CENTRAL CALIFORNIA
EMERGENCY MEDICAL SERVICES
A Division of the Fresno County Department of Public Health

Manual Emergency Medical Services Administrative Policies and Procedures	Policy Number 530.10
Subject Paramedic Treatment Protocols **BRADYDYSRHYTHMIAS – VENTRICULAR RATE LESS THAN 50**	Page 1 of 2
References Title 22, Division 9, Chapter 3.3 of the California Code of Regulations	Effective Fresno County: 01/15/82 Kings County: 04/10/89 Madera County: 06/15/85 Tulare County: 04/19/05

STANDING ORDERS

Secure Airway	Protect with position, basic airway maneuvers, pharyngeal airway, advanced airway if indicated, assist respirations as needed, suction as needed.
Oxygen	Titrate to SpO_2 > 94%. High flow O_2 if patient is unstable.
IV Access	LR TKO – standard tubing

Unstable, for **systolic BP less than 90** and serious signs/symptoms directly related to bradycardic rhythm (altered mental status, chest pain, skin signs suggestive of hypoperfusion)

Atropine	1 mg IV/IO push every 3-5 minutes while severe symptoms and bradycardia persist. Max total dose 3 mg.
Fluid Bolus	500-1000 ml Lactated Ringers or Normal Saline. Do not administer if signs of fluid overload.
Calcium Chloride	Only for dialysis patients with suspected hyperkalemia or calcium channel blocker overdose. 1000 mg (10 mL) of 10% IV/IO push.
Transcutaneous Pacing	If no response to Atropine. If complete heart block or high-grade AV block is present and patient is unstable, may proceed to pacing prior to administration of atropine. Per EMS Policy #530.02.
Epinephrine Infusion	If patient remains unstable despite atropine and transcutaneous pacing: 1 mg Epinephrine in 250 ml NS. Administer only with microdrip (60 gtt/ml) tubing. Start at 2 mcg/min (1 drop every 2 seconds) and titrate carefully at 1 mcg/min increments to target BP >90 mmHg. See drip chart in special considerations. Max dose 8 mcg/min (2 drops per second).

STANDING ORDERS CONTINUED ON NEXT PAGE

Approved By		Revision
EMS Director	**Daniel J. Lynch** (Signature on File at EMS Agency)	**04/01/2026**
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Subject	Policy
Paramedic Treatment Protocols – Bradydysrhythmias – Ventricular Rate Less Than 50	Number 530.10

STANDING ORDERS	
Fentanyl	25-100 mcg IV push for pain control, provided patient has BP greater than 90 systolic. Only to be administered after TCP has been initiated.
Midazolam	If sedation is needed, 1-4 mg slow IV push or 2 mg IM. May repeat in 5 minutes.
12 lead ECG	Do not delay treatment. Refer to EMS Policy #530.02 and #547.
Transport	Transport early after initial stabilizing measures. Per EMS Policy #547.
Contact Hospital	Per EMS Policy #530.02.

SPECIAL CONSIDERATION AND PRIORITIES

1. Patients with normal blood pressure and minimal symptoms related to bradycardia do not require immediate treatment. Obtain 12 lead and transport.

2. Consider and treat reversible causes first:
   a. Medications or overdose – digoxin, beta blockers, calcium channel blockers
   b. Hyperkalemia
   c. Hypoxia
   d. Hypothermia: if suspected severe environmental hypothermia- transport early, begin warming, and contact base prior to medication administration or pacing.

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3. Hyperkalemia may cause junctional bradycardia, idioventricular rhythms, sinus pause, heart block, and bradycardia with a sine wave appearance. Calcium Chloride is the treatment of choice for suspected hyperkalemia and should be administered before other treatments in dialysis patients with suspected hyperkalemia.

4. Calcium chloride may cause severe extravasation injury. Ensure patency of the IV line prior to administration. Proximal IV administration is preferred and IV site should be closely monitored for extravasation.

5. False capture caused by electrical artifact is exceedingly common. True capture is suggested by a wide QRS complex and a tall broad T wave following every pacer spike. Mechanical capture should be confirmed by palpating the femoral pulse and confirmed with clinical improvement. The pulse oximetry waveform should correspond with each paced QRS complex if mechanical capture is present.

6. If there is decline in the patient's clinical status despite pacing, suspect false capture. If patient is GCS 3 and there is no clinical improvement, stop transcutaneous pacing and assess for cardiac arrest.

7. Complete heart block may not respond to treatment with atropine. If there is a complete heart block, it is appropriate to proceed directly to transcutaneous pacing. Reversible causes should be addressed and atropine administered for all other rhythms.

EPINEPHRINE DRIP CHART Mix 1 mg (1 ml) 1:1,000 Epinephrine in 250 ml of Normal Saline **Use only with microdrip tubing (calibration of 60 drops per 1 ml)**	
1 mcg drip = 15 gtt/min	5 mcg drip = 75 gtt/min
2 mcg drip = 30 gtt/min	6 mcg drip = 90 gtt/min
3 mcg drip = 45 gtt/min	7 mcg drip = 105 gtt/min
4 mcg drip = 60 gtt/min	8 mcg drip = 120 gtt/min