressions and 30 breaths should be used to achieve approximately 120 events per minute to maximize ventilation at an achievable rate. Each event should be allotted approximately ½

- second, with exhalation occurring during the first compression following, each ventilation.
- Arterial saturations of a term infant at birth can be as low as 60% and can require more than 10 minutes to reach saturations of > 90%. Hyperoxia can be toxic, particularly to the preterm baby.

Neonatal Resuscitation Algorithm—2015 Update



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