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Executive Director

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SIGNATURE ON FILE IN EMS OFFICE  
Medical Director

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**PEDIATRIC SYMPTOMATIC BRADYCARDIA**

- I. AUTHORITY: Health and Safety Code, Division 2.5, California Code of Regulations, Title 22, Division 9
- II. PURPOSE: To serve as the treatment standard for EMT-Is and EMT-Ps in treating patients.
- III. PROTOCOL:

Most bradycardias in children are due to hypoxia. Bradycardia may also be secondary to sinus node disease, increased parasympathetic tone or drug effects (e.g., digitalis, beta-blockers, or calcium antagonists), hypothermia or head injury. Heart rate is below 60 beats per minute, with associated signs/symptoms of low cardiac output. Never treat any bradycardia if the patient does not have serious symptoms.

**STANDING ORDERS**

**ABC**

**OXYGEN**

**NOTE:** Most bradycardias in children are due to hypoxia.

**SECURE AIRWAY**

As appropriate. Confirm tube placement, if intubated, with end-tidal CO<sub>2</sub> detector and esophageal detector device. **Monitor intubated patients with continuous waveform capnography if available.**

**MONITOR**

**IV/IO ACCESS**

TKO with microdrip tubing and volume control chamber.

**ASSESS**

For:  
1. Heart rate: less than 80 beats per minute in infants (less than 1 year);  
less than 60 beats per minute in children (1 - 12 years).  
AND  
2. Signs of poor perfusion (delayed capillary refill, diminished distal pulses, cool extremities, altered level of consciousness) or respiratory distress.

**CPR**

If heart rate less than 80/minute in infant or less than 60/minute child.

**EPINEPHRINE**

0.01 mg/kg of 1:10,000 IV/IO or 0.1 mg/kg of 1:1000 ET. Repeat every 3 minutes until above heart rate target or signs of poor perfusion or respiratory distress have improved.

**CONSIDER**

**ATROPINE**

0.02 mg/kg IV/IO or 0.04 mg/kg ET. Minimum dose 0.1 mg. Maximum single dose 0.5 mg. May be repeated once in 3 minutes.