

**Neonatal Care / Resuscitation**

**CRITERIA**

- This protocol applies to neonates within one (1) hour after birth

**CFR and All Provider Levels**

1. Warm, dry and stimulate the neonate

**One (1) Minute After Birth**

2. Assess neonate and if there is poor respiratory effort or poor tone, stimulate breathing by rubbing the lower back and gently flicking the soles of the feet
3. Ventilate at a rate of 40-60 breaths/min with room air, if the neonate has ANY of the following:
  - Persistent central cyanosis
  - Respiratory rate < 30 breaths/min
  - Heart rate < 100 beats/min

**Two (2) Minutes After Birth**

4. Assess the neonate’s heart rate and perform the following:
  - Heart rate > 100 beats/min and the newborn has good respiratory effort, continue with supportive care
  - Heart rate is between 60-100 beats/min OR there is poor respiratory effort, continue ventilations
  - Heart rate < 60 beats/min after 30 seconds of providing ventilations, start compressions while continuing ventilations in a 3:1 compression to ventilation ratio
5. Reassess neonate every one minute and perform the following:
  - If the heart rate > 60 beats/min, do not perform chest compressions and continue ventilating at a rate of 40–60 breaths/min
  - Provide supplemental oxygen, but do not perform ventilations or compressions, when ALL of the following are present:
    - Respiratory rate > 30 breaths/min
    - Heart rate > 60 beats/min
    - Absence of central cyanosis

**CFR STOP**

**EMT**

6. Request ALS assistance
7. Determine APGAR scores at one (1) minute and five (5) minutes after birth (Appendix K: APGAR Scoring System)
8. Transport while keeping the neonate warm

9. If possible, obtain oxygen saturation on neonate’s right hand, and administer oxygen via non-rebreather mask if SpO<sub>2</sub> is below its predicted value as follows:

Time After Birth (min)	SpO <sub>2</sub> %
1	60-65%
2	65-70%
3	70-75%
4	75-80%
5	80-85%
10	85-95%

- If neonatal pulse oximetry is not available, administer oxygen via non-rebreather mask if the neonate has central cyanosis or is in respiratory distress

**EMT STOP**

**Paramedic**

10. Begin cardiac monitoring
11. Perform advanced airway management if unable to provide effective bag valve mask ventilations
12. Do not delay transport for advanced airway management
13. If transport is delayed and the neonate is in cardiac arrest with a heart rate < 60 beats/min OR if assisted ventilations are required:
  - 13.1 Obtain intravascular or intraosseous access
  - 13.2 Administer Epinephrine 0.01 mg/kg IV (0.1 ml/kg of a 1:10,000 solution) every 3-5 minutes as needed
  - 13.3 Obtain blood glucose level via heel stick. If BGL < 40 mg/dl, administer Dextrose 10% 0.5 g/kg IV via syringe
  - 13.4 Administer crystalloid fluids 10 ml/kg IV

**Paramedic STOP**

**Medical Control Options**

**Key Points / Considerations**

- Cardiopulmonary resuscitation in a neonate is performed with chest compressions and ventilations in a 3:1 ratio at a rate of 120 per minute (90 compressions, 30 ventilations)
- Spontaneous respirations should begin within 30 seconds after birth
- Reposition the airway if unable to ventilate the neonate
- Each ventilation should be administered gently over one second per respiratory cycle, ensuring that the chest rises with each ventilation
- Neonates are subject to rapid heat loss and must be kept warm and dry
- Do not delay transport or resuscitation in order to obtain an APGAR Score
- The proximal tibia is the only site acceptable for intraosseous access in the neonate
- Heart rate in neonates is best assessed at the abdomen or the umbilical stump
- Acrocyanosis (cyanosis of the hands and feet) is a common finding in neonate. If this is present, ensure that the neonate is warm and dry