



BRADYCARDIA

Effective: January 1, 2025
Replaces: January 1, 2023

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-A15)
 - 1.3.10. Electrolyte disorder
 - 1.3.11. Hypoglycemia
 - 1.3.12. Other

2. BLS Treatment

- 2.1. Routine Medical Care – Adult (700-S04)
 - 2.1.1. **Oxygen** – titrate as appropriate
- 2.2. If patient is asymptomatic with stable perfusion, monitor the patient
- 2.3. Treat for signs and symptoms of shock as appropriate (700-A10)
- 2.4. If pulseless treat for cardiac arrest as appropriate (700-A07)

3. ALS Treatment

- 3.1. **Vascular Access (IV) or Vascular Access (IO)**, per procedure (700-M13)
 - 3.1.1. Consider **250ml Fluid bolus**, may repeat once to a maximum dose of 500ml
- 3.2. Obtain **12 lead ECG**
- 3.3. If symptomatic or showing signs of hemodynamic instability, **Atropine Sulfate 1 mg IV / IO**, may repeat every 3-5 minutes, total dosage of 3 mg
 - 3.3.1. Do Not delay transcutaneous pacing (TCP) for Atropine Sulfate if the patient:
 - 3.3.1.1. Is unstable
 - 3.3.1.2. Has a second-degree type 2 heart block
 - 3.3.1.3. Has a third-degree heart block
- 3.4. Consider pre-transcutaneous pacing sedation with **Midazolam 2.5mg IV / IO**. May repeat once for a total dosage of 5mg if needed.
- 3.5. **Transcutaneous Pacing (TCP)**
 - 3.5.1. Begin at 80bpm and 0mA
 - 3.5.2. Increase in 10mA increments until capture is obtained, then increase output by 10mA
 - 3.5.3. If patient is still symptomatic increase rate by 10 bpm to a max of 100 bpm (700-M10)



- 3.6. Consider post-transcutaneous pacing sedation with **Morphine 2 mg**, every 5 minutes, max total dose of 20 mg **if SBP is greater than 100mmHg**
- 3.7 **Dopamine 2-20 mcg/kg/min IV / IO**, may be administered post-transcutaneous pacing if patient remains hypotensive

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

- 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. Bradycardia Treatment Flow Chart

