SAN FRANCISCO EMERGENCY MEDICAL SERVICES AGENCY

Effective: 01/07/13 **APPENDIX I**
Supersedes: 1/1/11

MEDICATION GLOSSARY

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ADENOSINE (Adenocard)

ACTION: Antiarrhythmic

- Decreases conduction through the atrioventricular (AV) node interrupting re-entry pathways.
- Stops both narrow and wide-complex paroxysmal supraventricular tachycardia (PSVT).

INDICATIONS

Hemodynamically stable PSVT.
Also recommended for wide-complex paroxysmal supraventricular tachycardia (PSVT

CONTRAINDICATIONS:

- 2nd or 3rd degree block.
- Sick sinus syndrome.

POTENTIAL SIDE EFFECTS:

- Transient asystole (up to 20 to 30 secs.)
- Dyspnea and bronchospasms
- Chest pressure
- Hypotension
- Facial flushing and headaches
- Nausea

DOSAGES:

⇒ 6 mg rapid IVP followed by a 20 ml flush NS from a syringe.
⇒ Repeat with 12 mg rapid IVP followed by a 20 ml flush NS.

PEDIATRIC USAGE:

⇒ 0.1 mg/kg rapid IVP or IO followed by a NS flush from a syringe.
⇒ Can repeat with 0.2 mg/kg rapid IVP or IO followed by a NS flush from a syringe.

NOTES:

- Clinically evaluate patients—adult and pediatric—to distinguish primary tachyarrhythmias such as PSVT—from patient conditions leading to sinus tachycardias.
- Adenosine is blocked by methylxanthines and potentiated by dipyridamole and carbamazepine.

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ALBUTEROL (Ventolin or Proventil)

ACTION: Bronchodilator (beta2 adrenergic agonist)

- Albuterol is a sympathomimetic that is selective for beta-2 adrenergic receptors.
- Albuterol causes prompt bronchodilation for up to 5 hours, with a minimum of side effects.
- Albuterol reduces serum potassium levels.

INDICATIONS:

- Bronchospasms due to asthma.
- Reversible bronchospasms associated with chronic bronchitis and emphysema.

CONTRAINDICATIONS:

- Tachydysrhythmias.
- Known hypersensitivity to the drug.
- Use cautiously in elderly patients and patients with cardiovascular disease.

POTENTIAL SIDE EFFECTS:

- Tachydysrhythmias and palpitations
- Anxiety and nervousness
- Nausea and vomiting
- Dizziness
- Headache

DOSAGES:

⇒ 2.5 mg in 3 ml NS delivered by nebulizer over 5 to 15 min., may repeat x 1 if no relief from symptoms.

PEDIATRIC USAGE:

⇒ Patients less than 5 kg weight: give 0.8 mg (or 1 ml) of Albuterol diluted with 1 to 2 ml NS for a total volume of 3 ml by nebulizer.

NOTES:

- If patient is unable to use hand-held nebulizer, use mask nebulizer instead.
- If inadequate tidal volume to ensure good administration of albuterol, use in line BVM to deliver albuterol.

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AMIODARONE

ACTION: Antiarrhythmic (Anti-Fibrillation Agent)
- Suppresses myocardial action potentials related to fibrillation.
- Facilitates myocardial action potentials related to coordinated contractions.

INDICATIONS:
- Hemodynamically unstable VT
- Frequently recurring VF and hemodynamically unstable VT refractory to other therapy.

CONTRAINDICATIONS:
- Sinus node dysfunction or sinus bradycardia.
- 2nd or 3rd degree block.
- Known hypersensitivity from past exposure.

POTENTIAL SIDE EFFECTS:
- May prolong QT interval
- Hypotension

DOSAGES:
⇒ **VF or pulseless VT**: 300 mg bolus, repeat 150 mg IV or IO bolus if rhythm persists
Unstable VT with pulse: Inject 150 mgs of Amiodarone into 100ml of D5W on minidrip. Run wide open with target goal of infusing the 100 mls within 10 minutes .

PEDIATRIC USAGE:
⇒ **VF or pulseless VT only**: 5 mg/kg IV or IO bolus; maximum dose 300 mg.

NOTES:
- Do not administer if patient is hypotensive.
- Stop administration if patient becomes hypotensive during treatment.
- Do not administer with bicarbonate in the same IV line (will precipitate).
- When creating infusion, careful mixing is needed to avoid foaming of the medication.
- Reconstitute Amiodarone per manufacturer's directions.

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ASPIRIN (ASA)

ACTION: Antithromboembolic

- Blocks formation of thromboxane A2 which causes platelets to aggregate and arteries to constrict.

INDICATIONS:

- All patients with new pain suggesting an active AMI.
- Should be given within minutes of arrival.

CONTRAINDICATIONS:

- Hypersensitivity to ASA.
- Relative contraindication in patients with active ulcers or asthma.

POTENTIAL SIDE EFFECTS:

- Gastrointestinal bleeding.
- Tinnitus.

DOSAGES:

⇒ 4 baby ASA tablets (81 mg each for a total of 324 mg) PO chewed and swallowed by patient [Note: one 324 mg adult ASA tablet could also be chewed by patient].

PEDIATRIC USAGE:

⇒ Not applicable.

NOTES:

- Oral absorption occurs within 20 to 60 minutes and is dependent on dosage, gastric motility or pH, dissolution rate and whether the drug is taken with Antacids, meals, or during fasting.

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ATROPINE SULFATE

ACTION: Vagolytic (Anticholinergic)

- Acts as a parasympatholytic drug, a vagolytic drug and an anticholinergic drug.
- Improves conditions with excess vagal activity.
- Increases sinus node automaticity and AV conduction when suppressed by abnormal parasympathetic or vagal discharges.

INDICATIONS:

- Symptomatic bradycardias (see signs and symptoms below in Notes section).
- Slow PEA, second agent to use after Epinephrine.
- Organophosphate or carbamate insecticide poisoning.
- Nerve agent exposure.

CONTRAINDICATIONS:

- Atrial Fibrillation or atrial flutter
- Glaucoma

POTENTIAL SIDE EFFECTS:

- Can significantly increase heart rate causing unwanted tachycardias.
- Post-atropine tachycardias can precipitate V-Fib or V-Tach.
- Can worsen patient's ischemia or extend size of infarct.
- Doses lower than 0.5 mg can produce slowing of the heart.
- Dilated pupils.
- Decreased salivation.
- Flushed, hot skin.
- Dry mouth.

DOSAGES:

⇒ **Symptomatic Bradycardia**: 0.5 to 1 mg IVP, repeat q 3 to 5 min.
⇒ **Organophosphate Poisoning/Nerve agent Exposure**: 2 to 5 mg IVP, repeat q 15 min. until respiratory symptoms improve.

PEDIATRIC USAGE:

⇛ **Symptomatic Bradycardia:** 0.02 mg/kg IVP or IO.
⇒ **Organophosphate Poisoning**: 0.05 mg/kg IVP or IO .

NOTES:

- In adult patients, external pacing is the treatment of choice for symptomatic bradycardia if there is suspected myocardial ischemia, or 2nd or 3rd degree AV blocks are present.
- If Atropine auto-injectors are available, the drug can be given IM in the thigh for suspected organophosphate poisoning or nerve agent exposure.
- **Atropine is no longer recommended for adult or pediatric asystole.**
- Remember that the primary cause of bradycardia in pediatric patients is hypoxia.

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CALCIUM CHLORIDE 10% [CaCl]

ACTION: Electrolyte
- Increases myocardial contractility.
- Stabilizes the myocardium in hyperkalemia or hypocalcemia associated cardiac arrhythmias.

INDICATIONS:
Known:
- Hyperkalemia.
- Hypocalcemia with tetany.
- Calcium channel blocker overdose/toxicity.
- Hypermagnesemia.

CONTRAINDICATIONS:
- Do not use for routine cardiac arrest—use only for conditions noted above.
- V-Fib.
- Use with extreme caution in patients taking digitalis compounds.

POTENTIAL SIDE EFFECTS:
- Bradycardia and asystole.
- V-Fib.
- Hypotension.
- Nausea and vomiting.

DOSAGES:
⇒ Hyperkalemia and Calcium channel blocker overdose: 500 mg (5 ml) SLOWLY IVP over 5 min., may repeat in 10 min.

PEDIATRIC USAGE:
⇒ 20 mg/kg SLOWLY IVP, IO

NOTES:
- Ensure that you have patent IV line as extravasation of Calcium will cause tissue necrosis.
- Calcium precipitates in IV bag or tubing if mixed with Sodium Bicarbonate.

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CETACAINE SPRAY

ACTION: Topical Anesthetic

- **Active ingredients**: Benzocaine (14%), Butyl aminobenzoate (2%), Tetracaine hydrochloride (2%).
- Produces anesthesia in approximately 30 seconds. Effective only on mucous membranes.
- Controls pain and gagging.

INDICATIONS:

- Used to assist in nasal intubation of patients

CONTRAINDICATIONS:

- Cetacaine is for intranasal use only, and is not to be used in the eyes.
- Hypersensitivity of patients to any of the ingredients.

POTENTIAL SIDE EFFECTS:

- Systemic reactions to Cetacaine have not been reported.

DOSAGES:

⇒ Cetacaine should be sprayed directly into each nostril for one second or less, for normal anesthesia and suppression of the gag reflex.

PEDIATRIC USAGE:

⇒ Not indicated

NOTES:

- Apply Cetacaine early in preparation to nasally intubate patient.

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CHARCOAL (ACTIVATED) [Actidose with Sorbitol]

ACTION: Absorbent

- Activated charcoal is a fine black powder that binds and adsorbs ingested toxins still present in the GI tract following emesis, or in lieu of emesis.
- Activated charcoal has a large surface area. Once it binds and adsorbs the ingested toxins, the combined complex is excreted from the body.
- Particularly useful if administered early in the management of acute poisoning.

INDICATIONS:

- Activated charcoal is a general-purpose antidote recommended for the treatment of practically all oral poisonings **except those caused by corrosive agents, cyanide, iron, mineral acids, or organic solvents.**

CONTRAINDICATIONS:

- Active vomiting.
- Do not give before, or together with, Ipecac.
- Charcoal should not be given to patients with altered mental status unless administered by nasogastric tube, and the patient has an ETT in place.

POTENTIAL SIDE EFFECTS:

- Nausea and vomiting.
- Abdominal cramping and bloating.
- Constipation.

DOSAGES:

⇒ 50 G Activated Charcoal .
⇒ **Note**: Shake bottle well before taking cap off.
⇒ Have patient drink entire bottle.

PEDIATRIC USAGE:

⇒ 1 G/kg mixed in water to form a slurry.
⇒ **Note**: patient must be at least one year of age.

NOTES:

- Ensure that patient has not ingested any hydrocarbons.
- Charcoal has limited effectiveness in cases with Lithium ingestion or in absorbing toxins with a heavy molecular weight.

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DEXTROSE 50% [D50W]

ACTION: Glucose Replacement/Nutrient
- Elevates blood glucose levels.

INDICATIONS:
- Blood glucose levels less than 80 mg/dl or high-index of suspicion of hypoglycemia

CONTRAINDICATIONS:
- No major contraindications for administration to most patients.
- $D_{50}W$ should be used cautiously in patients with increased intracranial pressure as the dextrose load can theoretically worsen cerebral edema.

POTENTIAL SIDE EFFECTS:
- Hyperglycemia.
- Tissue necrosis if extravasation occurs.

DOSAGES:
⇒ 25 G of $D_{50}W$ IVP, may repeat once in 5 min. if initial dose is ineffective.
⇒ Obtain blood glucose reading before administering Dextrose.

PEDIATRIC USAGE:
⇒ 0.5 G/kg IVP or IO (1 ml/kg).
⇒ **Note**: Under 2 years of age use $D_{25}W$ (i.e. 2 ml/kg).

NOTES:
- Dextrose can have a marked sclerosing effect on veins; make sure that IV sites are patent by aspirating blood before and during administration of Dextrose. Use largest available veins.

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DIPHENHYDRAMINE [Benadryl]

ACTION: Antihistamine

- Antagonizes effects of histamine by blocking histamine receptors.
- Decreases itching, edema, bronchoconstriction and vasodilation.

INDICATIONS:

- Anaphylaxis.
- Allergic reactions.
- Dystonic (extrapryramidal) neuromuscular reactions.

CONTRAINDICATIONS:

- Asthma
- Diphenhydramine can potentiate other CNS depressants,
- Relative contraindication in pregnant or lactating females,

POTENTIAL SIDE EFFECTS:

- Drowsiness and sedation
- Hypotension
- Palpitations
- Tachycardia
- Headache or blurred vision
- Anticholinergic effects

DOSAGES:

⇒ 1 mg/kg IVP or deep IM (up to max. 50 mg).

PEDIATRIC USAGE:

⇒ 1 mg/kg IVP, IO or deep IM (up to max. 50 mg).

NOTES:

- In patients who are perfusing well, consider deep IM administration of Diphenhydramine.
- In severe allergic reactions/anaphylaxis consider IV administration of Diphenhydramine.

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DOPAMINE [Intropin]

ACTION: Inotropic, Chronotropic

- Sympathomimetic, natural catecholamine.
- Dose depend stimulation of alpha, beta and dopaminergic receptors.
- At low doses (2 to 5 mcg/kg/min) stimulates dopaminergic receptors (renal and mesenteric artery dilation).
- At medium doses (5 to 10 mcg/kg/min) stimulates beta receptors (increased heart rate and contractility resulting in increased cardiac output).
- At high doses (greater than 10 mcg/kg/min) alpha-adrenergic effects predominate (peripheral vasoconstriction).

INDICATIONS:

Hypotension due to:

- **Cardiogenic shock**.
- **Distributive shock**: Neurogenic and anaphylactic shock. Septic shock after adequate fluid administration.
- **Symptomatic bradycardias** unresponsive to other treatments such as Atropine and pacing.

CONTRAINDICATIONS:

- Tachydysrhythmias.
- Use only 1/10 the normal dose in patients on Monoamine Oxidase Inhibitors (MOA's) such as: Eutonyl, Parnate, Nardil as they potentiate the effects of Dopamine.

POTENTIAL SIDE EFFECTS:

- Tachydysrhythmias including V-Tach and V-Fib.
- Hypertension.
- Nausea and vomiting.
- Chest pain, ischemia and acute MI exacerbation.
- Extrasavation causes tissue necrosis.

DOSAGES:

⇒ **Cardiogenic or distributive shock**: 5 to 20 mcg/kg/minute, titrate to effect

PEDIATRIC USAGE:

⇒ Cardiogenic or distributive shock: 5 to 20 mcg/kg/minute, titrate to effect

NOTES:

- Do not infuse simultaneously with Sodium Bicarbonate; alkaline solutions inactivate Dopamine.
- Before infusing Dopamine (which will have an effect on the pump and vessels) ensure that the patient is not hypovolemic.

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EPINEPHRINE (Epi) [Adrenaline]

ACTION: Sympathomimetic

- Catecholamine (sympathomimetic) with alpha and beta adrenergic action.
- It may increase blood flow to the brain.
- The effects of Epi include increased heart rate, systemic vascular resistance, and blood pressure. It also causes bronchodilation due to its effects of beta-2 adrenergic receptors.

INDICATIONS:

- All cardiac arrest patients, including V-Fib, pulseless V-Tach, asystole and PEA.
- Anaphylaxis.
- Severe allergic reactions.
- Severe bronchospasms.
- Pediatric symptomatic bradycardia.

CONTRAINDICATIONS:

- **None** in cardiac arrest.
- Tachydysrhythmias.
- For severe asthma or allergic reactions, Epi should be used with extreme caution in patients > age 40 or in patients with coronary artery disease since myocardial ischemia may be precipitated.
- Use with extreme caution and only in life threatening emergencies.
- IV Epi should **only** be used if patients are in life-threatening extremis, otherwise use only SQ.

POTENTIAL SIDE EFFECTS:

- Tachydysrhythmias including V-Tach and V-Fib.
- Increased myocardial O_2 demand leading to chest pain and myocardial ischemia.
- Headache and dizziness.
- Nausea and vomiting.

DOSAGES:

⇒ **Cardiac Arrest**: 1 mg (1:10,000) IVP q 3 to 5 min.
⇒ If using (1:1000) Epi, dilute with NS so that a total of 10 ml of solution is administered with each dose.
⇒ **Severe Allergic Reaction and Severe Asthma**: 0.3 to 0.5 mg (1:1,000) SQ based upon weight and severity.
⇒ **Anaphylactic Shock**: 0.1 mg (1:1,000) IVP, may be repeated q 5 min. for a total of 3 doses.

PEDIATRIC USAGE:

⇒ **Severe Asthma or Allergic Reaction**: 0.01 mg/kg (1:1,000) SQ (max. dose is 0.3 mg).

⇒ **Anaphylactic Shock**: 0.01mg/kg (1:10,000) IVP or IO.
⇒ **Cardiac Arrest**: 0.01mg/kg (1:10,000) IVP or IO.

- **NOTES:** The benefits of SQ Epi in severe asthma pts. is unclear. Use with caution. See above.

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GLUCAGON

ACTION: Hormone/Antihypoglycemic

- Glucagon is a hormone secreted by the pancreas that causes a breakdown of stored glycogen into glucose and keeps glucose from converting into glycogen.
- In hypoglycemic patients, these actions tend to cause an increase in circulating blood glucose levels. Glucagon is only effective if there are sufficient stores of glycogen in the liver.
- Glucagon is utilized in altered LOC hypoglycemic patients when an IV cannot be established to administer $D_{50}W$. Patients given Glucagon usually take from 5 to 20 min. to return to consciousness.

INDICATIONS:
Hypoglycemia when an IV cannot be established.

CONTRAINDICATIONS:

- Hypersensitivity to Glucagon.

POTENTIAL SIDE EFFECTS:

- Hypotension.
- Dizziness and headache.
- Nausea and vomiting.

DOSAGES:
$\Rightarrow$ 1 mg or Unit IM.

PEDIATRIC USAGE:
$\Rightarrow$ 0.1 mg/kg IM up to a max. of 1 mg or Unit.

NOTES:

- Glucagon must be reconstituted before administration. It is supplied in two vials containing 1 mg (or unit) of powder and 1 ml of diluting solution.
- As soon as patient is awake, give carbohydrates such as orange juice or a prompt meal as soon as possible.

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GLUCOSE (GLUTOSE)

ACTION: Oral Hyperglycemic Agent (Concentrated Sugar)
Reverses hypoglycemia. Good for insulin reaction patients with good gag reflexes.

INDICATIONS:
- Hypoglycemia patients who are conscious and who have a gag reflex.

CONTRAINDICATIONS:
- Patient must be conscious and able to hold glucose tube in own hands.

POTENTIAL SIDE EFFECTS:
- Aspiration of glutose if patient has no gag reflex.

DOSAGES:
⇒ Give 1-2 tubes to patient (30 grams or more glucose).

PEDIATRIC USAGE:
⇒ Same as adult dose or as tolerated by patient.

NOTES:
- Check blood glucose level before giving oral Glucose.
- Response (increasing LOC) should occur within 10 min.
- After patient is fully alert and oriented, ensure that patient consumes additional carbohydrates, such as orange juice or a meal.

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LIDOCAINE 2% (XYLOCAINE)

ACTION: Analgesic (Local Anesthetic for IO Venous Access)

- Lidocaine decreases sensory nerve transmission of pain impulses.

INDICATIONS:

- Pain relief in IO insertion in conscious patients.

CONTRAINDICATIONS:

- Not indicated in unconscious, unresponsive patients for IO placement.

POTENTIAL SIDE EFFECTS:

Signs of Lidocaine toxicity may include:

- Drowsiness
- Dizziness
- Slurred speech
- Altered LOC
- Seizures
- Respiratory arrest

DOSAGES:

⇒ Adult patients: 50 mg IO.
⇒ Pediatric patients: 0.5 mg/kg to a max dose of 50 mg IO.

NOTES:

- **Lidocaine is no longer used for cardiac indications.**

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MAGNESIUM SULFATE 10%

ACTION: Electrolyte/Antiarrhythmic

- Magnesium provides electrical stability in the myocardium.
- Known association between magnesium deficiency, arrhythmias and death.
- Affects impulse formation and conduction time in myocardium and thereby reduces incidence of dysrhythmias associated with hypomagnesmia or prolonged QT interval.
- Magnesium is also a central nervous system depressant effective in the management of seizures associated with eclampsia in pregnant women.

INDICATIONS:

- Drug of choice (after Epi) for treatment of **Torsades de pointes** (polymorphic V-Tach).
- V-Fib/V-Tach cardiac arrest patients with poor dietary intake and habits or chronic diseases (i.e. alcoholism, renal failure and use of diuretics).
- Refractory V-Fib/V-Tach after use of Epi, Lidocaine and Bretylium.
- Suspected ischemic chest pain patients presenting with significant ventricular ectopy AND who have poor dietary intake and habits or chronic diseases such as alcoholism and renal failure.
- Seizures secondary to eclampsia in pregnant women.

CONTRAINDICATIONS:

- In renal patients, use caution if giving additional doses of Magnesium sulfate.

POTENTIAL SIDE EFFECTS:

- Flushing and sweating.
- Mild bradycardia.
- Mild hypotension.
- Respiratory and CNS depression.

DOSAGES:

⇒ **Refractory V-Fib/V-Tach and Torsades de Pointes**: 1 to 2 G slowly IV over 1 to 2 min.
⇒ **Eclampsia**: 1 to 4 G administered slowly (1 G per min.)

PEDIATRIC USAGE:

⇒ Not indicated

NOTES:

- Side effects from the administration of Magnesium are rare.
- In Torsades de Pointes (polymorphic V-Tach) be sure to give Magnesium sulfate as the first-line antiarrhythmic. Doses higher than 2 G may be required in Torsades. Contact BHP for additional orders.
- Administer Magnesium sulfate **slowly** at no more than 1 G per minute, no matter what the clinical condition.

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MIDAZOLAM (Versed)

ACTION: Hypnotic, Sedative, Anti-Seizure

- Midazolam is a potent, but short-acting benzodiazepine with strong hypnotic and amnestic properties.
- It is 3-4 times stronger than Diazepam.
- It has no effect on pain.

INDICATIONS:

- Premedication before cardioversion, external pacing and other painful procedures.
- Seizures (status epilepticus).
- Agitated patient: danger to self or others.

CONTRAINDICATIONS:

- Hypersensitivity
- Narrow-angle glaucoma
- Shock, with depressed vital signs
- Alcoholic coma

POTENTIAL SIDE EFFECTS:

- Laryngospasm
- Bronchospasm
- Dyspnea
- Respiratory depression and arrest
- Drowsiness
- Amnesia
- AMS
- Bradycardia
- Tachycardia
- PVC's
- Nausea
- Vomiting

DOSAGES:

⇒ **Sedation**: Midazolam 5 mg IN (2.5 mg each nostril) or, 2.5 mg slow IV push to a maximum dose of 5 mg (may be repeated every five minutes).

⇒ **Generalized Convulsive Status Epilepticus**: Midazolam 5 mg IN (2.5 mg each nostril) 5 mg IM or 2.5 mg slow IV push to a maximum dose of 5 mg (may be repeated every five minutes).

⇒ **Agitated Patient**: danger to self or others: Midazolam 2.5 mg slow IV push or single IM dose of 5 mg to a maximum dose of 5 mg (may be repeated every five minutes).

PEDIATRIC USAGE:

Status Epilepticus or Sedation of an Agitated Patient: Utilize SF EMS Agency approved pediatric dosage chart to determine correct weight-based dose. Max single dose is:

⇒ 2.5 mg IV (may be repeated once in 5"),

⇒ 5 mg IM, or

⇒ 5 mg IN (only for Status Epilepticus).

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NOTES:

- **The effects of Midazolam may be potentiated if administered with Morphine. Contact Base Hospital if considering administering both medications.**
- Emergency resuscitative equipment must be available before administration of Midazolam.
- Continuous monitoring of vital signs before and after administration is required.
- Always be prepared to protect airway and ventilate patients who are given benzodiazepines.

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MORPHINE SULFATE

ACTION: Analgesic

- Morphine is an opiate derivative. It is a potent, centrally acting analgesic.
- For cardiac patients: morphine reduces the pain of ischemia, thereby reducing anxiety, increasing venous capacitance, reducing oxygen demands on the heart, lessening ischemia and reducing infarct size.
- Analgesic features of Morphine make it useful for the treatment of chronic or acute pain.

INDICATIONS:

- Chest pain of suspected ischemic origin.
- Acute Pulmonary Edema.
- Management of chronic pain or acute pain according to ALS Treatment Protocols.

CONTRAINDICATIONS:

- Hypersensitivity
- Respiratory Insufficiency
- Asthma or exacerbated COPD
- Acute abdomen
- Head injury
- Hypotension
- Decreased LOC

POTENTIAL SIDE EFFECTS:

- Respiratory depression
- Hypotension
- Decreased LOC
- Nausea and vomiting
- Decreased heart rate

DOSAGES:

⇒ Chest pain or Pulmonary Edema: 2 to 4 mg slow IVP.
⇒ Closely monitor respiratory status and SBP.
⇒ Management of chronic pain/isolated extremity trauma: 4 mg slow IVP to a maximum dose of 20 mg.
⇒ May also be given IM.

PEDIATRIC USAGE:

⇒ 0.1 mg/kg slow IVP.
⇒ Closely monitor respiratory status and SBP.

NOTES:

- **The effects of Morphine may be potentiated if administered with Midazolam. Contact Base Hospital if considering administering both medications.**
- When giving Morphine sulfate, administer slowly, at no more than 2 mg/min IVP for adults.
- Be prepared to assist ventilations of any patient who is administered Morphine sulfate.
- Contact Base Hospital Physician if higher doses of Morphine are required.

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NALOXONE [Narcan]

ACTION: Narcotic Antagonist

- Reverses effects of narcotics and synthetic narcotic agents by competing for the opiate receptors in the brain and displaces narcotic molecules from those receptors.
- It can reverse respiratory depression associated with narcotic overdoses.

INDICATIONS:

- Suspected narcotic overdose, or coma of unknown etiology.

CONTRAINDICATIONS:

- Patients with hypersensitivity to the drug.
- Neonate in the setting of opiate dependence.

POTENTIAL SIDE EFFECTS:

- Rapid administration can cause projectile vomiting in patients.
- May precipitate withdrawal in chronic narcotic users.
- Patients may become agitated or violent after drug is administered.

DOSAGES:

⇒ **Naloxone** 0.4 intranasal **(IN)** via mucosal atomizer device **(MAD)** (preferred) or IVP or IM. Repeat as needed every 5 minutes for respiratory depression to total 2 mgs

PEDIATRIC USAGE:

⇒ 0.1 mg/kg IN (preferred) or slowly IVP, may also be given IM, SQ.
⇒ Children > 10 years old may be given IN via MAD. (Mucosal Atomizing Device).

NOTES:

- Doses of Naloxone smaller than 2 mg may be given if it is suspected that the patient may have taken a combination of heroin and cocaine (“speedball”).
- Because Naloxone is a short-acting narcotic antagonist, additional doses may have to be given if the patient’s LOC and respiratory status start to diminish.
- Higher doses of Naloxone may be indicated for certain narcotics overdoses such as Darvocet.

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NEOSYNEPHRINE (Phenylephrine HCL 0.25%)

ACTION: Nasal Decongestant

INDICATIONS:
- Acts as a vasoconstrictor on blood vessels in nostrils helping to minimize or eliminate epistaxis.

CONTRAINDICATIONS:
- None

POTENTIAL SIDE EFFECTS:
- Burning, stinging, increased nasal discharge.

DOSAGES:
⇒ Adults and children over age 8: 2 to 3 sprays in each nostril .

PEDIATRIC USAGE:
⇒ Not indicated.

NOTES:
- Administer Neosynephrine spray early into the nostrils to allow time for vasoconstriction to occur to help eliminate or minimize epistaxis.

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NITROGLYCERIN (NTG) [Nitrolingual]

ACTION: Nitrate/Vasodilator

- Dilates venous capacitance vessels, reducing blood return to the heart (preload).
- Decreases systemic vascular resistance and facilitates cardiac emptying (reduces afterload).
- Decreases myocardial oxygen demand.
- Dilates coronary arteries.

INDICATIONS:

- Chest pain of suspected cardiac origin.
- Acute pulmonary edema and congestive heart failure.

CONTRAINDICATIONS:

- Hypersensitivity
- Hypotension and shock
- Recent use of phosphodiesterase inhibitors (All Erective Dysfuntion Drugs).

POTENTIAL SIDE EFFECTS:

- Hypotension
- Headache and flushing
- Syncope
- Tachycardia

DOSAGES:

⇒ **Cardiac Chest Pain**: 0.4 mg lingual spray or 0.4 mg sublingual tablet, may repeat q 5 min. prn to a max. of 3 doses, and as long as SBP > 100.

⇒ **Pulmonary Edema**: 0.4 mg lingual spray or 0.4 mg sublingual tablet, may repeat q 5 min. to a max. of 3 doses (SBP must remain > 100).

PEDIATRIC USAGE:

⇒ Not indicated.

NOTES:

- If hypotension occurs, usually positioning of the patient or a small fluid challenge is sufficient to correct the problem. Elderly patients, and those patients who may be fluid depleted are more vulnerable to hypotension caused by the vasodilation.
- Nitrolingual spray can be administered either on top of the tongue, or underneath the tongue. Have patients open their mouths—instruct them to hold their breath—spray the NTG lingually or sublingually, and then tell the patients that they can close their mouths and resume normal breathing.

Effective: 01/07/13 **APPENDIX I**
Supersedes: 1/1/11

ONDANSETRON (Zofran)

ACTION: Anti-Emetic

- Selective antagonism of the serotonin 5-HT_3 receptor.
- Decreases or eliminates nausea.
- Decreases/prevents episodes of vomiting.

INDICATIONS:

- Severe Nausea and Vomiting

CONTRAINDICATIONS:

Do NOT use in patients with:

- History of hypersensitivity to other similar drugs (Dolasetron (Anzemet), Granisetron (Kytril), or Palonosetron (Aloxi).
- Previous hypersensitivity to Zofran (Ondansetron).
- Taking Apomorphine (Apokyn, Ixense, Spontane, Uprima**) -** an injectable drug for Parkinson's Disease, or rarely used for erectile dysfunction.
- Do not give oral tablet or solution to known Phenylketonurics (contains phenylalanine).

POTENTIAL SIDE EFFECTS

- Hypotension
- Syncope
- QT prolongation
- Headache
- Diarrhea
- Dizziness
- Anaphylaxis
- Flushing
- Rash

DOSAGES:

⇒ **Adult:** ODT 8 mg dissolved on the tongue or **Ondansetron** 4 mg IV/IM as needed for nausea/vomiting. May be repeated q 20" to a maximum dose of 12 mg.

⇒ **Pediactric: Limited to 4 years of age or older**: 4mg SLOW IV PUSH over 2-5 minutes, 4mg IM, or 4mg PO (ODT). For patients 40kg and greater only, may repeat every 20 minutes to a total of 12mg.

NOTES:

- Ondansetron **must** be administered IV over 2-5 minutes. Rapid administration has been associated with increased incidence of side effects – most notably syncope.
- Oral disintegrating tablets (ODT's) can be placed on tongue and do not need to be chewed. Medication will dissolve and be swallowed with saliva.
- Ondansetron can be used in pregnancy and breast-feeding mothers (pregnancy class B).

Effective: 01/07/13 **APPENDIX I**
Supersedes: 1/1/11

OXYGEN [O2]

ACTION: Medical Gas

- Essential for cellular metabolism and survival**.**
- First drug used for respiratory compromise or any time hypoxia is possible.

INDICATIONS:

- All patients with cardiopulmonary emergencies.
- Respiratory emergencies, including any patient who complains of shortness of breath.
- Chest pain.
- Suspected hypoxemia.

CONTRAINDICATIONS:

- Do NOT withhold oxygen from anyone who might need it.

DOSAGES:

⇒ **Nasal Cannula**: 2 to 6 liters/min (delivers 24 to 44% oxygen).
⇒ **Nonrebreather Mask**: 10 to 15 liters/min (delivers 85 to 95% oxygen).
⇒ **BVM with O_2 Reservoir**: 15 to 25 liters/min (delivers 85 to 95% oxygen).

PEDIATRIC USAGE:

⇒ **Nasal Cannula**: 2 to 4 liters/min (delivers 24 to 38% oxygen).
⇒ **Nonrebreather Mask**: 10 to 12 liters/min (delivers 85 to 95% oxygen).
⇒ **BVM with O_2 Reservoir**: 10 to 15/liters/min (delivers 60 to 95% oxygen).

NOTES:

- Target oxygen saturation levels when administering O2 is 94 – 95%.
- Never withhold oxygen from anyone who might need it.
- Observe COPD patients closely and be prepared to ventilate them with BVM if necessary (development of apnea or increasing signs of respiratory failure).

Effective: 01/07/13 **APPENDIX I**
Supersedes: 1/1/11

SODIUM BICARBONATE

ACTION: Alkalinizing Agent

- Acts as a buffering agent when administered to neutralize hydrogen ions.
- Chemically neutralizes acids producing carbon dioxide as a byproduct.
- Has the effect of moving the potassium into the intracellular space, lowering serum potassium levels.

INDICATIONS:

- Known, preexisting hyperkalemia or patients with known renal failure.
- Cardiac arrests associated with Tricyclic Antidepressants or Phenobarbital overdose.
- Tricyclic overdoses cause widening of the QRS **>** 0.10 seconds.

CONTRAINDICATIONS:

- When used for situations above—there are no absolute contraindications.

POTENTIAL SIDE EFFECTS:

- Hypotension
- Headache and flushing
- Syncope
- Tachycardia
- Alkalosis
- Fluid overload

DOSAGES:

⇒ **Cardiac Arrest or QRS widening from TCA Overdose/Hyperkalemia**: 1 mEq/kg IVP (1 ml/kg) followed by 0.5 mEq/kg IVP q 10 min.

PEDIATRIC USAGE:

⇒ **Cardiac Arrest or QRS widening from TCA Overdose/Hyperkalemia**: 1 mEq/kg IVP or IO (1 ml/kg) followed by 0.5 mEq/kg IVP or IO q 10 min.

NOTES:

- If giving Sodium Bicarbonate to cardiac arrest patients, ensure that patient is intubated and well-ventilated to blow-off CO_2.
- Avoid injecting Sodium Bicarbonate and Epi simultaneously. Alkaline solutions will inactivate Epi.