



# Bradycardia

## Adult Medical

**Austin County**  
EMS Protocol & Guideline

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**Overview:** Bradycardia in the adult can range from multiple underlying conditions such as MI, ineffective automaticity of the primary pacemaker(s) of the heart, hypoxia, and congenital reasoning. Understanding why the patient is Bradycardic is highly important to ensure appropriate treatments and does not precipitate any negative effects.

**Definition:** Bradycardia is an organized cardiac rhythm that is calculated based upon perfusing contractions (creates a pulse) that is less than 60 BPM, sustained or intermittent. Asymptomatic patients do not require routine treatment but should be monitored closely.

### EMT

- Place patient on the **Cardiac Monitor**
- Obtain **12 Lead EKG** – if applicable
- **Oxygen** administration as appropriate to the patient presentation
- **Airway Adjuncts** (Supraglottic Airway, OPA, NPA), EtCO<sub>2</sub> monitoring appropriate to patient presentation
- Obtain **BGL**
- **Identify** Source/Causes

### AEMT

- Establish IV of Normal Saline

### Paramedic

- **Atropine 0.5 to 1 mg IVP.** May repeat as necessary (HR 60 and/or systolic >90) to a total dose of 0.04 mg/kg.
- **Midazolam 2-2.5 mg IV/IO** for sedation during TCP with systolic >90 mmHg.  
**Or**
- **Ketamine 0.5 mg/kg - IV/IO** for sedation during TCP
- **Immediate Transcutaneous Pacing for 2<sup>nd</sup> and 3<sup>rd</sup> Degree Heart Blocks and Bradycardia refractory to Atropine.** (See TCP Procedure)

#### Infusions

- **Normal Saline:** 20 ml/kg without the presence of pulmonary edema

If refractory to **Atropine**,

- **Epinephrine 1:10,000** - 1 mg in 100 ml of NS, titrate to maintain blood pressure of 90 mmHg Systolic and/or improve heart rate to 60 BPM or greater  
**Or**
- **Dopamine 5 to 20 mcg/kg/min** titrated to maintain systolic BP of 90 mmHg

### PEARLS

- Any patient presenting ECG is 2°AVB II or 3°AVB (especially wide-complex and/or post arrest) with evidence of hypoperfusion or end-organ compromise (significant decreased mental status – unconscious) shall receive **external pacing** prior to administration of any medications, as **Atropine** may actually worsen the heart block.
- End organ compromise is easiest identified in the pre-hospital setting by altered and/or declining mental status including unconscious.
- Any patient who presents with a complaint/symptom associated with bradycardia should be considered for treatment.
- Bradycardic patients may also be normotensive. This should not dismiss the lack of adequate cardiac output (SV x HR) over time and should be treated if symptomatic despite being normotensive.
- Atropine may exacerbate myocardial ischemia or induce VF or VT or both. When used to treat Bradycardia, associate with acute MI. TCP is preferred treatment of choice whenever possible. Use Atropine with caution in Type II and new 3rd Degree Blocks as it may cause further Bradycardia. TCP is the preferred treatment.
- For cases of severe Hypotension and Bradycardia transport patient in modified Trendelenburg position.