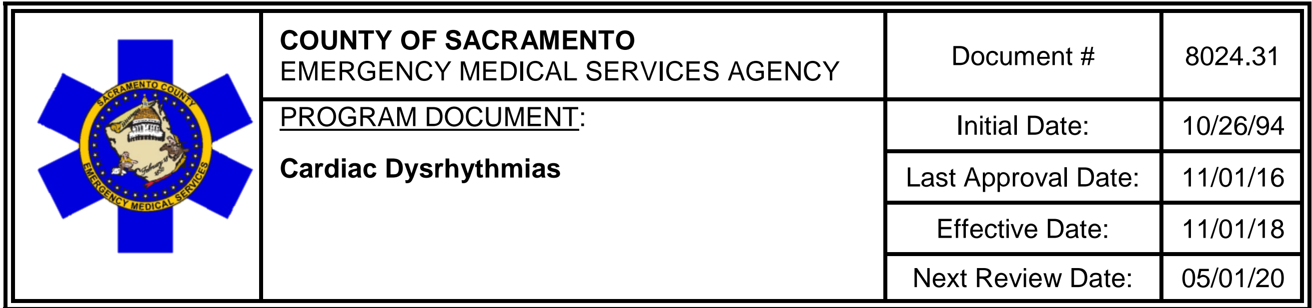

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| | **COUNTY OF SACRAMENTO**<br>EMERGENCY MEDICAL SERVICES AGENCY | Document # | 8024.31 |
| | PROGRAM DOCUMENT:<br><br>**Cardiac Dysrhythmias** | Initial Date: | 10/26/94 |
| | | Last Approval Date: | 11/01/16 |
| | | Effective Date: | 11/01/18 |
| | | Next Review Date: | 05/01/20 |

EMS Medical Director

EMS Administrator

**Purpose:**

A. To serve as the treatment standard for Bradycardic, Supraventricular Tachycardia, and Ventricular Tachycardia Dysrhythmias with pulses for patients who are either stable or unstable.

**Authority:**

A. California Health and Safety Code, Division 2.5
B. California Code of Regulations, Title 22, Division 9

**Protocol:**

Symptomatic Bradycardia and Tachycardia Dysrhythmias frequently have an underlying cause which should be recognized and treated. It is critically important to determine the cause of the patient's instability in order to properly direct treatment.

Search for and treat possible contributing factors:

1. Hypovolemia
2. Hypoxia
3. Hydrogen Ion (acidosis)
4. Hypo-/hyperkalemia
5. Hypoglycemia
6. Hypothermia
7. Tamponade (Cardiac)
8. Thrombosis (coronary or pulmonary)
9. Tension Pneumothorax
10. Trauma (hypovolemia, increased ICP)
11. Toxins

**ADULT BRADYCARDIA**

Protocol applies to adults who are symptomatically bradycardic with a heart rate of < 50 bpm documented by monitor, a systolic blood pressure (SBP) < 90 mmHg, -AND- other signs or symptoms of hypoperfusion that may include decreased sensorium, diaphoresis, chest pain, capillary refill greater than two seconds, cool extremities, or cyanosis.

**Supplemental O2 as necessary to maintain SpO2 ≥ 94%. Use the lowest concentration and flow rate of O2 as possible.**
**Profound bradycardia may require Cardiopulmonary Resuscitation (CPR)**

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Electrocardiogram Monitoring; 12-Lead; 12-Lead ECG if possible.
Establish vascular access with Normal Saline; titrate to SBP ≥ 90-100 mmHg.
Advanced airway adjuncts as needed.

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Symptomatic Type II 2nd degree blocks and 3rd degree blocks shall have pacing implemented without delay

↓

**Atropine*:**
0.5 mg IV/IO push.

↓

Persistent Symptomatic Bradycardia

- **NO** → Transport
- YES ↓

Transcutaneous Cardiac Pacing

- **NOT Available** → **Atropine*:** 0.5 mg – 1.0 mg IV/IO push every 3-5 minutes until 3.0 mg total given. → Base Hospital Order Only
- **Available** → **Midazolam** if needed for sedation:

  IV/IO/IN/IM –4 mg.
  May give an additional 2mg dose
  IV/IO preferred route
  Titrate to patient comfort
  Max dose of 6 mg.

  ↓

  Institute transcutaneous cardiac pacing at 80 bpm, adjust mA to capture. → Base Hospital Order Only

**<u>Base Hospital Order Only</u>**
**Dopamine:**
Begin with an infusion of 10 mcg/kg/min if bradycardia persists and if SBP < 90 mmHg

If Dopamine unavailable:

**Push Dose Epinephrine:**
**Epinephrine** 0.01 mg/ml (10mcg/ml)
Dose: 0.5-2 ml (5-20mcg) IV/IO every 2-5 minutes.
Titrate to SBP > 90.
NOTE: Monitor SBP while administering/titrating.

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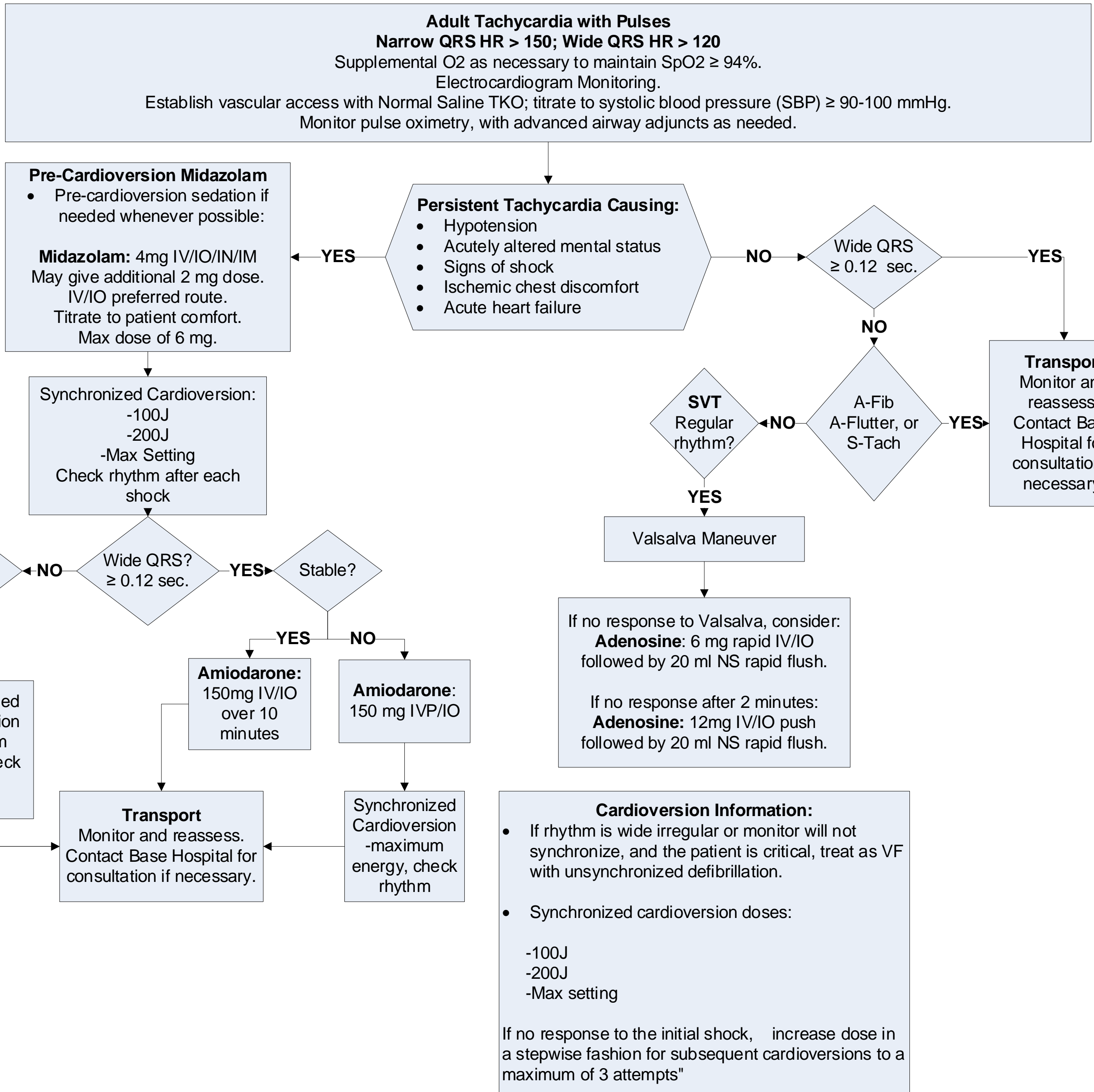
Transport

*__Atropine should be avoided in patients with acute MI in 12-Lead setting as defined in PD# 8827__




**Note:**

Any patient with a symptomatic dysrhythmia should be treated by protocol before 12-lead ECG is considered. 12-lead ECGs for dysrythmias in the pre-hospital setting are optional, and should only be considered when there is suspicion for cardiac ischemia.

**Cross Reference:** Transcutaneous Cardiac Pacing, PD# 8810