

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 530.36
Subject	Paramedic Treatment Protocols PEDIATRIC BRADYCARDIA (HEART RATE < 60)	Page 1 of 5
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	
Bradycardia (HR < 60) with signs of cardiopulmonary compromise (acutely altered mental status, signs of shock, hypotension)	
Airway	Protect with position, pharyngeal airway, assist respirations, suction as needed.
Oxygen and Ventilation	100% by non-rebreather mask, blow-by, or BVM
CPR	If heart rate is less than 60/minute despite adequate ventilation and oxygenation, begin high quality CPR per AHA guidelines.
IV/IO Access	LR TKO/Pediatric tubing with Volutrol.
Epinephrine	0.01 mg/kg 1:10,000 Repeat every 3-5 minutes
Atropine	0.02 mg/kg IV/IO. May repeat once. Minimum dose 0.1 mg. Max single dose 0.5 mg. Administer <u>only</u> for bradycardia associated with primary atrioventricular block or increased vagal tone (i.e. associated with airway manipulation, suctioning, vomiting or other vagal stimuli).
Check Blood Glucose	If < 60 mg/dL: - Dextrose 10% 5 ml/kg IV/IO. Max dose 250 ml - Glucagon IM (if no IV/IO access) 0.5 mg (0.5 ml) if < 25 kg 1 mg (1 ml) if ≥ 25 kg
Fluid Challenge	20 ml/kg Bolus of LR, if no response to medications.
Transport	Transport early after initial stabilizing measures. Per EMS Policy #547.
Contact Hospital	Per EMS Policy #530.02.

BASE HOSPITAL ORDERS NEXT PAGE

Approved By	Daniel J. Lynch (Signature on File at EMS Agency)	Revision
EMS Director		04/01/2026
EMS Medical Director		

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BASE HOSPITAL ORDERS

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| *1. TCP | PER EMS POLICY #530.02 |
| *2. FENTANYL | CONSIDER 1 MCG/KG/DOSE IN/IV/IM PUSH. MAY REPEAT <u>ONCE</u> AFTER 5 MINUTES IF NEEDED. |
| *3. MIDAZOLAM | IF SEDATION IS NEEDED, 0.1 MG/KG SLOW IV PUSH. MAY REPEAT IN 5 MINUTES. |

SPECIAL CONSIDERATIONS AND PRIORITIES

- This protocol applies to patients ≤ 14 years of age. Refer to Length Based Pediatric Tape to estimate weight and refer to drug tables below for specific doses. If patient exceeds the length of the tape, refer to adult doses.
- Most bradycardia in children is due to hypoxia. Maintain airway and apply 100% oxygen by non-rebreather or bag-valve-mask.
- TCP should be considered after treatment with oxygen, ventilation, epinephrine, and atropine has failed to return and maintain a hemodynamically stable rhythm. Contact Base Hospital early.
- False capture caused by electrical artifact is exceedingly common during transcutaneous pacing. 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.

GRAY (3-5 kg)			
REFER TO PROTOCOL #530.01 NEONATAL RESUSCITATION FOR INFANTS BORN IN THE FIELD			
Approximate age	<3 months	Respiratory Rate	30-60
Heart rate	100-180	Minimum SBP	60
EPINEPHRINE IV/IO			
<u>Concentration</u> 0.1mg/mL (1:10,000)	<u>Calculated Dose</u> 0.04 mg	<u>Volume</u> 0.4 mL	
ATROPINE IV/IO			
1 mg/10 mL	0.1 mg	1 mL	
FLUID BOLUS			
NS or LR	80 mL		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10% IV/IO	20 ml slow IV push		
Glucagon IM (1mg/1mL)	0.5 mg	0.5 mL	

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PINK (6-7 kg)			
Approximate age	4 months	Respiratory Rate	30-60
Heart rate	100-180	Minimum SBP	70
EPINEPHRINE IV/IO			
<u>Concentration</u> 0.1mg/mL (1:10,000)	<u>Calculated Dose</u> 0.06 mg	<u>Volume</u> 0.6 mL	
ATROPINE IV/IO			
1 mg/10 mL	0.12 mg	1.2 mL	
FLUID BOLUS			
NS or LR	120 mL		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10%	30 ml slow IV push		
Glucagon IM (1mg/1mL)	0.5 mg	0.5 ml	

RED (8-9 kg)			
Approximate age	8 months	Respiratory Rate	30-60
Heart rate	100-180	Minimum SBP	70
EPINEPHRINE IV/IO			
<u>Concentration</u>	<u>Calculated Dose</u>	<u>Volume</u>	
0.1mg/mL (1:10,000)	0.08 mg	0.8 mL	
ATROPINE IV/IO			
1 mg/10 mL	0.16 mg	1.6 mL	
FLUID BOLUS			
NS or LR	160 mL		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10%	40 ml slow IV push		
Glucagon IM (1mg/1mL)	0.5 mg	0.5 mL	

PURPLE (10-11 kg)			
Approximate age	12 months	Respiratory Rate	24-40
Heart rate	90-170	Minimum SBP	72
EPINEPHRINE IV/IO			
<u>Concentration</u> 0.1mg/mL (1:10,000)	<u>Calculated Dose</u> 0.1 mg	<u>Volume</u> 1 mL	
ATROPINE IV/IO			
1 mg/10 mL	0.2 mg	2 mL	
FLUID BOLUS			
NS or LR	200 mL		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10%	50 mL slow IV push		
Glucagon IM (1mg/1mL)	1 mg	1 mL	

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YELLOW (12-14 kg)			
Approximate age	2 years	Respiratory Rate	24-40
Heart rate	90-160	Minimum SBP	74
EPINEPHRINE IV/IO			
<u>Concentration</u> 0.1mg/ml (1:10,000)	<u>Calculated Dose</u> 0.13 mg	<u>Volume</u> 1.3 ml	
ATROPINE IV/IO			
1 mg/10 mL	0.26 mg	2.6 mL	
FLUID BOLUS			
NS or LR	260 ml		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10%	65 ml slow IV push		
Glucagon IM (1mg/1mL)	0.5 mg	0.5 ml	

WHITE (15-18 kg)			
Approximate age	4 years	Respiratory Rate	22-34
Heart rate	80-140	Minimum SBP	78
EPINEPHRINE IV/IO			
<u>Concentration</u> 0.1mg/mL (1:10,000)	<u>Calculated Dose</u> 0.16 mg	<u>Volume</u> 1.6 mL	
ATROPINE IV/IO			
1 mg/10 mL	0.32 mg	3.2 mL	
FLUID BOLUS			
NS or LR	320 mL		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10%	80 mL slow IV push		
Glucagon IM (1mg/1mL)	0.5 mg	0.5 mL	

BLUE (19-23 kg)			
Approximate age	6 years	Respiratory Rate	20-30
Heart rate	70-130	Minimum SBP	82
EPINEPHRINE IV/IO			
<u>Concentration</u> 0.1mg/ml (1:10,000)	<u>Calculated Dose</u> 0.2 mg	<u>Volume</u> 2.0 mL	
ATROPINE IV/IO			
1 mg/10 mL	0.4 mg	4.0 mL	
FLUID BOLUS			
NS or LR	400 mL		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10%	100 mL		
Glucagon IM (1mg/1mL)	0.5 mg	0.5 mL	

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ORANGE (24-29 kg)			
Approximate age	8 years	Respiratory Rate	18-30
Heart rate	70-130	Minimum SBP	86
EPINEPHRINE IV/IO			
<u>Concentration</u> 0.1mg/ml (1:10,000)	<u>Calculated Dose</u> 0.27 mg	<u>Volume</u> 2.7 mL	
ATROPINE IV/IO			
1 mg/10 mL	0.5 mg	5 mL	
FLUID BOLUS			
NS or LR	540 ml		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10%	135 ml		
Glucagon IM (1mg/1mL)	1 mg	1 ml	

GREEN (30-36 kg)			
Approximate age	10 years	Respiratory Rate	18-30
Heart rate	60-110	Minimum SBP	90
EPINEPHRINE IV/IO			
<u>Concentration</u> 0.1mg/ml (1:10,000)	<u>Calculated Dose</u> 0.32 mg	<u>Volume</u> 3.2 ml	
ATROPINE IV/IO			
1 mg/10 mL	0.5 mg	5 mL	
FLUID BOLUS			
NS or LR	640 ml		
HYPOGLYCEMIA MANAGEMENT			
Dextrose 10%	160 ml		
Glucagon IM (1mg/1mL)	1 mg	1 ml	