

PREHOSPITAL FORMULARY



EL DORADO COUNTY
EMERGENCY MEDICAL SERVICES AGENCY
415 Placerville Drive, Suite J
Placerville, CA 95667

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| Activated Charcoal (Charcoal Slurry) | |
|---|---|
| Classification: | Chemical absorbent |
| Actions: | Inhibits gastrointestinal absorption of drugs or chemicals |
| Indications: | Suspected overdose or accidental ingestion of drugs or chemicals |
| Contraindications: | <ul style="list-style-type: none"> • Altered level of consciousness • No gag reflex • Ingestion of caustics, corrosives, or petroleum distillates |
| Adverse effects: | <ul style="list-style-type: none"> • Vomiting • Aspiration |
| Adult Administration: | 50 gm PO |
| Pediatric Administration: | 1-2 gm/kg (Maximum dose 100 gm) |
| Onset: | Immediate |
| Duration: | 24 hours |
| Pregnancy Safety: | Not established |
| Comments: | <p>Milk products ingested prior to activated charcoal can reduce its effectiveness.</p> <p>Most effective if administered within 30 minutes of ingestion.</p> <p>Activated charcoal without Sorbitol is the only approved type.</p> |

| Adenocard | (Adenosine) |
|----------------------------------|--|
| Classification: | Antidysrhythmic agent |
| Actions: | Slows conduction through the A-V node, can interrupt the re-entry pathways through the A-V node, and can restore normal sinus rhythm in patients with PSVT |
| Indications: | Supra-ventricular tachycardia (stable) |
| Contraindications: | <ul style="list-style-type: none"> • Patients with a known history of atrial fibrillation • Patients with a known history of atrial flutter • 2nd or 3rd degree heart block • Sick sinus syndrome • Hypersensitivity to adenosine |
| Adverse effects: | <ul style="list-style-type: none"> • Facial flushing • Headache • Dizziness • Dyspnea • Nausea/vomiting • Chest pressure • Transient asystole • Bronchoconstriction in some asthma patients |
| Adult Administration: | 6 mg Rapid IVP followed with 10 mL NS flush 2 repeat doses of 12 mg q 2 minutes PRN |
| Pediatric Administration: | 0.1 mg/kg rapid IVP followed with 2-3 mL NS (Max. dose 6 mg). MR in 3 minutes at 0.2 mg/kg (Max. dose 12 mg.) |
| Onset: | Immediate |
| Duration: | 10 seconds |
| Pregnancy Safety: | Category C |
| Comments: | 1/2 life is "10 seconds." A brief period of asystole (up to 15 seconds) following conversion, followed by resumption of NSR is common after rapid administration. |

| Albuterol Sulfate (Proventil, Ventolin) | |
|--|---|
| Classification: | Bronchodilator |
| Actions: | Relaxes bronchial smooth muscle by stimulating beta ₂ receptors resulting in bronchodilation |
| Indications: | <ul style="list-style-type: none"> • Acute asthma • Allergic reaction • COPD/bronchitis • Bronchospasm |
| Contraindications: | <ul style="list-style-type: none"> • Prior hypersensitivity reaction to Albuterol • Symptomatic tachycardia • Chest pressure |
| Adverse effects: | <ul style="list-style-type: none"> • Tachycardia • Hypertension • Palpitations • Dizziness • Dysrhythmias • Restlessness • Nausea |
| Adult Administration: | 2.5 mg/3 mL NS via nebulizer. If severe distress persists, initiate continuous Albuterol via nebulizer, not to exceed 15 mg/hr. May also be administered via facemask, BVM, or ETT |
| Pediatric Administration: | 2.5 mg in 3 mL NS via nebulizer. If severe distress persists repeat at 0.5 mg/kg hr to a maximum of 15 mg/hr |
| Onset: | Within 5 minutes |
| Duration: | 3 - 4 hours |
| Pregnancy Safety: | Category C |
| Comments: | Use with caution in patients with: <ul style="list-style-type: none"> • Heart disease • Hypertension • Tachydysrhythmias • Patients being treated with MAO inhibitors • Patients that are hypersensitive to sympathomimetics |

| Aspirin (ASA, Acetylsalicylic Acid) | |
|--|---|
| Classification: | Antiplatelet, Analgesic, Antipyretic, Anti-inflammatory |
| Actions: | Inhibition of platelet aggregation and platelet synthesis Reduction of risk of death in patients with a history of myocardial infarction or unstable angina |
| Indications: | Chest pain with suspected myocardial ischemia |
| Contraindications: | <ul style="list-style-type: none"> • Allergy to ASA • Peptic ulcer disease • Patients who have taken ASA in the last 12 HRS • Hypersensitivity to salicylates |
| Adverse effects: | <ul style="list-style-type: none"> • Nausea-GI upset • Hepatotoxicity • Occult blood loss • Anaphylaxis |
| Adult Administration: | 2 tablets 160 - 162 mg (chewable baby ASA) PO |
| Pediatric Administration: | Not recommended for prehospital use |
| Onset: | 30-60 minutes |
| Duration: | 4-6 Hours |
| Pregnancy Safety: | Pregnancy safety: Consult M.D., not recommended in third trimester |
| Comments: | Salicylism signs and symptoms: dizziness, tinnitus, difficulty hearing, nausea, vomiting, and mental confusion. |

Atropine Sulfate

| | |
|------------------------------|---|
| Classification: | Parasympathetic blocker (Anticholinergic), Antidysrhythmic agent |
| Actions: | Inhibits parasympathetic stimulation by blocking acetylcholine receptors Decreases vagal tone resulting in increased heart rate and AV conduction Dilates bronchioles and decreases respiratory tract secretions Decreases gastrointestinal secretions and motility |
| Indications: | <ul style="list-style-type: none"> • Symptomatic bradycardia • Asystole • Pulseless electrical activity HR < 60 (PEA) • Organophosphate poisoning (OPP) • Pre-intubation for patients <20 kg or <5 years of age • Nerve agent exposure (See pages 38-45) |
| Contraindications: | Neonates (bradycardia and asystole/PEA in neonates is usually caused by hypoventilation; also the vagus nerve in neonates is underdeveloped and atropine will usually have no effect upon it.) |
| Adverse effects: | <ul style="list-style-type: none"> • Tachycardia • Increased myocardial O₂ demand • Headache • Dizziness • Palpitations • Dries mucous membranes • Nausea/vomiting • Flushed skins • Dilated pupils • Increased intraocular pressure |
| Precautions: | <ul style="list-style-type: none"> • Use with caution in patients with suspected acute myocardial infarction (AMI) and glaucoma patients • Will not be effective for Type II AV Block and new Third Degree Block with wide QRS complexes (In these patients may cause paradoxical slowing. Be prepared to pace) |
| Adult Administration: | <p><u>Bradycardia:</u> IVP/IO 0.5- q 3-5 min to Max. of 3 mg</p> <p>ET: 1 mg followed by 5 mL normal saline flush and 5 normal ventilations. May repeat every 5 minutes to a Max. of 3 mg</p> <p><u>Asystole/PEA:</u> IVP/IO: 1 mg q 3-5 minutes to maximum of 3</p> |

| | |
|----------------------------------|---|
| | <p>doses (3 mg)</p> <p>ET: 2 mg followed by 5 -10 mL NS or SW flush and 5 normal ventilations. May repeat q 3-5 minutes to Max. of 3 doses (6 mg)</p> <p><u>OPP:</u></p> <p>IV/IO/IM: administer 2 mg. May be repeated every 5 minutes until symptoms clear.</p> <p>ET: administer 4 mg followed by 5 mL normal saline flush and 5 normal ventilations. May be repeated every 5 minutes until symptoms clear.</p> <p>If symptoms are severe or the patient does not respond to treatment, higher doses of atropine may be ordered by base station</p> |
| Pediatric Administration: | <p><u>Bradycardia:</u></p> <p>IVP/IO: 0.02 mg/kg. Minimum dose of 0.1 mg and a Max. dose of 0.5 mg for a child; 1.0 mg for an adolescent. This dose may be repeated after 5 minutes for a Max. total dose of 1.0 mg for a child and 2.0 mg for an adolescent</p> <p>ET: 0.03 mg/kg followed by 5 mL NS or SW flush and 5 normal ventilations. This dose may be repeated in 5 minutes</p> <p><u>OPP:</u></p> <p>Administer per Poison Control guidelines</p> <p><u>Pre-intubation:</u></p> <p>In patients <20 kg or <5 years of age, administer atropine 0.02 mg/kg IV/IO minimum dose – 0.1 mg (Max. dose 1.0 mg)</p> |
| Onset: | 2 – 5 minutes |
| Duration: | 20 minutes |
| Pregnancy Safety: | Category C |
| Comments: | <p>Bradycardia in pediatrics is usually due to hypoxia.</p> <p>Max adult dosage of atropine is 6 mg for atropine given via ET tube.</p> <p>Antihistamines, phenothiazines, and tricyclic antidepressants enhance the effects of atropine.</p> <p>Atropine is not recommended in asymptomatic bradycardia. The increase in myocardial O2 demand may cause/extend an AMI.</p> <p>Atropine is not recommended in neonates.</p> <p>Neonatal bradycardia often resolves itself quickly without corrective treatment.</p> |

| Atrovent (Ipratropium Bromide Monhydrate In a DuoNeb pillow) | |
|---|--|
| Classification: | Parasympathetic blocker (Anticholinergic), Bronchodilator |
| Actions: | <p>Inhibits parasympathetic stimulation by blocking acetylcholine receptors</p> <p>Anticholinergics prevent the increase of cyclic guanosine monophosphate which is caused by interaction of acetylcholine with the muscarinic receptor on bronchial smooth muscle</p> <p>Dilates bronchioles and decreases respiratory tract secretions</p> |
| Indications: | <ul style="list-style-type: none"> • Asthma • COPD • Allergic reaction • Bronchospasm |
| Contraindications: | Patients with a history of hypersensitivity to peanuts, soy products, or atropine. |
| Adverse effects: | <ul style="list-style-type: none"> • Tachycardia • Blurred vision • Headache • Dizziness • Nausea/vomiting • Cough • Increased intraocular pressure |
| Precautions: | <ul style="list-style-type: none"> • Use with caution in glaucoma patients |
| Adult Administration: | 0.5 mg premixed with 2.5 mg albuterol (3 mL total solution) via nebulizer. Single dose only. |
| Pediatric Administration: | 0.5 mg premixed with 2.5 mg albuterol (3 mL total solution) via nebulizer. Single dose only. |
| Onset: | 5- 15 minutes |
| Duration: | 2-4 hours |
| Pregnancy Safety: | Category B |
| Comments: | Atrovent is given as a single dose only. |

Calcium Chloride (CaCl₂)

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|----------------------------------|---|
| Classification: | Inotropic Agent (electrolyte) |
| Actions: | Couples electrical and mechanical events of the myocardium Increases myocardial contractility Increases ventricular irritability |
| Indications: | <ul style="list-style-type: none"> • Hyperkalemia • Overdose of calcium channel blockers |
| Contraindications: | Patients taking digitalis based medications |
| Adverse effects: | <ul style="list-style-type: none"> • Bradycardia • Hypotension • Syncope |
| Adult Administration: | Administer 10 mg/kg slow IV push |
| Pediatric Administration: | Administer 0.2 mL/kg slow IV push |
| Onset: | 5 – 15 minutes |
| Duration: | Dose dependant (effects may persist for up to 4 hours) |
| Pregnancy Safety: | Category C |
| Comments: | Hyperkalemia may be caused by potassium retention in dialysis patients or overdose of potassium supplements. Causes tissue necrosis if injected into interstitial space. Flush the IV line if sodium bicarbonate is used. |

Dextrose 50% in Water (D₅₀W, Glucose)

| | |
|---------------------------|---|
| Classification: | Hyperglycemic agent, hypertonic solution |
| Actions: | Provides immediate source of glucose which is rapidly utilized for cellular metabolism |
| Indications: | Altered level of consciousness due to suspected hypoglycemia |
| Contraindications: | None |
| Adverse effects: | <ul style="list-style-type: none"> • CVA • Intra-cranial hemorrhage • Thrombophlebitis • Rhabdomyolysis • May worsen Wernicke's encephalopathy |
| Administration: | 50 mL (25 gm) IVP. MR once |
| Pediatric: | Less than 1 m/o D10W 2 mL/kg IV/IO MR More than 1 m/o D25W 2 mL/kg IV/IO MR |
| Onset: | 30 - 60 seconds |
| Duration: | Depends on level of hypoglycemia |
| Pregnancy Safety: | Category A |
| Comments: | <p>Causes tissue necrosis if injected into interstitial space.</p> <p>Dilute 50:50 with sterile water to make a 25% solution.</p> <p>Dilute 5:1 with sterile water to make a 10% solution.</p> <p>Use caution in patients with suspected intracranial hemorrhage.</p> <p>May increase cerebral ischemia in CVA.</p> <p>Use as large a vein as possible.</p> <p>Hypoglycemia is defined as:</p> <ul style="list-style-type: none"> • Neonate < 1 month (b.s. < 50 mg/dL) • Infant/child >1 month (b.s. < 60 mg/dL) • Adult (b.s. =<80 mg/dL) |

Diphenhydramine (Benadryl)

| | |
|---------------------------|--|
| Classification: | Antihistamine |
| Actions: | Competes with histamines at receptor sites Reverses muscle spasms associated with dystonic reactions (phenothiazine) |
| Indications: | <ul style="list-style-type: none"> • Allergic reactions • Muscle spasms associated with dystonic reactions |
| Contraindications: | <ul style="list-style-type: none"> • Glaucoma • Acute asthma • COPD |
| Adverse effects: | <ul style="list-style-type: none"> • Hypotension • Drowsiness • Tachycardia • Bradycardia • Dry mouth |
| Administration: | 25 – 50 mg IVP or IM |
| Pediatric: | 1 mg/kg slow IVP/IO/IM or PO (Max. of 25 mg) |
| Onset: | 1-5 minutes if given IVP 15 minutes if given IM |
| Duration: | 3-4 hours |
| Pregnancy Safety: | Category B |
| Comments: | May cause depressed level of consciousness in elderly patients. Overdoses may result in seizures, coma, and death. |

| Dopamine (Intropin) | |
|----------------------------|---|
| Classification: | Sympathomimetic agent (Catecholamine) |
| Actions: | <p><u>Low dose (1-2 µg/kg/min)</u></p> <p>Dilates renal and mesenteric arteries by stimulating dopaminergic receptors</p> <p>May decrease BP due to vasodilation</p> <p><u>Moderate dose (2-10 µg/kg/min)</u></p> <p>Increases inotropy (force) without increasing chronotropy (heart rate)</p> <p>Increases BP by stimulating beta₁ receptors</p> <p><u>High dose (over 10 µg/kg/min)</u></p> <p>Causes vasoconstriction. Increases inotropy and chronotropy</p> <p>Increases BP by stimulating alpha and beta₁ receptors</p> |
| Indications: | <ul style="list-style-type: none"> • Cardiogenic shock • Distributive shock |
| Contraindications: | <ul style="list-style-type: none"> • Hypovolemia |
| Adverse effects: | <ul style="list-style-type: none"> • Hypertension (High doses) • Hypotension (Low doses) • Tachycardia • Dyspnea |
| Administration: | <p>2-20 µg/kg/min. IV infusion</p> <p>Bradycardia – 2-10 µg/kg/min</p> <p>Hypotension – 10-20 µg/kg/min</p> |
| Pediatric: | 5 -10 µg/kg/min. via volutrol with micro drip |
| Onset: | 5 minutes |
| Duration: | 5-10 minutes |
| Pregnancy Safety: | Not well established |
| Comments: | <p>Not for use in hypovolemia</p> <p>Causes tissue necrosis if injected into interstitial space.</p> <p>MAO inhibitors may increase its effects.</p> |

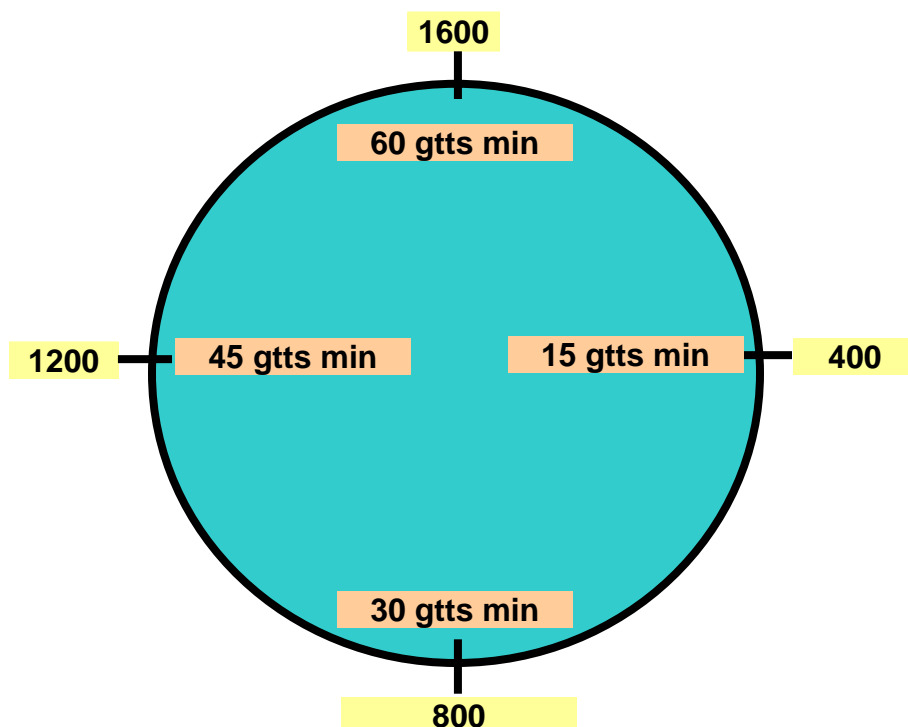
Dopamine Drip Chart

Run pre-mixed Dopamine 400 mg in 250 mL solution
via micro drip (60 gtts/mL) tubing at the following rates:
(Note: *Dial-a-Flow* device requires an additional
calculation to convert mL/hr to gtts/min)

| | 5 Mcg | 10 Mcg | 15 Mcg | 20 Mcg |
|-----------|----------|----------|----------|----------|
| Weight/Kg | gtts/min | gtts/min | gtts/min | gtts/min |
| 40 | 8 | 16 | 24 | 36 |
| 50 | 10 | 20 | 30 | 40 |
| 60 | 12 | 24 | 36 | 48 |
| 70 | 14 | 28 | 42 | 56 |
| 80 | 16 | 32 | 48 | 64 |
| 90 | 18 | 36 | 54 | 72 |
| 100 | 20 | 40 | 60 | 80 |
| 110 | 22 | 44 | 66 | 88 |
| 120 | 24 | 48 | 72 | 96 |
| 130 | 26 | 52 | 78 | 104 |
| 140 | 28 | 56 | 84 | 112 |
| 150 | 30 | 60 | 90 | 120 |
| 160 | 32 | 64 | 96 | 128 |
| 170 | 34 | 68 | 102 | 136 |
| 180 | 36 | 72 | 108 | 144 |

Dopamine Clock Method

- 1) Multiply the patient's weight in Kg x 10 (i.e., 80 x 10 = 800)
- 2) Find the 800 on the outside of the clock and the corresponding number on the inside of the clock will give you the number of drops per minute to equal 10 mcg/kg/min.
- 3) To give 5 mcg/kg/min just divide the inside number in half. To give 20 mcg/kg/min, double the inside number.
- 4) Run the dopamine via either micro drip tubing or macro drip tubing with a Dial a Flow device.



| Epinephrine (Adrenalin) Hydrochloride | |
|--|---|
| Classification: | Sympathomimetic agent (Catecholamine) |
| Actions: | <p>Acts directly on Alpha & Beta receptors of the SNS. Beta effect is more profound than Alpha effects. Effects include:</p> <ul style="list-style-type: none"> • Increased HR (chronotropy) • Increased cardiac contractile force (inotropy) • Increased electrical activity with in myocardium (dromotropy) • Increased systemic vascular resistance • Increased blood pressure • Increased automaticity • Increased bronchial smooth muscle dilation • Increases coronary perfusion during CPR by increasing aortic diastolic pressure |
| Indications: | <ul style="list-style-type: none"> • Cardiopulmonary arrest: <ul style="list-style-type: none"> -Ventricular fibrillation -Pulseless ventricular tachycardia -Asystole -Pulseless electrical activity (PEA) • Allergic reaction/anaphylaxis • Asthma • Refractory pediatric bradycardia, unresponsive to oxygen and ventilation |
| Contraindications: | <ul style="list-style-type: none"> • Hypertension |
| Adverse effects: | <ul style="list-style-type: none"> • Hypertension-tachycardia • Increases myocardial oxygen demand and potentially increases myocardial ischemia |
| Administration: | <p><u>Cardiopulmonary arrest:</u> IV/IO: 1 mg 1:10,000. If rhythm persists repeat every 3 to 5 minutes</p> <p>ET: 2 mg 1:1000 diluted to 5-10 mL. Followed with 5 normal ventilations. If rhythm persists repeat every 3 to 5 minutes</p> <p><u>Asthma:</u> 0.3 mg of 1:1,000 SQ, may repeat in 20-minute intervals</p> <p><u>Allergic Reaction:</u> Bronchospasm: 0.3 mg of 1:1,000 SQ, may repeat in 10-20 minutes for a total of two doses.</p> <p>Hypotension /Airway Compromise: 0.3-0.5 mg of</p> |

| | |
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| | <p>1:1,000 IM q 15 minutes if there is no improvement</p> <p>Impending Arrest: 0.1mg 1:10,000 diluted to 10 mL with NS or SW slow IVP over 5 minutes. (Diluted dose is equivalent to 1:100,000)</p> <p>Repeat doses 3-5 mg q 3 minutes</p> <p>ET dose: 4 mg of 1:1,000 diluted in 5-10 mL NS or SW followed by 5 normal ventilations q 3 minutes</p> |
| Pediatric: | <p><u>Cardiac Arrest:</u> Initial dose: IV/IO*: 0.01 mg/kg (1:10,000, 0.1 mL/kg) ET: 0.1 mg/kg (1:1000, 0.1 mL/kg) Followed with 5-10 mL NS or SW flush and 5 normal ventilations.</p> <p>Repeat doses: IV/IO: 0.01 mg/kg (1:10,000, 0.1 mL/kg). If rhythm persists repeat every 3 to 5 minutes. ET: 0.1 mg/kg (1:1000, 0.1 mL/kg) Followed with 5 mL NS or SW flush and 5 normal ventilations. If rhythm persists repeat every 3 to 5 minutes. in sterile water to a maximum</p> <p><u>Asthma:</u> 0.01 mg/kg (max. 0.3 mg) of 1:1,000 SQ, may repeat in 10-20 minutes for a total of 2 doses.</p> <p><u>Refractive Bradycardia</u> IV/IO: 0.01 mg/kg (1:10,000, 0.1 ml/kg) repeat dose is same as initial every 3-5 minutes</p> <p><u>Allergic Reaction:</u> Bronchospasm: 0.01 mg/kg of 1:1,000 SQ q 15 minutes if there is no clinical improvement.</p> <p>Hypotension /Airway Compromise: 0.01 mg (Max. 0.3 mg) IM, q 15 minutes if there is no clinical improvement.</p> <p>Impending Arrest: 0.01 mg/kg, diluted with NS or SW to 10 mL slow IV push over 5 minutes, q 1-2 minutes if there is inadequate response to treatment. (Dose is equivalent to 1:100,000 after dilution).</p> <p>Anaphylaxis Related Cardiac Arrest: Refer to cardiac arrest section.</p> |
| Onset: | <p>Immediate if given IVP 5-10 minutes if given SQ/IM</p> |
| Duration: | <p>3-5 minutes if given IVP 20 minutes if given SQ/IM</p> |
| Pregnancy Safety: | <p>Category C</p> |
| Comments: | <p>High dose epinephrine is no longer recommended (except in adult patients in anaphylaxis related cardiac arrest). High doses do not improve survival or neurologic outcome and may contribute to post resuscitation myocardial dysfunction.</p> |

| Glucagon | |
|---------------------------|--|
| Classification: | Hyperglycemic agent (pancreatic hormone) |
| Actions: | Elevates blood glucose by converting liver glycogen into glucose Increases cardiac output by increasing inotropy and chronotropy Stimulates the release of catecholamines Relaxes smooth muscle of the gastrointestinal tract, bronchioles, and blood vessels |
| Indications: | <ul style="list-style-type: none"> • Hypoglycemia • Beta blocker OD • Allergic reaction |
| Contraindications: | Not significant in the above indications. |
| Adverse effects: | Nausea/vomiting |
| Administration: | Hypoglycemia : 1 mg IM/IN Allergic reaction: 2 - 4 mg IV/IN push or IM Beta blocker OD: 2 - 4 mg IV/IN push or IM |
| Pediatric: | Hypoglycemia: 0.1 mg/kg IN/IM (Max. 1mg) Allergic reaction: 0.1 mg/kg IV/IN push or IM Beta blocker OD: 0.1 mg/kg IV/IN push or IM |
| Onset: | 1 - 3 minutes if given IVP/IN 5 - 20 minutes if given IM |
| Duration: | 15 - 20 minutes if given IVP/IN 15 - 30 minutes if given IM |
| Pregnancy Safety: | Category B |
| Comments: | Use with caution in patients with cardiovascular disease. |

| Lidocaine Hydrochloride (Xylocaine) | |
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| Classification: | Antidysrhythmic, anesthetic |
| Actions: | <p>Suppresses ventricular dysrhythmias by decreasing ventricular irritability</p> <p>Increases fibrillatory threshold by elevating the electrical stimulation of the ventricles</p> <p>Depresses conduction in ischemic tissues</p> <p>May reduce ICP</p> <p>Blocks the conduction of impulses and stabilizes neuronal membranes, thereby relieving pain</p> |
| Indications: | <ul style="list-style-type: none"> • Ventricular dysrhythmias: <ul style="list-style-type: none"> - Ventricular tachycardia (VT) - Ventricular fibrillation (VF) • Post cardioversion or defibrillation of ventricular rhythms • Head injured patients (pre-intubation) • Pain management post intraosseous insertion |
| Contraindications: | <ul style="list-style-type: none"> • Second-degree heart block, Mobitz II • Third degree (complete) heart block • Junctional bradycardia • Ventricular ectopy associated with bradycardia • Idioventricular or escape rhythms • Hypersensitivity |
| Adverse effects: | <ul style="list-style-type: none"> • Lightheadedness • Bradycardia • Confusion • Hypotension • Seizures • May be pro-arrhythmic |
| Administration: | <p><u>VF/VT no pulses:</u></p> <p>1.0 - 1.5 mg/kg IV/IO push* or double the dose via ET tube. May repeat in 3 – 5 minutes. (Max. dose 3 mg/kg.)</p> <p><u>VT with pulses:</u></p> <p>1.0 – 1.5 mg/kg slow IV/IO push*. If rhythm persists, repeat ½ initial dose in 5 –10 minutes. (Max. dose 3 mg/kg). Continuous infusion at 2 to 4 mg/minute may be ordered</p> <p><u>Head injured patients requiring intubation:</u></p> <p>1.5 mg/kg IV/IO push. (Maximum dose 100 mg). Dose should be administered two minutes prior to intubation attempt, when feasible</p> <p><u>Post intraosseous insertion pain:</u></p> |

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| | <p>20 mg IO push.</p> <p>*IVP is the preferred route of administration</p> |
| Pediatric: | <p><u>VF/VT no pulses:</u></p> <p>IV/IO*: 1 mg/kg. If rhythm persists, repeat dose in 10 minutes (Max. dose 3 mg/kg.). Only bolus therapy shall be used in pediatric patients</p> <p>ET: 2mg/kg. If rhythm persists, repeat dose in 10 minutes (Max. dose 4 mg/kg.)</p> <p><u>VT with pulses:</u></p> <p>IV/IO*: 1 mg/kg. If rhythm persists, repeat dose in 10 minutes</p> <p>ET: 2 mg/kg. If rhythm persists, repeat dose in 10 minutes</p> <p><u>Head injured patients requiring intubation:</u></p> <p>1 mg/kg IV/IO. (Max. dose 50 mg.) Dose should be administered two minutes prior to intubation attempt, when feasible</p> <p><u>Post intraosseous insertion pain:</u></p> <p>0.5 mg/Kg IO push</p> <p>*IVP/IO is the preferred route of administration</p> |
| Onset: | 45-90 seconds |
| Duration: | 10-20 minutes |
| Pregnancy Safety: | Category B |
| Comments: | For patients who are 70 years or older, have CHF, chronic liver disease or are in impaired circulatory states, the repeat doses of Lidocaine should be half of the initial dose. |

| Magnesium Sulfate (MgSO₄) | |
|---|--|
| Classification: | Antidysrhythmic, Electrolyte |
| Actions: | Controls ventricle response rate Increases the movement of potassium into cells Blocks the release of acetylcholine |
| Indications: | <ul style="list-style-type: none"> • Ventricular fibrillation pulseless ventricular tachycardia (VF/VT) • Ventricular tachycardia with a pulse • Post conversion of VF/VT • Torsades de Pointes • Seizures related to eclampsia |
| Contraindications: | <ul style="list-style-type: none"> • Hypersensitivity • Sinus bradycardia • Pediatrics |
| Adverse effects: | <ul style="list-style-type: none"> • Hypotension • Hypertension • Dysrhythmias • Facial flushing • Diaphoresis • Depressed reflexes • Bradycardia |
| Administration: | <u>Torsades De Pointe pulseless:</u> 2 gm in 10 mL NS or SW IV/IO bolus <u>Torsades De Pointe with a pulse:</u> 2 gm in 10 mL NS or SW slow IV/IO push over 1-2 minutes <u>Eclampsia</u> 6 gm in 10 mL NS or SW slow IV/IO push over 15 minutes |
| Pediatric: | Not recommended for prehospital use |
| Onset: | Immediate |
| Duration: | 3-4 hours |
| Pregnancy Safety: | Category A |
| Comments: | <p>Magnesium is a naturally occurring positive ion present in all cells of the body.</p> <p>Use the most proximal port possible for administration.</p> <p>Check deep tendon reflexes every 15 minutes and continuously monitor respirations. Discontinue administration if either become depressed.</p> |

| Midazolam (Versed) | |
|---------------------------|--|
| Classification: | Short-acting benzodiazepine, CNS depressant |
| Actions: | Reduces anxiety, Depresses CNS function, Induces amnesia |
| Indications: | <ul style="list-style-type: none"> • Seizures • Pre-synchronized cardioversion • External cardiac pacing • Treatment of severe agitation |
| Contraindications: | <ul style="list-style-type: none"> • Hypotension • Hypersensitivity |
| Adverse effects: | <ul style="list-style-type: none"> • Hypotension • Respiratory depression • Headache • Nausea |
| Administration: | <p>IV/IO – 2.5 mg diluted in 5 mL sterile water slow IV/IO push titrated to effect. May repeat in 5 minutes. (Max. total dose of 5 mg).</p> <p>IN – 5 mg via MAD atomizer (Max. of 1 mL per nostril).</p> <p>IM – 0.1 mg/kg (Max. total dose of 5 mg).</p> <p>For doses above 5 mg contact base station.</p> |
| Pediatric: | <p>IV/IO - 0.05 mg/kg diluted in 3 - 5 mL of sterile water slow IV/IO push over 2-5 minutes, titrated to effect. (Max. dose of 1.5 mg). For doses above 1.5 mg contact base station.</p> <p>IN – 0.05 mg/kg via MAD atomizer (Max. of 1 mL per nostril and Max. dose of 1.5 mg).</p> <p>IM - 0.05 mg/kg may be given IM. (Max. dose of 1.5 mg).</p> |
| Onset: | IV/IO/IN: 3-5 minutes; dose dependent IM: 15 minute |
| Duration: | 2-6 hours; dose dependent |
| Pregnancy Safety: | Category D |
| Comments: | <p>May cause apnea, especially in children and the elderly.</p> <p>Effects are intensified by ETOH or other CNS depressant medications.</p> <p>Be prepared to support respiration.</p> <p>Carefully monitor the patient's vital signs including EKG and pulse oximetry.</p> |

| Morphine Sulfate | (M.S., M.S.O.) |
|---------------------------|--|
| Classification: | Narcotic analgesic |
| Actions: | <p>Produces analgesia by inhibiting the ascending pain pathways</p> <p>Depresses the central nervous system by interacting with receptors in the brain</p> <p>Causes venous pooling due to peripheral vasodilatation resulting in decreased systemic vascular resistance and decreased venous return</p> |
| Indications: | <ul style="list-style-type: none"> • Moderate to severe pain • Pain associated with transcutaneous pacing • Snakebite • Chest pain |
| Contraindications: | <ul style="list-style-type: none"> • Patients with ALOC • Pain of unknown etiology • Patients at risk of respiratory depression • Head injury • Hypovolemia • Blood pressure <100 • Multi-system trauma |
| Adverse effects: | <ul style="list-style-type: none"> • Respiratory depression • Hypotension • Seizures • Bradycardia • Altered mental status |
| Administration: | 4 mg increments up to 20 mg, slow IV push or IM. Titrate to relief of pain. (Systolic BP < 100 mm Hg MS shall be withheld/discontinued.) For doses above 20 mg, base station order is required. |
| Pediatric: | 0.05 mg/kg slow IV/IO push or IM Titrated to pain relief (Max. total dose of 6 mg). (Contact base station if Pt. < 2y/o). |
| Onset: | Immediate if given IVP, 5-30 minutes if given IM or SQ |
| Duration: | 3-5 hours |
| Pregnancy Safety: | Category C |
| Comments: | Controlled substances act of 1970 Category II drug. |

| Naloxone (Narcan) | |
|--------------------|--|
| Classification: | Narcotic antagonist |
| Actions: | Reverses the effects of narcotics by competing for opiate receptor sites in the central nervous system |
| Indications: | <ul style="list-style-type: none"> • Suspected narcotic overdose with respiratory depression • Altered level of consciousness with respiratory depression |
| Contraindications: | <ul style="list-style-type: none"> • None |
| Adverse effects: | <ul style="list-style-type: none"> • Hypertension • Tremors • Nausea/vomiting • Dysrhythmias • Diaphoresis |
| Administration: | <p>IV: 0.2 mg in 1 minute increments slow IV push titrated to effect (Max. 2 mg).</p> <p>IN: 0.5 mg (Max. Of 1 mL per nostril) May repeat in 5 minutes if no response.</p> <p>IM: 1 mg if unable to establish IV. May repeat in 5 minutes if no response.</p> <p>ET: 1 mg diluted to 5-10 mL May repeat in 5 minutes if no response. (IN/IM routes are preferred if no IV).</p> <p>If no response to normal doses or if patient is in extremis, administer 2 mg IV/IM/IO/ET/IN q 5 minutes.</p> |
| Pediatric: | <p>0.1 mg/kg IV/IN/IO/IM titrated to effect (Max. 2 mg). May repeat initial dose if no response within 5 minutes.</p> <p>Contact base before administration in neonates.</p> |
| Onset: | Immediate if given IVP, IN, or ET. 5-10 minutes if given IM. |
| Duration: | 20-30 minutes |
| Pregnancy Safety: | Category B |
| Comments: | <p>The goal of Narcan administration is to improve respiratory drive, NOT to return patient to their full mental capacity.</p> <p>Medications such as Methadone and Darvon may require higher doses of Narcan. If no response to normal doses, administer 2 mg IV/IM/IO/ET/IN. May repeat every 5 minutes until return of adequate respiratory status.</p> <p>Rapid reversal of narcotic effects may lead to combative behavior and possible severe withdrawal.</p> |



May not reverse hypotension.

Observe for: seizures, hypertension, chest pain, and/or severe headache.

May be administered via ET, but should be given prior to intubation whenever possible.

Use caution in newborns.

| Neosynephrine (Phenylephrine) | |
|--------------------------------------|--|
| Classification: | Synthetic sympathomimetic agent |
| Actions: | Produces long-acting vasoconstriction without chronotropic or inotropic actions on the heart |
| Indications: | Pre-treatment for BNTI |
| Contraindications: | None |
| Adverse effects: | <ul style="list-style-type: none"> • Headache • Reflex bradycardia • Excitability • Restlessness |
| Administration: | Spray into each nostril for 1-2 seconds |
| Pediatric: | Not applicable |
| Onset: | Immediate |
| Duration: | 20-50 minutes |
| Pregnancy Safety: | Category C |
| Comments: | Adverse effects are minimal when neosynephrine is applied topically. |

| Nitroglycerin Spray | (Nitrostat, NTG) |
|----------------------------|---|
| Classification: | Vasodilator |
| Actions: | <ul style="list-style-type: none"> • Dilates arterial and venous vessels resulting in venous pooling • Reduces preload and after load resulting in decreased myocardial workload and reduced oxygen demand • Relaxes all smooth muscle • Dilates coronary vessels resulting in increased perfusion of the myocardium • Relieves coronary vasospasm |
| Indications: | <ul style="list-style-type: none"> • Chest pain of suspected myocardial origin • Congestive heart failure/cardiogenic pulmonary edema |
| Contraindications: | <ul style="list-style-type: none"> • Signs/symptoms of neurological deficit • Systolic blood pressure of <100 mm/Hg • Use of Viagra®, Cialis®, or Levitra® within last 48 hrs |
| Adverse effects: | <ul style="list-style-type: none"> • Hypotension • Nausea/vomiting • Headache • Postural syncope |
| Administration: | 0.4 mg (1 spray) SL. May repeat q 5 minutes to a Max. of 3 doses. Contact base station for additional doses. |
| Pediatric: | Not recommended for prehospital use |
| Onset: | 1-2 minutes |
| Duration: | 15-30 minutes |
| Pregnancy Safety: | Category C |
| Comments: | Healthcare provider may experience adverse effects if accidentally inhaled or absorbed. |

| Nitrous Oxide | (Nitronox, N ₂ O:O ₂) | | | | |
|---------------------------|---|----------------|-------|---------------|-------|
| Classification: | Analgesic gas | | | | |
| Actions: | Produces rapid, reversible relief from pain | | | | |
| Indications: | <ul style="list-style-type: none"> • Fractures • Sprains • Amputations • Soft tissue injuries • Burns • Low back pain (below level of thoracic spine) • Snakebite • Kidney stones • Contact base station for any other use | | | | |
| Contraindications: | <ul style="list-style-type: none"> • Administration in ambulance or small confined space • Patient unable to hold mouthpiece/mask • Severe COPD • Decompression sickness • Head injury • GCS <14 • Hypotension • Pregnancy • Sedated or intoxicated patients • Pneumothorax • Bowel obstruction • Chronic ear or sinus infection • Chest / upper back pain from any cause | | | | |
| Adverse effects: | Hypotension Dizziness/lightheadedness ALOC Nausea/vomiting | | | | |
| Administration: | Nitronox is self-administered | | | | |
| Pediatric: | Nitronox may be administered to any age patient as long as they are able to follow instructions and hold mouthpiece/mask. | | | | |
| Onset: | 2-5 minutes | | | | |
| Duration: | 2-5 minutes | | | | |
| Pregnancy Safety: | Category X | | | | |
| Comments: | <p>Discontinue use: Once in back of ambulance, if patients become hypotensive, or if adverse effects become severe.</p> <p>Higher elevations require higher concentrations of Nitrous Oxide:</p> <table style="margin-left: 40px;"> <tr> <td>Above 4000 ft:</td> <td>60/40</td> </tr> <tr> <td>Below 4000ft:</td> <td>50/50</td> </tr> </table> <p>Controlled Substance Act of 1970 category III drug.</p> <p>Procedure:</p> <ol style="list-style-type: none"> 1. Set up equipment (outside of ambulance). 2. Explain the procedure to the patient. 3. Instruct the patient to do the following: <ol style="list-style-type: none"> a. Hold the facemask securely over nose and mouth. b. Breath normally until the pain is relieved. c. Discontinue if Pt. becomes drowsy or experiences unpleasant side effects. 5. Turn off nitrous oxide once patient is secured within ambulance. | Above 4000 ft: | 60/40 | Below 4000ft: | 50/50 |
| Above 4000 ft: | 60/40 | | | | |
| Below 4000ft: | 50/50 | | | | |

| Ondansetron (Zofran) | |
|----------------------------------|---|
| Classification: | Antiemetic |
| Actions: | Serotonin receptor antagonist |
| Indications: | Treatment of nausea/vomiting |
| Contraindications: | Known sensitivity to ondansetron or other 5-HT ₃ antagonists: <u>Granisetron</u> (Kytril) <u>Dolasetron</u> (Anzemet) <u>Palonosetron</u> (Aloxi) |
| Adverse effects: | <ul style="list-style-type: none"> • Tachycardia • Hypotension • Syncope (if given too fast) |
| Adult Administration: | 4 mg IV/IM/IO/ODT (IVP over 30 seconds or more) IVP is preferred route Contact Base if repeat dose is needed |
| Pediatric Administration: | 4 mg IV/IM/IO/ODT (IVP over 30 seconds or more) IVP is preferred route Contact Base if repeat dose is needed |
| Onset: | Up to 30 minutes (usual response is 5-10 minutes) |
| Duration: | Half life is 4 hours |
| Pregnancy Safety: | Category B |
| Comments: | If initial dose is not effective within ten minutes consider contacting the base and request additional dose(s). |

| Oxygen | (O ₂) |
|---------------------------|---|
| Classification: | Gas |
| Actions: | <ul style="list-style-type: none"> • Oxidizes glucose to provide energy at the cellular level • Essential for normal metabolic function (aerobic metabolism) |
| Indications: | Whenever oxygen demands may be increased |
| Contraindications: | Not significant in the above indication |
| Adverse effects: | Not significant in the above indication |
| Administration: | <ul style="list-style-type: none"> • For patients without respiratory distress: give 2 L of oxygen per minute by nasal cannula • For patients with mild respiratory distress: give 5 to 6 L of oxygen per minute • For patients with severe respiratory distress, acute congestive heart failure, or cardiac arrest: use a system that provides a high-inspired oxygen concentration (preferably 100%) • Titrate oxygen up or down according to oxygen saturation value keeping saturation above 95% • Patients with chronic COPD may normally maintain saturation values below 95%; do not withhold oxygen if patient is in distress • In the most serious cases: move quickly to advanced airway devices, intubation, and 100% oxygen |
| Pediatric: | Same as above |
| Onset: | Immediate |
| Duration: | Up to 30 minutes |
| Pregnancy Safety: | Category A |
| Comments: | <ul style="list-style-type: none"> • Oxygen therapy should never be withheld from a patient in respiratory distress • Use with caution in COPD patients and observe for changes in respiratory and mental status |

Oxygen Devices

Nasal Cannula:

- Starting device; provides up to 44% oxygen
- A nasal cannula is a low flow system in which the tidal volume mixes with ambient gas (room air). Inspired oxygen concentration depends on the flow rate through the cannula and the patient's tidal volume
- Increasing oxygen flow by 1 L/min (starting with 1L/min) will increase the inspired oxygen concentration by approximately 4%:
 - ❖ 1 L/min: 24%
 - ❖ 2 L/min: 28%
 - ❖ 3 L/min: 32%
 - ❖ 4 L/min: 36%
 - ❖ 5 L/min: 40%
 - ❖ 6 L/min: 44%

Face Mask:

Up to 60% oxygen can be supplied through the oxygen port at 6 to 10 L/min

Face Mask with Oxygen Reservoir:

- Provides up to 90% to 100% oxygen
- In this system a constant flow of oxygen enters an attached reservoir. Each liter-per-minute increase in flow over 6 L/min will increase the inspired oxygen content by 10%:
 - ❖ 6L/min: 60% oxygen
 - ❖ 7L/min: 70% oxygen
 - ❖ 8L/min: 80% oxygen
 - ❖ 9L/min: 90% oxygen
 - ❖ 10L/min: almost 100% oxygen

Use a face mask with a reservoir for:

- Patients who are seriously ill, responsive, and spontaneously breathing and require high oxygen concentrations
- Patients who may avoid tracheal intubation if acute interventions produce a rapid clinical effect (patients with acute pulmonary edema, COPD, severe asthma)
- Patients who have relative indications for tracheal intubation but have clenched teeth or other physical barriers to immediate intubation (e.g., head injury, CO poisoning, or near drowning)

These patients may have diminished levels of consciousness and may be at risk for nausea and vomiting. A tight fitting mask always requires close monitoring. Suctioning devices should be immediately available

| Sodium Bicarbonate (NaHCO₃) | |
|---|--|
| Classification: | Alkalinizing agent |
| Actions: | Combines with hydrogen ions to form carbonic acid, Increases blood pH |
| Indications: | <ul style="list-style-type: none"> • Cardiopulmonary arrest states when drug therapy and/or defibrillation have not been successful • Overdose of tricyclic antidepressants (cardiac toxicity) |
| Contraindications: | Not significant in the above indications |
| Adverse effects: | <ul style="list-style-type: none"> • Metabolic alkalosis • Pulmonary edema |
| Administration: | 1 mEq/kg IVP. May repeat ½ initial dose every 10-15 minutes throughout arrest |
| Pediatric: | 1 mEq/kg IVP |
| Onset: | Immediate |
| Duration: | 30-60 minutes |
| Pregnancy Safety: | Category C |
| Comments: | Flush IV tubing before and after administration |

Sodium Chloride (Normal Saline) 0.9%

| | |
|---------------------------|--|
| Classification: | Isotonic solution |
| Actions: | Replaces fluid and electrolytes lost from the intravascular and intracellular spaces |
| Indications: | <ul style="list-style-type: none"> • Initial fluid replacement in hypovolemia and dehydration • Intravenous access for drug administration |
| Contraindications: | Not significant in above indications |
| Adverse effects: | Circulatory fluid volume overload |
| Administration: | <ul style="list-style-type: none"> • Flow rate dependent on patient's condition • Titrate to response of vital signs • Fluid challenge=250-500 mL |
| Pediatric: | <ul style="list-style-type: none"> • Flow rate dependent on patient's condition • Titrate to response of vital signs • Fluid challenge=20 mL/kg |
| Onset: | Immediate |
| Duration: | Remains in intravascular space less than one hour |
| Pregnancy Safety: | Category A |
| Comments: | Monitor infusion rate closely and auscultate breath sounds prior to administration |

Reference Section Dosage Calculations:

To calculate the amount of drug to be drawn up or administered, the following information is required:

| | |
|-----------|----------------------------------|
| ⇒WHAT | Type and amount of drug ordered |
| ⇒QUANTITY | Volume of fluid in the container |
| ⇒HAVE | Amount of drug in the container |

To calculate the amount of drug to be drawn up or administered, use the following formula:

WHAT multiplied by the **QUANTITY** divided by **HAVE** = the amount to be administered.

Example:

The base station orders Snorazil 75 mg IVP. Snorazil comes as an ampule containing 50mg/mL. How many mL should be given?

$$\frac{\text{WHAT} \times \text{QUANTITY}}{\text{HAVE}} = \frac{75\text{mg} \times 1 \text{ mL}}{50\text{mg}} = 1.5 \text{ mL}$$

Another way of conversion is:

$$\frac{\text{DOCTOR'S ORDERS}}{\text{OH}} \times \text{VOLUME} = \frac{75\text{mg} \times 1 \text{ mL}}{50\text{mg}} = 1.5 \text{ mL}$$

To calculate the desired dose to be administered according to **body weight**, convert the pounds to kilograms and multiply by the given dose.

Example:

The base station orders Sodium Bicarbonate 2 mEq/kg for a patient weighing approximately 200 pounds. How many mEq will be administered:

$$\begin{aligned} &\text{Divide } 200 \text{ lb. by } 2 = 100\text{kg, then multiply by } 2 \text{ mEq.} \\ &100 \text{ kg} \times 2 \text{ mEq} = 200 \text{ mEq} \end{aligned}$$

Reference Section Key To Controlled Substances Categories

Products listed with the numerals shown below are subject to the Controlled Substances Act of 1970. These Drugs are categorized according to their potential for abuse. The greater the potential, the more severe the limitations on their prescription.

CATEGORY

INTERPRETATION

- | | |
|------------|---|
| II | High potential for abuse. Use may lead to severe physical or psychological dependence. Prescriptions must be written in ink, or typewritten, and signed by the practitioner. Verbal prescriptions must be confirmed in writing within 72 hours, and may be given only in a genuine emergency. No renewals are permitted. |
| III | Some potential for abuse. Use may lead to low-to-moderate physical dependence or high psychological dependence. Prescriptions may be oral or written. Up to 5 renewals are permitted within 6 months. |
| IV | Low potential for abuse. Use may lead to limited physical or psychological dependence. Prescriptions may be oral or written. Up to 5 renewals are permitted within 6 months. |
| V | Subject to state and local regulation. Abuse potential is low; a prescription may not be required. |

Reference Section Key To FDA Use-In-Pregnancy Ratings

The Food and Drug Administration’s Pregnancy Categories are based on the degree to which available information has ruled out risk to the fetus, balanced against the drug’s potential to the patient. Ratings range from “A”, for drugs that have been tested for teratogenicity under controlled conditions without showing evidence of damage to the fetus, to “D” and “X” for drugs that are definitely teratogenic. The “D” rating is generally reserved for drugs with no safer alternatives. The “X” rating means there is absolutely no reason to risk using the drug in pregnancy.

| <u>CATEGORY</u> | <u>INTERPRETATION</u> |
|-----------------|--|
| A | Controlled studies show no risk. Adequate, well-controlled studies in pregnant women have failed to demonstrate risk to the fetus. |
| B | No evidence of risk in humans. Either animal findings show risk, but human findings do not; or, if no adequate human studies have been done, animal findings are negative. |
| C | Risk cannot be ruled out. Human studies are lacking, and animal studies are either positive for fetal risk, or lacking as well. However, potential benefits may justify the potential risk. |
| D | Positive evidence of risk. Investigational or post-marketing data show risk to the fetus. Nevertheless, potential benefits may outweigh the potential risk. |
| X | Contraindicated in pregnancy. Studies in animals or human, or investigational or post-marketing reports have shown fetal risk, which clearly outweighs any possible benefit to the patient. |

| Reference Section | Formulary Abbreviations* | |
|--|-----------------------------------|---------------------------------------|
| <p>* This list of abbreviations only covers this Prehospital Formulary. For a complete list of County approved abbreviations refer to the El Dorado County EMS Agency Policy and Procedure Manual.</p> | ASA | aspirin |
| | AV | atrio-ventricular |
| | BP | blood pressure |
| | BPM | beats per minute |
| | b.s. | blood sugar |
| | cc | cubic centimeter |
| | CHF | congestive heart failure |
| | COPD | chronic obstructive pulmonary disease |
| | CNS | central nervous system |
| | CVA | cerebral vascular accident |
| | Deciliter | dL |
| | EKG | electrocardiogram |
| | ET | endotracheal |
| | ETAD | esophageal tracheal airway device |
| | ETOH | alcohol |
| | GCS | Glasgow coma scale |
| | GI | gastro-intestinal |
| | gm | gram |
| | gtt | drop |
| | HR | heart rate |
| | IM | intramuscularly |
| | IO | intraosseous |
| | IV | intravenous |
| | IVP | intravenous push |
| | kg | Kilogram |
| | lb | Pound |
| | L | Liter |
| | MAO | monoamine oxidase |
| | mcgtt | microdrip |
| | mEq | milliequivalent |
| mL | milliliter | |
| mg | milligram | |
| MR | may repeat | |
| NS | normal saline | |
| NSR | normal sinus rhythm | |
| OD | overdose | |
| OH | on hand | |
| OPP | organophosphate poisoning | |
| PEA | pulseless electrical activity | |
| PO | by mouth | |
| PRN | as needed | |
| PVC | premature ventricular contraction | |
| q | every | |
| SOC | state of consciousness | |
| SQ | subcutaneous | |
| SW | sterile water | |
| U | unit | |
| µg | microgram | |

| Reference Section | Equivalents |
|-------------------|---|
| | 1 kg = 2.2 lb 1 kg = 1000 gm 1 gm = 1000 mg 1 L = 1000 mL 1 mL = 60 mcgtts (micro tubing) 1 mL = 10/15/20 gtts (macro tubing) 1 mL and 1 cc are interchangeable |

| IFT IV Solutions | List of IV fluids for patients during interfacility transfer |
|---------------------------|---|
| Approved Solutions | <ul style="list-style-type: none">• Normal Saline• D5W• Lactated Ringers• Any combination of the above solutions mixed together• Any one of the above solutions containing Potassium less than or equal to 20 mEq/L |

| CHEMPACK INFORMATION | | |
|---|------------------|------------------------|
| Treatment Capacity: 454 Patients | | |
| MEDICATION | UNIT PACK | NUMBER OF CASES |
| Mark I auto-injector | 240 | 5 |
| Atropine Sulfate 0.4 mg/ml 20mL | 100 | 1 |
| Pralidoxime 1 gm inj 20 mL | 276 | 1 |
| Atropen 0.5 mg | 144 | 1 |
| Atropen 1.0 mg | 144 | 1 |
| Diazepam 5 mg/mL auto-injector | 150 | 2 |
| Diazepam 5 mg/mL vial 10 mL | 25 | 2 |
| Sterile water for injection 20 mL vials | 100 | 2 |

| Mark I auto-injector (Atropine / Pralidoxime) | |
|--|---|
| Classification: | Nerve agent antidote |
| Indications: | <p><u>MILD EXPOSURES:</u> Rhinnorhea Chest tightness Dyspnea Bronchospasm</p> <p><u>MODERATE EXPOSURES:</u> Salivation Lacrimation Urination Defecation GI symptoms Emesis Miosis</p> <p><u>SEVERE EXPOSURES:</u> Jerking Twitching Staggering Headache Drowsiness Coma Seizures Apnea</p> |
| Contraindications: | Do not use auto-injectors in patients under 30 kg |
| Adverse effects: | <p><u>ATROPINE:</u></p> <ul style="list-style-type: none"> • Tachycardia • Increased myocardial O₂ demand • Headache • Dizziness • Palpitations • Dries mucous membranes • Nausea/vomiting • Flushed skins • Dilated pupils • Increased intraocular pressure <p><u>PRALIDOXIME:</u></p> <ul style="list-style-type: none"> • Pain at injection site • Hypertension • Blurry vision • Diplopia • Tachycardia • Nausea • Increases atropine effects |
| Administration: | See respective meds for dosing |
| Pediatric: | Not indicated for pediatrics <10 years or <30 kg |

| | |
|--------------------------|---|
| Onset: | Immediate – 15 minutes |
| Duration: | Half life: 2-Pam 74-77 minutes; Atropine 10 minutes |
| Pregnancy Safety: | Category C |
| Comments: | <ul style="list-style-type: none"> • Kits contain: <ul style="list-style-type: none"> ▪ Atropine 2 mg/0.7 mL auto-injector ▪ Pralidoxime 600 mg/2 mL auto-injector • Nerve agents are the most toxic of the known chemical agents. They are hazards in their liquid and vapor states and can cause death within minutes after exposure. Nerve agents inhibit acetylcholinesterase in tissue, and their effects are caused by the resulting excess acetylcholine. Nerve agents are considered to be major military and terrorist threats. Common names for nerve agents include Tabun (GA), Sarin (GB), and Soman (GD), GF and VX. Nerve agents are liquids under normal temperature conditions. When dispersed, the most volatile ones constitute both a vapor and liquid hazard |

| Atropine Sulfate | |
|----------------------------------|---|
| Classification: | Parasympathetic blocker (Anticholinergic) Antidysrhythmic agent |
| Actions: | Inhibits parasympathetic stimulation by blocking acetylcholine receptors Decreases vagal tone resulting in increased heart rate and AV conduction Dilates bronchioles and decreases respiratory tract secretions Decreases gastrointestinal secretions and motility |
| Indications: | <ul style="list-style-type: none"> • Organophosphate poisoning (OPP) • Nerve agent exposure |
| Contraindications: | Neonates (bradycardia and asystole/PEA in neonates is usually caused by hypoventilation; also the vagus nerve in neonates is underdeveloped and atropine will usually have no effect upon it.) |
| Adverse effects: | <ul style="list-style-type: none"> • Tachycardia • Increased myocardial O₂ demand • Headache • Dizziness • Palpitations • Dries mucous membranes • Nausea/vomiting • Flushed skins • Dilated pupils • Increased intraocular pressure |
| Precautions: | <ul style="list-style-type: none"> • Do not under-dose pediatrics (Min. dose is 0.1 mg) |
| Adult Administration: | <p><u>Mild Exposure:</u> 1 auto-injector IM or 2 mg IV/IO/IM. May repeat 2 mg every 3-5 minutes until symptoms improve</p> <p><u>Moderate Exposure:</u> 2 auto-injectors IM or 4 mg IV/IO/IM. May repeat 2 mg every 3-5 minutes until symptoms improve</p> <p><u>Severe Exposure:</u> 3 auto-injectors IM or 6 mg IV/IO/IM. May repeat 1 auto-injector or 2 mg every 3-5 minutes until symptoms improve</p> |
| Pediatric Administration: | <p><u>For All Exposures:</u> 0.02 mg/kg IV/IO/IM (minimum dose of 0.1 mg) May repeat every 3-5 minutes until symptoms improve</p> |

| | |
|--------------------------|--|
| | <p>Autoinjector/Atropen information:</p> <ul style="list-style-type: none"> • For children 0-2 y/o (<18 kg) use 0.5 mg Atropen • For children 2-10 y/o (18-30 kg) use 1.0 mg Atropen • For patients \geq10 y/o (>30 kg) use 2 mg atropine autoinjector <p>Atropens and autoinjectors may be repeated every 3-5 min until symptoms improve.</p> |
| Onset: | 2 – 5 minutes |
| Duration: | 20 minutes |
| Pregnancy Safety: | Category C |
| Comments: | Atropine should be given prior to 2-Pam. |

| Pralidoxime Chloride (2-Pam, Protopam) | |
|---|--|
| Classification: | Cholinesterase reactivator |
| Actions: | <ul style="list-style-type: none"> Removes organophosphate agent from cholinesterase and reactivates the cholinesterase Re-establishes normal skeletal muscle contractions |
| Indications: | <ul style="list-style-type: none"> Antidote for organophosphate poisoning (not carbamates) Antidote for nerve agent poisoning |
| Contraindications: | Hypertension is relative contraindication |
| Adverse effects: | <ul style="list-style-type: none"> Pain at injection site Hypertension Blurry vision Diplopia Tachycardia Nausea Increases atropine effects |
| Administration: | <p><u>Auto injector</u></p> <p>Mild: administer one (1) autoinjector; 600 mg IM.</p> <p>Moderate: administer one (1) autoinjector; 600 mg IM. May repeat in 5-10 min.</p> <p>Severe: administer three (3) autoinjectors; 1800 mg IM.</p> <p>Elderly patients: (>65 years old): Limit to one (1) auto injector. Contact Base MD if additional doses are required</p> <p><u>IV/IO Infusion</u></p> <p>1-2 Gram IV/IO over 30 minutes May repeat in 1 hour</p> <p>Elderly patients: (>65 years old): 7.5 mg/kg IV/IO (Max 1 gram) over 30 minutes. Contact Base MD if additional doses are required</p> |
| Pediatric: | 20 mg/kg IM or IV/IO. Maximum of 1 gram given IV over 30 minutes; may repeat in 1 hour. No autoinjectors on children < 10 years (<30 kg) |
| Onset: | 5-15 minutes |
| Duration: | Half life: 75 minutes |
| Pregnancy Safety: | Category C |
| Comments: | Atropine should be given first |

| Diazepam (Valium) | | | |
|---|---|---|--|
| Classification: | Benzodiazepine | | |
| Actions: | Decreases neurologic activity Skeletal muscle relaxant Amnesic | | |
| Indications: | <ul style="list-style-type: none"> Seizures as a result of nerve agent exposure | | |
| Contraindications: | <ul style="list-style-type: none"> Hypersensitivity to benzodiazepines Myasthenia gravis | | |
| Adverse effects: | <table border="0"> <tr> <td> <ul style="list-style-type: none"> Drowsiness Fatigue Ataxia Confusion Constipation Depression Diplopia Dysarthria Headache Hypotension </td> <td> <ul style="list-style-type: none"> Incontinence Jaundice Nausea Rash Tremor Urinary retention Vertigo Blurred vision Anxiety Injection site reaction </td> </tr> </table> | <ul style="list-style-type: none"> Drowsiness Fatigue Ataxia Confusion Constipation Depression Diplopia Dysarthria Headache Hypotension | <ul style="list-style-type: none"> Incontinence Jaundice Nausea Rash Tremor Urinary retention Vertigo Blurred vision Anxiety Injection site reaction |
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| Precautions: | <ul style="list-style-type: none"> Can exacerbate grand mal seizures in epileptics Glaucoma Lung, liver, or heart disease | | |
| Adult Administration: | 5 mg Slow IVP/IO. May repeat every 5 minutes as needed | | |
| Pediatric Administration: | <p>0-5 years old: 0.2 -0.5 mg/kg IV/IO (5 mg max) May repeat every 2-5 minutes as needed</p> <p>>5 years old: 1 mg IV/IO (max 10 mg) May repeat every 2-5 minutes as needed</p> | | |
| Onset: | 1 – 5 minutes | | |
| Duration: | 15 minutes to 1 hour | | |
| Pregnancy Safety: | Category D | | |
| Comments: | Use with caution in elderly patients or patients that are under the influence of CNS depressants. Does not prevent seizures, do not give prophylactically. | | |