

**Michigan**  
**Pediatric Cardiac Protocols**  
**PEDIATRIC BRADYCARDIA**

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### ***Pediatric Bradycardia***

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. Identify and treat the underlying causes:

- Maintain patent airway; assist breathing as necessary
- Oxygen
- Cardiac monitor to identify rhythm; monitor blood pressure and pulse oximetry
- IV/IO access
- 12-lead ECG if available; don't delay therapy

### **Pre-Medical Control**

#### **PARAMEDIC**

1. Follow the **Pediatric Assessment & Treatment Protocol**.
2. If signs of Cardiorespiratory compromise are evident:
  - A. Perform chest compression / CPR.
  - B. If HR less than 60 despite oxygenation & ventilation, administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO up to 1 mg (10 ml), repeat every 3-5 minutes.
3. If suspected increased vagal tone or primary AV block:
  - A. Administer Atropine 0.02 mg/kg IV/IO (minimum dose 0.1 mg, maximum single dose 0.5 mg), may repeat once in 5 minutes.
  - B. Consider transcutaneous pacing at rate up to 100 bpm.
4. Sedation may be used to facilitate transcutaneous pacing per MCA selection. Refer to **Patient Sedation Procedure**.

### **Post-Medical Control**

5. Additional orders as appropriate.

### **Notes:**

1. Signs of cardiopulmonary compromise include:
  - A. Hypotension is SBP less than  $70 + (\text{age} \times 2)$ .
  - B. Acutely altered mental status.
  - C. Signs of shock - indicated by absent or weak peripheral pulses, increased capillary refill time, skin cool/mottled.
  - D. Respiratory difficulty (respiratory rate greater than 60/minute) indicated by increased work of breathing (retractions, nasal flaring, grunting), cyanosis, altered level of consciousness (unusual irritability, lethargy, failure to respond to parents), stridor, wheezing.
2. When CPR is required, a precise diagnosis of the specific bradyarrhythmia is not important. Perform chest compressions if, despite oxygenation and ventilation, the heart rate is less than 60/minute and associated with cardiopulmonary compromise in infant or child. If severe hypothermia follow Hypothermia Cardiac Arrest Protocol and appropriate Pediatric Cardiac protocols.

MCA Name  
MCA Board Approval Date  
MDCH Approval Date  
MCA Implementation Date