

## PEDIATRIC BRADYCARDIA

**Effective:** January 1, 2025  
**Replaces:** April 27, 2017

### 1. Patient Care Goals

- 1.1. Maintain adequate perfusion
- 1.2. Identify bradycardia (<60 bpm) with serious signs/symptoms (altered mental status, chest pain, congestive heart failure, seizure, syncope, shock, pallor, diaphoresis) or evidence of hemodynamic instability
- 1.3. Identify potential causes of symptomatic bradycardia including:
  - 1.3.1. Myocardial Infarction (MI)
  - 1.3.2. Hypoxia
  - 1.3.3. Pacemaker failure
  - 1.3.4. Sinus Bradycardia/sick sinus syndrome
  - 1.3.5. Head injury with Increased intracranial pressure (ICP)
  - 1.3.6. Stroke
  - 1.3.7. Spinal cord lesion
  - 1.3.8. Second- or third-degree AV block
  - 1.3.9. Toxin exposure (beta-blocker, calcium channel blocker, organophosphate, digoxin) (700-P15)
  - 1.3.10. Electrolyte disorder
  - 1.3.11. Hypoglycemia
  - 1.3.12. Other

### 2. BLS Treatment

- 2.1. Routine Medical Care – Pediatric (700-S05)
  - 2.1.1. **Oxygen** – titrate as appropriate or ventilate patient if applicable
  - 2.1.2. Hypoxia is the leading cause of bradycardia in pediatrics
- 2.2. Treat for signs and symptoms of shock as appropriate (700-P10)
- 2.3. If perfusion is diminished with a heart rate less than sixty (60), and rate does not respond to oxygen therapy, **Start CPR**

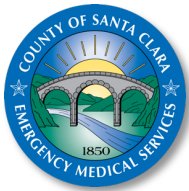
### 3. ALS Treatment

- 3.1. **Vascular Access (IV) or Vascular Access (IO)**, per procedure (700-M13)
  - 3.1.1. Consider **20ml/kg Fluid bolus**, max single dose 250ml, may repeat once
- 3.2. Use length based tape resuscitation tape to determine patient weight
- 3.3. **Epinephrine (1:10,000) 0.01mg/kg** may repeat every 3–5 minutes
- 3.4. If bradycardia is refractory to epinephrine administer:
  - 3.4.1. **Atropine Sulfate 0.02mg/kg IVP/ IO** (minimum dose of 0.1mg), may repeat every 3–5 minutes, to a total dose of 1mg
- 3.5. Consider **Transcutaneous Pacing (TCP)** if refractory to pharmacological interventions (700-M10)

### 4. Pertinent Assessment Findings

- 4.1. Signs of decreased end-organ perfusion including chest pain, shortness of breath, decreased level of consciousness, syncope, or other signs of shock/hypotension

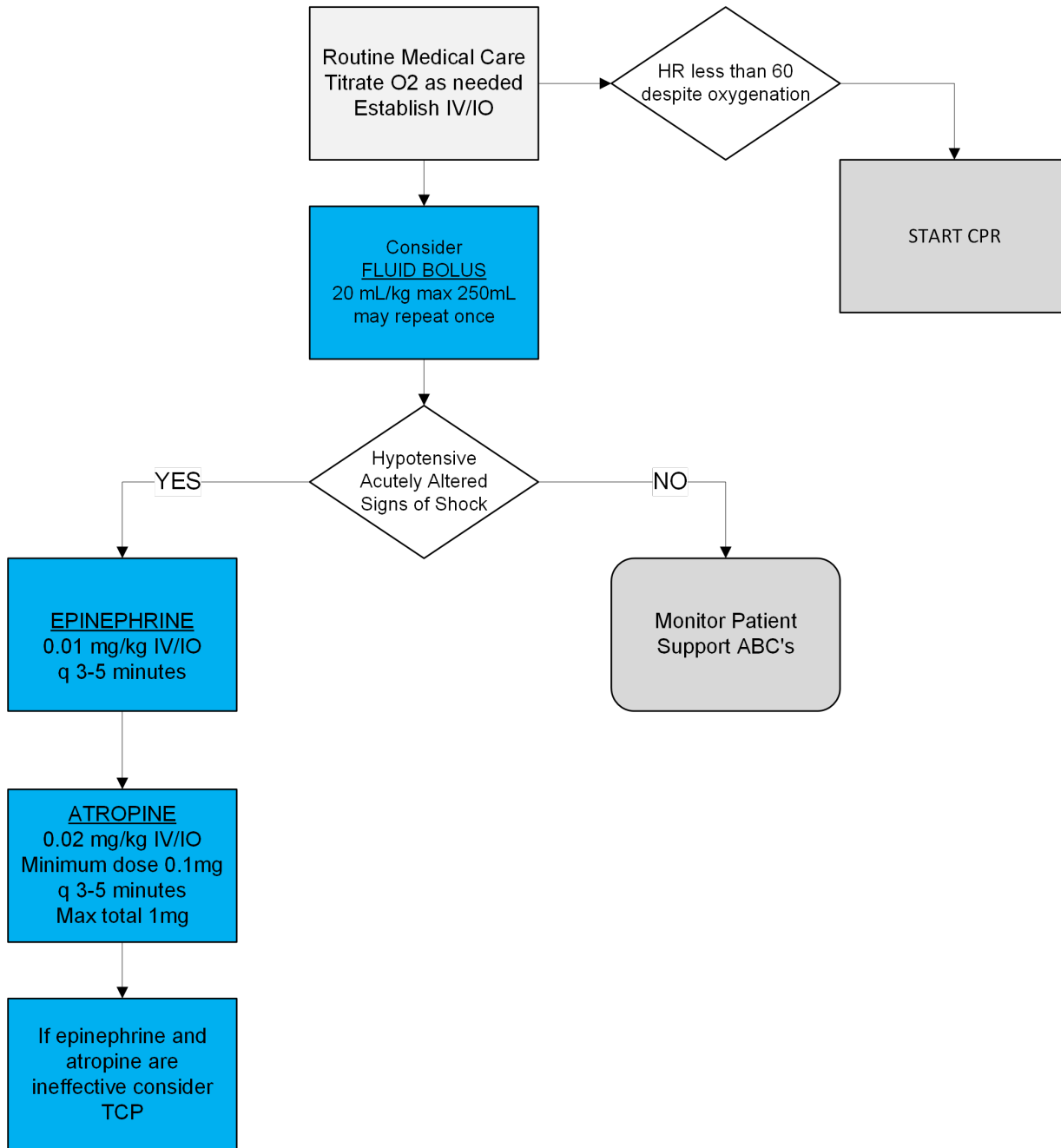
### 5. Key Documentation Elements



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- 5.1. Cardiac rhythm/rate
  - 5.2. History of event supporting treatment of underlying causes
  - 5.3. Time, dose, and response of medications given



6. Pediatric Bradycardia Treatment Flow Chart



Protocol # 700-P05