Pediatric Newborn Assessment, Treatment and Resuscitation

To provide a process for the assessment and management of the newborn.

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC
Assessment

1. History
   A. Approximate gestation age (weeks)
   B. History of maternal drug usage just prior to delivery
   C. Evidence of meconium in amniotic fluid

2. Assess and document APGAR score at 1 and 5 minutes, or with changes in patient's presentation
   A. APGAR and normal vital charts are at the end of this protocol.

Treatment

1. Prevent heat loss
   A. Place patient in warm environment.
   B. Dry off amniotic fluid and remove all wet linen.
   C. Rubber gloves filled with warm water (if available) can serve as heat packs. DO NOT apply directly to skin.
   D. Use of chemical heat packs is prohibited unless they are specifically designed as infant warmers.
2. The umbilical cord must be tied or clamped approximately 8" from the infant's abdominal wall with a second tie or clamp 2" further. The cord should be cut between the ties and clamps.
3. Position patient by placing patient on back with padding under shoulders to maintain head in neutral position.
4. Provide tactile stimulation to induce breathing.
   A. Flick soles of feet and gently rub back
   B. If infant remains apneic, tactile stimulation should be abandoned and ventilation should be initiated with 100% high flow O_2.
5. Evaluate Respirations, Heart Rate and Color
   A. If the infant is breathing, the **heart rate is above 100 bpm, and the infant is pink**:
      a. Observe and continue with routine care and evaluation.
   B. If the infant is breathing, **the heart rate is above 100 bpm, and the infant is cyanotic:**
      a. Give supplemental oxygen.
      b. If the cyanosis persists, provide ventilations, with a bag-valve mask and 100% oxygen, at 40 – 60 breaths/min.
   C. If the infant is **apneic or the heart rate is less than 100 and greater than 60 bpm:**
      a. Provide ventilations via bag valve mask with 100% oxygen, at 40 – 60 breaths/min.

D. If **heart rate is <u>less than 60 bpm</u>:**
   a. Perform chest compressions 3:1 compression-ventilation ratio 120 events/min (90 compressions interspersed with 30 ventilations).

6. Establish and maintain an airway
   A. If the newborn is vigorous (strong respiratory effort, good muscle tone and a heart rate over 100 bpm), there is no need to suction the airway.
   B. If the newborn is lethargic, having difficulty breathing, has poor muscle tone, has a heart rate less than 100 bpm, ventilation should be supported.

SPECIALIST/PARAMEDIC

C. If ventilatory support is prolonged with no patient improvement endotrachael intubation should be considered.
D. If there is visible meconium in the airway,
   a. The patient should be intubated and the lower airway suctioned via ET tube [with LOW PRESSURE (80-120 mmHg) suction to the tube]
   b. Repeat suction with a new ET tube each time suctioning is performed.

PARAMEDIC

7. If the heart rate <u>remains below 60 bpm</u> despite compressions and ventilations:
   A. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO. Repeat every 3 – 5 minutes. As an alternate, administer Epiniphrine 1:10,000, 0.1 mg/kg (1 ml/kg) via ETT. ETT route should only be used as a last resort if IV/IO cannot be established.
   B. If there is evidence of maternal opiate use prior to or during delivery, administer naloxone 0.1 mg/kg IV/IO/IM, repeat as needed.
   C. Evaluate blood glucose, if < 60 mg/dl administer dextrose 10% (1 gm/10 ml), 0.2 gm/kg IV/IO.
      a. To obtain 10 % Dextrose mixture draw 40 ml out of one amp of D50 and discard, then add 40 ml of NS.

MFR/EMT/SPECIALIST/PARAMEDIC
Special Considerations

1. Ventilation should <u>always</u> be accompanied with supplemental O_2.
2. Heart rate may be checked by apical pulse or feeling at the base of the cord.
3. Preventing heat loss in the newborn is critical (dry and discard wet linen).
4. Most patients will respond well to tactile stimulation or ventilation. Intubation and meds may not be needed.
5. Capillary refill is an excellent indicator of perfusion in infants. Color should return in 3 seconds or less.

6. **APGAR Scoring**
   A. Procedure for immediately evaluating a newborn baby.
      a. Based on:
         1. A – appearance (color)
         2. P – pulse (heart rate)
         3. G – grimace (reflex irritability to slap on sole of foot)
         4. A – activity (muscle tone)
         5. R – respiration (respiratory effort)
   B. Each parameter gets a score of 0 to 2.
   C. APGAR score should be checked at 1 minutes and 5 minutes post delivery.

APGAR SCORING

Sign	0	1	2
Appearance – skin color	Bluish or paleness	Pink or ruddy; hands or feet are blue	Pink or ruddy; entire body
Pulse – heart rate	Absent	Below 100	Over 100
Grimace – reflex irritability to foot slap	No response	Crying; some motion	Crying; vigorous
Activity – muscle tone	Limp	Some flexion of extremities	Active; good motion in extremities
Respiratory effort	Absent	Slow and Irregular	Normal; crying

Term Newborn Normal Vital Signs

Heart rate (awake): 100 to 180 bpm
Respiratory Rate: 30 to 60 breaths/min
Systolic blood pressure: 55 to 90 mmHg
Diastolic blood pressure: 26 to 55 mmHg