Neonatal Care

Goals: To aid EMS Providers in the timely care of term and preterm, newly born infants
Inclusion Criteria: All term and preterm newborns, especially those unresponsive to initial stimulation and who need resuscitation efforts
Exclusion Criteria: None
Refer to: OB-Gyn CPG, Emergency Childbirth Special Procedures and Hospital Capabilities Matrix

SPECIAL NOTE: Maternal estimates of "due date" may be inaccurate. Very premature infants and those of certain other, high-risk pregnancies may be very small. Determination of fetal viability is best made by trained hospital personnel. As such, attempts should be made to resuscitate all infants, unless a BioTel Online Medical Control physician advises otherwise.

Basic Level:

1. Within the first 30 seconds:
   a. Warm and dry the infant – take care to avoid hypothermia (if possible, increase ambient temperature to 70-75°F (21-24°C))
      i. Vigorous, term infant: Dry the infant, place skin-to-skin with the mother and cover with a blanket
      ii. Preterm infant: If available, place the infant in a polyethylene bag (e.g. 1 gallon zip food bag) up to the level of the neck
   b. Position the infant to facilitate drainage of airway secretions
   c. Stimulate by gently rubbing the back
   d. Regardless of whether amniotic fluid is clear or meconium-stained, clear the airway ONLY if needed:
      i. If the infant cannot clear his/her own airway, or if the infant is drowning in secretions
      ii. This can usually be done with a bulb syringe – deep suctioning with a catheter before instituting other resuscitation measures is rarely needed
      iii. Refer to OB-Gyn CPG and Emergency Childbirth Special Procedures for additional guidance
2. Assess respirations:
   a. If respirations are inadequate or gasping OR if heart rate is less than 100 bpm, gently assist ventilations at a rate of 40 to 60 ventilations per minute, using an infant BVM with room air
   b. Monitor the infant's SpO_2 on the right hand or wrist
   c. *Supplemental oxygen to achieve the Mean Per-Minute Goal Saturations* (see next page) is secondary to effective ventilation*
3. Assess heart rate:
   a. If heart rate remains less than 100 bpm after respiratory interventions, take corrective steps to improve ventilation, according to the "MRSOPA" algorithm:
      i. **M**ask: check the seal
      ii. **R**eposition: make sure infant is in sniffing position (do not flex or hyperextend the neck)
      iii. **S**uction: mouth before nose
      iv. **O**pen the mouth
      v. **P**ressure increase (gentle!!!)
      vi. **A**lternative airway (either intubate or place LMA, if available – advanced level providers only)
   b. If the heart rate remains less than 60 bpm despite completing "MRSOPA" steps, increase oxygen concentration to 100% and begin chest compressions:
      i. Use the two-thumb/encircling hands technique (thumbs side-by-side, just below nipple line)
      ii. Compression-to-ventilation ratio for neonates is 3 to 1
      iii. Compression rate is 120 events per minute (90 compressions interspersed with 30 gentle ventilations)
4. Assess skin color (for APGAR score only – see next page):
   a. Score: Blue/pale = 0 points; Body pink/extremities blue = 1 point; Completely pink = 2 points
   b. Provide supplemental oxygen to maintain Mean Per-Minute Goal Saturations* (see next page)
5. Clamp and cut the cord:
   a. *Vigorous preterm or term infant: delay cord clamping for 30 to 60 seconds after delivery*
   b. Depressed infant or neonatal/maternal emergency condition: do not delay cord clamping/cutting
6. Calculate and record the APGAR score at 1 minute AND again at 5 minutes postpartum (see next page)
7. Once advanced level providers arrive on-scene, give report and transfer care

Advanced Level

8. If the infant does not respond to CPR, obtain IV/IO access with Normal Saline and perform POC Glucose analysis:
   a. For hypoglycemia (POC Glucose less than 45 mg/dL) administer:
      i. 10% Dextrose or D10W: 2 mL/kg IV/IO; OR
      ii. Glucose (40%) Gel: 5 mL/kg (0.2 g/kg) massaged into the cheek pocket (not swallowed)
         1. Exercise extreme caution administering to a depressed infant without a gag reflex
      iii. Recheck and document repeat POC Glucose analysis results 5-10 minutes after treatment
      iv. May repeat Dextrose or Glucose administration once, if needed
   b. For heart rate less than 60 bpm during CPR, administer:
      i. Epinephrine (0.1 mg/mL) 0.01 mg/kg (0.1 mL/kg) IV/IO, followed by 5 mL Normal Saline flush
      ii. Repeat every 3 to 5 minutes, as needed, until heart rate is at least 60 bpm
   c. For suspected narcotic toxicity, provide positive pressure ventilation with supplemental oxygen, as needed, to maintain Mean Per-Minute Goal Saturations*, until transfer of care to hospital personnel
9. Notify the receiving hospital or contact BioTel as early as possible for destination recommendations and early receiving hospital notification, according to Hospital Capabilities matrix
10. Monitor ECG and SpO_2 continuously on the infant's right hand or wrist until hospital arrival
    a. Provision of supplemental oxygen to achieve Mean Per-Minute Goal Saturations* is secondary to effective ventilation
11. Continue measures to prevent heat loss and hypothermia
12. Allow vigorous infants to breastfeed, if both mother and infant are stable
13. Transport as soon as possible
14. For additional patient care considerations not covered under standing orders, consult BioTel

APGAR SCORE			
Sign	**0 Points**	**1 Point**	**2 Points**
Appearance (skin color)	Blue, pale	Body pink, extremities blue	Completely pink
Pulse Rate (heart rate)	Absent	Less than 100 per minute	Greater than 100 per minute
Grimace (irritability)	No response	Grimaces	Cough, sneeze or cry
Activity (muscle tone)	Limp	Some flexion	Active motion
Respirations (respiratory effort)	Absent	Slow, irregular	Good, crying

*Oxygen Saturation (SPO_2) Goals per Minute of Life	
Time	**Oxygen Saturation (SpO_2) Goal**
1 minute	60-65%
2 minutes	65-70%
3 minutes	70-75%
4 minutes	75-80%
5 minutes	80-85%
10 minutes	85-95%