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 530.45
Subject Paramedic Treatment Protocols **PEDIATRIC ALLERGIC REACTIONS AND ANAPHYLACTIC SHOCK**	Page 1 of 5
References Title 22, Division 9, Chapter 3.3 of the California Code of Regulations	Effective **04/01/2026**

STANDING ORDERS	
Airway	Suction as needed. Protect with position and basic airway adjuncts as needed.
Oxygen	Titrate to maintain SpO_2 ≥94%. High flow O_2 if unstable.
Cardiac monitoring	Treat rhythm as appropriate.
Remove Allergen	If appropriate (i.e. bee stinger) and apply cold compress.
Mild Allergic Reaction (Skin rash and swelling)	
Diphenhydramine	1 mg/kg IM one time as needed for itching. Max dose 50 mg.
Transport	Per EMS Policy #547.
Severe Reaction/Anaphylaxis (Hypotension, respiratory distress, airway swelling in the setting of allergen exposure)	
Epinephrine	0.01 mg/kg IM (0.01 ml/kg of 1:1000) to maximum single dose 0.4 mg. May repeat dose in x 3 every 5 minutes if severe symptoms persist.
IV access	Use Volutrol and pediatric tubing. Saline lock if no hypotension.

STANDING ORDERS – CONTINUED ON NEXT PAGE

Approved By EMS Director	**Daniel J. Lynch** (Signature on File at EMS Agency)	Revision
  EMS Medical Director	**Miranda Lewis, MD** (Signature on File at EMS Agency)	

Subject	Policy
Paramedic Treatment Protocols – Pediatric Allergic Reactions and Anaphylactic Shock	Number 530.45

STANDING ORDERS (CONTINUED)	
Fluid Bolus	If hypotension for age or signs of shock (capillary refill > 2 seconds, weak/thready pulse), administer 20 ml/kg Lactated Ringers or Normal Saline. May repeat x 1.
Nebulized albuterol	If wheezing or respiratory distress: 5 mg/6 cc nebulized albuterol sulfate. May repeat x 2 as needed.
Diphenhydramine	1 mg/kg slow IV push. Max dose 50 mg. If unable to establish IV, give IM.
Transport	Per EMS Policy #547. Transport early after initial stabilizing measures.
Contact Hospital	Per EMS Policy #530.02.

BASE HOSPITAL ORDERS	
***1. EPINEPHRINE DRIP**	**IF PROFOUND SHOCK PERSISTS DESPITE IM EPINEPHRINE X 3** **Mix 1 mg (1 ml) of Epinephrine 1:1000 in 250 ml Normal Saline. Administer only with microdrip (60 gtt/ml) tubing.** **Start at 1 mcg/min (1 drop every 4 seconds) and carefully titrate to target age-appropriate blood pressure (refer to EMS Policy #530.32). Maximum dose 1 mcg/kg/min (if < 10 kg) or 10 mcg/min (if ≥10 kg)** **See length-based color chart.** **Check IV/IO site at least every 5 minutes and discontinue site if concern for extravasation.**

SPECIAL CONSIDERATION AND PRIORITIES

1. 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.

2. Early Base Hospital contact is recommended for suspected allergic reaction and anaphylaxis in infants <1 year of age. Consider alternative diagnoses for respiratory distress.

3. Anaphylaxis is a severe allergic reaction characterized by the following:
   - Involvement of the skin/mucosa (hives, swollen lips or tongue) with respiratory compromise or hypotension.
   - Hypotension after exposure to a known allergen.
   - Involvement of two or more systems (skin/mucosa, respiratory compromise, gastrointestinal symptoms, hypotension).

4. Treat as an allergic reaction only if history of exposure to allergen (such as bee sting) or other signs of acute allergy – such as hives, itching, erythema, edema, stridor, respiratory distress, wheezing, or hypotension.

5. Initiate transport as soon as possible after initial dose of IM epinephrine for patients with severe allergic reaction. Transport lights/siren all patients in shock or unresponsive to therapy.

6. If multiple doses of IM epinephrine are required, administer in different locations or at least 1 inch from prior injection site.

7. Minimum systolic blood pressure for patients > 1 year can be calculated with the following formula: 70 mmHg + (2 x age in years).

Subject	Policy
Paramedic Treatment Protocols – Pediatric Allergic Reactions and Anaphylactic Shock	Number 530.45

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

PINK (6-7 kg)			
Approximate age	4 months	Respiratory Rate	30-60
Heart rate	100-180	Minimum SBP	70
EPINEPHRINE (INTRAMUSCULAR ONLY)			
Concentration **1mg/mL (1:1,000)**	**Calculated Dose** **0.06 mg**	**Volume** **0.06 mL**	
DIPHENHYDRAMINE (IV/IM)			
50 mg/mL	**6 mg**	**0.12 mL**	
FLUID BOLUS			
NS or LR	**120 mL**		
EPINEPHRINE DRIP IV/IO (BASE HOSPITAL ORDER ONLY)			
Concentration **1mg/250 mL**	**Starting Dose** **1 mcg/min (1 drop every 4 seconds)**	**Maximum Dose** **6 mcg/min (1.5 drops every second)**	

RED (8-9 kg)			
Approximate age	8 months	Respiratory Rate	30-60
Heart rate	100-180	Minimum SBP	70
EPINEPHRINE (INTRAMUSCULAR ONLY)			
Concentration **1 mg/mL (1:1000)**	**Calculated Dose** **0.08 mg**	**Volume** **0.08 mL**	
DIPHENYDRAMINE			
50 mg/mL	**8 mg**	**0.16 mL**	
FLUID BOLUS			
NS or LR	**160 mL**		
EPINEPHRINE DRIP IV/IO (BASE HOSPITAL ORDER ONLY)			
Concentration **1mg/250 mL**	**Starting Dose** **1 mcg/min (1 drop every 4 seconds)**	**Maximum Dose** **8 mcg/min (2 drops every second)**	

PURPLE (10-11 kg)			
Approximate age	12 months	Respiratory Rate	24-40
Heart rate	90-170	Minimum SBP	72
EPINEPHRINE (INTRAMUSCULAR ONLY)			
Concentration **1mg/mL (1:1,000)**	**Calculated Dose** **0.1 mg**	**Volume** **0.1 mL**	
DIPHENHYDRAMINE (IV/IM)			
50 mg/mL	**10 mg**	**0.2 mL**	
FLUID BOLUS			
NS or LR	**200 mL**		
EPINEPHRINE DRIP IV/IO (BASE HOSPITAL ORDER ONLY)			
Concentration **1mg/250 mL**	**Starting Dose** **1 mcg/min (1 drop every 4 seconds)**	**Maximum Dose** **8 mcg/min (2 drops every second)**	

YELLOW (12-14 kg)			
Approximate age 2 years Heart rate 90-160		Respiratory Rate 24-40 Minimum SBP 74	
EPINEPHRINE (INTRAMUSCULAR ONLY)			
Concentration **1mg/mL (1:1,000)**	**Calculated Dose** **0.13 mg**	**Volume** **0.13 mL**	
DIPHENHYDRAMINE (IV/IM)			
50 mg/mL	**13 mg**	**0.26 mL**	
FLUID BOLUS			
NS or LR	**260 mL**		
EPINEPHRINE DRIP IV/IO (BASE HOSPITAL ORDER ONLY)			
Concentration **1mg/250 mL**	**Starting Dose** **1 mcg/min (1 drop every 4 seconds)**	**Maximum Dose** **8 mcg/min (2 drops every second)**	

WHITE (15-18 kg)			
Approximate age 4 years Heart rate 80-140		Respiratory Rate 22-34 Minimum SBP 78	
EPINEPHRINE (INTRAMUSCULAR ONLY)			
Concentration **1mg/mL (1:1,000)**	**Calculated Dose** **0.16 mg**	**Volume** **0.16 mL**	
DIPHENHYDRAMINE (IV/IM)			
50 mg/mL	**16 mg**	**0.32 mL**	
FLUID BOLUS			
NS or LR	**320 mL**		
EPINEPHRINE DRIP IV/IO (BASE HOSPITAL ORDER ONLY)			
Concentration **1mg/250 mL**	**Starting Dose** **1 mcg/min (1 drop every 4 seconds)**	**Maximum Dose** **8 mcg/min (2 drops every second)**	

BLUE (19-23 kg)			
Approximate age 6 years Heart rate 70-130		Respiratory Rate 20-30 Minimum SBP 82	
EPINEPHRINE (INTRAMUSCULAR ONLY)			
Concentration **1mg/mL (1:1,000)**	**Calculated Dose** **0.2 mg**	**Volume** **0.2 mL**	
DIPHENHYDRAMINE (IV/IM)			
Concentration **50 mg/mL**	**Calculated Dose** **20 mg**	**Volume** **0.4 mL**	
FLUID BOLUS			
NS or LR	**400 mL**		
EPINEPHRINE DRIP IV/IO (BASE HOSPITAL ORDER ONLY)			
Concentration **1mg/250 mL**	**Starting Dose** **1 mcg/min (1 drop every 4 seconds)**	**Maximum Dose** **8 mcg/min (2 drops every second)**	

ORANGE (24-29 kg)			
Approximate age 8 years Heart rate 70-130		Respiratory Rate 18-30 Minimum SBP 86	
EPINEPHRINE (INTRAMUSCULAR ONLY)			
Concentration **1mg/ml (1:1,000)**	**Calculated Dose** **0.27 mg**	**Volume** **0.27 mL**	
DIPHENHYDRAMINE (IV/IM)			
50 mg/mL	**27 mg**	**0.54 mL**	
FLUID BOLUS			
NS or LR	**540 mL**		
EPINEPHRINE DRIP IV/IO (BASE HOSPITAL ORDER ONLY)			
Concentration **1mg/250 mL**	**Starting Dose** **1 mcg/min (1 drop every 4 seconds)**	**Maximum Dose** **8 mcg/min (2 drops every second)**	

GREEN (30-36 kg)			
Approximate age 10 years Heart rate 60-110		Respiratory Rate 18-30 Minimum SBP 90	
EPINEPHRINE (INTRAMUSCULAR ONLY)			
Concentration **1mg/ml (1:1,000)**	**Calculated Dose** **0.32 mg**	**Volume** **0.32 mL**	
DIPHENHYDRAMINE (IV/IM)			
50 mg/mL	**32 mg**	**0.64 mL**	
FLUID BOLUS			
NS or LR	**640 mL**		
EPINEPHRINE DRIP IV/IO (BASE HOSPITAL ORDER ONLY)			
Concentration **1mg/250 mL**	**Starting Dose** **1 mcg/min (1 drop every 4 seconds)**	**Maximum Dose** **8 mcg/min (2 drops every second)**	