Formulary

Document History

Revision History

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Approvals

This document has the following approvals:

Name	Title
Dr. Bruce Wilkerson	CEO / Medical Director

Table of Contents

Activated Charcoal, U.S.P.

Action: A non-specific GI absorbent with a surface area of 900-2000 m^2/g that is used primarily in the management of acute poisonings.

Indications:
1. Acute poisonings in which the use of activated charcoal is efficacious

Contraindications:
1. None when used in the emergency or prehospital setting

Precautions:
1. Insufficient hydration can cause GI problems – be prepared to address fluid volume if problems are concomitant

Adverse Reactions / Side Effects:
1. Black stools
2. Gritty consistency may cause emesis in some patients

Administration:
1. Give activated charcoal 50-120g PO as soon as possible following ingestion of poison.

Special Notes:
1. Repeat doses have been shown to enhance the elimination of some drugs, most notably: carbamazepine, phenobarbital, salicylates and theophylline.

Adenosine (generic), Adenocard (brand)

Action: Slows conduction through AV node of the heart. It is cleared very rapidly, having a half-life of less than 15 seconds.

Indications:
1. Conversion of paroxysmal supraventricular tachycardia (PSVT) to normal sinus rhythm (NSR)

Contraindications:
1. Tachy/Brady syndrome
2. Second or third degree heart block

Precautions:
1. A reduced dose must be used in heart transplant recipients.

Adverse Reactions / Side Effects:
1. Dyspnea and bronchoconstriction (especially in patients with reactive airway disease)
2. Palpitations and chest pain
3. Hypotension
4. Facial flushing and headache
5. At the time of conversion, a variety of new rhythms may appear on the EKG. Short-lasting first, second or third degree heart block or *transient* asystole may result after administration. Due to the drug's short half-life, these effects are *generally* self-limiting.
6. In doses of 6-12 mg. there are usually no hemodynamic side effects.

Administration:
1. Doses of 6 mg IV x i and 12 mg x i may be given prior to contacting medical control. Document effect on rhythm using EKG.
2. If rhythm does not convert or does not slow enough to allow diagnosis, a second dose of 12 mg may be given prior to medical control contact.
3. Adenosine IV must be given rapidly. This can be facilitated by: a) using the IV med port closest to the patient, b) following the med with a fluid flush to assure all of the drug has cleared the IV tubing, c) using a larger bore IV catheter and d) elevating the arm during administration.
4. In heart transplant recipients, the initial dose is 4 mg. If a second dose is necessary, 8 mg may be given before medical control contact.
5. Further orders must come from medical control physician.

Special Notes:
1. After the administration of adenosine, a rhythm other than PSVT may be evident, resulting in the choosing of a different form of treatment.

Albuterol (generic), Proventil, Ventolin (brand)

Action: Sympathomimetic bronchodilator ($beta_2$-adrenergic agonist)

Indications:
1. For relief of acute bronchospasm (reversible airway obstruction)

Contraindications:
1. Allergy or known hypersensitivity to albuterol

Precautions:
1. Beta-receptor blocking agents and albuterol inhibit the effect of each other.
2. Use with caution in patients with heart disease, hypertension, diabetes, the elderly and those being treated with antidepressants.

Adverse Reactions / Side Effects:
1. Hypertension and headache
2. Arrhythmias and chest pain
3. Nervousness and shakiness
4. Rare: May produce immediate allergic reactions or paradoxical bronchospasm, which can be life threatening. Discontinue treatment immediately if this occurs.

Administration:
1. Pour one unit dose (2.5 mg/3 mL) into nebulizer reservoir.
2. Connect nebulizer to oxygen source at 6-8 LPM
3. Have patient breathe calmly and deeply as possible until no more mist is found in the nebulizer chamber (5-15 min). Routine nebulizer therapy should be accomplished by instructing the patient to close his/her lips tightly around the mouthpiece. An acceptable alternative to using the mouthpiece would be to attach the nebulizer reservoir to an oxygen mask.
4. Continuous nebulizer treatments (with reassessment in between) may be given as indicated.
5. Restart patient on oxygen at the appropriate concentration when finished.
6. Further orders must come from medical control physician.

Special Notes:
1. May begin treatment prior to IV therapy. This may decrease anxiety in the patient.
2. Nebulizer treatment for patient with suspected TB should be performed in well-ventilated areas. Providers should use appropriate respiratory protection.

Amantadine (generic), Symmetrel (brand)

Action: Antiviral; prevents the release of viral nucleic acid into the host cell. Also increases presynaptic dopamine release, and exerts anticholinergic effects.

Indications:
1. Treatment and/or prophylaxis of influenza A
2. Treatment of extrapyramidal reactions

Contraindications:
1. Allergy or hypersensitivity to amantadine
2. History of psychiatric problems or disorder

Precautions:
1. Use with caution in patients with CHF, seizures, renal or hepatic disease, peripheral edema, orthostatic hypotension

Adverse Reactions / Side Effects:
1. Serious reactions can include: CHF, dysrhythmias, coma, cardiac arrest and neuroleptic malignant syndrome.
2. Nausea, dizziness, hallucinations, restlessness
3. Depression, irritability, insomnia, confusion

Administration:
1. By medical control physician order only
2. For influenza expect order for:
    a. 100 mg PO BID, for at least 3-5 days and to discontinue with 24-48 hours of symptom resolution
3. For extrapyramidal side effect expect order for:
    a. 100 mg PO BID up to 300 mg per day in 3 divided doses

Amoxicillin (generic), Amoxil (brand)

Action: Beta-lactam class antibiotic; works similar to ampicillin on gram negative bacteria with less side effects and greater bioavailability due to a small first pass effect.

Indications:
1. Bacterial infection
2. Endocarditis prophylaxis

Contraindications:
1. Allergy or hypersensitivity to beta-lactams, penicillins

Precautions:
1. Skin reactions are most likely dose related – and will spontaneously resolve with the discontinuance of the medication

Adverse Reactions / Side Effects:
1. Nausea and vomiting
2. Diarrhea
3. Skin rash may present with mononucleosis

Administration:
1. For bacterial infection expect order for:
    a. 250-500 mg PO q 8 hours or 500-875 BID to max. 4.5g / day
2. For endocarditis prophylaxis expect order for:
    a. 2 g PO, administer 1 hour prior to dental or upper airway procedures

Amyl Nitrite for Inhalation, U.S.P.

Action: Amyl nitrite causes a non-specific relaxation of smooth muscle with the most prominent actions occurring in vascular smooth muscle. It also induces the formation of methemoglobin. In cases of cyanide poisoning, the methemoglobin combines with the cyanide to form nontoxic cyanmethemoglobin.

Indications:

1. For the treatment of accidental cyanide poisoning

Contraindications:

1. Since it may greatly increase intraocular and intracranial pressures, amyl nitrite is contraindicated or should be used with great caution in patients with glaucoma, recent head trauma or cerebral hemorrhage.

Precautions:

1. Transient episodes of dizziness, weakness or syncope or other signs of cerebral ischemia due to postural hypotension may develop following inhalation of amyl nitrite, particularly if the patient is standing immobile. To hasten recovery, measure which facilitates venous return such as head-low posture, deep breathing and movement of extremities may be used.
2. High doses of nitrites may produce methemoglobinemia, especially in individuals with methemoglobin reductase deficiency or other metabolic abnormality that interferes with the normal conversion of methemoglobin back to hemoglobin.
3. Amyl nitrite should be taken by the patient when seated or lying down

Adverse Reactions / Side Effects:

1. Mild, transitory headache, dizziness and flushing of the face are common with the use of amyl nitrite
2. The following adverse reactions may occur in susceptible patients: syncope, involuntary passing of urine and feces, hypotension, pallor, diaphoresis, tachycardia, restlessness, weakness, nausea and vomiting.

Administration:

1. Hang as standard practice using aseptic technique as part of a normal I.V. infusion. Adjust rate as necessary or as directed by medical control physician.

Aspirin

Action: Analgesic; platelet aggregate inhibitor that interrupts the blood clotting process, and may help to reduce or limit the damage cause by an acute myocardial infarction

Indications:
1. Suspected cardiac ischemia

Contraindications:
1. Allergy or hypersensitivity to aspirin or other non-steroidal anti-inflammatory agents (NSAIDs)
2. Active GI bleeding
3. Aortic dissection

Precautions:
1. Recent internal bleeding (within last 3 months)
2. Known bleeding diseases
3. Recent surgery
4. Possibility of pregnancy
5. Allergies to **ANY** pain medication
6. Patients with a history of asthma may take if they have tolerated ASA in the past and are not currently having asthma-related symptoms.

Adverse Reactions / Side Effects:
1. Bleeding

Administration:
1. Have the patient chew 81.25 mg x iv (baby aspirin tablets) or 325 x i regular aspirin tablets.
2. The patient may drink a small amount of liquid after chewing the tablets, if desired.
3. Further orders must come from the medical control physician.

Special Notes:
1. It is unnecessary to administer aspirin to a patient that has taken it within the last 12 hours. If unsure, it is preferable to administer aspirin as above.
2. Being on current anticoagulant or antiplatelet therapy (e.g. Coumadin) is not necessarily a reason to withhold aspirin. Consult with medical control physician prior to administration if there are questions.

Atropine sulfate (generic)

Action: Antidysrhythmic, anticholinergic-antimuscarinic; blocks action of acetylcholine in parasympathetic nervous system

Indications:
1. For symptomatic bradydysrhythmias (<50/min), either supraventricular or ventricular in origin
2. In cardiac arrest, for treatment of asystole or bradycardic pulseless electrical activity (PEA).
3. AV block with narrow QRS complex
4. Organophosphate poisoning
5. Bradycardia due to beta blocker and/or calcium channel blocker OD or toxicity.

Contraindications:
1. Acute hemorrhage

Precautions:
1. Should be given IV push to avoid paradoxical effect.

Adverse Reactions / Side Effects:
1. Supraventricular or ventricular tachycardia, ventricular fibrillation
2. Blurred vision, dry eyes, dilated pupils

Administration:
1. For perfusing symptomatic bradycardia
    a. Administer atropine 0.5 mg IV push
    b. May be repeated x1 (total dose of 1.0 mg) if first dose is ineffective.
2. For asystole and PEA:
    a. Administer 1.0 mg IV push. May be repeated every 3-5 minutes (to total dose of 3.0 mg)
3. Organophosphate poisoning: contact medical control physician for orders. Doses may be considerably larger than standard dosing.
4. Further orders must come from medical control physician.

Special Notes:
1. Atropine may not be effective if the rhythm is idioventricular, but should not be injurious either.
2. Second and third degree AV heart block are generally unresponsive to atropine. In these situations, consider immediate transcutaneous pacing especially with an unstable patient.

Bacteriostatic Water for Injection, U.S.P.

Action: When used only as a pharmaceutical aid for diluting or dissolving drugs for parenteral injection, bacteriostatic water is unlikely to exert a significant effect on fluid balance.

Indications:

1. For use only after the addition of medications that require dilution of must be dissolved in an aqueous vehicle prior to injection or infusion

Contraindications:

1. None in the prehospital setting

Precautions:

1. Do not use bacteriostatic water for intravenous injection unless the osmolar concentration of additives results in an approximate isotonic admixture.

Adverse Reactions / Side Effects:

1. Febrile response, local tenderness, abscess, tissue necrosis or infection at the site of injection, venous thrombosis or phlebitis extending from the site of injection.

Administration:

1. The volume of the preparation to be used for diluting or dissolving any drug for injection is dependent on the vehicle concentration, dose and route of administration as recommended by the manufacturer.

Calcium Chloride 10% for Injection, U.S.P.

Action: Electrolyte modifier; essential for the transmission of nerve impulses in cardiac muscle contraction.

Indications:
1. Symptomatic hyperkalemia
2. Hypocalcemia, especially from acute causes such as Hydrofluoric acid or fluorine gas exposure
3. Calcium channel blocker overdose or toxicity
4. Respiratory depression following the administration of magnesium sulfate

Contraindications:
1. Not to be used during resuscitation unless hyperkalemia, hypocalcemia, or calcium channel blocker toxicity has been proven or by order of medical control physician.

Precautions:
1. Rapid administration of calcium in a beating heart may produce slowing of the cardiac rate.
2. Patients taking digitalis may have increased ventricular irritability and calcium may exacerbate or produce digitalis toxicity.
3. Beware in the near co-administration of sodium bicarbonate; it will precipitate calcium salts or carbonates.
4. Do not give to any patient without medical control physician order.

Adverse Reactions / Side Effects:
1. Syncope
2. Dysrhythmias, bradycardia, and cardiac arrest
3. Extravasations will cause tissue necrosis at the injection site

Administration:
1. For all indications, anticipate physician order for:
    a. Conscious patient: Administer Calcium Chloride 10% 1 g by slow IVP (1 mL/min for 10 min)
    b. Unconscious patient / Cardiac arrest: administer Calcium Chloride 10% 1 g by slow IVP (5 mL/min for 2 min)

Special Notes:
1. If infiltration occurs, notify medical control physician immediately to that antidotal therapy can begin ASAP.

Captopril (generic), Capoten (brand)

Action: ACE inhibitor, interrupts the conversion of Angiotensin Conversion Enzyme I to Angiotensin Conversion Enzyme II.

Indications:
1. HTN
2. Hypertensive urgency, hypertensive angina
3. CHF (by medical control physician only)

Contraindications:
1. Known allergy or hypersensitivity to captopril or ACE inhibitor class of medications

Precautions:
1. Half-life is prolonged in patients with CHF or renal dysfunction, use caution when multiple administrations are required.

Adverse Reactions / Side Effects:
1. Skin rashes
2. Taste impairment
3. Cough
4. Angioedema

Administration:
1. For HTN expect order for:
    a. Captopril 12.5-25 mg PO BID - TID and include a Na+ diet restriction
2. For CHF expect order for:
    a. Captopril 6.25-25 mg PO TID and include a Na+ diet restriction

Ceftriaxone (generic); Rocephin (brand)

Action: The bactericidal activity of ceftriaxone results from the inhibition of cell wall synthesis. Ceftriaxone has a high degree of stability in the presence of beta-lactimases, both penicillinases and cephalosporinases, of gram-negative and gram-positive bacteria.

Indications:

1. To reduce the development of drug-resistant bacteria and maintain the effectiveness of Ceftriaxone Injection, USP and other antibacterial drugs, Ceftriaxone Injection, USP should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria.
2. When culture and susceptibility information are available, they should be considered in selecting or modifying antibacterial therapy. In the absence of such data, local epidemiology and susceptibility patterns may contribute to the empiric selection of therapy.

Contraindications:

1. Known or suspected hypersensitivity to ceftriaxone or cephalosporin class antibiotics.

Precautions:

1. Although transient elevations of BUN and serum creatinine have been observed, at the recommended dosages, the nephrotoxic potential of ceftriaxone is similar to that of other cephalosporins
2. In patients with both hepatic dysfunction and significant renal disease, dosage should not exceed 2 gm daily without close monitoring.

Adverse Reactions / Side Effects:

1. Pain, phlebitis, rash
2. Diarrhea, pseudomembranous colitis

Administration:

1. Expect physician order for:
    a. Surgical prophylaxis: Ceftriaxone 1 g IV/IM given 30-120 minutes
        i. If given IV, infuse over 30 minutes
        ii. Max. adult dose should not exceed 4 g / daily

Cephalexin (generic), Keflex (brand)

Action: Broad-spectrum first generation cephalosporin, effective against many Gram-positive and Gram-negative pathogens.

Indications:
1. Bacterial infections
2. Strep throat
3. UTI
4. Endocarditis prophylaxis

Contraindications:
1. Allergy or known hypersensitivity to cephalosporins, beta lactams or penicillins.

Precautions:
1. Use cautiously in patients with a history of colitis, GI disorders, and/or impaired renal function.

Adverse Reactions / Side Effects:
1. Angioedema, colitis, neutropenia, thrombocytopenia, anemia, hepatitis, seizures

Administration:
1. For bacterial infections, anticipate orders for:
    a. 250 mg – 1 g PO every 4 to 6 hours, to a maximum of 4 g per day as directed by medical control physician
2. For endocarditis prophylaxis, anticipate:
    a. 2 g PO x 1 approximately 30 minutes prior to dental or upper aiway procedure.

Ciprofloxacin (generic), Ciloxan, Cipro (brand)

Action: A fluoroquinolone that is highly active against Gram negative bacilli.

Indications:
1. Bacterial infections
2. Moderate to Severe systemic infections
3. Gonorrhea

Contraindications:
1. Allergy or known hypersensitivity to ciprofloxacin or fluoroquinolone class antibiotics

Precautions:
1. Pregnancy, lactation

Adverse Reactions / Side Effects:
1. Nausea/vomiting/diarrhea
2. Headaches, restlessness, insomnia
3. Rarely occurring – skin rashes and photosensitivity

Administration:
1. For bacterial infections expect orders for:
    a. 250 mg PO every 12 hours
2. For moderate to severe systemic infections:
    a. 500 – 750 mg PO every 12 hours
3. For gonorrhea:
    a. 250 – 500 mg once

Special Notes:
1. Advise patient to report any tendon pain that occurs during therapy
2. Limit antacid intake during therapy regimen – antacids markedly reduce absorption of ciprofloxacin

Clindamycin (generic), Cleocin (brand)

Action: A semi-synthetic derivative that is active against most Gram-positive organisms except enterococci and *Clostridium difficile*.

Indications:
1. Bacterial infection (with allergies to PCN)
2. Endocarditis prophylaxis

Contraindications:
1. Allergy or known hypersensitivity to clindamycin
2. Pregnancy, lactation

Precautions:
1. Discontinue *immediately* if severe diarrhea occurs
2. Be careful of use in patients with concomitant hepatic and renal dysfunction

Adverse Reactions / Side Effects:
1. GI distress: nausea, vomiting, diarrhea, crams, and anorexia
2. Pseudomembranous colitis (which might be clinically indistinguishable at onset from non-PMC diarrhea)

Administration:
1. For bacterial infection expect orders for:
    a. Clindamycin 150-450 mg PO every 6-8 hours
2. For endocarditis prophylaxis:
    a. Clindamycin 600 mg PO x 1 approximately 30 minutes prior to a dental or upper airway procedure.

Special Notes:
1. PMC is terminated in many patients by discontinuing the antibiotic immediately; however, if diarrhea is severe or does not improve promptly after discontinuation, consider request for PO metronidazole
2. Antidiarrheals such as diphenoxylate or loperamide may worsen PMC and should **not** be used.

Clonidine (generic), Catapres (brand)

Action: Activates inhibitory neurons to decrease the sympathetic outflow by stimulating postsynaptic alpha2-adrenergic receptors. Clonidine also reduces the peripheral vascular resistance, heart rate and blood pressure.

Indications:
1. HTN/hypertensive urgency/hypertensive angina

Contraindications:
1. Allergy or known hypersensitivity to clonidine

Precautions:
1. Use with extreme caution in patients with pre-existing CAD/cardiovascular disease, impaired liver and/or renal function

Adverse Reactions / Side Effects:
1. Dry mouth, dizziness, nausea, constipation and weakness
2. Rebound hypertension (severe)

Administration:
1. For HTN expect:
    a. Clonidine 0.1 mg PO BID – titrated to effect
2. For hypertensive urgency:
    a. 0.1-0.2 mg PO initially, repeat with 0.1 mg every hour until desired effect or a total of 0.8 mg has been administered.

Special Notes:
1. Do not allow patient to discontinue abruptly or interrupt therapy unless under the supervision of a physician.
2. Direct acting sympathomimetics can have an exaggerated effect during clonidine use.
3. Synergistic hypotension and conduction disturbances can occur when used concomitantly with verapamil.

Dextrose 5% in Water for Injection, U.S.P.

Action: Solutions containing carbohydrates in the form of dextrose restore blood glucose levels and provide calories. Dextrose may aid in minimizing liver glycogen depletion and exerts a protein sparing action.

Indications:

1. For admixture with amino acids or dilution with other I.V. compatible products to provide variable final dextrose concentrations for intravenous infusion in patients whose condition requires such.

Contraindications:

1. A dextrose solution should not be used when intracranial or intraspinal hemorrhage is present nor in the presence of delirium tremens if the patient is already dehydrated
2. Dextrose injection without electrolytes should not be administered simultaneously with blood through the same infusion set because of the possibility that pseudoagglutination of red cells may occur

Precautions:

1. Electrolyte deficits, particularly in serum potassium and phosphate, may occur during prolonged use of dextrose solutions.
2. Solutions containing dextrose should be used with caution in patients with known subclinical or overt diabetes mellitus
3. Care should be exercised to insure that the catheter is well within the lumen of the vein and that extravasation does not occur

Adverse Reactions / Side Effects:

1. Febrile response, infection at the injection site, venous thrombosis or phlebitis extending from the site of injection, extravasation and hypervolemia.
2. Hyperosmolar syndrome, resulting from excessively rapid administration of concentrated dextrose may cause hypovolemia, dehydration, mental confusion and/or loss of consciousness.

Administration:

1. All IV's of Dextrose 5% in water solution must be ordered by medical control physician

Dextrose 50% in Water for Injection, U.S.P.

Action: Glycemic agent; increases circulating glucose levels

Indications:
1. Suspected or known hypoglycemia (FSBS < 60 mg/dL)

Contraindications:
1. Intracranial hemorrhage

Precautions:
1. May cause CNS symptoms in the alcoholic patient
2. Should not be used as a diagnostic agent in the patient with altered LOC unless the FSBS is known to be < 60 mg/dL or, if the FSBS cannot be determined, the patient is known to be diabetic.
3. If CVA or head trauma is suspected as the cause of altered mental status, contact medical control physician prior to administration.

Adverse Reactions / Side Effects:
1. May aggravate HTN and CHF
2. May cause tissue necrosis at the injection site if infiltration occurs.

Administration:
1. If FSBS is between 60-80 mg/dL and patient is conscious and alert, pt may get 15g (1 unit dose) or oral dextrose/Glutose®
2. If FSBS is < 60 mg/dL with or without altered LOC:
    a. Establish IV of NS in large vein.
    b. Administer $D_{50}W$ (25g) IV x 1.
3. Repeat FSBS.
4. Further orders must come from monitoring physician.

Special Notes:
1. All patients whose hypoglycemia is due to oral hypoglycemic agent must have a PCR completed and a consult with medical control physician.
2. If infiltration occurs, notify medical control physician immediately to that antidotal therapy can begin ASAP.
3. In patients with FSBS of < 60 mg/dL, IV dextrose is considered first line therapy.

Dextrose, Oral (generic), Glutose® (brand)

Action: Glycemic agent; increases circulating glucose levels

Indications:
1. Suspected or known hypoglycemia (FSBS < 60 mg/dL)

Contraindications:
1. Intracranial hemorrhage

Precautions:
1. Should not be used as a diagnostic agent in the patient with altered LOC unless the FSBS is known to be < 60 mg/dL or, if the FSBS cannot be determined, the patient is known to be diabetic.
2. Airway should be carefully maintained.

Administration:
1. Logroll patient to prevent aspiration and place in the recovery position.
2. Check FSBS.
3. Administer 1 tube (approximately 25-31 g per tube) in downside cheek of log-rolled patient.
4. Administer slowly, monitoring absorption. Maintain adequate airway.
5. Repeat FSBS.
6. Further orders must come from monitoring physician.

Special Notes:
1. All patients whose hypoglycemia is due to oral hypoglycemic agent must have a PCR completed and a consult with medical control physician.
2. In patients with FSBS of < 60 mg/dL, IV dextrose is considered first line therapy.

Diphenhydramine (generic), Benadryl, Benylin (brand)

Action: Antihistamine (H_1 receptor antagonist); blocks the effects of histamine

Indications:
1. In anaphylaxis, as an adjunct to epinephrine
2. In allergic reactions, if epinephrine is contraindicated
3. Combative / aggressive patients
4. Extrapyramidal symptoms or acute dystonic reaction associated with phenothiazine use or administration

Contraindications:
1. Allergy or known hypersensitivity to diphenhydramine HCl
2. Acute asthma attacks

Precautions:
1. Diphenhydramine has an atropine-like action, therefore use with caution in patients with hyperthyroidism, cardiovascular disease, hypertension and reactive airway disease.

Adverse Reactions / Side Effects:
1. Drowsiness and sedation
2. Dizziness and headache
3. Blurred vision
4. Palpitations and chest tightness
5. Wheezing and thickening of bronchial secretions
6. Hypotension
7. Hallucinations, paradoxical excitement and convulsions (usually in children)

Administration:
1. For anaphylaxis or allergic reactions: administer diphenhydramine 25 mg IV or 50 mg deep IM
2. For extrapyramidal symptoms or acute dystonic reaction: expect order for 50 mg deep IM
3. Further orders must come from medical control physician.

Special Notes:
1. Diphenhydramine in the injectable form has a rapid onset of action.
2. IV route is preferred. Deep IM route is acceptable if unable to establish an IV.

Diphtheria and tetanus toxoids (generic), Decavac (brand)

Action:
Diphtheria and tetanus toxoid vaccine exposes the individual to a small amount of the bacteria (or to a protein from the bacteria) causing the body to develop immunity to the disease.

Indications:
1. No tetanus booster or prophylaxis in the previous 10 years ***and***
2. Presence of a tetanus-prone wound

Contraindications:
1. Known or suspected hypersensitivity to tetanus toxoid, adsorbed; thimoserol, latex, or history of Guillain-Barre with tetanus toxoid exposure

Precautions:
1. Use cautiously in patients with history of: bleeding disorders, hemophilia, thrombocytopenia, medical anticoagulation, immunosuppressed, or immunocompromised.

Adverse Reactions / Side Effects:
1. Serious: Anaphylaxis, hypersensitivity reaction, brachial neuritis, Guillain-Barre, CNS disease, mononeuropathy, encephalopathy, and/or death.
2. Common: Injection site reaction, urticaria, malaise, fever, pain, hypotension, nausea, arthralgia.

Administration:
1. Booster dosing:
    a. Decavac (Td), Adsorbed 0.5 mL Deep IM; 1 dose every 10 years.

Special Notes:
1. If there is a history of Arthrus-type hypersensitivity reactions with tetanus toxoid, give tetanus dose including emergency doses greater than 10 years apart.

Dopamine (generic), Dopastat, Intropin (brand)

Action: Chemical precursor of norepinephrine that stimulates dopaminergic, beta1-adrenergic, and alpha-adrenergic receptors in a dose-related fashion; inotropic, vasopressor; increases BP and cardiac output and improves renal blood flow.

Indications:
1. Symptomatic hypotension in the absence of hypovolemia

Contraindications:
1. Hypotension due to hypovolemia

Adverse Reactions / Side Effects:
1. Dysrhythmias (SVT or ventricular tachycardia), palpitations and chest pain
2. Dyspnea
3. Hypotension
4. Dilated pupils
5. Tissue necrosis at the IV site

Administration:
1. Inject 400 mg in 250 mL of D5W (1600 mcg/mL). May infuse 2-20 mcg/kg/min titrated to satisfactory hemodynamic performance prior to medical control contact.
2. When administering a dopamine infusion, **a 60 gtt tubing set must be used in conjunction with a Dial-a-Flo ® without exception.**
3. For a 1600 mcg/mL concentration:

Patient Weight	To administer 5 mcg/kg/min (gtts/min)	To administer 10 mcg/kg/min (gtts/min)	To administer 15 mcg/kg/min (gtts/min)	To administer 20 mcg/kg/min (gtts/min)
50 kg or 110 lbs.	9	18	28	38
60 kg or 132 lbs.	11	22	34	45
70 kg or 154 lbs.	13	26	39	53
80 kg or 176 lbs.	15	30	45	60
90 kg or 198 lbs.	18	34	51	68
100 kg or 220 lbs.	19	37	56	75
110 kg or 242 lbs.	21	41	62	83
120 kg or 264 lbs.	23	45	68	90

4. Further orders must come from monitoring physician.

Special Notes:
1. If infiltration occurs, notify medical control physician immediately to that antidotal therapy can begin ASAP.

Doxycycline (generic); Vibramycin (brand)

Action:

The tetracyclines are primarily bacteriostatic and are thought to exert their antimicrobial effect by the inhibition of protein synthesis. The tetracyclines, including Doxycycline, have a similar antimicrobial spectrum of activity against a wide range of gram-positive and gram-negative organisms. Cross-resistance of these organisms to tetracyclines is common.

Indications:

1. Severe acne vulgaris; bacterial infections; gonococcal infections
2. Periodontitis, Chlamydial infections, malaria, anthrax

Contraindications:

1. Known or suspected hypersensitivity to doxycycline or other tetracycline class antibiotics

Precautions:

1. As with other antibiotic preparations, use of this drug may result in overgrowth of nonsusceptible organisms, including fungi. If superinfection occurs, the antibiotic should be discontinued and appropriate therapy instituted.

Adverse Reactions / Side Effects:

1. Pseudomembranous colitis
2. Photosensitivity

Administration:

1. For all indications expect medical control physician to order:
    a. Doxycycline 50 mg x ii b.i.d.

Special Notes:

1. Avoid giving with PCN-class antibiotics due to decrease efficacy
2. Absorption of tetracyclines are impaired antacids containing aluminum, calcium, or magnesium and iron-containing preparations. This includes bismuth salicylates.

Epinephrine 1:1000 (generic), Adrenaline (brand)

Action: Stimulates both alpha and beta receptors; bronchodilator, cardiac stimulator and peripheral vasoconstrictor

Indications:
1. Severe allergic reaction from injected, ingested, inhaled or absorbed allergens.
2. Anaphylaxis with evidence of severe respiratory distress, increased heart rate, hives/urticaria, and/or diminished blood pressure.
3. Asthma, as a second line treatment after nebulization
4. As ordered by the medical control physician

Contraindications:
1. None during cardiac arrest; otherwise tachydysrhythmias
2. Do not administer by IV without order by medical control.

Precautions:
1. Consult medical control physician prior to use in patient > 40 years of age.

Adverse Reactions / Side Effects:
1. Nervousness, restlessness and tremors
2. Headache and HTN
3. Dysrhythmias and angina

Administration:
1. For mild to moderate allergic reactions: epinephrine 0.3 mg SQ may be given to patients prior to contact with medical control. Consider follow up dosing with diphenhydramine.
2. For severe reactions (anaphylactic shock or impending respiratory or cardiac arrest): administer 0.5 mg 1:1000 epinephrine SQ.
3. For asthma / reactive airway disease, if albuterol neb(s) have been unsuccessful:
    a. Consider epinephrine 1:1000, 0.3 mg SQ prior to contacting medical control physician.
4. Obtain MD order prior to administering epinephrine in patients > 40 years of age.

Special Notes:
1. IV administration is the route of choice for anaphylactic shock and if given, should be administered in the 1:10,000 concentration. However, if IV access in not readily obtainable, the 1:1000 concentration may be given SQ.

Epinephrine 1:10,000 (generic), Adrenaline (brand)

Action: Stimulates both alpha and beta receptors; bronchodilator, cardiac stimulator and peripheral vasoconstrictor

Indications:
1. Cardiac arrest rhythms: VF, pulseless VT, asystole, and pulseless electrical activity (PEA)
2. Severe anaphylaxis or asthma

Contraindications:
1. None during cardiac arrest or profound anaphylaxis

Precautions:
1. In severe anaphylaxis, may only be given IV/IO on standing order.
2. May precipitate with sodium bicarbonate if tubing is not flushed between drugs.

Adverse Reactions / Side Effects:
1. Nervousness, restlessness and tremors
2. Headache and HTN
3. Dysrhythmias and angina
4. May induce or exacerbate ventricular ectopy, especially in patients receiving digitalis.

Administration:
1. Adult cardiac arrest (VF, VT, asystole, PEA):
    a. Administer 1 mg epinephrine 1:10,000 IV push and circulate with CPR.
    b. Follow drug administration with defibrillation if indicated.
    c. May repeat every 3-5 minutes if rhythm has not converted prior to contact with medical control physician.
2. Severe anaphylaxis:
    a. If impending respiratory or cardiac arrest, administer 0.01 mg/kg (up to 0.5 mg) epinephrine 1:10,000 IV.
3. Further orders must come from medical control physician.

Erythromycin maleate, erythromycin stearate (generic), Erythrocin (brand)

Action: A bacteriostatic macrolide antibiotic with a spectrum similar to that of penicillin G.

Indications:
1. Sinusitis
2. Bacterial infection
3. Gastroparesis
4. Rheumatic fever

Contraindications:
1. Allergy or known hypersensitivity to erythromycin or macrolide class antibiotics

Precautions:
1. Use with caution in patients with a history of CAD/MI/cardiomyopathy
2. Use with caution in patients with a history of electrolyte disturbances
3. Use with caution in patients with myasthenia gravis, liver impairments

Adverse Reactions / Side Effects:
1. Pseudomembranous colitis, GI upset/disturbance
2. Hepatic dysfunction
3. Cardiac dysrhythmias (QT prolongation, ventricular irritability, Torsades des pointes

Administration:
1. Communicate to the physician which option of erythromycin is available
    a. Erythromycin maleate
    b. Erythromycin stearate
2. For all indications expect orders for:
    a. Erythromycin maleate 500 mg PO QID
    b. Erythromycin stearate 500 mg PO BID

Fentanyl Citrate for Injection, USP

Action: Fentanyl citrate is a narcotic analgesic. A dose of 100 mcg (0.1 mg) (2 mL) is approximately equivalent in analgesic activity to 10 mg of morphine or 75 mg of meperidine. The principal actions of therapeutic value are analgesia and sedation. Alterations in respiratory rate and alveolar ventilation, associated with narcotic analgesics, may last longer than the analgesic effect. Large doses may produce apnea. Histamine assays and skin wheal testing in man indicate that clinically significant histamine release rarely occurs with fentanyl. Fentanyl preserves cardiac stability, and blunts stress-related hormonal changes at higher doses.

The onset of action of fentanyl is almost immediate when the drug is given intravenously; however, the maximal analgesic and respiratory depressant effect may not be noted for several minutes. The usual duration of action of the analgesic effect is 30 to 60 minutes after a single intravenous dose of up to 100 mcg (0.1 mg) (2 mL).

Indications:
1. For analgesic action of short duration
2. Pain

Contraindications:
1. Known or suspected hypersensitivity to fentanyl citrate.

Precautions:
1. Use with caution in patients with known allergies, COPD, impaired hepatic or renal function, and patients with chronic bradydysrhythmias

Adverse Reactions / Side Effects:
1. Respiratory depression
2. Bradycardia

Administration:
1. Fentanyl citrate IV 50 to 100 mcg IM or slow IV by medical control only.

Special Notes:
1. Fentanyl citrate is a controlled substance and its use / waste must be documented according to the “Controlled Substance” policy.
2. Diminished sensitivity to CO_2 stimulation may persist longer than depression of respiratory rate
3. The peak respiratory depressant effect of a single IV dose of fentanyl citrate is noted 5 to 15 minutes following injection – all patients should be monitored by pulse oximetry

Fluorescein Sodium (generic); Ful-Glo Ophthalmic Strips

Action: Diagnostic aid (corneal trauma indicator)

Indications:
1. Ophthalmic procedures requiring a disclosing agent (e.g. removal of corneal foreign bodies, other short corneal or conjunctival procedures.

Contraindications:
1. Known or suspected hypersensitivity to fluorescein sodium.

Precautions:
1. Use with caution in patients with known allergies, cardiac disease, or hyperthyroidism

Adverse Reactions / Side Effects:
1. Temporary stinging, burning, conjunctival redness;
2. Immediate-type hyperallergic corneal reaction (with acute, intense, and diffuse epithelial keratitis, gray ground glass appearance, sloughing of large areas of necrotic epithelium corneal filaments and sometimes, iritis with descemetitis.

Administration:
1. By standing order, use one strip to stain affected eye(s) to facilitate visualization of corneal or conjunctival trauma. *See procedure for fluorescein staining.*

Special Notes:
1. Not recommended for prolonged use, may cause permanent corneal opacification with visual loss and delay wound healing

Furosemide (generic); Lasix (brand)

Action: Inhibits reabsorption of sodium and chloride in proximal and distal tubules and loop of Henle.

Indications:
1. Adjunctive therapy in acute pulmonary edema
2. Edema associated with CHF
3. Hepatic cirrhosis
4. Renal disease

Contraindications:
1. Known or suspected hypersensitivity to furosemide.
2. Anuria

Precautions:
1. Use with caution in patients with known allergies, cardiac disease, or hyperthyroidism

Adverse Reactions / Side Effects:
1. GI: Hepatic encephalopathy, pancreatitis, jaundice, anorexia, GI distress
2. Systemic: Vasculitis, interstitial nephritis, necrotizing angiitis
3. CNS: Tinnitus & hearing loss, paresthesias, vertigo, dizziness, HA
4. Hematologic: Aplastic anemia, thrombocytopenia, agranulocytosis, hemolytic anemia
5. Dermatologic: Exfoliative dermatitis, bullous pemphigoid, erythema, purpura
6. CV: Orthostasis
7. Other: Hyperglycemia, glycosuria, hyperuricemia, muscle spasm, weakness, restlessness

Administration:
1. Furosemide 40 mg IV over 1 to 2 minutes by medical control physician
    a. If response not satisfactory within 1 h, increase to 80 mg.

Special Notes:
1. For IM or IV administration only. Not for intradermal, subcutaneous or intra-arterial administration.
2. Administer IV over 1 to 2 minutes.
3. Cases of tinnitus and reversible or irreversible hearing impairment have been reported. Usually, reports indicated the furosemide ototoxicity is associated with rapid injection, severe renal impairment, doses exceeding several times the usual recommended dose, or concomitant therapy with aminoglycoside antibiotics, ethacrynic acid, or other ototoxic drugs.

Gentamicin Ophthalmologic (generic),

Action:

An aminoglycoside that has concentration-dependent bactericidal activity against Gram-negative aerobic bacteria.

Indications:

1. Superficial bacterial ocular infections

Contraindications:

1. Allergy or known hypersensitivity to gentamicin

Precautions:

1. None

Adverse Reactions / Side Effects:

1. Burning
2. Conjunctivitis

Administration:

1. Bacterial infection expect orders for:
    a. Gentamicin sulfate 1-2 gtts in affected eye(s) every 4 hours

Heparin Sodium for Injection, USP

Action: Heparin inhibits reactions that lead to the clotting of blood and the formation of fibrin clots both in vitro and in vivo. Heparin acts at multiple sites in the normal coagulation system. Small amounts of Heparin in combination with antithrombin III (Heparin cofactor) can inhibit thrombosis by inactivating activated Factor X and inhibiting the conversion of prothrombin to thrombin. Once active thrombosis has developed, larger amounts of Heparin can inhibit further coagulation by inactivating thrombin and preventing the conversion of fibrinogen to fibrin. Heparin also prevents the formation of a stable fibrin clot by inhibiting the activation of the fibrin-stabilizing factor.

Indications:

1. Anticoagulant therapy in prophylaxis and treatment of venous thrombosis and its extension;
2. Prophylaxis and treatment of pulmonary embolism;
3. Atrial fibrillation with embolization;
4. Prophylaxis and treatment of peripheral arterial embolism.

Contraindications:

1. Known or suspected hypersensitivity to heparin sodium
2. Severe thrombocytopenia
3. Uncontrollable active bleeding states

Precautions:

1. Thrombocytopenia
2. Heparin-induced Thrombocytopenia
3. Heparin resistance

Adverse Reactions / Side Effects:

1. Hemorrhage
    a. Adrenal hemorrhage
    b. Ovarian hemorrhage
    c. Retroperitoneal hemorrhage
2. Mild influenza-like symptoms, muscle pain; peripheral edema of lower extremities

Administration (BY MEDICAL CONTROL ONLY):

1. By deep SQ injection:
    a. 5000 units
2. Intermittent IV Injection
    a. 10,000 units IV
        i. 5,000 – 10,000 units every 4 to 6 hours

Ketorolac Tromethamine (generic), Toradol (brand)

Action: Nonsteroidal anti-inflammatory drug (NSAID) that is indicated for the management of moderately severe, acute pain that requires analgesia. The action of this drug is unknown, but it is thought to inhibit prostaglandin synthesis.

Indications:
1. Musculoskeletal pain; Renal calculi

Contraindications:
1. Allergy or known hypersensitivity to ketorolac or past allergic manifestations to aspirin or other NSAIDs
2. Active peptic ulcer disease, recent GI bleeding or perforation
3. Suspected or confirmed cerebrovascular bleeding
4. Hemophilia or other bleeding problems; hypotension

Precautions:
1. Use with caution in hepatic or renal disease, CHF and asthma
2. Use caution if the patient may need a surgical intervention; ketorolac inhibits platelet aggregation and can prolong bleeding for up to 48 hours.
3. Carefully observe patients with defects in the blood clotting mechanism and those taking anticoagulants.
4. Use caution if patient is taking ASA or other NSAIDs on a regular basis
5. Ketorolac lacks the sedative and anxiolytic properties of fentanyl, morphine and midazolam.

Adverse Reactions / Side Effects:
1. Nausea and/or vomiting, GI pain, diarrhea
2. Pain at the injection site
3. Prolonged bleeding time
4. Edema (face, fingers, lower legs, ankles and/or feet)

Administration:
1. For approved patients, administer 30 mg SLOW (> 15 sec.) IV. Initial onset with IV use is 1-5 minutes with peak action in 1-2 hours and duration of 4-6 hours.
    a. If unable to start an IV, 30 mg DEEP, SLOW IM. Apply pressure at site for 15-30 seconds following injection to decrease local effects
2. All PO doses of ketorolac must be ordered by medical control physician
    a. Do not exceed 10 mg PO every 6 hours

Special Notes:
1. Do not mix ketorolac Tromethamine with morphine or promethazine in a syringe as this will result in precipitation of ketorolac from solution.

Lactated Ringers for Injection, U.S.P.

Action: A solution containing isotonic concentrations of electrolytes in water for injection. It is administered for parenteral replacement of extracellular losses of fluid and electrolytes.

Indications:

1. For replacement of extracellular fluid losses of patient, as required by clinical condition

Contraindications:

1. Solutions containing lactate are not for use in the treatment of lactic acidosis.

Precautions:

1. Solutions containing calcium ions should be administered simultaneously through the same administration set as blood because of the likelihood of coagulation
2. Solutions which contain potassium should be used with great care in patients with potential hyperkalemia, severe renal failure and in conditions in which potassium retention is present
3. Solutions containing lactate ions should be used with caution as excess administration may result in metabolic alkalosis

Adverse Reactions / Side Effects:

1. Febrile response, venous thrombosis, phlebitis extending from the site of injection, extravasation and hypervolemia.

Administration:

1. All IV's of lactated ringer's solution must be ordered by medical control physician

Lidocaine (generic), Xylocaine (brand)

Action: Anesthetic, antidysrhythmic – binds to the fast sodium channel causing a frequency dependent blockade

Indications:
1. Dysrhythmia management
2. Cardiac arrest
3. Nerve blockade for local anesthesia

Contraindications:
1. Allergy or known hypersensitivity to *–caine* family medications
2. Second or Third degree AV block

Precautions:
1. Lidocaine is no longer administered prophylactically to the MI patient.
2. Use cautiously in patients who are bradycardic, hypoxic, hypovolemic, or have impaired tissue perfusion
3. Use with caution in patients who have impaired renal or hepatic function

Adverse Reactions / Side Effects:
1. Serious reactions – seizures, respiratory arrest, dysrhythmia, bradycardia, AV heart block, status asthmaticus
2. Common reactions – injection site pain, lightheadedness, confusion, hypotension, anxiety, dizziness, lethargy, nausea, vomiting, agitation

Administration:
1. For dysrhythmia management expect orders for:
    a. Lidocaine 1.0-1.5 mg/kg IV loading bolus
    b. May repeat x 1 IV after 3-5 minutes
2. For pulseless VT/VF:
    a. Lidocaine 1.0-1.5 mg/kg IV every 5 min to maximum dose of 3.0 mg/kg.
3. For local anesthesia/nerve block:
    a. Contact medical control physician for order
4. IV Maintenance
    a. Lidocaine 1g/250 mL or 2g/500 mL
        i. 2 mg / min = 30 gtts / min
        ii. 3 mg / min = 45 gtts / min
        iii. 4 mg / min = 60 gtts / min

Lidocaine, Viscous (generic)

Action: Contains a local anesthetic agent and is administered topically – is frequently used for the mucous membranes of the mouth and pharynx. Lidocaine stabilizes the neuronal membrane by inhibiting the ionic fluxes required for the initiation and conduction of impulses, thereby effecting local anesthetic action.

Indications:

1. Indicated for the production of topical anesthesia of irritated or inflamed mucous membranes of the mouth and pharynx.

Contraindications:

1. Known or suspected hypersensitivity to Lidocaine or local anesthetics of the amide type or to other components of the solution

Precautions:

1. Excessive dosage, or short intervals between doses, can result in high plasma levels and serious adverse effects.
2. Viscous Lidocaine should be used with extreme caution if the mucosa in the area of application has been traumatizes, since under such conditions there is the potential for rapid systemic response.

Adverse Reactions / Side Effects:

1. CNS: lightheadedness, nervousness, apprehension, euphoria, confusion, dizziness, drowsiness, tinnitus, blurred or double vision, sensations of heat, vomiting, cold or numbness, twitching, tremors, convulsions, unconsciousness, respiratory depression and arrest.
2. CV: bradycardia, hypotension, cardiovascular collapse which may lead to cardiac arrest

Administration:

1. For symptomatic treatment of irritate or inflamed mucous membranes of the mouth and pharynx:
    a. Viscous Lidocaine 2% 15 mL undiluted
        i. Mouth – should be “swished” around and spit out
        ii. Pharynx – should be gargled and may be swallowed
    b. May repeat every three hours or as directed by the medical control physician

Special Notes:

1. The maximum recommended single dose of viscous Lidocaine for a *healthy* adult should be such that the dose does not exceed 4.5 mg/kg and does not in any case exceed a total of 300 mg.

Magnesium Sulfate 50% (generic)

Action: Electrolyte; CNS depressant; anticonvulsant; antidysrhythmic

Indications:
1. Torsades des pointes
2. Severe asthma
3. Digitalis toxicity
4. Tricyclic antidepressant overdose

Contraindications:
1. Heart block
2. Shock
3. Hypocalcemia
4. Renal disease
5. Hypermagnesmia

Precautions:
1. Be prepared to give calcium chloride if respiratory depression occurs
2. Use with extreme caution in patients that have renal failure

Adverse Reactions / Side Effects:
1. Dizziness or drowsiness; altered level of consciousness
2. Respiratory depression
3. Hypotension
4. Dysrhythmias

Administration:
1. For severe asthma, or Torsades des pointes: Administer 2 gm diluted in 10 mL of normal saline and administer by slow IV push over 1-2 minutes.
2. If respiratory depression develops after administration, consult with medical control physician regarding calcium chloride administration.
3. Further orders must come from medical control physician.

Methylprednisolone (generic); Solu-Medrol (brand)

Action: An injectable glucocorticoid that has about 1.25x greater anti-inflammatory potency than prednisone or prednisolone and a similar duration of biologic activity

Indications:
1. Reactive airway disease exacerbation
2. Allergic reaction / anaphylaxis

Contraindications:
1. Allergy or known hypersensitivity to methylprednisolone or glucocorticoid class drugs
2. Systemic fungal infections

Precautions:
1. Use with caution in patients who are diabetic, have active peptic ulcers, active bacterial or viral infections, HTN or other cardiovascular disease, hypothyroidism, and / or liver disease.

Adverse Reactions / Side Effects:
1. Side effects are usually dose and duration related – fluid and electrolyte disturbances, hyperglycemia, bone fractures, myopathy, and suppression of the pituitary-adrenal function

Administration:
1. For all indications, administer:
    a. Methylprednisolone 125 mg slow IVP (over 2+ min)
2. Further orders must come from medical control physician

Special Notes:
1. Some macrolide antibiotics reduce methylprednisolone administration, possibly leading to excessive corticosteroid effect.

Metoclopramide (generic), Reglan (brand)

Action: Increases peristalsis, decreases lower esophageal sphincter pressure and has an anti-emetic effect on the chemoreceptor trigger zone.

Indications:
1. Nausea / vomiting
2. Severe gastroparesis

Contraindications:
1. GI hemorrhage
2. Bowel obstruction or perforation
3. Epilepsy
4. Concurrent use of medications that cause extrapyramidal side effects

Precautions:
1. Use with caution in patients with renal failure, HTN, Parkinson's disease, and depression.

Adverse Reactions / Side Effects:
1. Most side effects are related to dosage and duration of use. Drowsiness, restlessness, fatigue occur in 10% of patients with a dosage of 10 mg q.i.d.
2. Acute dystonic reactions, extra pyramidal symptoms can occur.
3. Neuroleptic malignant syndrome is a rare, but potentially fatal, adverse effect reported to occur with metoclopramide.

Administration:
1. For all indications, expect orders for
    a. Metoclopramide 10 mg slow IVP (1-2 minutes)
2. All other order must come from medical control physician

Metoprolol tartrate (generic), Lopressor (brand)

Action: Metoprolol tartrate is a beta-adrenergic receptor blocking agent. In vitro and in vivo animal studies have shown that it has a preferential effect on beta1 adrenoreceptors, chiefly located in cardiac muscle. This preferential effect is not absolute, however, and at higher doses, Metoprolol tartrate also inhibits beta-2 adrenoreceptors, chiefly located in the bronchial and vascular musculature.

Indications:
1. Hypertension
2. Angina pectoris
3. Myocardial infarction

Contraindications:
1. Known or suspected hypersensitivity to metoprolol tartrate or beta blockers
2. Sinus bradycardia, heart block greater than first degree, cardiogenic shock, and / or over cardiac failure
3. Sick-sinus syndrome
4. Severe peripheral arterial circulatory disorders

Precautions:
1. Metoprolol should be used with caution in patients with impaired hepatic function

Adverse Reactions / Side Effects:
1. CNS: tiredness and dizziness, depression
2. CV: shortness of breath, bradycardia, cold extremities, arterial insufficiency, CHF
3. Respiratory: Wheezing & dyspnea
4. GI: Diarrhea, nausea, dry mouth, GI distress, constipation, vomiting

Administration:
1. For MI:
    a. 5 mg IV every 2 – 5 min to a total of 15 mg

Special Notes:
1. Use with caution in diabetic patients if a beta-blocker is required. Beta-blockers may mask tachycardia occurring with hypoglycemia, but other manifestations may not be significantly altered.

Metronidazole (generic), Flagyl (brand)

Action: A synthetic nitroimidazole – bactericidal against nearly all obligate anaerobic bacteria.

Indications:
1. Anaerobic infections
2. Trichomoniasis
3. Giardiasis
4. Antibiotic-associated Colitis
5. Intestinal amebiasis

Contraindications:
1. Known or suspected hypersensitivity to metronidazole or similar medications
2. First trimester of pregnancy

Precautions:
1. Active CNS disease or neutropenia; hepatic impairment

Adverse Reactions / Side Effects:
1. GI complaints (nausea/vomiting/diarrhea)
2. Metallic taste in mouth
3. Occasional dizziness, vertigo and paresthesias have been reported at higher doses

Administration:
1. For anaerobic infections expect order for:
    b. Metronidazole 1 g PO x 1, 500 mg PO TID or QID to a maximum of 2 g / daily.
2. For antibiotic associated colitis:
    c. Metronidazole 250 mg PO QID for 7-10 days
3. For Trichomoniasis:
    d. Metronidazole 2 g PO x 1, ***or*** 500 mg PO BID for 7 days
4. For giardiasis:
    e. Metronidazole 250 mg PO TID for 7 days
5. For intestinal amebiasis:
    f. Metronidazole 750 mg PO TID for 10 days

Special Notes:
1. Although it is slightly less effective than vancomycin, metronidazole is considered by some to be the drug of choice for antibiotic-associated PMC because of its lower cost and the emergence of VRE.

Midazolam (generic), Versed (Brand)

Action: Midazolam is a short-acting benzodiazepine central nervous system (CNS) depressant. The effects of midazolam on the CNS are dependent on the dose administered, the route of administration, and the presence or absence of other medications.

Indications:
1. IM / IV for sedation/anxiolysis
2. IV for seizure activity

Contraindications:
1. Allergy or known hypersensitivity to midazolam or benzodiazepines

Precautions:
1. Use with care in patients with multiple co-morbid factors

Adverse Reactions / Side Effects:
1. Paradoxical reaction
2. Retrograde amnesia
3. Respiratory depression
4. Pain (at injection site)

Administration (BY MEDICAL CONTROL):
1. For seizures:
    a. May give midazolam 2.mg IV over 3 minutes
        i. Wait an additional 2 minutes prior to titrating dose to assess effectiveness
2. For anxiolysis:
    a. .07 - .08 mg/kg IM (approx. 5 mg IM) by physician order.

Special Notes:
1. Midazolam is a controlled substance and its use must be documented according to the "Controlled Substance" policy.
2. Severe hypotension and seizures have been reported following rapid IV administration, particularly with concomitant use of fentanyl.

Morphine Sulfate, MSO_4 (generic)

Action: Narcotic analgesic; increases venous capacity and decreases systemic vascular resistance

Indications:
1. Chest pain of suspected cardiac etiology
2. Musculoskeletal pain
3. Renal calculi
4. Pulmonary edema
5. Burns
6. Pain management

Contraindications:
1. Allergy or known hypersensitivity to morphine sulfate or opioid narcotics
2. Hypotension (SBP < 90 mmHg)

Precautions:
1. Use with caution in patients with reactive airway disease
2. Be prepared to assist ventilations and / or administer naloxone for severe respiratory depression

Adverse Reactions / Side Effects:
1. Respiratory depression, hypotension, sedation and confusion
2. Bradycardia, dry eyes, blurred vision and vomiting

Administration:
1. Administer morphine sulfate up to 4 mg x 1 by slow IV push. Recheck and document VS.
2. May repeat 2 mg up to 3x for a total dose of 10 mg titrating to patient response. Pain level, VS and dosing must be documented.
3. Medical control physician **must** be notified when a controlled substance is administered.
4. Further orders must come from medical control physician.

Special Notes:
1. Morphine sulfate is a controlled substance and its use must be documented according to the “Controlled Substance” policy.

Mupirocin (generic); Bactroban (brand)

Action: Inhibits bacterial protein synthesis by reversibly and specifically binding to bacterial isoleucyl transfer-RNA synthetase.

Indications:
1. For the topical treatment of impetigo due to: Staphylococcus aureus and Streptococcus progenies'

Contraindications:
1. Known or suspected hypersensitivity to mupirocin or any of the components

Precautions:
1. Prolonged use may result in the overgrowth of nonsusceptible organisms, including fungi.
2. Not formulated for use on mucosal surfaces. Intranasal use has been associated with isolated reports of stinging and drying
3. Polyethylene glycol can be absorbed from open wounds and damaged skin and is excreted by the kidneys. Mupirocin ointment should not be used in conditions where absorption of large quantities of polyethylene glycol is possible, especially if there is evidence of moderate or severe renal impairment\

Adverse Reactions / Side Effects:
1. Burning, stinging, or pain
2. Rash, nausea, erythema, dry skin, tenderness, swelling, contact dermatitis, and increased exudate

Administration:
1. A small amount should be applied to the affected area TID and covered with gauze
2. Patients not showing a clinical response within 3-5 days should be re-evaluated

Naloxone (generic), Narcan (Brand)

Action: Narcotic antagonist

Indications:
1. Respiratory depression (RR < 12 min) as a result of an opioid narcotic overdose.
2. As a diagnostic tool in coma or profound altered mental status of unknown or uncertain etiology

Contraindications:
1. Allergy or known hypersensitivity to Naloxone

Precautions:
1. Very short half-life; monitor patient closely and prepare to re-dose if deterioration occurs.
2. Naloxone should be titrated to the patient's respiratory status, not the level of consciousness. In the patient with a present gag reflex, adequate respirations and GCS of 10-14, use discretion regarding the administration of naloxone.
3. Patient restraints may be required following reversal of some narcotics. Consider application of restraints or summon necessary assistance prior to the administration of naloxone.

Adverse Reactions / Side Effects:
1. In the chronic narcotic abuser, naloxone may precipitate withdrawal symptoms, including seizures and violent behavior.

Administration:
1. An initial dose of up to 2.0 mg IV (titrated to *respiratory* status) may be given prior to contact with medical control physician.
2. Further orders must come from medical control physician. Anticipate up to 2.0 mg every 2-3 min to a maximum dose of 10 mg.

Special Notes:
1. If no response after 10 mg. it is unlikely to be effective.
2. Remarkably safe and effective otherwise.

Neomycin/Polymyxin B/Dexamethasone Ophthalmologic (generic), Aktrol O/S (brand)

Action: A multiple dose anti-infective steroid combination in sterile suspension form for topical application.

Indications:
1. Steroid-responsive inflammatory ocular conditions for which a corticosteroid is indicated
2. Where bacterial infection or a risk of bacterial ocular infection exists

Contraindications:
1. Viral diseases of the cornea and conjunctiva
2. Mycobacterial infection of the eye and fungal diseases of ocular structures
3. Known or suspected hypersensitivity to any component or other corticosteroids

Precautions:
1. Fungal infections of the cornea are particularly prone to develop coincidentally with long-term local corticosteroid applications. Fungal invasion should be suspected in any persistent corneal ulceration where a corticosteroid has been used or is in use.

Adverse Reactions / Side Effects:
1. Reactions occurring most often from the presence of the anti-infective ingredient are allergic sensitizations
2. The reactions due to the corticosteroid component are: elevation of intraocular pressure with possible development of glaucoma and infrequent optic nerve damage. Also posterior subcapsular cataract formation and delayed wound healing.

Administration:
1. Following consult with medical control physician, expect orders for:
    a. Neo/Poly/Dex – i to ii gtts in the conjunctival sac of the affected eye. In mild disease, drops may be used 4-6 times daily.

Special Notes:
1. Prolonged use of ophthalmologic corticosteroids may result in glaucoma or defects in visual acuity and fields of vision.

Nitroglycerin (generic); Nitro-Bid, Nitro-Dur (brand)

Action: Anti-anginal, coronary and peripheral vasodilator

Indications:
1. Chest pain of suspected cardiac etiology
2. Pulmonary edema
3. Hypertensive urgency

Contraindications:
1. Allergy or known hypersensitivity to nitroglycerin or nitrates
2. Head trauma
3. Hypovolemia, hypotension (SBP < 90 mmHg), and shock
4. Recent sildenafil (Viagra ®, Levitra ® in previous 24 hours) or tadalafil (Cialis ® in past 48 hours) ingestion

Precautions:
1. Be prepared to manage hypotension in any patient that receives nitrates.

Adverse Reactions / Side Effects:
1. Headache, dizziness and weakness
2. Tachycardia, fainting and hypotension

Administration:
1. If SBP < 150 mmHg, then IV should be established prior to administration.
2. Inquire regarding Viagra, Levitra or Cialis use.
3. For suspected myocardial ischemia
    a. Give 0.4 mg SL, may repeat x 2 to titrate to pain. Repeat vitals before and after every administration and document.
    b. Consider NTG paste in place of repeat dosing of SL tablets. Use
        i. 1” for SBP 100-150 mmHg
        ii. 1.5” for SBP 150-200 mmHg
        iii. 2” for SBP 200+ mmHg
4. For CHF/Pulmonary Edema
    a. Give 0.4 mg x i SL. Repeat vitals before and after every administration and document.
    b. Contact medical control physician for NTG paste order / dose.

Special Notes:
1. Consider giving morphine sulfate if pain is unrelieved by NTG
2. NTG is effective in relieving angina pectoris. Other conditions such as esophageal spasm can respond as well.

Ofloxacin Ophthalmic Solution 0.3%, Sterile

Action: Ofloxacin has in vitro activity against a broad range of gram-positive and gram-negative aerobic and anaerobic bacteria. Ofloxacin is bactericidal at concentrations equal to or slightly greater than inhibitory concentrations. Ofloxacin is thought to exert a bactericidal effect on susceptible bacterial cells by inhibiting DNA gyrase, an essential bacterial enzyme which is a critical catalyst in the duplication, transcription, and repair of bacterial DNA.

Indications:
1. Conjunctivitis
2. Corneal ulcers

Contraindications:
1. Allergy or known hypersensitivity to ofloxacin, other quinolones, or to any components of the medication

Precautions:
1. Prolonged use may result in overgrowth of nonsusceptible organisms. If superinfection occurs, discontinue use and institute alternative therapy.
2. The systemic administration of quinolones has led to lesions or erosions of the cartilage in weight-bearing joints and other signs of arthropathy in immature animals of various species.

Adverse Reactions / Side Effects:
1. Transient ocular “burning” or discomfort
2. Stinging, redness, itching

Administration:
1. The recommended dosage for treatment of bacterial conjunctivitis is:
    a. Days 1 and 2:
        i. i – ii gtts every 2 – 4 hours in the affected eye
    b. Days 3 – 7:
        i. i – ii gtts QD – QID
2. The recommended dosage for treatment of corneal ulcer is:
    a. Days 1 and 2:
        i. i – ii gtts every 30 minutes in the affected eye while awake. Awaken at approximately four and six hours after retiring and instill i – ii gtts.
    b. Days 3 – 7:
        i. i – ii gtts every hour, while awake
    c. Days 7 – completion of treatment:
        i. i – ii gtts QID in the affected eye

Special Notes:
1. Avoid contaminating the applicator tip with material from the eye, fingers or other source.

Oxygen

Action: Increases arterial oxygen tension (SaO_2) and hemoglobin saturation

Indications: Low Concentration (24-44%)

1. History of reactive airway disease (COPD, asthma, 40+ pack year history of tobacco use)
2. Patients with SpO_2 readings of > 96% RA with a complaint.

Indications: High Concentration (60-100%)

1. Smoke, carbon monoxide, or toxic gas inhalation
2. Trauma or suspected blood loss
3. Hypoxia (SpO2 < 96%) from any cause or etiology
4. Respiratory distress, poor capillary refill or other indications of altered tissue perfusion
5. Unresponsive patient

Contraindications:

1. None in an emergent and/or prehospital setting

Precautions:

1. This guideline refers to spontaneously breathing and adequately ventilating patients only.
2. High concentration oxygen in some cases may depress respiratory drive. Be prepared to assist ventilation, and consult medical control for patients that may require long periods of oxygenation prior to evacuation.
3. Agitation and/or restlessness can be a sign of hypoxia.
4. Treatment for anxiety hyperventilation should be treated with reassurance and coaching to slow breathing. If the possibility of another underlying cause exists (i.e. pulmonary embolus, asthma, MI) then the patient should be treated with oxygen. DO NOT treat any patient by having them breathe into a paper bag or oxygen mask that is not supplied with oxygen.

Adverse Reactions / Side Effects:

1. Nonhumidified oxygen can dry mucous membranes, but humidified oxygen is not indicated in the prehospital setting.

Administration:

1. Deliver low concentrations via nasal cannula @ 1-6 liters per minute.
2. Deliver high concentrations via non-rebreather mask @ 6-15 LPM.
3. Attempt to obtain and document oximetry reading before and after therapy

Special Notes:

1. Patients should receive high concentration unless low concentration is indicated.

Phenoxymethylpenicillin (generic); Pen VK (brand)

Action: Penicillin V is the phenoxymethyl analog of penicillin G. Penicillin C exerts a bactericidal action against penicillin-sensitive microorganisms during the stage of active multiplication. It acts through the inhibition of biosynthesis of cell-wall mucopeptide.

Indications:

1. The treatment of mild to moderately severe infections due to penicillin G-sensitive microorganisms. Therapy should be guided by clinical response.

Contraindications:

1. Known or suspected hypersensitivity to Pen-VK or any penicillin class antibiotic

Precautions:

1. Use with caution in individuals with histories of significant allergies and/or asthma

Adverse Reactions / Side Effects:

1. Pseudomembranous colitis, nausea/vomiting, epigastric distress, diarrhea and black hairy tongue
2. Skin eruptions, urticaria, laryngeal edema and anaphylaxis

Administration:

1. For all indications expect orders from medical control physician for the following:
    a. Pen VK 125-500 mg BID – QID or as directed by medical control

Pilocarpine Nitrate (generic)

Action: Pilocarpine is a direct acting cholinergic parasympathomimetic agent which acts through direct stimulation of muscarinic neuroreceptors and smooth muscle such as the iris and secretory glands. Pilocarpine produces miosis through contraction of the iris sphincter, causing increased tension on the scleral spur and opening of the trabecular meshwork spaces to facilitate outflow of aqueous humor. Outflow resistance is thereby reduced, lowering intraocular pressure.

Indications:

1. Control of intraocular pressures, either as a principal or as an adjunct

Contraindications:

1. Known or suspected hypersensitivity to pilocarpine nitrate
2. Miotics are contraindicated where constriction is undesirable, such as in acute iritis and in those persons showing hypersensitivity to any of their components.

Precautions:

1. The miosis usually causes difficulty in dark adaptation. Patient should be advised to exercise caution in night driving and other hazardous occupations in poor illumination

Adverse Reactions / Side Effects:

1. Severe stinging, burning, swelling or redness of affected eye
2. Vision changes
3. Eye pain or increased watering
4. Crusting or drainage from eye
5. Lens opacification

Administration:

1. For glaucoma or intraocular hypertension
    a. Pilocarpine nitrate i – ii gtts in the affected eye TID – QID
2. All other orders must come from medical control physician

Prednisone (generic); SteraPred (brand)

Action: A synthetic glucocorticoid with less sodium-retaining activity than hydrocortisone. Prednisone is used primarily for its anti-inflammatory and immunosuppressant effects.

Indications:
1. Need for mediation of inflammatory response
2. Acute reactive airway disease exacerbations
3. Adjunctive therapy for suspected P. carinii pneumonia
4. Acute gout
5. Skin disorders
6. Ulcerative colitis

Contraindications:
1. Known or suspected hypersensitivity to prednisone or glucocorticoid drug class

Precautions:
1. Use extreme caution in patients with active fungal infection
2. Use with caution in patients who have history of: CHF, seizures, diabetes, HTN, TB infection, osteoporosis or impaired hepatic function

Adverse Reactions / Side Effects:
1. Serious reactions: adrenal insufficiency, steroid psychosis, immunosuppression, peptic ulcer, CHF, osteoporosis
2. Common reactions: nausea/vomiting, dyspepsia, edema, headache, dizziness, mood swings, anxiety, HTN, hyperglycemia

Administration:
1. All orders for PO prednisone **must** come from medical control physician.
2. Expect orders for:
    a. Prednisone 5-60 mg PO QD – BID as directed

Special Notes:
1. The threshold for tapering of daily glucocorticoid therapy is 2 weeks – if regimen has been any less than 14 days, then tapering is not required to prevent acute renal insufficiency.

Promethazine (generic), Phenergan (brand)

Action: A phenothiazine tranquilizer that has significant antiemetic properties and potentiates with most opioid narcotics.

Indications:
1. Nausea/vomiting
2. As an adjunctive medication for pain control or sedation
3. Motion sickness

Contraindications:
1. Known or suspected hypersensitivity to promethazine or phenothiazine class medications, or sulfites

Precautions:
1. Use with extreme caution in patients that have respiratory depression, reactive airway disease, cardiac disease, seizures, BPH

Adverse Reactions / Side Effects:
1. Serious reactions: Tissue damage from extravasation, apnea, respiratory depression, seizures, leukopenia, thrombocytopenia, EPS, acute dystonic reaction
2. Common reactions: drowsiness, sedation, blurred vision, dizziness, confusion, extrapyramidal side effects

Administration:
1. For nausea/vomiting or motion sickness:
    a. Promethazine 25 mg IV/Deep IM x 1
2. As an adjunct for pain control
    a. Promethazine 12.5 slow IVP

Special Notes:
1. Extrapyramidal reactions, especially dystonias and dyskinesias, occur occasionally in adults.

Silver sulfadiazine (generic), Silvadene (brand)

Action: Works on the cell membrane/wall to produce a broad antimicrobial effect. Also, it is bactericidal for many Gram-negative and Gram-positive bacteria as well as some fungus.

Indications:
1. Adjunctive therapy for the prevention and treatment of wound sepsis in patients with second-and third-degree burns

Contraindications:
1. Known or suspected hypersensitivity to silver sulfadiazine

Precautions:
1. Potential cross-sensitivity between silver sulfadiazine and other sulfonamides.
2. The incidence of clinically reported fungal superinfection is low, but fungal proliferation in and below the eschar may occur.
3. If hepatic and renal functions become impaired and elimination of the drug decreases, accumulation may occur and discontinuation should be weighed against the therapeutic benefit being achieved.
4. Do not use this medication on the patient's *face* or *neck*.

Adverse Reactions / Side Effects:
1. Transient leukopenia
2. Skin necrosis
3. Skin discoloration
4. Burning sensation, rashes
5. Interstitial nephritis

Administration:
1. Apply silver sulfadiazine cream:
    a. Over the entire affected area under sterile conditions if possible
    b. QD or BID to a thickness of approximately 1/16"

Sodium Bicarbonate (generic)

Action: Systemic hydrogen ion buffer; aids in the correction of metabolic acidosis

Indications:
1. Tissue acidosis and acidemia resulting from cardiac arrest and cardiopulmonary resuscitation
2. Pre-existing metabolic acidosis or hyperkalemia
3. Agitation delirium associated with cocaine or methamphetamine use
4. Tricyclic antidepressant (TCA) overdose and toxicity

Contraindications:
1. None when used in the treatment of metabolic acidosis

Precautions:
1. Use of sodium bicarbonate in short duration cardiac arrest is not usually indicated if adequate ventilation and effective chest compressions are performed.
2. May precipitate with epinephrine if tubing is not flushed between drugs.

Adverse Reactions / Side Effects:
1. May cause hypernatremia, hypersosmolality, hypokalemia, and hypocalcemia
2. Fluid retention

Administration:
1. In TCA overdose
    a. Administer an initial dose of 0.5 mEq/kg IV push prior to physician contact.
    b. If bradydysrhythmias, ventricular irritability or ectopy, conduction delays or heart block, hypotension and/or widened QRS are present, consult a physician early in treatment as additional doses of sodium bicarbonate may be necessary
2. In cardiac arrest, metabolic acidosis, or hyperkalemia:
    a. Initial dose is 1.0 mEq/kg IV push
3. All other orders or additional orders must come from medical control physician

Special Notes:
1. In cardiac arrest of short duration, adequate ventilation and effective chest compressions limit accumulation of CO_2, thus, in the early phases of resuscitation, buffer agents are generally unnecessary.

Sodium Chloride for Injection, U.S.P.

Action: Provides electrolytes and is a source of water for hydration. It is capable of inducing diuresis, depending on the clinical condition of the patient.

Indications:
1. Extracellular fluid replacement, treatment of metabolic alkalosis in the presence of fluid loss and mild sodium depletion
2. May be used to initiate and terminate blood transfusions without hemolyzing red blood cells

Contraindications:
1. Where the administration of sodium or chloride could be clinically detrimental.

Precautions:
1. Clinical evaluation and periodic laboratory determinations are necessary to monitor changes in fluid balance, electrolyte concentrations, and acid-base balance during prolonged parenteral therapy or whenever the condition of the patient warrants such evaluation.
2. This solution should be used with care in patients with hypervolemia, renal insufficiency, urinary tract obstruction, or impending or frank cardiac decompensation.

Adverse Reactions / Side Effects:
1. Febrile response, infection at injection site, extravasation and hypervolemia
2. If infused in large amounts, chloride ions may cause a loss of bicarbonate ions, resulting in an acidifying effect

Administration:
1. Hang as standard practice using aseptic technique as part of a normal I.V. infusion. Adjust rate as necessary or as directed by medical control physician.

Special Notes:
1. Hypernatremia may be associated with edema and exacerbation of congestive heart failure due to the retention of water, resulting in an expanded extracellular fluid volume.

Sodium Nitrite for Injection, U.S.P.

Action: Cyanide has a high affinity for ferric ions, and reacts readily with the ferric ion of mitochondrial cytochrome oxidase. Sodium nitrite reacts with hemoglobin to form methemoglobin, and cyanide preferentially binds to methemoglobin, restoring cytochrome oxidase activity. As cyanide dissociates from the methemoglobin, it is converted to relatively non-toxic thiocyanate by the enzyme rhodanese. Sodium thiosulfate acts as a sulfur donor for rhodanese.

Indications:

1. As an antidote in the treatment of cyanide poisoning, in conjunction with sodium thiosulfate

Contraindications:

1. Should not be administered to asymptomatic patients who have been exposed to cyanide. Use should be reserved for patients with definite indications of severe poisoning, such as loss of consciousness and deteriorating vital functions
2. Is relatively contraindicated in patients with smoke inhalation and combined carbon monoxide and cyanide poisoning unless hyperbaric oxygen therapy is available and such therapy has been initiated, since such patients may develop further hypoxia from methemoglobin induction.

Precautions:

1. Hypotension may occur following the rapid administration of sodium nitrate
2. Patients with glucose-6-phophate dehydrogenase deficiency are theoretically at great risk from sodium nitrite therapy because of the likelihood of hemolysis, although no such cases have been reported.

Adverse Reactions / Side Effects:

1. CV: syncope, hypotension, tachycardia, methemoglobinemia
2. CNS: headache, dizziness
3. GI: nausea, vomiting, abdominal pain
4. Respiratory: tachypnea, dyspnea, cyanosis

Administration:

1. Follow instruction with Cyanide Poisoning Kit
    a. The usual adult dose is 300 mg (10 mL of a 3% solution) administered intravenously at a rate of 75-150 mg/min (2.5 to 5 mL/min)

Special Notes:

1. Blood pressure should be monitored carefully during sodium nitrite administration, since hypotension may result if the rate of administration is too fast.

Sodium Thiosulfate for Injection, U.S.P.

Action:

As cyanide dissociates from the methemoglobin, it is converted to relatively non-toxic thiocyanate by the enzyme rhodanese. Sodium thiosulfate acts as a sulfur donor for rhodanese. The lack of a suitable sulfur donor is the rate limiting step for this reaction, and thus provision of sulfur by sodium thiosulfate administration enhances the endogenous cyanide detoxification capacity of the body

Indications:

1. An antidote in the treatment of cyanide poisoning. It is frequently used in conjunction with sodium nitrite.

Contraindications:

1. There are no specific contraindications to sodium thiosulfate administration.

Precautions:

1. Sodium thiosulfate should be administered with caution in patients with hypertension, since sodium thiosulfate may exacerbate this condition.
2. Sodium thiosulfate should be administered with extreme caution in patients with edematous sodium-retaining conditions, such as cirrhosis of the liver, congestive heart failure, and renal function impairment since sodium thiosulfate may exacerbate these conditions.

Adverse Reactions / Side Effects:

1. CV: hypotension
2. GU: diuretic effects are possible
3. CNS: headache, disorientation, psychotic behavior (agitation, delusions, and hallucinations) may result from excess thiocyanate production
4. MSK: arthralgia, hyperreflexia and muscle cramps may result from excess thiocyanate production
5. ENT: blurred vision and tinnitus may result from excess thiocyanate production

Administration:

1. As part of Cyanide Poisoning Kit
    a. Give sodium thiosulfate 12.5 g slow IVP as indicated for the treatment of cyanide poisoning.

Sulfamethoxazole / Trimethoprim (generic); Bactrim, Bactrim DS (brand)

Action: Active against many bacteria except anaerobes, *pseudomonas*, and *strep*. Somewhat effective with MRSA, but clinical success has been unpredictable.

Indications:
1. UTI or prophylaxis
2. *P. Carinii* pneumonia

Contraindications:
1. Known or suspected hypersensitivity to trimethoprim, or sulfonamides
2. Folate deficiency
3. Impaired hepatic function

Precautions:
1. Use caution in patients with history of: seizures, impaired renal function, malabsorption, asthma, hyperkalemia

Adverse Reactions / Side Effects:
1. Serious: Stevens'-Johnson syndrome, toxic epidermal necrolysis, fulminant necrotic hepatitis, PMC, hyperkalemia
2. Common: n/v, anorexia, rash/hives, urticaria, diarrhea, dizziness, GI upset, headache, lethargy

Administration:
1. All orders must come from medical control physician, but expect orders for
    a. SMZ/TMP 160/800 x i PO BID

Terbutaline (generic); Bricanyl, Brethine (brand)

Action:

Beta-2 selective adrenergic agonist & sympathomimetic bronchodilator useful in the management of reactive airway disease emergencies

Indications:

1. Reactive airway disease exacerbations
2. Asthmatic and reversible bronchospasm

Contraindications:

1. Known or suspected hypersensitivity to Terbutaline or any of the sympathomimetic amines or any component of the product.

Precautions:

1. Use cautiously in patients with a history of: cardiovascular disorders, hyperthyroidism, diabetes, seizure disorders

Adverse Reactions / Side Effects:

1. Hypersensitivity reactions and exacerbation of bronchospasm have been reported.
2. Terbutaline will potentiate from MAO inhibitors or tricyclic antidepressants if use has occurred during the previous 14 days.

Administration:

1. For all specified indications (by medical control physician):
    a. Consider Terbutaline 0.25-0.5 mg SQ

Tetracaine Ophthalmic Solution 0.5%

Action: Anesthetic that binds to the fast sodium channel causing a frequency dependent blockade

Indications:
1. To promote corneal foreign body removal
2. Brief / prolonged ophthalmic anesthesia

Contraindications:
1. Known or suspected hypersensitivity to Tetracaine or –caine family drug class

Precautions:
1. Use with caution in patients that have a history of: cholinesterase deficiency, cardiac disease, hyperthyroidism,

Adverse Reactions / Side Effects:
1. Serious: corneal opacification, delayed ocular wound healing, seizures, CNS depression, epithelial keratopathy, corneal hypersensitivity reaction
2. Common: stinging, eye irritation, redness, contact dermatitis

Administration:
1. Foreign body removal:
    a. Tetracaine 0.5% 1-2 gtts in affected eye every 5-10 minutes; may repeat x 5 prior to contacting medical control.

Tobramycin Ophthalmic Solution 0.3% (generic), AK-Tob 0.3% (brand)

Action: Aminoglycoside that inhibits bacterial protein synthesis, causing cell death.

Indications:
1. Treatment of superficial ocular infections

Contraindications:
1. Known or suspected hypersensitivity to tobramycin or other aminoglycosides
2. Epithelial herpes simples
3. Keratitis, vaccinia, varicella
4. Mycobacterial infections of the eye
5. Fungal infections

Precautions:
1. Use with caution in patients that have a history of: renal function impairment

Adverse Reactions / Side Effects:
1. Serious: Localized ocular toxicity and hypersensitivity, lid itching, lid swelling, conjunctival edema
2. Common: stinging, eye irritation, redness, contact dermatitis

Administration:
1. Superficial ocular infection:
    a. Tobramycin 0.3% 1-2 gtts in affected eye every 4-6 times/day
        i. For severe infections consider dosage every hour until improvement and then reduce frequency of administration.

Verapamil (generic); Calan, Isoptin (brand)

Action: A calcium-channel blocking drug that prolongs AV nodal conduction

Indications:
1. Supraventricular tachycardia
2. HTN

Contraindications:
1. Shock or severely hypotensive states
2. Second- or third-degree AV nodal block
3. CHF (unless caused by tachydysrhythmias)

Precautions:
1. Use caution with wide QRS-tachycardia
2. Severe hypotension and shock
3. Atrial fibrillation

Adverse Reactions / Side Effects:
1. Serious: CHF, severe hypotension, AV block, bradycardia (severe), hepatotoxicity, paralytic ileus
2. Common: constipation, dizziness, nausea, hypotension, headache, edema, CHF, fatigue

Administration:
1. For SVT:
    a. Consider verapamil 5 mg slow IVP

Special Notes:
1. Monitor blood pressure and EKG continuously during IV administration. Pay particular signs and symptoms of CHF and hypotension. Also, monitor the EKG for PR prolongation and bradycardia.