



## ***Pediatric Bradycardia***

*This protocol is for paramedic use only*

### **Aliases: Slow heart rate, heart block**

Bradycardia should be considered to be due to hypoxia until proven otherwise. This protocol applies to pediatric patients with bradycardia, a pulse, and poor perfusion (cardiopulmonary compromise).

NOTES: Signs of cardiopulmonary compromise include:

1. Hypotension:
  - a. In neonates, SBP less than 60
  - b. In infants 1 month to 1 year, SBP less than 70
  - c. In children aged 2 to 10 years, SBP less than  $70 + (\text{age} \times 2)$ .
  - d. For children greater than 10, SBP less than 90
2. Acutely altered mental status.
3. Signs of shock - indicated by absent and/or weak peripheral and femoral pulses, increased capillary refill time ( $> 3$  seconds), skin cool/mottled.
4. Respiratory difficulty indicated by increased work of breathing (retractions, nasal flaring, grunting, tracheal tugging), cyanosis, altered level of consciousness (unusual irritability, lethargy, failure to respond to parents), stridor, wheezing.

### General Treatment

- A. Pediatric patients ( $\leq 14$  years of age) utilize MI MEDIC cards for appropriate medication dosage. When unavailable utilize pediatric dosing listed within protocol.
- B. Manage airway as necessary
- C. Provide supplemental oxygen as needed to maintain O<sub>2</sub> saturation  $> 94\%$
- D. Initiate monitoring
  1. If pulse is  $< 60$  confirm and support adequate oxygenation and ventilation.
  2. If pulse remains  $< 60$  and patient remains symptomatic perform CPR
  3. Establish vascular access
  4. Apply cardiac monitor to identify rhythm
  5. If pulse remains  $< 60$ , despite oxygenation & ventilation
    - A. Administer **epinephrine** according to MI MEDIC cards.
      - i. If MI MEDIC cards are not available administer **epinephrine**:
        1. 1mg/ 10mL,
        2. 0.01 mg/kg (0.1 ml/kg) IV/IO up to 1 mg (10 ml),
        3. Repeat every 3-5 minutes.
      - B. If patient remains unstable and pulse  $< 60$  administer **atropine** according to MI MEDIC cards.
        - i. If MI MEDIC cards are not available administer **atropine**:

Initial Date: 5/31/2012  
Revised Date: 12/30/2022

Section: 6-2

1. 0.02 mg/kg IV/IO (minimum dose 0.1 mg, maximum single dose 0.5 mg)
2. May repeat once in 5 minutes, if effective.
  - ii. Continue administration of epinephrine as above
6. If patient remains unstable and pulse <60 after **epinephrine** and **atropine** administration:
  - i. Begin transcutaneous pacing at rate up to 100 bpm per **Electrical Therapy-Procedure Protocol**.
  - ii. Sedation may be used to facilitate transcutaneous pacing per MCA selection. Refer to **Patient Procedural Sedation-Procedure Protocol**.
7. Continuously monitor for pulses. If pulse is not present, refer to **Pediatric Cardiac Arrest-Treatment Protocol**.
8. Ensure adequate patient warming.

**Notes:**

When CPR is required, a precise diagnosis of the specific bradyarrhythmia is not important.

Medication Protocols

Atropine

Epinephrine