

**Non-Traumatic Cardiac Arrest and Severe Bradycardia (Pediatric)****CFR AND ALL PROVIDER LEVELS**

*For infants and children in non – traumatic cardiac arrest, or infants and children under 9 years of age with a heart rate less than 60 beats per minute (severe bradycardia) and signs of inadequate central (proximal) perfusion (decompensated shock):*

1. **Bradycardia:** A heart rate **less** than 60 beats per minute **and** signs of inadequate central perfusion (decompensated shock).
  - a. Assist ventilation at a rate of 20 breaths per minute.
  - b. Begin CPR, if the heart rate is not rapidly increasing following 30 seconds of assisted ventilation.
  - c. Check for a pulse every 2 minutes.
2. **If the Infant or Child is in cardiac arrest:**
  - a. Immediately initiate CPR per AHA guidelines.
  - b. If available, attach AED, analyze.
    - i. Pediatric-capable AED pads and cables should be used if available and appropriate.
  - c. Continue CPR until patient transported, or pulse returns at a rate greater than 60 beats per minute.
3. Continue assisted ventilation at a rate of 20 breaths per minute, once the heart rate is greater than 60 beats per minute.
4. Switch to high concentration mask or “blow by” oxygen once ALL of the following are true:
  - a. The heart rate is greater than 100 beats per minute
  - b. The respiratory rate is greater than 20 breaths per minute
  - c. Central cyanosis resolves

**● CFR STOP**

**EMT**

5. Request ALS assistance.
6. Transport, keeping child warm.

**● EMT STOP**

**Paramedic**

7. Begin cardiac monitoring.
8. If in Ventricular Fibrillation or pulseless Ventricular Tachycardia:
  - a. Immediately defibrillate at 4 joules/kg, using pads of appropriate size.
  - b. Immediately resume CPR for 5 cycles while defibrillator is recharging.
9. If still in Ventricular Fibrillation or pulseless Ventricular Tachycardia:
  - a. Immediately repeat defibrillation at 10 joules/kg, using pads of appropriate size.
  - b. Immediately resume CPR for 5 cycles while defibrillator is recharging.
10. Perform Advanced Airway Management if less invasive methods of airway management are not effective.
11. During transport, or if transport is delayed:
  - a. Intravascular access. (If two attempts at IV access are unsuccessful, obtain IO access.).
  - b. Administer Epinephrine 0.01 mg/kg (0.1 ml/kg of a 1:10,000 solution) IV bolus.

- c. If still in Ventricular Fibrillation or pulseless Ventricular Tachycardia:
  - i. Immediately repeat defibrillation at 10 joules/kg, using paddles of appropriate size.
  - ii. Immediately resume CPR for 5 cycles while the defibrillator is recharging.
  - iii. Administer Amiodarone 5 mg/kg IV bolus.
- d. Repeat Epinephrine 0.01 mg/kg (0.1 ml/kg of a 1:10,000 solution) IV bolus every 3 - 5 minutes.

**● Paramedic STOP**

**Medical Control Options**

*If there is insufficient improvement in hemodynamic status:*

1. Repeat any of the above Standing Orders.
2. Administer Naloxone IV bolus:
  - a. In patients two (2) years of age or older, 2 mg.
  - b. In patients, less than two (2) years of age, 1 mg.
3. Administer Dextrose 0.5 mg/kg, IV bolus:
  - a. Use 10% Dextrose in patients less than or equal to one (1) month of age.
  - b. Use 25% Dextrose in patients greater than one (1) month of age and less than 15 years of age.
4. Administer Sodium Bicarbonate 1 mEq/kg, IV bolus.
5. If Torsades de Pointes is present, administer Magnesium Sulfate, 25 - 50 mg/kg IV bolus.
6. Crystalloid fluid, 20 ml/kg.

**Key Points / Considerations**

1. The IV dose of Epinephrine for pediatric patients is 0.01 mg/kg (0.1 ml/kg of a 1:10,000 solution).
2. Refer all weight based fluids/medications to a Length Based Dosing Device.
3. **GUIDELINES FOR INFANT AND CHILD RESUSCITATION:** Cardiopulmonary resuscitation in an infant is performed utilizing chest compressions with interposed ventilations in a ratio of 15:2 at a rate of 120 events (105 compressions, 15 ventilations) per minute.
4. Automated defibrillation should not be delayed or withheld for any reason.
5. If the defibrillator is unable to deliver the recommended dose, use the lowest available setting
6. Do not delay CPR to wait for the automated external defibrillator (AED).