Neonatal Resuscitation (115)

Neonate
(20 weeks gestation or less than 28 days old)

Public Safety First Aid Procedures: only

- Dry newborn and keep warm/Stimulate by drying vigorously including head and back
- Do not cut the cord await Fire/EMS arrival
- If child is limp, silent and cyanotic begin CPR

BLS Procedures: EMT's and Paramedics start here

- Dry newborn and keep warm/Stimulate by drying vigorously including head and back
- Clamp and cut cord when no longer pulsatile approximately 1 minute
- Assess respiratory status/pulse oximetry
- Mild distress = Administer oxygen or blended air/oxygen via blow by mask
- Severe distress = Agonal/gasping/absent respirations: Assist respirations with BVM and 100% oxygen at a rate of 40-60 per minute
- Evaluate Heart rate via auscultation or at umbilical cord
- Heart rate less than 60 = Ventilate for 30 seconds and start compressions at a rate of 120/min reassess heart rate after 30 seconds
- Heart rate 60-100 ventilate for 30 seconds reassess and re-enter as heart rate changes

ALS Prior to Base Hospital Contact: Paramedic only

- Attach monitor/EtCO2
- If heart rate still <60bpm establish IV/IO and administer Epinephrine drip 0.1-1 mcg/kg/min not to exceed adult dose, repeat as needed. Start at higher dose and titrate down.
- Assess blood glucose via heel stick if <40mg/dL administer dextrose 10% 5 mL/kg IV/IO rapid IV bolus
- If no improvement after 30 seconds, consider supraglottic airway/ reassess and re-enter as heart rate changes
- Consider fluid bolus if blood loss suspected, 10 mL/kg may repeat once

Base Hospital Contact Required

115 NEONATAL RESUSCITATION

Neonatal Resuscitation (115)

Special Considerations

1. Neonatal resuscitation should be initiated on all premature infants who are reported to be over 20 weeks gestation or less than 28 days old. If over 28 days old refer to appropriate pediatric protocol. If unknown length of gestation, initiate neonatal resuscitation.

2. Low birth weight and premature infants are likely to become hypothermic despite traditional warming techniques. Extra care should be taken to avoid heat loss to the infant during resuscitation.

3. Hypoxia is the most common cause of bradycardia and cardiac arrest in neonates. This can be prevented by prompt suctioning and assisted ventilations. The primary measure of adequate ventilation is prompt improvement in heart rate.

4. Studies have shown that insufficient or excessive oxygenation of neonates may be harmful. Optimal oxygen saturation levels may not be achieved until 10 minutes following birth. Pulse oximeters should be attached to a preductal location (i.e. right upper extremity, usually the wrist or medial surface of the palm). Studies have discovered if the pulse oximeter is applied to the neonate and connected before it is turned on, the accuracy of the reading is increased. Initial resuscitation attempts on neonates with mild distress should include room air, or a mixture to achieve oxygen saturation levels titrated to the below chart:

   Targeted Preductal SpO2 After Birth

1 min	60-65%
2 min	65-70%
3 min	70-75%
4 min	75-80%
5 min	80-85%
10 min	85-95%

5. Perform chest compressions with both thumbs (the 2 thumb-encircling hands technique), on the lower third of the sternum, to a depth of 1/3 the chest. The recommended ratio for compressions to ventilations is 3:1 with 90 compressions and 30 ventilations for a total of approximately 120 events per minute.

6. Initiate transport for an infant in distress after 10 minutes of High-Performance CPR or if ROSC is achieved. Priorities should be good CPR followed by rapid transport.

7. Refer to Handtevy or length-based tape for specific pediatric doses.

8. Volume expansion should be considered when blood loss is known or suspected (pale skin, poor perfusion, and weak pulse) and the infant's heart rate has not responded adequately to other resuscitative measures. Avoid giving volume expanders rapidly. Rapid infusions of large volumes have been related to intraventricular hemorrhage.

9. Naloxone is not recommended as part of the initial resuscitation for newborns with respiratory depression. The focus needs to remain on effective ventilation and airway support for the persistently apneic newborn.

APGAR	0	1	2
Appearance	Blue or Pale	Body Pink, limbs blue	Complete Pink
Pulse	0	Less than 100	100 or greater
Grimace	No response	Grimace	Cough, sneeze, cry
Activity	Flaccid	Some flexion	Active movement
Respiratory Effort	Absent	Slow, irregular, weak cry	Strong cry

Pain Control/Fever (116)

Adults	Pediatrics *(13 years and under)*
Public Safety First Aid Procedures: Only	**Public Safety First Aid Procedures: Only**
• Support ABC's • Place patient in position of comfort • Request EMS	• Support ABC's • Place patient in position of comfort • Request EMS
BLS Procedures: EMT's and Paramedics start here	**BLS Procedures: EMT's and Paramedics start here**
• Complete primary survey/ABC's • Give oxygen only if SpO2 <94% or if in respiratory distress • Transport to closest appropriate facility or ALS rendezvous • Fever > 100.4 or pain control Acetaminophen 650 mg PO.	• Complete primary survey/ABC's • Give oxygen only if SpO2<94% or if in respiratory distress • Transport to closest appropriate facility or ALS rendezvous • Fever > 100.4 or pain control Acetaminophen 15 mg/kg PO.
ALS Prior to Base Hospital Contact: Paramedic only	**ALS Prior to Base Hospital Contact: Paramedic only**
• Assess patient pain level and contraindications for analgesia • If patient is experiencing **pain less than or equal to 5** on pain scale give: single dose of Ketorolac (Toradol) 10mg IV over 2 minutes OR a single dose of Ketorolac (Toradol) 10mg IM. **OR** Acetaminophen 15mg/kg IV push. Max single dose of 1 gram (1000mg). • If patient experiencing **pain >5 on pain scale** give Ketamine: 15mg in 100mL N.S. infused over 5 minutes, may repeat one time in 15 minutes. **OR** Ketamine 25mg IN, (after drawing up medication add NS to increase volume to 1mL total volume) may repeat one time in 15 minutes. **OR** 15mg IM (do not dilute). Repeat in 15 minutes prn X 1, maximum total dose 30mg. **OR** Fentanyl 50 mcg IM or slow IVP/IO may repeat every 5 minutes to MAX of 200 mcg. **OR** Fentanyl 25 mcg IN per nostril. No repeat dose, MAX 1 mL/nare • If Fentanyl unavailable; administer Morphine	• Assess patient pain level and contraindications for analgesia • If patient is experiencing **pain less than or equal to 5** on pain scale give: single dose of Ketorolac (Toradol) 0.5mg/kg (max of 10mg) IV over 2 minutes OR a single dose of Ketorolac (Toradol) 0.5mg/kg (max of 10mg) IM. **OR** Acetaminophen 15mg/kg via IV push. Max single dose of 1 gram (1000mg). • If patient experiencing **significant pain** (use faces scale) Ketamine 0.5mg/kg IN, (after drawing up medication add NS to increase volume to 1mL total volume) not to exceed adult dose, may repeat one time in 15 minutes, do not exceed 15 mg per dose. **OR** 0.2mg/kg IM (do not dilute). Single max dose of 15mg IM. Repeat in 15 minutes prn x1, maximum 2 total doses. **OR** Fentanyl 1 mcg/kg slow IVP/IO Fentanyl 1mcg/kg IM/IN (Intranasal split dose between nostrils no repeat dose, MAX 1mL/nare) TOTAL MAX NOT TO EXCEED ADULT DOSE.