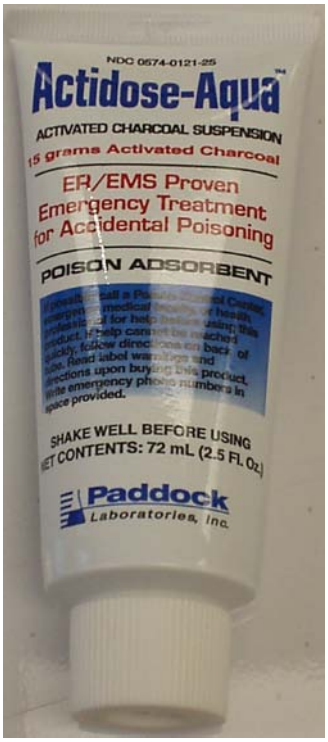
APPROVED DRUG LIST

This section contains a brief description of drugs used in the protocols. It is intended to supplement other standard references. Drugs are listed alphabetically, based on their generic names. Trade names may be shown in parenthesis.

Activated Charcoal (Actidose-Aqua ®)



ACTIONS:

Binds poisonous compounds and reduces absorption in the GI tract.

INDICATIONS:

Treatment for certain poisonings and overdoses.

CONTRAINDICATIONS:

Cyanide poisonings

Methanol/Ethanol poisonings

Caustic and strong bases

WARNINGS:

ADVERSE REACTIONS AND SIDE EFFECTS:

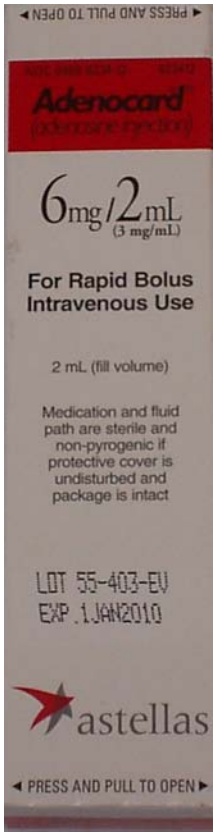
DOSAGE:

Adult: Alert patient: 1 gm/kg (max 50 gm) PO
Altered LOC: Consult ER physician
Unconscious: 1 gm/kg (max 50) via NG tube (ONLY AFTER AIRWAY HAS BEEN SECURED)

Pediatric: Alert patient: 1 gm/kg (max 50 gm) PO
Altered LOC: Consult ER physician
Unconscious: 1 gm/kg (max 50) via NG tube (ONLY AFTER AIRWAT HAS BEEN SECURED)

Time/Action Profile: Onset Peak Duration

Adenosine Triphosphate (Adenocard®)



ACTIONS:

Adenosine exerts its effects by decreasing conduction through the AV mode. The half-life of Adenocard (Adenosine) is less than 10 seconds. Thus, its effects, desired and undesired, and are self-limited.

INDICATIONS:

Adenocard is indicated for paroxysmal supraventricular tachycardia (PSVT), including that associated with accessory bypass tracts (Wolf-Parkinson-White Syndrome).

CONTRAINDICATIONS:

Adenocard is contraindicated in second-or third degree AV block and sick sinus syndrome (except in patients with a functioning artificial pacemaker), and known hypersensitivity to Adenosine.

WARNINGS:

Adenocard may produce a short lasting first, second, or third degree heart block. In extreme cases transient asystole may result. At the time of conversion to normal sinus rhythm, a variety of new rhythms may appear (PVC's, PAC's, sinus bradycardia, sinus tachycardia, skipped beats, and varying degrees of AV block) and generally last only a few seconds without intervention.

PRECAUTIONS:

The effects of Adenosine are antagonized by methylxanthines such as caffeine and theophylline. Thus, larger doses of Adenosine may be required for Adenosine to be effective. Adenosine effects are potentiated by dipyridamole (Persantine). Thus, smaller doses of Adenosine may be effective. Adenosine may produce bronchoconstriction in patients with asthma.

ADVERSE REACTIONS AND SIDE EFFECTS:

Cardiovascular: Facial flushing, headache, and rarely: sweating, palpitations, chest pain, and hypotension.
Respiratory: Shortness of breath, chest pressure, and rarely: hyperventilating, metallic taste, tightness in throat and head pressure.
CNS: Light headedness and rarely: dizziness, blurred vision, tingling and numbness in extremities, apprehension.

DOSAGE:

Adult dosage: 6 mg rapid IVP immediately followed by 20 ml NS flush.
Repeat in 2minutes at 12 mg IVP followed by 20 ml NS flush PRN.

Pediatric dosage: 0.1 mg/kg (maximum 6 mg) rapid IVP immediately followed by 5 ml NS flush.
Repeat in 2 minutes, at 0.2 mg/kg (maximum 12 mg) rapid IVP followed by 5 ml NS flush PRN.

Time/Action Profile:	Onset	Peak	Duration
IV:	immediate	unknown	1-2 minutes

Albuterol (Proventil, ® Ventolin®)

ACTIONS:

Albuterol is primarily a beta-2 sympathomimetic and as such produces bronchodilation. Because of its greater specificity for beta-2 adrenergic receptors it produces fewer cardiovascular side effects and more prolonged bronchodilation than isoproterenol.

INDICATIONS:

Albuterol inhaler is indicated for relief of bronchospasm in patients with reversible obstructive airway disease including asthma, and COPD.

CONTRAINDICATIONS:

Albuterol is contraindicated in patients with a history of hypersensitivity.

WARNINGS:

Use cautiously in patients with coronary artery disease, hypertension, hyperthyroidism, and diabetes. In adults, do not give Albuterol if heart rate is > 150. Exception: If patient remains in sinus tachycardia and systolic blood pressure remains > 100 Albuterol treatments may be continued. The rationale must be clearly documented. The benefits must outweigh the risks. Administer cautiously to patients on MAO inhibitors or tricyclic anti-depressants. Beta-Blockers and Albuterol will inhibit each other.

ADVERSE REACTIONS AND SIDE EFFECTS:

Cardiovascular: Tachycardia, hypertension, and angina.
CNS: Nervousness, tremor, headache, dizziness, and insomnia.
GI: Drying of oropharynx, nausea, and vomiting, unusual taste.

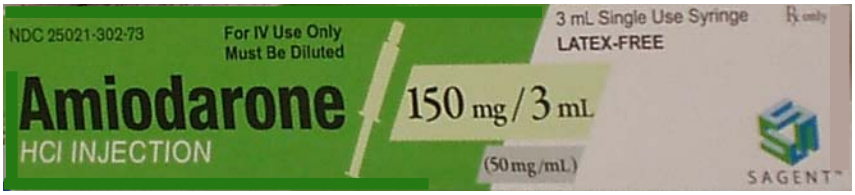
DOSAGE:

If >1 year or >10 kg: 2.5 mg of Albuterol in 3 ml of NS (0.083%) to nebulizer and flow oxygen at 6-8 liters/min. (premixed)

If <1 year or <10 kg: 1.25 mg of Albuterol in 3ml of NS (0.083%) to nebulizer and flow oxygen 3 liters/min. (2.5 mg divided in half).T treatment will be delivered over approximately 5 to 15 minutes.

Time/Action Profile:	Onset	Peak	Duration
Inhaled:	5-15 minutes	60-90 minutes	3-6 hours

Amiodarone (Cordarone)



ACTIONS:

Amiodarone suppresses recurrent VF, prolongs intranodal conduction and refractoriness, negative inotropic effect.

INDICATIONS:

- Ventricular Fibrillation
- Pulseless VT
- PVC's greater than 12 min with physician orders
- Ventricular Tachycardias (Wide and narrow) with a pulse

CONTRAINDICATIONS:

- Any known allergy
- Cardiogenic Shock
- Sinus Bradycardia
- 2nd and 3rd degree AV blocks

ADVERSE REACTIONS AND SIDE EFFECTS:

None in Ventricular fibrillation.

DOSAGE:

Adult dosage:

Pulseless arrest:

300 mg IV/IO

May repeat with 150 mg IV / IO

With Pulses:

Infusion loading dose: 150 mg IV (150 mg in 100cc NS infuse on a macro drip @ 10 gtts/min (over 10 minutes, 1 drop every 1.5 seconds)

Pediatric dosage:

Pulseless Arrest:

5mg/kg mat be repeated once. No single dose greater than 300 mg. (15mg/kg max)

With Pulses:

Infusion loading dose: 5mg/kg IV over 60 minutes (0.1cc/kg, when supplied 150mg/3cc) Add desired loading dose to 100cc NS and administer at 10gtts /ml IV set.

Time/Action Profile: Onset Peak Duration

Aspirin (Bayer, ® Bufferin®)

ACTIONS:

Aspirin is an analgesic, anti-inflammatory and anti-pyretic, which also appears to cause an inhibition of synthesis and release of prostaglandins. Aspirin also blocks formation of thromboxane A - 2. (Thromboxane A - 2 causes platelets to aggregate and arteries to constrict). Reduces overall mortality from acute myocardial infarction.

INDICATIONS:

Aspirin is indicated in the Acute Coronary Syndrome setting to prevent further clotting.

CONTRAINDICATIONS:

A known allergy to Aspirin (i.e. urticaria, dyspnia, etc.), active GI ulceration or bleeding, hemophilia or other bleeding disorders, during pregnancy, children under 2 years of age.

ADVERSE REACTIONS AND SIDE EFFECTS:

GI: Nausea, vomiting, heartburn, and stomach pain.
OTIC: Tinnitus.
Hypersensitivity:
Bronchospasm, tightness in chest, angioedema, urticaria, and anaphylaxis.

DOSAGE:

Adult: 324 mg (4) 81mg chewable tablets) for Acute Coronary Syndromes

Time/Action Profile:	Onset	Peak	Duration
(Oral) PO:	5-30 minutes	1-3 hours	3-6 hours

Atropine Sulfate as Cardiac Agent

ACTIONS:

Atropine is a potent anticholinergic (parasympathetic blocker, parasympatholytic) that reduces vagal tone and thus increases automatically the SA node and increases A-V conduction.

INDICATIONS:

- Sinus Bradycardia accompanied by hemodynamic compromise, (i.e. hypotension, confusion, frequent PVC's, pale, cold, clammy skin).
- In children (< 1 year) bradycardia of less than 60 beats/minute should be treated if symptomatic even if BP is normal.

CONTRAINDICATIONS:

None in emergency situations

WARNINGS:

Too small of a dose (< 0.5 mg) or if pushed too slowly, may initially cause the heart rate to decrease. Antihistamines and antidepressants potentiate Atropine. A maximum dose of 0.04 mg/kg should not be exceeded. For 2nd degree AV block type II and 3rd degree AV block, omit Atropine and go to external pacer.

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Restlessness, agitation, confusion, psychotic reaction, pupil dilation, blurred vision, and headache
Cardiovascular: Increase heart rate, may worsen ischemia or increase area of infarction, ventricular fibrillation, ventricular tachycardia, angina, flushing of skin.
GI: Dry mouth, difficulty swallowing.
Other: Urinary retention. Can worsen pre-existing glaucoma.

DOSAGE:

Adult: **Bradycardia:**

0.5-1 mg IV/IO, may repeat every 3-5 minutes until improved or total of 2mg is reached.

Pediatric: 0.02 mg/kg IV/IO(minimum dose is 0.1 mg and maximum single dose is 0.5mg child, 1 mg adolescent). May repeat once.

Atropine Sulfate as Antidote for Poisoning

ACTIONS:

Atropine is a potent parasympatholytic that binds to acetylcholine receptors thus diminishing the actions of acetylcholine.

INDICATIONS:

Anticholinesterase syndrome poisoning such as; Organophosphate (e.g. parathion, Malathion, rid-a-bug) and carbamate (Baygon, Sevin and many common roach & ant sprays). Signs of organophosphate poisoning are:

Salivation
Lacrimation
Urination
Defecation
GI distress,
Emesis,
Pinpoint pupils, bradycardia, and excessive sweating.

CONTRAINDICATIONS:

None when used in the management of severe organophosphate poisoning.

WARNINGS:

It is important that the patient be adequately oxygenated and ventilated prior to using Atropine as Atropine may precipitate ventricular fibrillation in a poorly oxygenated patient. Even after Atropine is administered, the patient may require intubation and aggressive ventilatory support.

ADVERSE REACTIONS AND SIDE EFFECTS:

Victims of organophosphate poisoning can tolerate large doses (1000 mg) of Atropine. Signs of atropinization are the end point of treatment: flushing, pupil dilation, dry mouth, and tachycardia

DOSAGE:

Adult: 0.03 mg/kg IV/IO, repeat every 5-10 minutes until atropinization occurs.

Pediatric: 0.05 mg/kg (maximum 3 mg) IV/IO, repeat every 5-10 minutes until atropinization occurs.

Time/Action Profile:	Onset	Peak	Duration
IV/IO:	Immediate	2-4 minutes	4-6 hours

Calcium Chloride 10%

ACTIONS:

Calcium chloride increases the force of myocardial contraction; calcium may either increase or decrease systemic vascular resistance. In normal hearts, calcium's positive inotropic and vasoconstricting effects produce a predictable rise in systemic arterial pressure.

INDICATIONS:

Calcium chloride is indicated during resuscitation for the treatment of hypocalcaemia and calcium channel blocker toxicity (i.e. Verapamil or Cardizem overdose) and Magnesium Sulfate overdose. It also protects the heart from hyperkalemia as may occur in patients with end-stage renal disease.

CONTRAINDICATIONS:

Cardiopulmonary arrest not associated with calcium channel blocker toxicity, hypocalcaemia, or orhyperkalemia.

WARNINGS:

Calcium chloride should not be administered in the same infusion with Sodium Bicarbonate, since calcium will combine with sodium bicarbonate to form an insoluble precipitate (calcium carbonate). Calcium chloride should be given with extreme caution, and in reduced dosage, to persons taking digitalis because it increases ventricular irritability and may precipitate digitalis toxicity.

ADVERSE REACTIONS AND SIDE EFFECTS:

If the heart is beating, rapid administration of calcium can produce slowing of cardiac rate.

DOSAGE:

Adult dosage:

For hypotension following administration of calcium channel blockers (i.e. Cardizem, Verapamil): 1 gm IV slow with a 10cc NS flush

If patient is taking digitalis, 2 mg/kg IV/IO, slowly.

Repeat every 10 minutes PRN.

For calcium channel blocker overdose and hyperkalemia: : 1 gm IV slow with a 10cc NS flush.

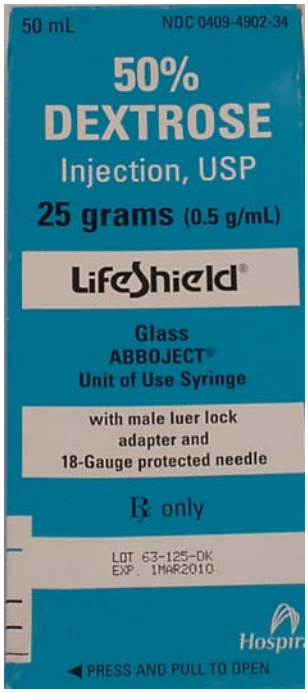
Pediatric dosage:

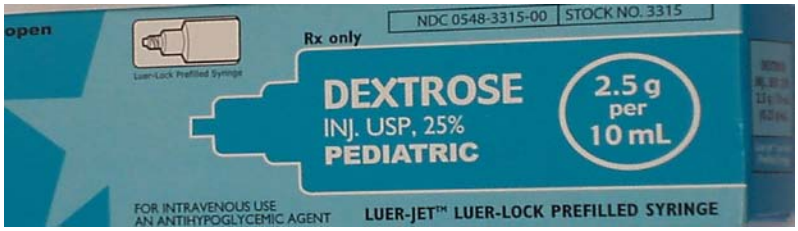
For calcium channel blocker overdose: 20 mg/kg IV/IO, slowly.

(Requires approval from Medical Control)

Time/Action Profile:	Onset	Peak	Duration
IV/IO:	immediate	immediate	2-5 hours

Dextrose 50 % and 25 % (Pedi)





ACTIONS:

A monosaccharide, which provides calories for metabolic needs, spare body proteins and loss of electrolytes. Readily excreted by kidneys producing diuresis. Hypertonic solution.

INDICATIONS:

- Hypoglycemia
- Coma of unknown origin.

CONTRAINDICATIONS:

- Intracranial or intraspinal hemorrhage (in a patient with normal BGL).
- Blood glucose Level > 60 mg/dl.

ADVERSE REACTIONS AND SIDE EFFECTS:

Cardiovascular: Thrombosis
Sclerosing if given in peripheral vein
Local: Tissue irritation or necrosis if infiltrates.
Others: Acidosis, alkalosis, hyperglycemia, and hypokalemia.

DOSAGE:

Adult: (> 30 kg) 50 ml of a 50% solution; (25 gm) IV/IO.

Pediatric: (< 30 kg) 2 ml/kg slow IV/IO of a 25% solution.

Newborn: (< 10 kg or < 1 month of age) 5 ml/kg IV/IO of 10% solution (dilute D50 4:1 with NS).

Time/Action Profile:	Onset	Peak	Duration
IV/IO:	< 1 minute	depends on degree of hypoglycemia	

Diazepam Hydrochloride (Valium®)

ACTIONS:

A member of the benzodiazepine family, Diazepam, depresses the limbic system, thalamus, and hypothalamus resulting in calming effects. Diazepam produces a sedative effect and is also a muscle relaxant.

INDICATIONS:

- Status epilepticus.
- Premedication prior to cardioversion.
- Agitation due to acute alcohol withdrawal.
- Drug induced psychosis
- Short-term relief of acute anxiety.
- Cocaine intoxication.

CONTRAINDICATIONS:

Diazepam Hydrochloride is contraindicated in patients with a history of hypersensitivity.

WARNINGS:

Do not mix Diazepam with any other drug, precipitates with almost all medications. When injecting IV administer slowly through the IV tubing as close as possible to the vein insertion. Do not administer into small veins such as those on dorsum of the hand—causes local irritation and possibly venous thrombosis in small veins.

PRECAUTIONS:

Pregnancy (except for control of seizures associated with status epilepticus or eclampsia)
Neonates.

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Confusion, muscular weakness, blurred vision, drowsiness, respiratory depression, respiratory arrest, slurred speech.
Cardiovascular: Bradycardia, hypotension, and cardiovascular collapse.
G.I.: Nausea, vomiting, abdominal discomfort, hiccups.
Resp: Respiratory depression.
Other: Potentiates MAO's, barbiturates, tricyclics and phenothiazines Potentiated by Cimetidine, ETOH and other CNS depressants.

DOSAGE:

Adult: To be administered in 5 mg increments.
Dosing ranges from 5-20 mg IV/IO/IM depending on specific protocol
The IV route should be administered slowly - no faster than 5 mg/min.
IM 20 mg maximum dose per injection. IM injections are painful. If IM route used inject deeply into the deltoid for maximum absorption.

Pediatric: Status epilepticus 0.2 mg/kg IV/IO slowly or 2.5 mg
All other administrations 0.2 mg/kg not to exceed total of 10 mg.

Time/Action Profile:	Onset	Peak	Duration
(Sedation)IV/IO:	1-5 minutes	15-30 minutes	15-60 minutes
IM:	15-20 minutes.	5-1.5 hours	unknown
Rectal:	unknown	1-2 hours	4-12 hours

Diphenhydramine Hydrochloride (Benadryl®)

ACTIONS:

Diphenhydramine is an antihistamine with anticholinergic (drying) and sedative side effects. Antihistamines appear to compete with histamine for cell receptor sites on effector cells. Diphenhydramine prevents, but does not reverse histamine mediated responses, particularly histamine effects on the smooth muscle of the bronchial airways, gastrointestinal tract, uterus, and blood vessels.

INDICATIONS:

- Allergy symptoms, anaphylaxis.
- Sedation of violent patient.
- Dystonic reactions from phenothiazine overdose (i.e. Haldol, Compazine, Thorazine, and Stelazine).

CONTRAINDICATIONS:

- Diphenhydramine is not to be used in newborn or premature infants. Diphenhydramine is not to be used in patients with acute asthma attack

WARNINGS:

In infants and children especially, antihistamines in overdose may cause hallucinations, convulsions, or death. As in adults, antihistamines may diminish mental alertness in children. In young children, they may produce excitation. Diphenhydramine has additive effects with alcohol and other CNS depressants (hypnotics, sedatives, tranquilizers, etc.).Antihistamines are more likely to cause dizziness, sedation, and hypotension in the elderly (60 years or older) patient

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Drowsiness, confusion, insomnia, headache, vertigo (especially in the elderly).
Cardiovascular: Palpitations, tachycardia, PVC's and hypotension.
Respiratory: Thickening of bronchial secretions, tightness of the chest, wheezing, nasal stuffiness.
GI: Nausea, vomiting, diarrhea, dry mouth, and constipation.
GU: Dysuria, urinary retention.

DOSAGE:

Adult: 25 - 50 mg IV/IO or 50 mg deep IM.

Pediatric: 1 mg/kg IV/IO or IM (maximum 25 mg).

Time/Action Profile:	Onset	Peak	Duration
IV/IO:	rapid	unknown	4-8 hours
IM:	20-30 minutes	1-4 hours	4-8 hours

Dopamine Hydrochloride (Intropin®)

ACTIONS:

Dopamine stimulates dopaminergic beta-adrenergic and alpha-adrenergic receptors of the sympathetic nervous system. It exerts an inotropic effect on the myocardium resulting in an increased cardiac output. Dopamine produces less increase in myocardial oxygen consumption than does Isoproterenol and its use is usually not associated with a tachyarrhythmia. Dopamine dilates renal and mesenteric blood vessels at low doses that may not increase heart rate or blood pressure. Therapeutic doses have predominant beta adrenergic receptor stimulating actions that result in increases in cardiac output without marked increases in pulmonary occlusive pressure. At high doses, Dopamine has alpha receptor stimulating actions that result in peripheral vasoconstriction and marked increases in pulmonary occlusive pressure.

INDICATIONS:

To treat shock and correct hemodynamic imbalances, improve perfusion to vital organs and to increase cardiac output.

CONTRAINDICATIONS:

Dopamine should not be used in patients with pheochromocytoma or hypovolemic shock.

WARNINGS:

Do not administer Dopamine in the presence of uncorrected tachydysrhythmias or ventricular fibrillation. Do not add Dopamine to any alkaline diluents solutions since the drug is inactivated in alkaline solution. Patients who have been treated with monoamine oxidase (MAO) inhibitors will require substantially reduced dosage.MAO inhibitors include:

furazolidone (Furoxone®), isocarboxazid (Marplan®), pargyline hydrochloride (Eutonyl®),pargyline hydrochloride with methyclothiazide (Eutron®), phenelzine sulfate (Nardil®), procarbazine Hydrochloride (Matulane®), tranylcypromine sulfate (Parnate®).

ADVERSE REACTIONS AND SIDE EFFECTS:

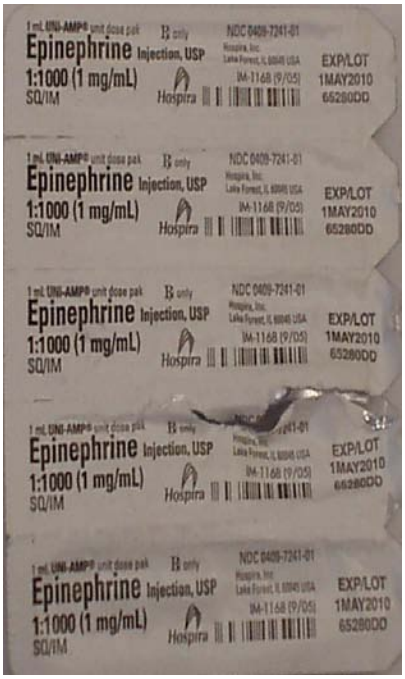
Cardiovascular: Tachycardia, palpatations, angina pain, ectopic beats, hypotension
GI: Nausea, vomting
Local: Necrosis and tissue sloughing with extravasations, use a large vein to reduce this incidence
Other: Piiloerection, dyspnea, headache.

DOSAGE:

Adult and Pediatric: Mix Dopamine in NS to yield a concentration of 800 or 1600 mcg / ml. Begin infusion at 5 mcg/kg/min. and titrate to effect (Maximum dose 20 mcg/kg/min.) To yield a concentration of 1600 mcg/ml mix 400 mg of Dopamine into 250 ml of D5W.

Time/Action Profile:	Onset	Peak	Duration
	4 minutes	10-15 minutes	Continuous with infusion

Epinephrine 1:1,000



ACTIONS:

Epinephrine is a sympathomimetic, which stimulates both alpha and beta-adrenergic receptors causing immediate bronchodilation, increase in heart rate and an increase in the force of cardiac contraction. Subcutaneous dose lasts 5-15 minutes.

INDICATIONS:

- Asthma
- Anaphylaxis
- Angioneurotic edema
- All Pulseless Arrest

CONTRAINDICATIONS:

None in the cardiac arrest situation. Hyperthyroidism, hypertension, cerebral arteriosclerosis in asthma. Caution should be used with Epinephrine administration when the patient is older than 40 years old or has a history of heart disease. The benefit must outweigh the risk. Do not administer Epinephrine if heart rate is > 150.

WARNINGS:

- Epinephrine is inactivated by alkaline solutions - never mix with Sodium Bicarbonate. Do not mix Isoproterenol and epinephrine - results in exaggerated response. Action's of catecholamine is depressed by acidosis - attention to ventilation and circulation is essential. Antidepressants potentiate the effects of epinephrine.

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Anxiety, headache, cerebral hemorrhage.
Cardiovascular: Tachycardia, ventricular dysrhythmias, hypertension, angina, palpitations.
GI: Nausea and vomiting.

DOSAGE:

Adult: SQ 0.3 mg (0.3 cc). Repeat every 3-5 minutes (Asthma/Anaphylaxis may repeat once in 15 minutes).

Pediatric: SQ 0.01 mg/kg up to 0.3 mg.

Time/Action Profile:	Onset	Peak	Duration
SQ:	6-12 minutes	20 minutes	1-3 hours

Epinephrine 1:10,000

ACTIONS:

Epinephrine is a sympathomimetic, which stimulates both Alpha and Beta-receptors. As a result of its effects, myocardial and cerebral blood flow are increased during ventilation and chest compression. Epinephrine increases systemic vascular resistance and thus may enhance defibrillation.

INDICATIONS:

- All Pulseless Arrest
- Asystole
- Ventricular Fibrillation unresponsive to defibrillation;
- PEA.
- Other pediatric indications: hypotension in patients with circulatory instability, bradycardia (before Atropine).

CONTRAINDICATIONS:

None in the cardiac arrest situation.

WARNINGS:

Epinephrine is inactivated by alkaline solutions - never mix with Sodium Bicarbonate. Do not mix Isoproterenol and epinephrine - results in exaggerated response. Actions of catecholamines are depressed by acidosis - attention to ventilation and circulation is essential. Antidepressants potentiate the effects of epinephrine.

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Anxiety, headache, cerebral hemorrhage.
Cardiovascular: Tachycardia, ventricular dysrhythmias, hypertension, angina, palpitations.
GI: Nausea and vomiting.

DOSAGE:

Adult: (1:10,000) 1 mg (10 ml) IV or IO, repeat every 3-5 minutes. Repeat every 3-5 minutes. If patient is in SEVERE anaphylaxis with marked hypotension, you may start an IV and administer 3 - 5 cc of a 1:10,000 solution IVP slow over 2 minutes.

Pediatric: 0.01 mg/kg, (0.1 ml/kg IV or IO). Repeat every 3-5 minutes.

Time/Action Profile:	Onset	Peak	Duration
IV/IO:	Rapid	1-2 minutes	20 minutes

Fentanyl

ACTIONS:

Narcotic analgesic. Depresses CNS and respiratory drive while increasing vasodilatation.

INDICATIONS:

- Moderate to severe pain and conscious sedation

CONTRAINDICATIONS:

Hypersensitivity to Opiates, Hypotension, Head Trauma, Status Asthmaticus, and COPD

WARNINGS:

Monitor for hypotension and respiratory depression potentiated by alcohol, other Opiates, sedatives, muscle relaxants, an sedating anthistamines.

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Sedation, drowsiness, lethargy, impaired physical performance, dizziness, anxiety, and mood changes.
Cardiovascular: Circulartory depression, hypotension, and fainting.
GI: Nausea, vomiting, and constipation.
Respiratory: Respiratory depression

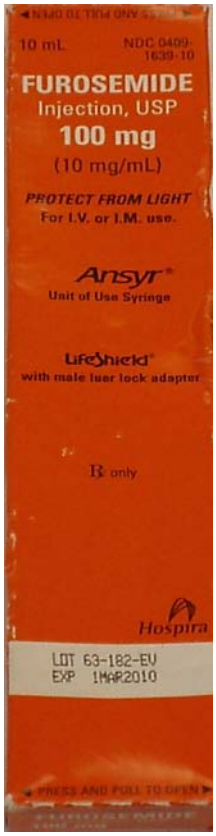
Dosage:

Adult: 50 – 100 mcg slow IV Push for pain.
Pedi (under 16 years of age): Call Medical Control for orders.

Time/Action Profile:

Onset: Immediate Peak: 1 – 2 minutes. Duration: 20 minutes.

Furosemide (Lasix®)



ACTIONS:

A sulfonamide derivative and potent diuretic, which inhibits the reabsorption of sodium and chloride in the proximal and distal renal tubules as well as in the Loop of Henley. Has a direct venodilating effect in acute pulmonary edema. With IV administration, onset of venodilating is generally within 5-10 minutes; diuresis will usually occur in 20-30 minutes

INDICATIONS:

- Pulmonary edema
- Hypertension
- Cerebral edema

CONTRAINDICATIONS:

Hypotension (BP <100 systolic) or Anuria. Should be used in pregnancy only when benefits clearly outweigh risks

WARNINGS:

Furosemide should be protected from light. Dehydration and electrolyte imbalance can result from excessive dosages. Rapid diuresis can lead to hypotension and thromboembolic episodes.

ADVERSE REACTIONS AND SIDE EFFECTS:

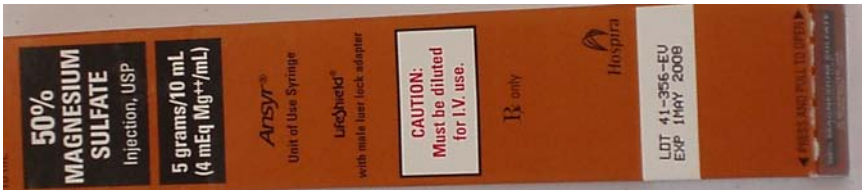
CNS: Dizziness, tinnitus, hearing loss, headache, blurred vision, weakness.
GI: Anorexia, vomiting, nausea.
Cardiovascular: Hypotension.
Other: Pruritus, urticaria, muscle cramping.

DOSAGE:

Adult: For CHF: 80 mg IVP or double the patient dose up to max 100 mg.
For Cardiogenic Shock: 40 mg IV slowly over 2 minutes (if systolic blood pressure is > than 100 mmHg.)

Time/Action Profile:	Onset	Peak	Duration
IV/IO:	5 minutes	30 minutes	2 hours

Magnesium Sulfate



ACTIONS:

Magnesium prevents or controls convulsions by blocking neuromuscular transmission and decreasing the amount of acetylcholine liberated at the end-plate by the motor nerve impulse. Magnesium is said to have a depressant effect on the central nervous system, but it does not affect the mother, fetus or neonate when used as directed in eclampsia and pre-eclampsia. Magnesium acts peripherally to produce vasodilatation therefore a drop in systolic BP is to be anticipated.

INDICATIONS:

- Prevention and control of seizures in eclampsia.
- Torsades de Pointes.
- Suspected hypomagnesemic state (i.e. chronic alcoholism and chronic use of diuretics).
- Refractory ventricular fibrillation

WARNINGS:

Intravenous use of Magnesium Sulfate should not be given to mothers with toxemia of pregnancy with imminent delivery. Magnesium Sulfate Injection USP, 50% must be diluted to a concentration of 20% or less prior to IV infusion

PRECAUTIONS:

Because magnesium is removed from the body solely by the kidneys, the drug should be used with caution in patients with renal impairment. Monitoring the patient's clinical status is essential to avoid the consequences of overdose in eclampsia. Calcium Chloride should be immediately available to counteract the potential hazards of magnesium intoxication in eclampsia. Signs of hypermagnesium include respiratory depression; absence of patellar reflex, etc.

ADVERSE REACTIONS AND SIDE EFFECTS:

Adverse effects of Magnesium Sulfate IV are usually the result of magnesium intoxication. Signs of hypermagnesemia include: flushing, sweating, hypotension, depression of reflexes, flaccid paralysis, hypothermia, and circulatory collapse, depression of cardiac function and central nervous system depression. These symptoms can precede fatal paralysis.

DOSAGE:

For eclamptic seizures: 2 gm IV over 1-2 minutes .

For Torsades de Pointes and refractory VF:1-2 gm (mixed in 50 ml of NS and administered over 1-2 minutes) followed by a maintenance infusion (1 gm in 250 ml of NS administered at 60 gtts/ml IV set.

Time/Action Profile:	Onset	Peak	Duration
IV Drip:	Immediate	unknown	30 minutes

Methylprednisolone (Solumedrol®, A Methapred)

ACTIONS:

Decreases inflammatory effects via its potent anti-inflammatory synthetic steroid

INDICATIONS:

Asthma

Anaphylaxis

Head injury

COPD

Unconscious with known Addison's disease

CONTRAINDICATIONS:

None in the emergency setting

ADVERSE REACTIONS AND SIDE EFFECTS:

GI hemorrhage, reduces leukotrines of immune system, increases potential for infections

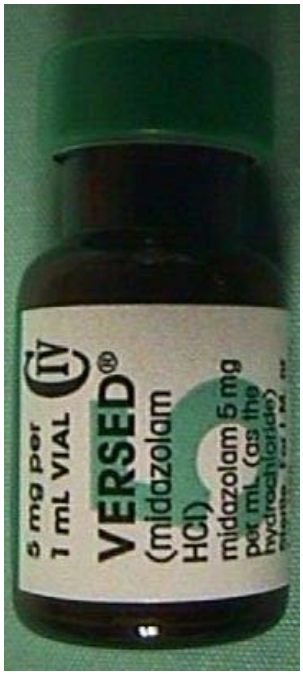
DOSAGE:

Adult: 125 mg IV slow over 2 minutes

Pediatric: 2 mg/kg (max 125 mg) IV slow over 2 minutes

Time/Action Profile:	Onset	Peak	Duration
IV/IO:	Unknown	Unknown	Unknown

Midazolam (Versed ®)



ACTIONS:

Depresses CNS, muscle relaxant, strong sedative, hypnotic, amnesia

INDICATIONS:

Control of seizures, sedation for cardioversion & pacing, Sedation for airway management

CONTRAINDICATIONS:

Respiratory depression

Hypotension,

ETOH and drugs

WARNINGS:

Monitor patient for respiratory and CNS depression

Monitor vitals signs after administration

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Retrograde amnesia, altered mental status, dizziness
Cardiovascular: Bradycardia, hypotension, PVC's, tachycardia, nodal rhythms
GI:, nausea and vomiting, hiccoughs, coughing
Respiratory: Respiratory depression, laryngospasm, bronchospasm

DOSAGE:

Adult: 2.5 mg increments up to 10 mg max

Pediatric: > 1 years of age (0.1 mg/kg)

Time/Action Profile:	Onset	Peak	Duration
IV	1-2 minutes	3-5 minutes	Weight dependent

Morphine Sulfate (MS)

ACTIONS:

Morphine is a narcotic analgesic, which depresses the central nervous and respiratory system and sensitivity to pain. Morphine also increases venous capacitance, decreases venous return and produces mild peripheral vasodilatation.

INDICATIONS:

- Pain.
- Pain associated with isolated extremity fracture, renal colic, burns, etc

CONTRAINDICATIONS:

- Volume depletion or hypotension.
- Head trauma.
- Acute asthma.
- Known hypersensitivity to MS.
- Contact Medical Control if Pt has Abdominal Pain for Orders.

WARNINGS:

Morphine is detoxified by the liver. It is potentiated by alcohol, antihistamines, barbiturates, sedatives and beta blockers

ADVERSE REACTIONS AND SIDE EFFECTS:

- CNS: Euphoria, drowsiness, pupillary constriction, respiratory arrest.
- Cardiovascular: Bradycardia, hypotension.
- GI: Decreases gastric motility, nausea and vomiting.
- GU: Urinary retention.
- Respiratory: Bronchoconstriction, decrease cough reflex.

DOSAGE:

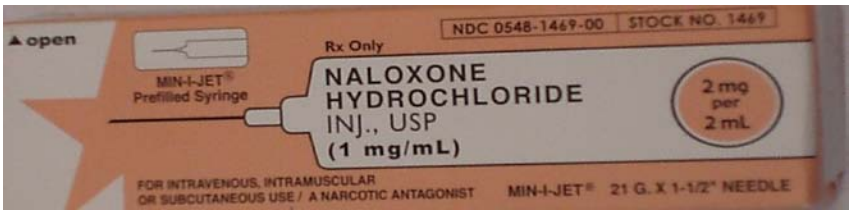
Adult: 2 mg increments IV slowly. Repeat every 5 minutes until desired response is achieved (maximum dose 10 mg). Can be given IM. (Additional doses require approval from Medical Control.)

Pediatric: 0.1 mg/kg IV slowly. May repeat the initial dose X1 in 3-5 minutes. (Additional doses require approval from Medical Control.)

Infant: 0.05 mg/kg IV slowly. May repeat the initial dose X1 in 3-5 minutes. (Requires approval from Medical Control).

Time/Action Profile:	Onset	Peak	Duration
IV:	Rapid	20 minutes	4-5 hour

Naloxone Hydrochloride (Narcan®)



ACTIONS:

Naloxone antagonizes the effects of opiates by competing at the same receptor sites. When given IV, the action is apparent within two minutes. IM or SC administration is slightly slower.

INDICATIONS:

- Naloxone is indicated for the complete or partial reversal of central nervous and respiratory system depression secondary to opiate narcotics or related drugs such as, but not limited to
  - Heroin
  - Meperidine (Demerol).
  - Codeine
  - Morphine
  - Methadone
  - Lomotil
  - Hydromorphone (Dilaudid)
  - Pentazocine (Talwin)
  - Propoxyphene (Darvon)
  - Percodan
  - Fentanyl (Sublimaze) (Known on the street as “white china”)

CONTRAINDICATIONS:

Known hypersensitivity to Narcan.

WARNINGS:

Naloxone should be administered cautiously to persons including newborns of mothers who are known or suspected to be physically dependent on opiates it may precipitate an acute abstinence syndrome. If patient is intubated and airway is controlled do not administer Narcan (excludes cardiac arrest). May need to repeat Naloxone since duration of action of some narcotics may exceed that of Naloxone. Naloxone is not effective against a respiratory depression due to non-opiate drugs. Use caution during administration as patient may become violent as level of consciousness increases.

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Tremor, agitation, belligerence, pupillary dilation, seizures, increased tear production, sweating, seizures secondary to withdrawal.

Cardiovascular: Hypertension, hypotension, ventricular tachycardia, pulmonary edema, ventricular fibrillation.

GI: Nausea, vomiting.

DOSAGE:

Adult: An initial dose of 2 mg may be administered IV/IO/IM/ PRN. If no response after 4 mg, then condition is probably not due to narcotic. (Fentanyl may require large doses of Naloxone to reverse effects).

Pediatric: 0.1 mg/kg IV/IO/IM/ PRN.

Time/Action Profile:	Onset	Peak	Duration
• IV:	1-2 minutes	unknown	45 minutes
• IM:	2-5 minutes	unknown	>45 minutes

Nitroglycerin (Nitrostat® Nitrolingual® Spray)

ACTIONS:

Nitroglycerin is a direct vasodilator, which acts principally on the venous system although it also produces direct coronary artery vasodilatation as well. There is a decrease in venous return, which decreases the workload on the heart and thus, decreases myocardial oxygen demand. Sublingual nitroglycerin is rapidly absorbed. Pain relief occurs within one to two minutes and therapeutic effects can last up to 30 minutes

INDICATIONS:

- Chest pain or discomfort associated with suspected AMI.
- Pulmonary edema with hypertension.

CONTRAINDICATIONS:

- Systolic BP <100 mmHg
- Children under 12
- Patients on Erectile Dysfunction drugs that fall within time parameters (do not administer Nitro if Erectile Dysfunction drug used < 24 hours)
- Know hypersensitivity to the drug
- Evidence of a positive V4R in the setting of an Inferior wall MI

PRECAUTIONS:

Nitroglycerin tablets are inactivated by light, heat, air and moisture. Must be kept in amber glass containers with tight-fitting lids. Do not leave cotton in container. Once opened, nitroglycerin has a shelf life of 3 months. Do not shake Nitrolingual spray. Alcohol will accentuate venodilating and hypotensive effects.

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Headache, dizziness, flushing, nausea and vomiting.
Cardiovascular: Hypotension, reflex tachycardia, bradycardia.

DOSAGE:

Adult: 0.4 mg (1 tablet or 1 spray sublingual). May repeat up to two additional times in 3-5 minutes PRN.

Time/Action Profile:	Onset	Peak	Duration
SL:	1-3 minutes	unknown	30-60 minutes

Oral Glucose (Insta Glucose)

ACTIONS:

Increases blood glucose levels slowly

INDICATIONS:

BS < 60 mgdl , patients who are altered but alert enough to take the command to swallow

CONTRAINDICATIONS:

Patients unable to swallow or Stroke symptoms

PRECAUTIONS:

None when patient can swallow, risk of aspiration if given improperly

ADVERSE REACTIONS AND SIDE EFFECTS:

Cardiovascular: Unknown

CNS: Unknown

GI: Nausea

DOSAGE:

Adult : 1 tube

Pediatric: 1 tube

Time/Action Profile:	Onset	Peak	Duration
PO:	10 minutes	Unknown	Unknown

Phenylephrine HCL(Neo-Synephrine®)

ACTIONS:

Vasoconstricts the nasal mucosa, decongests and reduces bleeding from nasal intubation

INDICATIONS:

Preparation of nasal passage prior to nasal intubation.

CONTRAINDICATIONS:

None in short term use

WARNINGS:

None

ADVERSE REACTIONS AND SIDE EFFECTS:
Stinging, burning, sneezing

DOSAGE:

Adult: 2-3 gtts in each nare prior to introduction of ET tube

Pediatric: 2 gtts in each nare prior to introduction of ET tube

Time/Action Profile:	Onset	Peak	Duration
Inhaled:	Rapid	Unknown	Unknown

Sodium Bicarbonate

ACTIONS:

Increases PH to reverse acidosis

INDICATIONS:

Metabolic acidosis in cardiac arrest
Tricyclic overdoses with QRS > 0.1
Electrocutions
Hyperkalemia
Methanol / Ethylene glycol toxicity
Severe ketoacidosis
Compartment Syndrome

CONTRAINDICATIONS:

CHF, Alkalotic states

WARNINGS:

Excessive therapy inhibits oxygen release, reduces the ability to defibrillate, may precipitate other medications and administration should be guided by blood gases. Do not give concurrently with any other medication, flush the line before and after administration.

ADVERSE REACTIONS AND SIDE EFFECTS:
Metabolic alkalosis, may crystallize in IV solutions

DOSAGE:

Adult: 1 mEq/kg IV push, then ½ the dose q 10 mins. Electrocutions: 2 mEq/kg IVP

Pediatric: 1-2 mEq /kg diluted 50:50 with Normal Saline

Time/Action Profile:	Onset	Peak	Duration
IV/IO:	Unknown	Unknown	Unknown

Vasopressin

ACTIONS:

Vasopressin (Antidiuretic Hormone):

At high doses (40U) it is a peripheral vasoconstrictor that also increases coronary perfusion, cerebral oxygen delivery, and vital organ blood flow during CPR.

INDICATIONS:

Replaces first or second dose of EPI in pulseless arrest.

CONTRAINDICATIONS:

None in pulseless arrest situations.

WARNINGS:

None in pulseless arrest situations.

Adverse Reactions and Side Effects:

None in pulseless arrest situations.

Dosage:

Adult: 40 U IV Push, IO Push or down ET Tube.

Zofran (Ondansetron) – Slow IV Push

ACTIONS:

Zofran is an antiemetic

INDICATIONS:

Zofran is a selective 5-HT3 (Serotonin) receptor antagonist. It is used primarily to treat chemotherapy induced nausea and vomiting.

CONTRAINDICATIONS:

Known hypersensitivity to Zofran.

WARNINGS:

Hypersenensitivity to any 5-HT3 receptor antagonists.

ADVERSE REACTIONS AND SIDE EFFECTS:

CNS: Extrapymramidal reactions – (treated with Benadryl)
Cardiovascular: Tachycardia, Hypotension, Angina and ECG changes.
GI: Diarrhea

Dosage:

Adult: 4mg slow IV push - note: rapid administration will cause hypotension.

Pedi: 0.1mg/kg slow IV push

Timeframes:

Onset: Minutes
Peak: 2 hours
Duration: 4 hours