



County of Santa Clara
Emergency Medical Services Agency
ADMINISTRATIVE ORDER

Number: 090305-02
Title: Epinephrine, DuoDote™ and Combitube™ Protocol revisions
Effective: March 5, 2009

The following protocol and inventory changes are effective immediately

Epinephrine

ALS providers are authorized to use Epinephrine 1:1000 concentration in 1mg/1ml ampules as indicated for anaphylaxis and can replace the current use of the EpiPen™ and EpiPen Jr™. However, if an agency wishes to continue to use the EpiPen™ and EpiPen Jr™. they may continue to do so.

The ampules shall be placed in a clear separate bag that is sealed with a label that says:

“Warning: for IM use only”

DuoDote™

Mark I kits have been replaced with the DuoDote™ Auto-Injectors. These kits carry the same indications as the Mark I kits for symptomatic nerve agent or organophosphate poisonings.

Combitube™ Large-Adult

The Large-Adult size Combitube™ is probably too large and has been shown to cause unnecessary airway trauma. The Small-Adult size has been found to be sufficient for all patients. Therefore all agencies may remove the Large-Adult Combitube™ from their inventories.

Please see attached revised protocols.

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Authorized Medications – Adult

MEDICATIONS	STANDARD DOSE
Activated charcoal	1 gm/kg (max 50 gm) with or without Sorbitol
Adenosine	6 mg 1 st dose; 12 mg 2 nd and 3 rd doses (rapid IV push)
Albuterol	2.5 – 5 mg
Aspirin	324 mg PO (chewable – not enteric coated)
Atropine sulfate	Cardiac arrest: 1 mg IVP or IO repeat q 5 min.– (max dose 3 mg IVP or IO) or 2 mg ET (max dose 6 mg) if IV or IO unable. Bradycardia: 0.5 mg IVP, IO repeat in 5 min (max. dose 1 mg.) or 1 mg ET Repeat 1 time in 5 min (max dose 2 mg) if IV or IO unable
Calcium Chloride 10%	20-30 mg/kg IVP given over several minutes
Dextrose 50%	25 gm IVP
Diphenhydramine (Benadryl)	50 mg IVP/IM
Dopamine	5-20 mcg/kg/min titrated by 5 mcg/kg/min increments to effect
Epinephrine Auto-injector 0.3 mg	Allergic reaction/Anaphylaxis: use injector Severe Bronchospasm: use injector Use anterior lateral thigh injection site. Avoid deltoid or buttocks.
DuoDote Autoinjector (atropine/pralidoxime)	Organophosphate/WMD nerve agent exposure: : use injector Use anterior lateral thigh injection site. Avoid deltoid or buttocks.
Epinephrine 1:1000 (1mg/1ml ampule)	Allergic reaction/Anaphylaxis: 0.3 mg IM only Severe Bronchospasm: 0.3 mg IM only
Epinephrine 1:10,000	Anaphylaxis: 0.1 mg very slow IVP or IO per base hospital physician order only. Cardiac arrest: 1 mg IVP/IO
Furosemide	Suspected Acute Pulmonary Edema: 40 mg SIVP only if patient is currently taking Furosemide or Bumex
Glucagon	Hypoglycemia: 1 mg IM Calcium channel blocker overdose: 1 mg IM Beta blocker overdose: 1 mg IM
Glucose paste	1-tube (approx. 25 gm) PO, 2 tubes max
Lidocaine	V-Fib or V-Tac: 1-1.5 mg/kg IVP or IO, repeat at 0.5-0.75 mg/kg q 5-10 minutes to a max of 3 mg/kg (2-3 mg/kg ET to a max of 6mg/kg if IV or IO unavailable) PVC's: 1-1.5mg/kg Slow IVP or IO, max of 3 mg/kg (2-3 mg/kg ET can repeat at 1-1.5 mg/kg to a max total dose of 6 mg/kg if IV or IO unavailable)
Midazolam (Versed)	Sedation for Cardioversion: 1-2 mg slow IVP, titrate to effect (max dose 5 mgs) Seizure: 1-2 mg IVP (to a max of 5 mg) 0.1 mg/kg IM (max dose 5 mg) 2.5 mg each nostril IN TCP: 1-2 mg slow IVP in conjunction with Morphine
Morphine sulfate	2-5 mg IVP q 3-5 minutes, to 15 mg max. 5-10 mg IM q 20 minutes to 15 mg max.
Naloxone (Narcan)	1-4 mg IVP/IM/IN/IO
Nitroglycerin	0.4 mg metered spray or 0.4 mg. tab, SL

Normal Saline Bolus	250 ml IV
Sodium bicarbonate	1 mEq/kg IVP
Sodium Thiosulfate	25% solution, 12.5g/50mL IV over 10 minutes. Can be given in an infusion using the table in procedure M13

Allergic Reaction/Anaphylaxis (A12)

BLS Treatment

- Routine Medical Care – Adult (see S04)
 - Treat for signs and symptoms of shock, if necessary (see Shock A10)

ALS Treatment

- Routine Medical Care – Adult (see S04)
- Rash and/or itching
 - **Diphenhydramine** 50 mg IVP/IM
- Dyspnea
 - **Albuterol** 2.5 – 5 mg via HHN or other FDA approved medication delivery device q 15 min or continuously prn
 - If severe distress and tidal volume decreased, administer Albuterol via in-line BVM or ET
 - Discontinue if HR > 160 bpm, chest pain, dysrhythmias, or acute onset of new symptoms
- Shock
 - Consider 250 ml **Normal Saline** bolus IV. May repeat one time.
 - **Epinephrine**: Auto-injector: Use one injector. Use anterior lateral thigh. (For administration technique see Nerve Agent antidote administration WMD-01) may repeat one time.

or

Epinephrine (1:1000) (1mg/1ml ampule): Administer 0.3mg (0.3 ml) IM only

Base Hospital Physician Order

- Stridor, severe shock and impending respiratory arrest
- **Epinephrine (1:10,000) 0.1mg** very slow IVP/IO, only after direct order from the base hospital physician. Draw up the medication from the preload Epinephrine syringe.
- Using a 3 ml syringe, withdraw 1 ml of Epinephrine 1:10,000 from the preload Epinephrine Syringe.
- Additional doses may be required. Contact the base hospital.

Poisoning and Overdose (A15)

BLS Treatment

- Protect yourself. Wear appropriate PPE.
- Routine Medical Care – Adult (see S04)
- Consult with on-scene Hazardous Materials Specialists or Base Hospital as needed to identify Toxin/Toxicant/Substance
- Decontamination should be done by trained personnel. Apply triage tag with contamination status.
- Treat for signs and symptoms
- Identify substance type, amount, and time of ingestion/exposure


Envenomation	
<i>Agent</i>	<i>Treatment</i>
Bee Sting Wasp Sting	<ul style="list-style-type: none">• Remove stinger by scraping or flicking.• Squeezing or tweezers are contraindicated• Cold packs may be applied to relieve pain
Spider Bite Scorpion Sting	<ul style="list-style-type: none">• Cold packs may be applied to relieve pain
Snake Envenomation	<ul style="list-style-type: none">• DO NOT apply cold pack, tourniquet, incise wound, or attempt to suck out venom• Avoid movement with the affected extremity, splint as if fractured• Keep extremity at or below heart level• Monitor distal pulse• Circle any swelling around bite marks with a pen and note time• Remove jewelry or restrictive clothing on the affected extremity

ALS Treatment

- Routine Medical Care – Adult (see S04)
- Withhold charcoal if rapidly decreasing level of consciousness
- Consider pain management (see Pain Management A17)

Poisoning and Overdose (A15)

Ingestions	
Agent	Treatment
General Ingestion	<ul style="list-style-type: none"> • Activated Charcoal slush 1g/kg PO if time of ingestion is less than 1 hour. Maximum dose is 50 gm. <p>Charcoal is contraindicated if patient lacks gag reflex cannot self-administer or has ingested substance not bound by charcoal (caustics, lithium, metals, ethylene glycol, Iron, Methanol, other Alcohols, and Hydrocarbons).</p>
Narcotics/Opioids	Naloxone 1-4 mg IVP/IM/IN. May repeat twice every 2-3 minutes (max dose 10 mg). (For IN use Procedure M14 IN Administration)
Suspected Ecstasy, Rohypnol, GHB	Ensure airway protection and monitor for signs of aspiration, Monitor body temperature. Use cooling measures as indicated.
Tri-Cyclic Antidepressants	<p>Sodium Bicarbonate 1mEq/kg IVP (max dose 100 mEq) for:</p> <ul style="list-style-type: none"> • Hypotension • Seizure • QRS widening >0.10 s
Organophosphates/Cholinergics/ Pesticides/ WMD nerve agents	DuoDote (atropine 2.1 mg/pralidoxime 600 mg) See WMD-01 procedure note.
Major Tranquilizers/Neuroleptics	Diphenhydramine 50 mg IVP/IM for dystonic reactions
Cyanide	Sodium Thiosulfate 25% solution, 12.5 g (50 ml) IV slowly over 10 minutes. Can be administered via infusion over 10 minutes (M13)

Base Hospital Order	
Agent	Treatment
Tricyclic Anti-Depressants	<ul style="list-style-type: none"> • Additional Sodium Bicarbonate
Calcium Channel Blockers	<ul style="list-style-type: none"> • Glucagon 1 mg IM. • Calcium Chloride 10% 20-30 mg/kg IVP given over several minutes <div style="border: 1px solid black; padding: 5px; display: inline-block;">  <p>Calcium Chloride contraindicated if patient takes digoxin.</p> </div> <ul style="list-style-type: none"> • Manage Symptomatic Bradycardia as necessary
Beta Blockers	<ul style="list-style-type: none"> • Glucagon 1 mg IM. • Manage Symptomatic Bradycardia as necessary

Authorized Medications – Pediatric, age less than 15

MEDICATIONS	STANDARD DOSE
Activated charcoal	1 g/kg PO, or 25 g if > 1 year old (with or without Sorbitol)
Adenosine	0.1 mg/kg rapid IVP/IO. (max dose 6 mg)
Albuterol	2.5 mg in 3 cc NS via FDA approved drug nebulizer device
Atropine sulfate	0.02 mg/kg IVP/IO ET if IV IO unable (0.1 mg minimum dose) 0.4-1mg/ml concentration for ET
Calcium Chloride 10%	20-30 mg/kg IVP/IO given over several minutes
Dextrose 10% (neonate)	3 ml/kg IVP/IO
Dextrose 25% (neonate or < 4 y/o)	2 ml/kg IVP/IO
Dextrose 50% (> 4 y/o)	1 ml/kg IVP/IO
Diphenhydramine (Benadryl)	1 mg/kg IM/IVP. Max dose = 50 mg.
Dopamine	5-20 mcg/kg/min titrated by 5 mcg/kg/min increments to effect
Epinephrine Autoinjector 0.15 mg. (1:2000)	Allergic reaction/anaphylaxis: 1 injector IM
Epinephrine 1:1,000 (1mg/ml ampules)	Allergic reaction/anaphylaxis: 0.01 mg/kg IM only (max initial dose 0.3 mg)
Epinephrine 1:10,000	0.01 mg/kg IVP/IO (max initial dose 1 mg)
Glucagon	Calcium channel/beta blocker overdose: Glucagon 0.05 mg/kg IM Hypoglycemia: 0.1 mg/kg IM (max dose 1 mg)
Glucose paste	1-tube (approx. 25 gm) PO, 2 tubes max
Lidocaine	1 mg/kg IVP/IO or 3 mg/kg ET if IO/IV unable 1mg/kg IO prior to medication administration.
Midazolam (Versed)	Pre-cardioversion/TCP sedation 0.05 – 0.1 mg/kg IVP/ (max dose 2 mg) Seizure: 0.1 mg/kg slow IVP (max dose 4 mg) or 0.1 mg/kg IM (max dose 5 mg) or IN
Morphine sulfate	0.05 mg/kg IVP or 0.1 mg/kg IM
Naloxone (Narcan)	0.1 mg/kg IVP/IO/IM/IN
Normal Saline Bolus	Neonates: 10 ml/kg (max 60 ml/kg) Child > 1 year: 20 ml/kg (max 60 ml/kg)
Sodium bicarbonate	1 mEq/kg IVP/IO
Sodium Thiosulfate	25% solution, 1.65 ml/kg to a max dose of 50mL (12.5 g) slowly IV over 10 minutes. Can be administered via NSS using the standardized drip rate schedule M13.

Pediatric Allergic Reaction / Anaphylaxis (P16)

BLS Treatment

- Routine Medical Care – Pediatric (see S05)
- Position of comfort
- If possible, identify underlying cause

ALS Treatment

- Routine Medical Care – Pediatric (see S05)
- **Diphenhydramine** 1 mg/kg IM/IVP. Max dose = 50 mg.
- Albuterol 2.5 mg in 3 ml NS via nebulizer, q 15 minutes prn and HR < 200 bpm
 - If severe distress and tidal volume decreased, administer Albuterol via in-line BVM or ET
- If severe distress and signs of shock
 - **Epinephrine Auto injector:** 0.15 mg IM

Or

Epinephrine 1:1000 (1mg/1ml ampule): 0.01 mg/kg IM only

Base Hospital Physician Order

For Stridor, severe respiratory distress or shock

Epinephrine 0.01 mg/kg (1:10,000) IVP/IO (max dose 0.3 mg) per Base Hospital Physician Order only.

Withdraw Epinephrine from the preload using a 3 ml syringe.

Special Considerations

- **Epinephrine** should be reserved for those patients who are unable to generate adequate tidal volume to deliver aerosolized drug to the bronchial tree. Do not use Epinephrine excessively, it tends to thicken secretions, deplete glycogen stores, and increase apprehension.
- Base Hospital Contact for additional resources as necessary
- Signs and symptoms of severe distress and signs of shock include:
 - Cool, clammy, mottled skin
 - Pallor due to decreased skin perfusion
 - Altered sensorium due to decreased perfusion to the brain
 - SBP < 70 mmHg
 - Capillary refill > 2 sec
- Signs and symptoms of moderate to severe respiratory distress include:
 - Cyanosis
 - Inability to speak > 2 syllable units
 - Shortness of breath
 - SBP < 70 mmHg
 - Accessory muscle use
 - Severe wheezing
 - Capillary refill > 2 seconds