

SOUTH CAROLINA EMS FORMULARY

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INTRODUCTION

INTRODUCTION

The new State approved Prehospital and Interfacility drug protocols have been developed by the Division of EMS in conjunction with the Medical Control Committee using the most current drug standards available.

New drug standards were developed specifically to assist the Paramedic in carrying out his / her daily function as it relates to drug therapy and the standard by which Paramedics are trained and tested.

There are specific drugs contained in this document which require on-line medical control. These drugs are denoted by the statement: “**ONLY WITH ON-LINE MEDICAL CONTROL ORDER.**” There can be no standing order for Morphine (CII) and Nubain as these are controlled drugs. Scheduled Drugs are indicated by the symbol: “C” in the upper right hand corner of the page.

Due to the potential for abuse, the Medical Control Committee has added Geodon and Nubain to the “Controlled Substances List” for EMS. This change requires that these substances be inventoried, stored, and protected as would any other narcotic (e.g. Morphine).

On-Line directions to Paramedics should be rendered by the physician - either in person, by telephone, or over the radio. If a physician is unable to speak directly to the Paramedic, medical control should not be abandoned. It is then permissible for a physician’s designee to relay his/her (the physician’s) direct orders by telephone or radio. **It is, however, never acceptable for orders to originate from a nurse, physician’s assistant, or anyone other than the on-line Medical Control Physician.**

C

Medication pumps used by home-bound patients are considered patient administered medication and all EMTs may transport such patients as long as the EMT does not have to do anything to the pump and the route of administration is a venous line.

Patients who have certain intravenous access devices such as **Percutaneously Placed Central Venous Catheters** (e.g. CVP line; Triple Lumen Catheter; Subclavian, Internal Jugular, or Femoral Line - but **NOT** including Swan Ganz catheters) or **Implantable Central Venous Catheters** (e.g. Hickman or Broviac Catheter) may have medications administered through these catheters - by Paramedics **ONLY** - when no other option is available for intravenous access. Such medication administration may be guided either by Standing Order or direct On-Line Medical Control order. Intermediate and Basic EMTs may transport patients with these catheters provided that the catheter is either not in use or has plain (non-medicated) IV Fluids in place. These privileges are delineated in the ***Invasive / Implanted Device List***

Patients who have certain implanted access devices such as the **Completely Implantable Venous Access Port** (i.e. Porta-Cath) may be transported by Paramedics with previously placed medication infusions. Since ***these devices require special needles for access***, a Paramedic may administer medications through this device **ONLY** by way of previously placed lines when **NO OTHER OPTION** is available. This action may be authorized either by Standing Order or direct On-Line Medical Control

Order - PROVIDED that the device has already been accessed with the appropriate needle set PRIOR to transport. These privileges are delineated in the ***Invasive / Implanted Device List***.

Other devices - e.g. **Epidural Catheters** - are approved for **TRANSPORT ONLY**. The Paramedic MAY NOT utilize this catheter to administer ANY medication during transport and the device MAY NOT BE MANIPULATED by EMS personnel.

Effective in 1997, Paramedics may utilize the **Per Rectal** route of drug administration in certain patients - provided the Paramedic has received In-Service Training on the method and technique of rectal administration, and provided that the route is approved by the local Medical Control Physician for that service. The utilization of the **Per Rectal** route of administration for Diazepam in adult patients was approved in 1999.

Initiation of the Rapid Sequence Induction (RSI) Protocol no longer requires Direct On-Line Medical Control Authorization. However, Direct On-Line Medical Control should be established as soon as feasible without interfering with the care of the patient. The drugs contained within the approved RSI Protocol are indicated by the symbol: "Rs" in the upper right hand corner of the page.



In addition to changes in the Rapid Sequence Induction protocols, the Medical Control Committee, in conjunction with the Bureau of Drug Control - DHEC, has relaxed the requirement for Direct On-Line Medical Control authorization prior to the administration of several Scheduled Drugs - e.g. Ativan and Valium. These may be initiated under Standing Order or Protocol - but still must be approved by the Medical Control Physician for the Service. The Paramedic should make every reasonable effort to contact Medical Control prior to utilizing these agents - or immediately after utilizing these agents - provided that this does not interfere with the appropriate delivery of care to the patient.

Also, during 2000, the Department has also approved the transport of patients on various "interfacility drugs" and in so doing has eliminated the previous "Interfacility Drug List." These drugs were approved because the Department agreed that they may be necessary for continued patient care during transport - rather than for the sake of convenience. The interfacility transport drugs must be initiated at the sending facility and the patient must be stabilized on the medication prior to transport. The Paramedic in charge of the call is responsible for accepting the patient and for ensuring that the appropriate documentation (Interfacility Drug Transport Form) has been completed. The Paramedic in charge of the call must also ensure that he/she has received adequate education and information on the Interfacility Drugs to be transported with the patient (i.e. side effects, adverse reactions, etc.) **prior to** accepting the patient for transfer. This information is to be documented on the Interfacility Drug Transport Form.

Interfacility drugs must be supplied and initiated by the sending facility. An interfacility transport form must accompany the patient when the patient is to be administered an interfacility transport drug enroute between facilities. It is necessary that all the information requested on the form be completed if the Paramedic is to accept the patient and act within the required protocols for appropriate interfacility transport and treatment.

Paramedics are not authorized to mix interhospital transport drugs. If it is anticipated intravenous therapy will run out during transport, an additional bag of fluid should be supplied - pre-mixed - and piggybacked into the existing IV infusion before or during transport. Paramedics are not authorized to initiate any additional units of Whole Blood or Packed Cells during transport.

When sodium nitroprusside, magnesium sulfate, and/or nitroglycerine are being administered, a volumetric infusion pump and a noninvasive electronic blood pressure monitor are required during transport. Patients being transported on mannitol require an indwelling urinary catheter to be in place prior to transport. Drugs will be monitored in transit by the Paramedic based upon signed, written orders of the sending physician. **ONLY** Paramedics are authorized to maintain these drugs.

During transfer of the patient on an Interfacility Transport Drug, the Paramedic may reduce or discontinue the drug in the event of adverse reaction or complication or upon the direction of on-line medical control. The paramedic, however, **is not authorized** to increase the rate of administration of any drug listed as an Interfacility Transport Drug once the transport has begun - even upon on-line physician direction.

It is the responsibility of the Local Medical Control Physician to ensure that the appropriate State and Federal Registrations are in place for each EMS Service he/she oversees. The Local Medical Control Physician must have separate and individual State and Federal Controlled Substance Registrations for each and every Service that he/she oversees and authorizes to utilize controlled substances (i.e. Diazepam, Lorazepam, and Morphine) (State Law 44-53-290 § e)

It is the responsibility of the EMS Service to ascertain that it (the Service) is in compliance with the State Board of Pharmacy Licensing requirements and has the appropriate Pharmaceutical Dispensing Permit(s) for the Service. Applications for these permits may be obtained by writing the State Board of Pharmacy at:

LLR-Board of Pharmacy
110 Centerview Drive - Suite 306 (29210)
Post Office Box 11927
Columbia, SC 29211-1927
Telephone: (803) 896-4700

Questions regarding this Formulary or Division Policy concerning these agents may be directed to:

Mr. Henry Lewis
SC DHEC, Division of EMS and Trauma
2600 Bull Street
Columbia, SC 29201-1708
Telephone: (803) 545-4204
Fax: (803) 545-4989
E-mail: lewishp@dhec.sc.gov



Jennifer L. Paddock, Director
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Edgar G. DesChamps, III, M.D.
SC State Medical Director

PRE-HOSPITAL EMS FORMULARY

ACETAMINOPHEN
Tylenol, Feverall, Panadol

INDICATIONS:	Pain control Fever
ADMINISTRATION:	Oral Liquid, Rectal Suppository, PO (For adult only)
DOSAGE:	
ADULT:	Up to 1000 mg PO
PEDIATRIC:	10 – 15 mg/kg PO / PR
THERAPEUTIC EFFECTS:	Relief of mild to moderate pain and fever reduction
RELATIVE CONTRAINDICATIONS:	Known allergy Should be used with caution in patients with liver and renal disease
SIDE EFFECTS:	None when administered in the therapeutic dosage range
SPECIAL NOTES / RESTRICTIONS:	

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ACTIVATED CHARCOAL USP
Actidose, CharcoAid



INDICATIONS:	<input type="checkbox"/> Poisoning <input type="checkbox"/> Overdose <input type="checkbox"/> Particularly effective in binding: <input type="checkbox"/> Aspirin <input type="checkbox"/> Amphetamines <input type="checkbox"/> Dilantin <input type="checkbox"/> Strychnine <input type="checkbox"/> Phenobarbital
ADMINISTRATION:	PO, NG tube
DOSAGE:	
ADULT:	1 gm/kg mixed with water
PEDIATRIC:	∇ 1 gm/kg mixed with water ONLY WITH DIRECT MEDICAL ORDER
THERAPEUTIC EFFECTS:	- It binds & absorbs ingested toxins still present in the gastro-intestinal tract following emesis. - Once bound, the combined complex is excreted
RELATIVE CONTRAINDICATIONS:	- Should not be given before or together with ipecac, as it will absorb the ipecac & render it ineffective. - Should not be given in cyanide poisoning. - Of no value in poisoning due to: - Methanol - Caustic alkalis/acids - Iron tablets - Lithium
SIDE EFFECTS:	None, unless the airway cannot be adequately controlled.
SPECIAL NOTES / RESTRICTIONS:	Should only be given PO or NG in a slurry solution mixed with water / premixed.

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ADENOSINE

Adenocard

INDICATIONS:	<input type="checkbox"/> PSVT, SVT
ADMINISTRATION:	<input type="checkbox"/> Rapid IV, IO
DOSAGE:	
ADULT:	Initial dose up to 12 mg rapid IV bolus 12 mg within 1-2 minutes of continuing SVT – given rapid IV bolus 12 mg dosage may be repeated once in 1-2 minutes to maximum dose of 36 mg
PEDIATRIC:	0.1 mg/kg (over 1 to 2 sec) IV followed by rapid saline flush. Max initial dose 6 mg. 0.2 mg/kg within 1-2 minutes of continuing SVT – given rapid IV bolus. Max single dose 12 mg.
THERAPEUTIC EFFECTS:	Slows conduction time through the A-V node Interruption of reentry pathways through the A-V node Restoration of NSR in patients with PSVT
RELATIVE CONTRAINDICATIONS:	Second or third degree A-V block
SIDE EFFECTS:	Short-lasting first, second or third degree AV block Transient Asystole Various arrhythmias lasting only a few seconds
SPECIAL NOTES / RESTRICTIONS:	The onset of the effect is generally within less than one minute Reported adverse experiences are predictable, short lived and easily tolerated

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AFRIN NASAL SPRAY

INDICATIONS:	<input type="checkbox"/> Epistaxis <input type="checkbox"/> Pre-medication for nasal intubation
ADMINISTRATION:	<input type="checkbox"/> Nasal spray
DOSAGE:	
ADULT:	2 to 3 sprays in affected nostril
PEDIATRIC:	2 to 3 sprays in affected nostril
THERAPEUTIC EFFECTS:	Decongestant for reducing nasal/sinus stuffiness
RELATIVE CONTRAINDICATIONS:	Known hypersensitivity MAO Inhibitor use within 14 days Use with caution in patients with hypertension, cardiovascular disease, diabetes, or glaucoma
SIDE EFFECTS:	Nasal irritation/dryness Dizziness Hypertension Tachycardia/Palpitations Restlessness/Insomnia
SPECIAL NOTES / RESTRICTIONS:	None

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ALBUTEROL SULFATE

Ventolin / Proventil

INDICATIONS:	<input type="checkbox"/> Acute bronchospasm <input type="checkbox"/> Cardiac arrest associated with asthma
ADMINISTRATION:	<input type="checkbox"/> Handheld nebulizer OR Nebulizer Mask Or via ET Tube Connection Per Medical Order or Standing Order / Protocol.
DOSAGE:	<p>All patients regardless of age: May receive a dosage of up to a maximum of 1cc (5mg) of aerosolized Albuterol with no on-line medical control.</p> <p>△ Repeat treatments of aerosolized Albuterol per Local protocol.</p>
ADULT:	△ See Above
PEDIATRIC:	△ See Above
THERAPEUTIC EFFECTS:	Decreases bronchospasm; Improves pulmonary function
RELATIVE CONTRAINDICATIONS:	Hypersensitivity to any of the contents of the inhalation solution
SIDE EFFECTS:	Tremor; Dizziness; Nervousness; Headache; Nausea; Tachycardia; Bronchospasm
SPECIAL NOTES / RESTRICTIONS:	<p>Repeat treatments of aerosolized Albuterol per Local protocol.</p> <p>When administering via endotracheal tube, the maximum dosage may be doubled to 2 cc. For Bronchospasm associated with COPD refractory to Albuterol, DUONEB may be administered via nebulizer. DUONEB is a premixed solution of 0.5 mg Ipratropium Bromide/3 mg Albuterol Sulfate. ONE DOSE MAY BE ADMINISTERED PER STANDING ORDERS. REPEAT DOSES REQUIRE DIRECT MEDICAL CONTROL ORDER.</p>

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AMIODARONE

Cordarone

INDICATIONS:	<ul style="list-style-type: none"><input type="checkbox"/> Shock resistant Ventricular Fibrillation or pulseless Ventricular Tachycardia.<input type="checkbox"/> Unstable Ventricular Tachycardia<input type="checkbox"/> Rapid atrial arrhythmias with impaired LV function
ADMINISTRATION:	<ul style="list-style-type: none"><input type="checkbox"/> IV Push and by Continuous Infusion
DOSAGE:	
ADULT:	<ul style="list-style-type: none">◇ Pulseless VT / VF<ul style="list-style-type: none"><input type="checkbox"/> Rapid 300 mg IV diluted 20 – 30 cc of D5W or NS◇ Unstable VT<ul style="list-style-type: none"><input type="checkbox"/> 150 – 300 mg IV followed by IV infusion @ 1 mg / min◇ Rapid atrial arrhythmias with impaired LV function<ul style="list-style-type: none"><input type="checkbox"/> 150 mg over 10 minutes
PEDIATRIC:	<ul style="list-style-type: none">◇ Pulseless VT / VF<ul style="list-style-type: none"><input type="checkbox"/> 5mg/kg IV/IO Rapid IV bolus◇ VT<ul style="list-style-type: none"><input type="checkbox"/> 5mg/kg IV/IO over 20 to 60 minutes <p>Repeat does of 5mg/kg up to maximum dose of 15 mg/kg per day</p>
THERAPEUTIC EFFECTS:	<p>Class IIIb agent for treatment of cardiac arrest due to shock-resistant VF or pulseless VT. Increases Action Potential and Refractory Period Reduces Ventricular Dysrhythmias</p>
RELATIVE CONTRAINDICATIONS:	<p>Hypersensitivity to any of the contents Cardiogenic Shock Marked Sinus Bradycardia Second or Third Degree AV Block (unless pacemaker is available) Do not routinely administer Amiodarone and Procainamide together</p>
SIDE EFFECTS:	<p>Hypotension Bradycardia AV Block Asystole PEA Hepatotoxicity</p>

**SPECIAL NOTES /
RESTRICTIONS:**

See Attachment on Use of Guidelines and Amiodarone at end of Formulary.

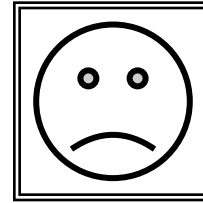
Serial use of calcium channel blockers, B-blockers, and primary antiarrhythmic agents should be discouraged because of the potential additive hypotensive, bradycardic, and proarrhythmic effects of these drugs in combination. This may be amended / altered / overridden by Local Medical Control based on individual situations.

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AMYL NITRITE
(Special Purpose: Toxicology)



INDICATIONS:	<input type="checkbox"/> Cyanide Poisoning
ADMINISTRATION:	<input type="checkbox"/> Inhalation only
DOSAGE:	
ADULT:	One or two inhalants of amyl nitrite should be crushed and inhaled for 15 to 30 seconds.
PEDIATRIC:	One inhalant should be crushed and inhaled for 15 to 30 seconds. (Smallest effective dosage should be used.)
THERAPEUTIC EFFECTS:	It is effective in the emergency management of cyanide poisoning. Amyl nitrite causes the oxidation of hemoglobin to a compound called methemoglobin. Methemoglobin reacts with the toxic cyanide ion to form cyanomethemoglobin, which can be enzymatically degraded.
RELATIVE CONTRAINDICATIONS:	No contraindications for amyl nitrite in the management of cyanide poisoning.
SIDE EFFECTS:	Headache and hypotension have been known to occur following inhalation.
SPECIAL NOTES / RESTRICTIONS:	Special Purpose Drug for TOXICOLOGY

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ASPIRIN
(Children's chewable aspirin)

INDICATIONS:	<input type="checkbox"/> Myocardial Infarction <input type="checkbox"/> Chest pain suspicious of cardiac origin
ADMINISTRATION:	<input type="checkbox"/> Chew; P.O.
DOSAGE:	
ADULT:	162mg to 324mg Give two (2) to four (4) "children's" chewable Aspirin (81mg x 4 = 324mg)
PEDIATRIC:	NOT APPROVED
THERAPEUTIC EFFECTS:	Given as an early potent anticoagulant. Blocks formation of Thromboxane A2. Thromboxane A2 causes platelets to aggregate and arteries to constrict. Reduce overall mortality of acute MI Reduce nonfatal re-infarction.
RELATIVE CONTRAINDICATIONS:	Active ulcer; Hypersensitivity to aspirin
SIDE EFFECTS:	Allergic reaction; Nausea/Vomiting; Indigestion; Heartburn; Tinnitus
SPECIAL NOTES / RESTRICTIONS:	A cost effective medication that can be given within minutes of arrival to the acute MI patient that may reduce overall mortality to almost the same degree as thrombolytic agents.

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ATROPINE SULFATE

INDICATIONS:	<ul style="list-style-type: none"> <input type="checkbox"/> Sinus bradycardia when accompanied by PVCs or hypotension <input type="checkbox"/> 2nd or 3rd degree block <input type="checkbox"/> Asystole <input type="checkbox"/> Organophosphate poisoning <input type="checkbox"/> Pulseless Electrical Activity (PEA) <input type="checkbox"/> Pediatric: Symptomatic bradycardia secondary to AV block or vagal activity 2nd line after epinephrine for bradycardia due to poor perfusion or hypotension
ADMINISTRATION:	<ul style="list-style-type: none"> <input type="checkbox"/> IV, IO, ET IM (May double IV dosage with ET administration.)
DOSAGE:	
ADULT:	<p>1. Bradycardia</p> <ul style="list-style-type: none"> Δ 0.5 - 1.0 mg IV administration; repeat Q 3-5 minutes to a total of 0.04 mg/kg <p>2. Asystole & Slow Pulseless Electrical Activity (PEA)</p> <ul style="list-style-type: none"> Δ 1 mg IV administration Q 3-5 minutes to 0.04 mg/kg total dose <p>3. Organophosphate Poisoning:</p> <ul style="list-style-type: none"> Δ To block parasympathetic response: 1 - 2 mg; IV dose repeated Q 5 minutes until a decrease in secretions are observed or to total dose of 6 mg. Δ May be administered per standing orders
PEDIATRIC:	<p>1. Bradycardia</p> <ul style="list-style-type: none"> Δ 0.02 mg/kg (0.2 ml/kg) IV administration Δ Minimum 0.1 mg, Δ Maximum single dose 0.5 mg child; 1.0 mg adolescent. <ul style="list-style-type: none"> <input type="checkbox"/> May be repeated once <p>2. Organophosphate Poisoning:</p> <ul style="list-style-type: none"> Δ To block parasympathetic response: <ul style="list-style-type: none"> Δ Children: 0.05 to 0.1 mg/kg Loading dose. Δ Adolescents: 2 mg Δ Repeat every 10 – 15 minutes until rales and bronchial secretions resolved. Δ May be administered per standing orders
THERAPEUTIC EFFECTS:	<p>Blocks acetylcholine receptor sites Increase SA & AV node conduction May suppress PVCs secondary to bradycardia</p>
RELATIVE CONTRAINDICATIONS:	<p>Tachycardia Glaucoma Atrial fibrillation/atrial flutter with rapid ventricular response</p>

SIDE EFFECTS:	<ul style="list-style-type: none">-Tachycardia-Dry mouth-Thirst-Flushing of skin-Blurred vision-Headache-Pupillary dilatation-Urine retention
SPECIAL NOTES / RESTRICTIONS:	

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**ATROVENT
IPRATROPIUM BROMIDE**

INDICATIONS:	Bronchospasm, COPD
ADMINISTRATION:	Nebulizer
DOSAGE:	
ADULT:	500 mcg
PEDIATRIC:	500 mcg
THERAPEUTIC EFFECTS:	Inhibits ACTH receptor sites on bronchial smooth muscle
CONTRAINDICATIONS:	Hypersensitivity to Atrovent and/or Atropine and its derivatives
SIDE EFFECTS:	Tachycardia, palpitations, eye pain, urinary retention, UTI, Urticaria, Bronchitis
SPECIAL NOTES / RESTRICTIONS:	Can be mixed with Xopenex and Albuterol. ONE DOSE PER STANDING ORDERS. REPEAT DOSES REQUIRE DIRECT MEDICAL ORDER.

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CALCIUM GLUCONATE (Tox)
(Special Purpose: Toxicology)



INDICATIONS:	<input type="checkbox"/> Hydrofluoric acid burns and exposure
ADMINISTRATION:	<input type="checkbox"/> Topical application, IV, or by nebulizer; rarely by direct injection
DOSAGE:	
ADULT:	<input type="checkbox"/> 10ml mixed with one ounce of water soluble lubricant for topical application, IV as ordered, or 2.5% solution nebulized with oxygen for inhalation exposure; 0.3-0.5 ml of 5% solution/cm ² burn area injected directly for deep or subungual burns.
PEDIATRIC:	Same as adult
THERAPEUTIC EFFECTS:	Binds with fluoride ion, prevents or reverses hypocalcemia.
RELATIVE CONTRAINDICATIONS:	Not to be injected for GENERAL SKIN BURNS from THERMAL SOURCE.
SIDE EFFECTS:	Hypercalcemia, local tissue damage, pressure necrosis if injected under nail beds.
SPECIAL NOTES / RESTRICTIONS:	⊗ Special Purpose Utilization: TOXICOLOGY Infiltration of wound with local anesthetic should not be used, regional blocks may be necessary to provide adequate treatment of large or deeply penetrated burns. Ocular exposure should be treated with 1% aqueous irrigation following proparacaine anesthetic.

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CALCIUM GLUCONATE

Kalcinate

INDICATIONS:	<ul style="list-style-type: none"> <input type="checkbox"/> Overdose (calcium channel blocker) <input type="checkbox"/> Magnesium Sulfate drip toxicity <input type="checkbox"/> Certain types of arrest, i.e. dialysis patients <input type="checkbox"/> Known Hypocalcemia
ADMINISTRATION:	<ul style="list-style-type: none"> <input type="checkbox"/> IV, IO
DOSAGE:	
ADULT:	5-20 ml slow administration
PEDIATRIC:	50 - 100 MG/KG slow administration
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Reverses overdose with Magnesium Sulfate or calcium channel blockers - Relieves some types of muscle spasm - Replaces electrolytes necessary for the contractile function of the heart
RELATIVE CONTRAINDICATIONS:	Use with extreme caution in patients taking digitalis
SIDE EFFECTS:	<ul style="list-style-type: none"> - Hypotension - Bradycardia - Arrhythmia - Cardiac arrest - Chalky or metallic taste - Feeling that a "wave of heat" is passing through the body
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> ∇ Adult Dosage: 5-20 ml slow IV administration ∇ Pediatric Dosage: 50 - 100 mg/kg - Do not administer with Sodium Bicarbonate - Use smaller doses for patients on Digoxin

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Edgar G. DesChamps, III, M.D.
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COMBINATION DEXTROSE/SODIUM CHLORIDE
5% dextrose in 0.45% Sodium chloride (D51/2NS)

INDICATIONS:	<input type="checkbox"/> Heat exhaustion <input type="checkbox"/> Diabetic disorders <input type="checkbox"/> Impaired Renal Function (TKO) <input type="checkbox"/> Cardiovascular function (TKO)
ADMINISTRATION:	<input type="checkbox"/> IV infusion, IO
DOSAGE:	
ADULT:	Dependent upon patient condition and situation being treated
PEDIATRIC:	Used for Maintenance Only. Dependent upon patient size and condition
THERAPEUTIC EFFECTS:	Provides electrolyte and sugar replacement
RELATIVE CONTRAINDICATIONS:	Need for Rapid fluid replacement indicated
SIDE EFFECTS:	Rare
SPECIAL NOTES / RESTRICTIONS:	<p>CLASSIFICATION: Slightly hypertonic sugar and electrolyte solution <i>Normal saline or lactated ringers is the preferred infusion solution during cardiac arrest, although D5W remains acceptable</i></p> <p>— Any combination of Dextrose and Sodium Chloride is approved. Some other combinations include: - 5% Dextrose in 0.9% Sodium Chloride (D5NS) - 5% Dextrose in 0.2% Sodium Chloride (D5 0.2NS) - 3.3% Dextrose in 0.3% Sodium Chloride</p>

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DEXTROSE 5% IN WATER D5W

INDICATIONS:	<input type="checkbox"/> IV access for emergency drugs (cardiac) <input type="checkbox"/> For dilution of concentrated drugs for IV infusion <input type="checkbox"/> Patients with actual or potential for volume overload <input type="checkbox"/> Patients requiring sodium restriction
ADMINISTRATION:	<input type="checkbox"/> IV infusion, IO
DOSAGE:	
ADULT:	Generally administered to keep open (TKO)
PEDIATRIC:	Generally administered to keep open (TKO) vein for medications. ONLY WITH DIRECT MEDICAL ORDER
THERAPEUTIC EFFECTS:	Glucose nutrient solution
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - As a main line for blood transfusion - For fluid replacement in hypovolemic states
SIDE EFFECTS:	Rare
SPECIAL NOTES / RESTRICTIONS:	<p>CLASSIFICATION: Hypotonic Sugar Solution <i>Normal saline or lactated ringers is the preferred infusion solution during cardiac arrest, although D5W remains acceptable</i></p> <p>▽ In Pediatric Patients: ONLY WITH DIRECT MEDICAL ORDER</p>

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DEXTROSE 50 %
D₅₀W, 50% Dextrose

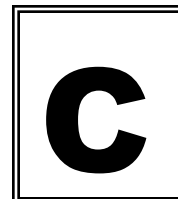
INDICATIONS:	<ul style="list-style-type: none"> <input type="checkbox"/> Suspected hypoglycemia <input type="checkbox"/> Altered LOC <input type="checkbox"/> Coma/Seizure of unknown etiology
ADMINISTRATION:	<ul style="list-style-type: none"> <input type="checkbox"/> IO, IV through a free flowing line; Per Rectum in Pediatrics
DOSAGE:	
ADULT:	<ul style="list-style-type: none"> <input type="checkbox"/> 25.0 grams slow administration - initial dose <input type="checkbox"/> May repeat doses based upon Medical Control Order or Protocols/Standing Orders for persistent hypoglycemia.
PEDIATRIC:	<ul style="list-style-type: none"> - 0.5 - 1.0 grams/kg, slow administration - Dilute D50W 1:1 with sterile water, Ringer's Lactate, or Saline (2-4 ml/kg of D25 mixture)
THERAPEUTIC EFFECTS:	Immediate source of glucose and water
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Intracranial hemorrhage - Known CVA
SIDE EFFECTS:	<ul style="list-style-type: none"> - Local irritation - May precipitate severe neurologic symptoms in alcoholics
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> - Draw blood sample OR do a D-stix prior to administration - Causes local tissue necrosis if IV infiltrates

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❖ **DIAZEPAM** ❖
Valium
CIV



INDICATIONS:	<input type="checkbox"/> Major motor seizures <input type="checkbox"/> Status epilepticus <input type="checkbox"/> Pre-medication prior to cardioversion, transcutaneous pacing <input type="checkbox"/> Skeletal muscle relaxant <input type="checkbox"/> Acute anxiety states <input type="checkbox"/> Medication for combative patients and difficult intubations
ADMINISTRATION:	IV, IO, IM Δ Per Rectum in Pediatrics and Adults
DOSAGE:	
ADULT:	<input type="checkbox"/> Slow IV administration; titrated to effect up to 15 mg (by Standing Order/Protocol) <input type="checkbox"/> IV Doses <u>GREATER THAN</u> 15 mg require Direct Medical Order <input type="checkbox"/> Rectal 10 mg maximum on initial dosage. May be repeated two times - not to exceed 30 mg Maximum Dose.
PEDIATRIC:	<ul style="list-style-type: none"> - IV 0.2 mg/kg titrate to effect, max dose 10mg or 0.75 mg/kg which ever is less - PR 0.5 mg/kg, may repeat 0.25 mg/kg in 10 minutes if needed
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Suppresses the spread of seizure activity through the motor cortex of the brain - Effective skeletal-muscle relaxant
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Respiratory depression - Hypotension - ETOH or other sedative drugs - Pregnancy - Hypersensitivity to drug
SIDE EFFECTS:	<ul style="list-style-type: none"> - Respiratory/Cardiac arrest - Decreased LOC - Hypotension

**SPECIAL NOTES /
RESTRICTIONS:**

❖ **This is a Schedule CIV Drug.** ❖

- Relatively short-acting when given IV; seizure activity may reoccur; additional doses may be required
- No mixing with other drugs because of precipitation
- After administration patient must be closely monitored with vital signs taken and recorded Q 5-10 minutes if possible
- **IV Doses GREATER THAN 15 mg require Direct Medical Order**
- **Iatrogenic dose related complications may be improved with reversal using Flumazenil.**
- CANA Autoinjector may be used one time only without Medical Control Authorization in bioterrorism incidents With suspected nerve agent present.
- Paramedic members of the state's COBRA teams and State certified paramedics are authorized to use the Autoinjector in those instances when a nerve agent is suspected.
- The CANA Autoinjector delivers a 10MG dose via IM route.

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DILTIAZEM

Cardiazem

INDICATIONS:	<input type="checkbox"/> Rate Control in Refractory Atrial Fibrillation and SVT
ADMINISTRATION:	<input type="checkbox"/> IV Bolus and Drip, IO
DOSAGE:	
ADULT:	<input type="checkbox"/> 20 - 25 mg Bolus Dose <input type="checkbox"/> 10 mg/Hr infusion - titrated to effect
PEDIATRIC:	NOT APPROVED
THERAPEUTIC EFFECTS:	The therapeutic effects of Diltiazem appear related to its ability to inhibit the influx of calcium ions during membrane depolarization of cardiac and vascular smooth muscle. These effects may be seen as slowing of conduction times at the SA or AV nodes.
RELATIVE CONTRAINDICATIONS:	Concurrent or Recent use of Beta Blockers
SIDE EFFECTS:	Hypotension; Heart Block
SPECIAL NOTES / RESTRICTIONS:	

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DIPHENHYDRAMINE

Benadryl

INDICATIONS:	<input type="checkbox"/> Anaphylaxis <input type="checkbox"/> Allergic reactions <input type="checkbox"/> Urticaria <input type="checkbox"/> Extrapyramidal reaction
ADMINISTRATION:	<input type="checkbox"/> IV, deep IM, IO
DOSAGE:	
ADULT:	Δ Up to 50 mg slow administration - initial dose Up to 100 mg total dose ONLY WITH DIRECT MEDICAL ORDER
PEDIATRIC:	Δ Up to 1 mg/kg slow administration - initial dose Up to 2 mg/kg total dose ONLY WITH DIRECT MEDICAL ORDER
THERAPEUTIC EFFECTS:	-Inhibits histamine release and effects -Mild sedative -Inhibits motion sickness
RELATIVE CONTRAINDICATIONS:	-Asthma -COPD -Pregnancy -Nursing mothers -Acute glaucoma
SIDE EFFECTS:	-Sedation -Dries bronchial secretions -Blurred vision -Headache -Palpitations
SPECIAL NOTES / RESTRICTIONS:	★ Up to 100 mg total dose - ADULTS ★ Up to 2 mg/kg total dose - PEDIATRICS **DIRECT MEDICAL ORDER REQUIRED**

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DOBUTAMINE

Dobutrex

INDICATIONS:	<input type="checkbox"/> Cardiogenic shock <input type="checkbox"/> Short term management of CHF
ADMINISTRATION:	<input type="checkbox"/> IV infusion, IO
DOSAGE:	
ADULT:	2.0 to 20 mcg/kg/min
PEDIATRIC:	2.0 to 20 mcg/kg/min
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none">- Improves cardiac output & renal blood flow with little systemic arterial constriction- Increases cardiac contractility- Increases conduction velocity- Relatively little effect on heart rate
RELATIVE CONTRAINDICATIONS:	Hypovolemia (Uncorrected)
SIDE EFFECTS:	<ul style="list-style-type: none">- Tachycardia- Palpitations- Hypertension
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none">- Generally used secondary to Dopamine- Monitor BP closely

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DOPAMINE

Intropin

INDICATIONS:	<input type="checkbox"/> Cardiogenic shock associated with hypotension
ADMINISTRATION:	<input type="checkbox"/> IV infusion, IO
DOSAGE:	
ADULT:	2-5 mcg/kg/min initially, up to 20 mcg/kg/min titrated to B/P
PEDIATRIC:	2-5 mcg/kg/min initially, up to 20 mcg/kg/min titrated to B/P
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Increases perfusion & BP by increasing cardiac output & systemic arterial pressure while dilating vessels to the heart, brain & kidneys - Depending on dose; stimulates alpha, beta, & dopamine receptor sites
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Hypovolemic shock where complete fluid resuscitation has not occurred. - Uncorrected tachydysrhythmias or VF
SIDE EFFECTS:	<ul style="list-style-type: none"> - Tachydysrhythmias - Ectopy - Headache - Angina - Nausea/Vomiting
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> - Titrate according to blood pressure - Range is 2-20 mcg/kg/min

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EPINEPHRINE

Adrenalin

INDICATIONS:	<input type="checkbox"/> Ventricular Fibrillation/Pulseless Ventricular Tachycardia <input type="checkbox"/> Asystole <input type="checkbox"/> Pulseless Electrical Activity (PEA) <input type="checkbox"/> Anaphylaxis <input type="checkbox"/> Bronchospasm <input type="checkbox"/> Croup
ADMINISTRATION:	<input type="checkbox"/> SQ, IV, ET, IO, IM <p style="text-align: center;">MAY GIVE CONTINUOUS IV INFUSION ONLY WITH DIRECT MEDICAL ORDER</p> <input type="checkbox"/> NEBULIZED
DOSAGE:	
ADULT:	<input type="checkbox"/> 1. Bronchospasm Up to 0.5 mg SQ (1:1000) Q 15-30 min. x 3 total doses <input type="checkbox"/> 2. Generalized Urticaria 1:1000 solution, SQ 0.3 - 0.5 ml <input type="checkbox"/> 3. Anaphylaxis (In association with hypotension) Up to 0.5 mg of a 1:10,000 solution IV only if medical control contact is not possible or feasible in the situation. <input checked="" type="checkbox"/> In anaphylaxis the reason for not contacting medical control must be documented. <input checked="" type="checkbox"/> Any dose above 0.5 mg. ONLY WITH DIRECT MEDICAL ORDER <input type="checkbox"/> 4. Asystole or Pulseless Electrical Activity (PEA) Standard adult protocol (1:10,000) 1 mg IV Q 3-5 minutes <input type="checkbox"/> ET dose 2.0 - 2.5 mg, Q 3-5 minutes <input type="checkbox"/> V Fib/Pulseless V Tach 1 mg IV push, repeat every 3 to 5 minutes
PEDIATRIC:	<input type="checkbox"/> 1. Bronchospasm 0.01 mg/kg SQ up to 0.3 mg Q 15-30 minutes to 3 total doses (1:1,000) <input type="checkbox"/> 2. Bradycardia 0.01 mg/kg IV or IO Q 3-5 min. (1:10,000) (0.1 ml/kg) <input type="checkbox"/> ET dose 0.1 - 0.2 mg/kg, (0.1 - 0.2 ml/kg, 1:1,000) Q 3-5 minutes <input type="checkbox"/> 3. Asystole or Pulseless Electrical Activity (PEA) 0.01 mg/kg IV or IO initially (0.1 ml/kg, 1:10,000) Subsequent doses 0.1 - 0.2 mg/kg IV or IO (1:1,000) <input type="checkbox"/> ET dose 0.1 - 0.2 mg/kg, (0.1 - 0.2 ml/kg, 1:1,000) Q 3-5 minutes <p style="text-align: center;">Continued on Next Page</p>

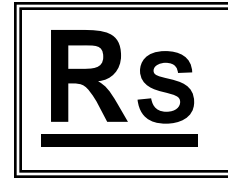
<p>PEDIATRIC:</p>	<p><input type="checkbox"/> 4. Anaphylaxis (In association with hypotension) Δ Up to 0.01 mg/kg IV (1:10,000) ONLY WITH DIRECT MEDICAL ORDER Δ Maximum dose is 0.5 mg IV ONLY WITH DIRECT MEDICAL ORDER</p> <p><input type="checkbox"/> 5. Croup The dosing for 1:1000 nebulized epinephrine is 0.5 ml. (2.5 ml maximum dose of epinephrine if less than 4 years old and 5.0 ml maximum dose if greater than 5 years old. Mix with 3cc of normal saline. Give every 1-2 hours.</p>
<p>THERAPEUTIC EFFECTS:</p>	<ul style="list-style-type: none"> - Increased systemic vascular resistance - Increased arterial B/P - Increased heart rate - Increased coronary and cerebral blood flow - Increased myocardial contraction - Increased myocardial O₂ demand - Increased automaticity
<p>RELATIVE CONTRAINDICATIONS:</p>	<ul style="list-style-type: none"> - There are no contraindications to the use of epinephrine in the situation of cardiac arrest
<p>SIDE EFFECTS:</p>	<ul style="list-style-type: none"> - Palpitations - Hypertension - Dysrhythmias - Anxiety - Tremors
<p>SPECIAL NOTES / RESTRICTIONS:</p>	<ul style="list-style-type: none"> - Can be inactivated by alkaline solutions - Will increase myocardial oxygen demand; provide patient with high-flow oxygen - MAY GIVE CONTINUOUS IV INFUSION ONLY WITH DIRECT MEDICAL ORDER - In anaphylaxis the reason for not contacting medical control must be documented. ⊗ Any dose above 0.5 mg. may be administered ONLY WITH DIRECT MEDICAL ORDER



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ETOMIDATE
Amidate

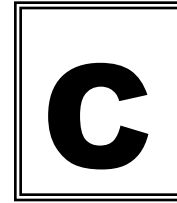


INDICATIONS:	<input type="checkbox"/> For use in RSI protocol – for anesthesia induction.
ADMINISTRATION:	<input type="checkbox"/> IV, IO
DOSAGE:	
ADULT:	◇ .3mg/kg
PEDIATRIC:	◇ .3mg/kg
THERAPEUTIC EFFECTS:	Hypnotic drug (no analgesic activity)
RELATIVE CONTRAINDICATIONS:	Known sensitivity to drug
SIDE EFFECTS:	Transient venous pain, skeletal muscle movement
SPECIAL NOTES / RESTRICTIONS:	

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Revision Date:
Current Printing: January 26, 2011

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❖ Fentanyl ❖
CII



INDICATIONS:	<input type="checkbox"/> Moderate to severe pain <input type="checkbox"/> Premedication for cardioversion or transcutaneous pacing
ADMINISTRATION:	<input type="checkbox"/> IV, IM, IO, Intranasal (By approved metered dose device only)
DOSAGE:	
ADULT:	25 mcg – 100 mcg slow administration. Titrate to pain Dosing based upon Direct Medical Order **DIRECT MEDICAL ORDER REQUIRED**
PEDIATRIC:	1 mcg/kg – 2 mcg/kg slow administration. Titrate to pain Dosing based upon Direct Medical Order **DIRECT MEDICAL ORDER REQUIRED**
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - CNS depressant - Binds to various opiate receptors for producing analgesia and sedation. - Decreases sensitivity to pain
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Use with caution in hypertension - Use with caution in patients with increased ICP - Use with caution in elderly patients - Hypersensitivity to the drug
SIDE EFFECTS:	<ul style="list-style-type: none"> - Respiratory depression - Hypotension - Bradycardia - Nausea/Vomiting - Drowsiness
SPECIAL NOTES / RESTRICTIONS:	<p>This Schedule CII Controlled Substance may be administered:</p> <ol style="list-style-type: none"> 1. ONLY WITH ON-LINE MEDICAL CONTROL ORDER IN THE PRE-HOSPITAL SETTING! 2. INTERFACILITY SETTING, FENTANYL ADMINISTRATION IS APPROVED BY DIRECT MEDICAL ORDER (Written Orders) FOR THE SPECIFIC PATIENT! <ul style="list-style-type: none"> - Have Atropine/Narcan and respiratory assistance available - Monitor VS closely before & after administration - After administration patient must be closely monitored with vital signs taken and recorded Q 5-10 minutes if possible

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FLUMAZENIL

Romazicon

<p>INDICATIONS:</p>	<p>☐ Reversal of acute side effects of Benzodiazepines (Valium / Ativan / Versed) limited to iatrogenic causes only with on-line medical control. (<i>iatrogenic</i> - Resulting from, or in the course of, treatment or diagnostic procedures. Condition caused by medical personnel or procedures or through exposure to the environment of a health care facility.)</p>
<p>ADMINISTRATION:</p>	<p>☐ IV Push</p>
<p>DOSAGE:</p>	
<p>ADULT:</p>	<p>1. IVP over 15 seconds for conscious sedation reversal; 0.2 mg initially then wait 45 sec. Δ If desired level of consciousness not attained, repeat 0.2 mg over 15 seconds IVP wait 45 seconds--may repeat this cycle to total of 1 mg (5 cycles). Δ If successful, then re-sedation OCCURS, may repeat above cycle again at 20 minute intervals not to exceed total 3 mg in one hour.</p> <p>2. Benzodiazepine overdose reversal: Δ 0.2 mg over 30 seconds, wait as above 30 seconds. Δ 0.3 mg over 30 seconds, wait as above 30 seconds Δ 0.5 mg over 30 seconds, wait 30 seconds Total cumulative - 3 mg. Do not rush administration. Secure airway.</p>
<p>PEDIATRIC:</p>	<p>NOT APPROVED</p>
<p>THERAPEUTIC EFFECTS:</p>	<p>Benzodiazepine Antagonist</p>
<p>RELATIVE CONTRAINDICATIONS:</p>	<ul style="list-style-type: none"> - Known hypersensitivity. - Patients given Benzodiazepine for the control of life threatening conditions. (E.g. control ICP, status epilepticus.) <ul style="list-style-type: none"> Δ Risk of seizure greatest if Benzodiazepine used is long term. Δ Risk of seizure if undergoing concurrent major sedative-hypnotic drug withdrawal; recent therapy with parenteral Benzodiazepine concurrent TCA overdose, those exhibiting seizure activity prior to attempt of reversal. - Caution in patients with known raised ICP due to risk of seizure and withdrawal reaction (vomiting).

SIDE EFFECTS:	<ul style="list-style-type: none"> - Seizures - Return of Sedation
SPECIAL NOTES / RESTRICTIONS:	<p>This agent is approved ONLY for use in treatment of iatrogenic sedation secondary to benzodiazepine therapy.</p> <p>△△ This agent is specifically NOT approved for use in treatment of self-administered (or "street level") Valium or benzodiazepine overdose.</p>

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FUROSEMIDE

Lasix

INDICATIONS:	<input type="checkbox"/> Pulmonary edema <input type="checkbox"/> CHF
ADMINISTRATION:	<input type="checkbox"/> IV, IM, IO
DOSAGE:	
ADULT:	<ul style="list-style-type: none"> - 40 mg slow administration (Higher dose per local protocol) - Up to 300 mg total dose <p style="text-align: center;">**DIRECT MEDICAL ORDER REQUIRED for Maximum Dose Administration**</p>
PEDIATRIC:	<ul style="list-style-type: none"> - Up to 2 mg/kg slow administration <p style="text-align: center;">**DIRECT MEDICAL ORDER REQUIRED**</p>
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Vasodilation - Diuresis - Inhibits sodium & chloride reabsorption in the kidneys
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Pregnancy - Dehydration - Hypovolemic states - Hypokalemia
SIDE EFFECTS:	<ul style="list-style-type: none"> - Dehydration - Dysrhythmias - Nausea/Vomiting
SPECIAL NOTES / RESTRICTIONS:	<input checked="" type="checkbox"/> Maximum Doses may be given ONLY WITH DIRECT MEDICAL ORDER

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GLUCAGON USP

GlucaGen

INDICATIONS:	<input type="checkbox"/> Hypoglycemia <input type="checkbox"/> Beta blocker overdose <input type="checkbox"/> Calcium channel overdose
ADMINISTRATION:	<input type="checkbox"/> SQ, IM, IV, IO
DOSAGE:	
ADULT:	0.5 - 1.0 mg
PEDIATRIC:	0.1 mg/kg Maximum dosage = 1.0 mg
THERAPEUTIC EFFECTS:	- Causes breakdown of glycogen to glucose; inhibits glycogen synthesis; elevates blood glucose level
RELATIVE CONTRAINDICATIONS:	- Hypersensitivity - Insulinoma - Pheochromocytoma
SIDE EFFECTS:	- Relatively free of adverse reactions except for occasional nausea and vomiting - Urticaria, respiratory distress and hypotension have been reported
SPECIAL NOTES / RESTRICTIONS:	May be repeated 1-2 times if no response in 15-20 minutes

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HEPARIN LOCK FLUSH

INDICATIONS:	<input type="checkbox"/> Alternate method for keeping the vein open in the acutely ill patient <input type="checkbox"/> To be used as a flush, not as a drug
ADMINISTRATION:	<input type="checkbox"/> IV
DOSAGE:	
ADULT:	<ul style="list-style-type: none"> - 10 units initially - Less than 100 units total dose
PEDIATRIC:	NOT APPROVED
THERAPEUTIC EFFECTS:	Clears intermittent infusion set to keep vein open
RELATIVE CONTRAINDICATIONS:	Not given to flush out or to irrigate clotted IV lines
SIDE EFFECTS:	Bleeding
SPECIAL NOTES / RESTRICTIONS:	Use only when the set is placed or after drug infusion. This agent is not given to flush out or to irrigate clotted IV lines

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HIGH DOSE HEPARIN

INDICATIONS:	<ul style="list-style-type: none"> <input type="checkbox"/> Patients with 12 lead EKG proven STEMI who: <ul style="list-style-type: none"> <input type="radio"/> are expected to undergo PTCA or surgical revascularization (Class I) <input type="radio"/> are expected to receive TPA or Retavase (Class IIa) <input type="checkbox"/> To be administered ONLY by direct order of medical control physician.
ADMINISTRATION:	<input type="checkbox"/> IV only
DOSAGE:	
ADULT:	<ul style="list-style-type: none"> - Up to Maximum of 5,000 IU for 12 lead EKG proven STEMI - Patients that meet criteria listed under Indications.
PEDIATRIC:	NOT APPROVED
THERAPEUTIC EFFECTS:	Heparin is an anticoagulant that directly inhibits thrombin.
RELATIVE CONTRAINDICATIONS:	Same as those on checklist for fibrinolytic therapy.
SIDE EFFECTS:	<p>No immediate side effects except hypersensitivity reaction.</p> <p>Late side effects include minor or major hemorrhage, including intracerebral hemorrhage.</p>
SPECIAL NOTES / RESTRICTIONS:	High dose Heparin to be administered ONLY after 12 lead EKG and ONLY with DIRECT medical control order.

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IBUPROFEN
Motrin, Advil, Pedia-Profen

INDICATIONS:	<input type="checkbox"/> Pain, Fever, Inflammation
ADMINISTRATION:	<input type="checkbox"/> P.O.
DOSAGE:	
ADULT:	200-800 mg P.O.
PEDIATRIC:	10 mg/kg
THERAPEUTIC EFFECTS:	Analgesia, Antipyretic, Anti-inflammatory
RELATIVE CONTRAINDICATIONS:	Active ulcer; < 2 months of age; Dose Within Previous 6 hours; Known Bleeding Disorders
SIDE EFFECTS:	Allergic reaction; Nausea/Vomiting; Indigestion; Heartburn;
SPECIAL NOTES / RESTRICTIONS:	Not Approved for use in patients > 12 years of age Not Approved for Pediatrics younger than 2 months of age

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LABETALOL

Normodyne, Trandate

INDICATIONS:	<input type="checkbox"/> Control of Blood Pressure in Severe Hypertension
ADMINISTRATION:	<input type="checkbox"/> IV Push (Slow); IV Infusion; IO
DOSAGE:	
ADULT:	<p>IV PUSH:</p> <ul style="list-style-type: none"> Δ Initial: 10 - 20 mg (0.25 mg/kg) IV Slow (over at least 2 minutes) Δ Repeat: May administer additional IV Slow boluses at 10 minute intervals - to a Maximum of 300 mg IV <p>★ MAY GIVE IV BOLUS ONLY WITH DIRECT MEDICAL ORDER</p> <p>IV DRIP:</p> <ul style="list-style-type: none"> Δ 2 - 8 mg/min maintenance <p>★ MAY GIVE CONTINUOUS IV INFUSION ONLY WITH DIRECT MEDICAL ORDER</p>
PEDIATRIC:	<p>IV PUSH:</p> <ul style="list-style-type: none"> Δ 0.2 - 0.5 mg/kg/dose to a MAXIMUM of 20 mg/dose as intermittent bolus (slow). <p>★ MAY GIVE PEDIATRIC IV BOLUS ONLY WITH DIRECT MEDICAL ORDER</p> <p>IV DRIP:</p> <ul style="list-style-type: none"> Δ 0.2 - 1.0 mg/kg/hr <p>★ MAY GIVE CONTINUOUS IV INFUSION ONLY WITH DIRECT MEDICAL ORDER</p>
THERAPEUTIC EFFECTS:	Dose related decrease in Blood Pressure without reflex tachycardia and without significant decrease in Heart Rate. Also has less decrease in cerebral perfusion pressure than with nitroprusside.
RELATIVE CONTRAINDICATIONS:	Asthma; Cardiogenic Shock; Cocaine Induced Hypertension; Severe Bradycardia; Hypotension; Heart Block - Greater than 1 st Degree;
SIDE EFFECTS:	Mild & Transient Hypotension; Postural Hypotension if patient allowed upright within first 3 hours.

**SPECIAL NOTES /
RESTRICTIONS:**

- ▽ IV Push dosage **MUST** be administered slowly (over at least 2 minutes) with frequent (Q 5 minute) Blood Pressure monitoring.
- ▽ **Maximum of 300 mg may be given as IV Bolus Administration in adults.**
- ✪✪ **MAY GIVE IV BOLUS or CONTINUOUS IV INFUSION ONLY WITH DIRECT MEDICAL ORDER**

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LACTATED RINGERS (LR)

INDICATIONS:	<input type="checkbox"/> Hypovolemic shock <input type="checkbox"/> Dehydration <input type="checkbox"/> Burns
ADMINISTRATION:	<input type="checkbox"/> IV infusion, IO
DOSAGE:	
ADULT:	As indicated by the patient condition and situation being treated
PEDIATRIC:	As indicated by the patient condition and situation being treated
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Source of electrolytes - Increase circulating volume
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Congestive heart failure - Renal failure
SIDE EFFECTS:	Rare
SPECIAL NOTES / RESTRICTIONS:	<p>CLASSIFICATION: Isotonic crystalloid</p> <p>Normal saline or lactated ringers is the preferred infusion solution during cardiac arrest, although D5W remains acceptable</p>

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LIDOCAINE

Xylocaine

INDICATIONS:	<ul style="list-style-type: none"><input type="checkbox"/> Ventricular tachycardia<input type="checkbox"/> Ventricular fibrillation<input type="checkbox"/> Malignant PVCs<input type="checkbox"/> Combative Head Injuries (before Intubation)
ADMINISTRATION:	IV, IV infusion, ET, IO, Jelly
DOSAGE:	
ADULT:	<ul style="list-style-type: none"><input type="checkbox"/> 1. VF & pulseless VT<ul style="list-style-type: none">∇ 1.5 mg/kg rapid IV bolus, repeated Q 3 to 5 minutes;∇ Maximum loading dose of 3 mg/kg;∇ Loading dose followed by maintenance infusion of 2 to 4 mg/min<input type="checkbox"/> 2. VT with pulse, PVCs<ul style="list-style-type: none">∇ 1 - 1.5 mg/kg rapid IV bolus;∇ Followed by 0.5 - 0.75 mg/kg IV Q 5-10 minutes to maximum dose of 3 mg/kg;∇ Followed by 2-4 mg/min maintenance infusion
PEDIATRIC:	<ul style="list-style-type: none"><input type="checkbox"/> 1.0 mg/kg loading dose<input type="checkbox"/> 20 - 50 mcg/kg/min maintenance dose
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none">- Suppresses ventricular ectopic activity- Elevates the threshold for ventricular fibrillation- Suppresses re-entry dysrhythmias
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none">- PVCs in conjunction with bradycardia- High degree AV blocks- Ventricular escape rhythms- Allergy to -caine drugs
SIDE EFFECTS:	<ul style="list-style-type: none">- Hypotension- Decreased LOC- Irritability- Muscle twitching- Eventually seizures

**SPECIAL NOTES /
RESTRICTIONS:**

Maintenance infusion should be decreased by 50% for patients in CHF, shock, or over 70 years of age

– **Xylocaine 2% jelly** may be used as a lubricant for the NG or ET tube for intubation of the conscious patient. It is not intended for repeated use or for use on areas of denuded tissue. Possible side effect is a localized allergic reaction.

Serial use of calcium channel blockers, B-blockers, and primary antiarrhythmic agents should be discouraged because of the potential additive hypotensive, bradycardic, and proarrhythmic effects of these drugs in combination. This may be amended / altered / overridden by Local Medical Control based on individual situations.

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LOPRESSOR

Metoprolol

INDICATIONS:	<input type="checkbox"/> SVT, <input type="checkbox"/> Ventricular rate control in patients with rapid atrial fibrillation/flutter <input type="checkbox"/> ST segment elevation indicative of myocardial infarction (STEMI) when heart rate is greater than 70
ADMINISTRATION:	<input type="checkbox"/> IV, inject slowly over 1 minute-, IO
DOSAGE:	
ADULT:	<input type="checkbox"/> SVT: 5 mg IV <input type="checkbox"/> Ventricular rate control in atrial fib/flutter: 1.25-5 mg, may repeat every 5 minutes for effect, up to a maximum dose of 15 mg. <input type="checkbox"/> STEMI process: 5 mg IV, may repeat up to 3 times for a maximum of 15 mg.
PEDIATRIC:	N/A
THERAPEUTIC EFFECTS:	Selective Beta Blocker
CONTRAINDICATIONS:	<input type="checkbox"/> Hypersensitivity to the drug <input type="checkbox"/> Sinus Bradycardia <input type="checkbox"/> Heart block greater than first degree (except in patient with functioning pacemaker)
RELATIVE CONTRAINDICATIONS:	<input type="checkbox"/> Asthma
SIDE EFFECTS:	Bradycardia Hypotension Bronchospasm Congestive heart failure Drowsiness
SPECIAL NOTES / RESTRICTIONS:	N/A

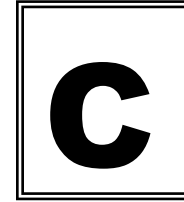
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❖LORAZEPAM❖

Ativan
CIV



INDICATIONS:	<input type="checkbox"/> Major Motor Seizures <input type="checkbox"/> Status epilepticus <input type="checkbox"/> Pre-Medication prior to cardioversion or Transcutaneous Pacing <input type="checkbox"/> Skeletal muscle relaxant <input type="checkbox"/> Acute Anxiety States <input type="checkbox"/> Medication for combative patients and difficult intubations
ADMINISTRATION:	IV, IO, IM
DOSAGE:	
ADULT:	▽ Up to total of 4.0 mg slow administration (Over 2 - 5 minutes) Doses <u>GREATER THAN</u> 4 mg require Direct Medical Order
PEDIATRIC:	▽ Up to total of 0.1 mg/kg slow administration (Over 2 - 5 minutes) Contact medical control for additional doses! ▽ Doses <u>GREATER THAN</u> 4 mg require Direct Medical Order
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Suppresses the spread of seizure activity through the motor cortex of the brain - Effective skeletal muscle relaxant
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> ➤ Respiratory depression ➤ Hypotension ➤ ETOH or other sedative drugs ➤ Pregnancy ➤ Hypersensitivity to the drug
SIDE EFFECTS:	<ul style="list-style-type: none"> △ Respiratory / Cardiac Arrest △ Decreased LOC △ Hypotension

**SPECIAL NOTES /
RESTRICTIONS:**

❖ **This is a Schedule CIV Drug.** ❖

➤ Repeat doses may be given:
ONLY WITH DIRECT MEDICAL ORDER

Lorazepam MAY BE initiated by Standing Order or Protocol. It is RECOMMENDED – where feasible – that On-Line Medical Control be obtained prior to initiation – but this should not supercede the appropriate care of the patient

∇ **Doses GREATER THAN 4 mg require Direct Medical Order**

- Relatively short-acting when given IV; seizure activity may reoccur; additional doses may be required.
 - No mixing with other drugs because of precipitation.
 - After administration, patient must be closely monitored with vital signs taken and recorded Q 5 - 10 minutes if possible.
- ∇ **iatrogenic dose related complications may be improved with reversal using Flumazenil.**

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MAGNESIUM SULFATE

Magnesium

INDICATIONS:	<ul style="list-style-type: none"> <input type="checkbox"/> Refractory VT/VF unresponsive to lidocaine, Torsades de Pointes, especially in the setting of tricyclic antidepressant overdose not resolved by sodium bicarbonate and lidocaine. <input type="checkbox"/> Digitalis induced ventricular arrhythmias. <input type="checkbox"/> As an anticonvulsant in eclampsia. <input type="checkbox"/> Suspected hypomagnesemia
ADMINISTRATION:	<ul style="list-style-type: none"> <input type="checkbox"/> IV Push in cardiac arrest. IO <input type="checkbox"/> Over 1-2 minutes when patient is not in arrest.
DOSAGE:	
ADULT:	– 1-2 Grams IV up to 15 Grams
PEDIATRIC:	– 25 – 50 mg/kg to max 2 gm over several minutes for arrhythmias 15 – 20 minutes for hypomagnesemia
THERAPEUTIC EFFECTS:	Essential for the activity of many enzymes. Plays an important role in neurotransmission and muscular excitability. Overall is a CNS and muscular depressant.
RELATIVE CONTRAINDICATIONS:	Hypermagnesemia, hypocalcemia, anuria, heart block, active labor
SIDE EFFECTS:	Bradycardia, hypotension, hyporeflexia, diaphoresis and drowsiness, decreased respiratory rate, flaccid paralysis.
SPECIAL NOTES / RESTRICTIONS:	Magnesium insufficiency should be suspected in patients who use diuretics and in patients with poor dietary habits, poor nutrition, or poor dietary intake (such as may be seen in chronic alcohol abuse).

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METHYLENE BLUE

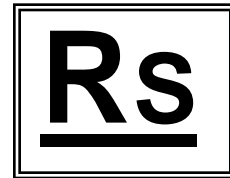
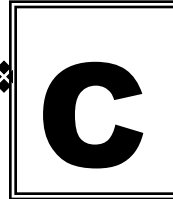


INDICATIONS:	<ul style="list-style-type: none"> <input type="checkbox"/> Treatment of cyanide poisoning and symptomatic methemoglobinemia (iatrogenic or accidental exposure to oxidizing agents)
ADMINISTRATION:	<ul style="list-style-type: none"> <input type="checkbox"/> IV, IO
DOSAGE:	DIRECT MEDICAL ORDER REQUIRED
ADULT:	1 mg/kg IV SLOWLY (over 10-15 minutes)
PEDIATRIC:	Same as adult dose, but must be used with extreme caution due to potential for producing methemoglobinemia.
THERAPEUTIC EFFECTS:	Reduces methemoglobin (ferric [Fe ⁺³] iron in methemoglobin to ferrous [Fe ⁺²] iron in normal hemoglobin.
RELATIVE CONTRAINDICATIONS:	Excessive methemoglobinemia in the treatment of cyanide or sulfide poisoning due to possible release of cyanide or sulfide back into cellular sites with subsequent toxicity. Patients with renal insufficiency or known allergy to methylene blue
SIDE EFFECTS:	<ul style="list-style-type: none"> <input type="checkbox"/> Excessive methemoglobinemia, as characterized by progressive and persistent cyanosis unresponsive to oxygen therapy and the appearance of chocolate brown color of the blood. <input type="checkbox"/> Use of oxidizing agents may produce an acute hemolytic reaction in patients with glucose-6-phosphodehydrogenase (G6PD) deficiency. <input type="checkbox"/> Blue-green urine <input type="checkbox"/> May cause bladder irritation, nausea, vomiting, and diarrhea. Large doses may produce abdominal and precordial pain, dizziness, profuse sweating, fever, and/or mental confusion.
SPECIAL NOTES / RESTRICTIONS:	Rapid administration may produce increased methemoglobin formation, especially in the presence of other oxidizing agents. **DIRECT MEDICAL ORDER REQUIRED**

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❖ MIDAZOLAM ❖
Versed
CIV



<p>INDICATIONS:</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Major Motor Seizures <input type="checkbox"/> Status epilepticus <input type="checkbox"/> Pre-Medication prior to cardioversion or Transcutaneous Pacing <input type="checkbox"/> Skeletal muscle relaxant <input type="checkbox"/> Acute Anxiety States <input type="checkbox"/> Medication for combative patients and difficult intubations
<p>ADMINISTRATION:</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Slow IV, IM, IO
<p>DOSAGE:</p>	
<p>ADULT:</p>	<ul style="list-style-type: none"> - NON-RSI Indications: - 0.5 mg – 2.5 initial dose. - Up to 5mg IM initial dose for seizure abatement - RSI Indications: - .02 mg/kg - .05 mg/kg initial dose - For initial administration dose of Versed, consider decreased dose if systolic BP is 80 – 100 mm REPEAT DOSES OF VERSED MAY BE ADMINISTERED ONLY WITH DIRECT ONLINE MEDICAL ORDER. - After successful intubation, airway control and additional IV, Versed may be administered based on patient effect up to a total of 10 MG IV.
<p>PEDIATRIC:</p>	<ul style="list-style-type: none"> - Not Indicated
<p>THERAPEUTIC EFFECTS:</p>	<ul style="list-style-type: none"> - Short-acting benzodiazepine CNS depressant - Short-term sedation - Postoperative amnesia
<p>RELATIVE CONTRAINDICATIONS:</p>	<ul style="list-style-type: none"> - Hypersensitivity to versed - Glaucoma - Shock - ETOH - Coma - Pregnancy - Renal Failure

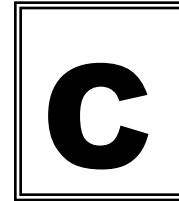
SIDE EFFECTS:	<ul style="list-style-type: none"> - Apnea - Cardiac arrhythmias - Hypotension
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> - Impairs memory in 90% of patients. - Flumazenil will reverse sedative effects. <p><u>RSI MAY BE initiated by Standing Order or Protocol. It is RECOMMENDED – where feasible – that On-Line Medical Control be obtained prior to initiation – but this should not supercede the appropriate care of the patient</u></p> <p>➡ 100% QI / PI is required for ALL RSI runs.</p>



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❖ **MORPHINE SULFATE** ❖
CII



INDICATIONS:	<ul style="list-style-type: none"> ❑ AMI ❑ Acute pulmonary edema ❑ Combative Head Injuries (Before Intubation) ❑ Severe pain in selected situations ❑ Premedication for cardioversion, transcutaneous pacing
ADMINISTRATION:	<ul style="list-style-type: none"> ❑ IV, IM, IO
DOSAGE:	
ADULT:	<p>Initial dose 2 mg to 5 mg Dosing based upon Direct Medical Order **DIRECT MEDICAL ORDER REQUIRED**</p>
PEDIATRIC:	<p>0.05 - 0.2 mg/kg Dosing based upon Direct Medical Order **DIRECT MEDICAL ORDER REQUIRED**</p>
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - CNS depressant - Peripheral vasodilation / venous pooling - Decreases sensitivity to pain
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Head injury - Hypotension - Asthma - COPD - Respiratory depression not caused by pulmonary edema - Undiagnosed abdominal pain - Hypersensitivity to the drug
SIDE EFFECTS:	<ul style="list-style-type: none"> - Respiratory depression - Hypotension - Bradycardia - Nausea/Vomiting

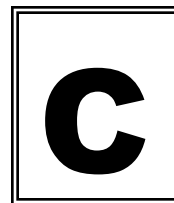
SPECIAL NOTES / RESTRICTIONS:	<p>This Schedule CII Controlled Substance may be administered:</p> <p>3. ONLY WITH ON-LINE MEDICAL CONTROL ORDER IN THE PRE-HOSPITAL SETTING!</p> <p>4. INTERFACILITY SETTING, MORPHINE ADMINISTRATION IS APPROVED BY DIRECT MEDICAL ORDER (Written Orders) FOR THE SPECIFIC PATIENT!</p> <ul style="list-style-type: none">- Have Atropine/Narcan and respiratory assistance available- Monitor VS closely before & after administration- After administration patient must be closely monitored with vital signs taken and recorded Q 5-10 minutes if possible
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❖ **NALBUPHINE** ❖
Nubain



INDICATIONS:	<input type="checkbox"/> Moderate to severe pain
ADMINISTRATION:	<input type="checkbox"/> IV, IM, IO
DOSAGE:	
ADULT:	5 to 10 mg slow administration (10 mg/70 kg) **DIRECT MEDICAL ORDER REQUIRED**
PEDIATRIC:	0.1 - 0.2 mg/kg IV (slow) or IM **DIRECT MEDICAL ORDER REQUIRED**
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - CNS depression - Decreases sensitivity to pain
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Undiagnosed abdominal pain - Hypotension - Diminished LOC - Narcotics - Hypersensitivity to the drug
SIDE EFFECTS:	<ul style="list-style-type: none"> - Respiratory depression - Dizziness - Altered level of consciousness - Nausea - Common
SPECIAL NOTES / RESTRICTIONS:	<p>May precipitate withdrawal syndrome in narcotic dependent persons due to antagonist properties</p> <p>ONLY WITH DIRECT MEDICAL ORDER</p>

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NALOXONE

Narcan

INDICATIONS:	<input type="checkbox"/> Narcotic overdoses; i.e.: <input type="checkbox"/> Morphine <input type="checkbox"/> Demerol <input type="checkbox"/> Heroin <input type="checkbox"/> Dilaudid <input type="checkbox"/> Paregoric <input type="checkbox"/> Percodan <input type="checkbox"/> Fentanyl <input type="checkbox"/> Methadone <input type="checkbox"/> Codeine <input type="checkbox"/> Synthetic analgesic overdose; i.e.: <input type="checkbox"/> Nubain <input type="checkbox"/> Talwin <input type="checkbox"/> Stadol <input type="checkbox"/> Darvon/Darvocet
ADMINISTRATION:	<input type="checkbox"/> IV, IO, IM, SC, ET
DOSAGE:	
ADULT:	<ul style="list-style-type: none"> - 0.4 - 2 mg slow administration titrated to respirations
PEDIATRIC:	<ul style="list-style-type: none"> - 0.1 mg/kg for children up to 5 years old or <20 kg - 2.0 mg for children over 5 years or > 20 kg - may repeat every 2 – 3 minutes as needed
THERAPEUTIC EFFECTS:	Reverses most effects of nearly all narcotic and/or synthetic narcotic agents
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Hypersensitivity to the drug
SIDE EFFECTS:	<ul style="list-style-type: none"> - Vomiting with rapid administration - Ventricular dysrhythmias - Precipitate acute narcotic withdrawal syndrome - Seizures - Hypertension
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> - May reverse ETOH induced coma - Rapid onset, short acting - possible re-sedation

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NITROGLYCERIN

Nitro-Bid, Nitrostat, Nitro, Nitro-Dur

INDICATIONS:	<input type="checkbox"/> Chest pain consistent with acute coronary symptoms. <input type="checkbox"/> Pulmonary edema
ADMINISTRATION:	<input type="checkbox"/> Sprayed under tongue on mucous membrane or given sublingual <input type="checkbox"/> Ointment paste applied to truncal skin <input type="checkbox"/> Trans-dermal patch
DOSAGE:	
ADULT:	<p>1. Spray</p> <input type="checkbox"/> 0.4 mg/metered dose. <input type="checkbox"/> No more than 3 metered doses should be administered in a 15 minute period. A 4th, and subsequent doses, may be administered PER STANDING ORDERS if chest pain persists and as long as systolic BP remains at 100 or greater. <p>2. Sublingual</p> <input type="checkbox"/> 1 tablet 0.3 - 0.4 mg sublingual <input type="checkbox"/> No more than 3 tablets should be administered within a 15 minute period. A 4th, and subsequent tablets, may be administered PER STANDING ORDERS if chest pain persists and as long as systolic BP remains at 100 or greater. <p>3. Ointment Paste</p> <input type="checkbox"/> Apply in ½" to 1" thin layer to patient's skin by means of the dose measured applicator supplied with the tube <input type="checkbox"/> DO NOT RUB THE PASTE INTO THE SKIN <p>4. Trans-dermal</p> Apply 0.2-0.4 mg/h patch to clean, dry area of upper arm or chest.
PEDIATRIC:	NOT APPROVED
THERAPEUTIC EFFECTS:	Dilates coronary and systemic arteries
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Increased Intracranial Pressure (ICP) - Hypotension/Shock - Glaucoma - Use of VIAGRA/CIALIS/LEVITRA within previous 24 Hours
SIDE EFFECTS:	<ul style="list-style-type: none"> - Headache - Dizziness - Hypotension
SPECIAL NOTES / RESTRICTIONS:	Monitor BP closely before & after administration <input type="checkbox"/> Should not be administered if erectile dysfunction drugs have been used in the previous 24 hours.

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NITROUS OXIDE (50%) & OXYGEN (50%)
Nitronox

INDICATIONS:	<input type="checkbox"/> Moderate to severe pain <input type="checkbox"/> Severe anxiety states
ADMINISTRATION:	<input type="checkbox"/> Inhalation
DOSAGE:	
ADULT:	Self-administered by mask
PEDIATRIC:	Self-administered by mask. Must be old enough to self-administer.
THERAPEUTIC EFFECTS:	Decreases sensitivity to pain
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Head injury - Chest injury - Abdominal pain - COPD - ETOH or drug intoxication
SIDE EFFECTS:	<ul style="list-style-type: none"> - Drowsiness - Dizziness - Nausea/Vomiting
SPECIAL NOTES / RESTRICTIONS:	Effects diminish within 2 to 5 minutes after removal of source.

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OXYTOCIN

Pitocin

INDICATIONS:	<input type="checkbox"/> Postpartum hemorrhage
ADMINISTRATION:	<input type="checkbox"/> IV infusion, IO
DOSAGE:	
ADULT:	- 10 to 20 units in 500 or 1000 ml of NS/RL; slow administration titrated according to severity of bleeding & uterine response, in postpartum females only
PEDIATRIC:	NOT APPROVED (UNLESS PATIENT IS POST PARTUM)
THERAPEUTIC EFFECTS:	- Stimulates uterine smooth muscle to contract - Uterine vasoconstriction
RELATIVE CONTRAINDICATIONS:	- Presence of a second fetus - Previous cesarean section
SIDE EFFECTS:	- Uterine rupture - Anaphylaxis - Dysrhythmias - Nausea/Vomiting - Hypertension
SPECIAL NOTES / RESTRICTIONS:	- For use ONLY in FEMALE patients. - Given only after baby & placenta are delivered - Overdose can cause uterine rupture - Vital signs & uterine tone should be monitored constantly - Do not give to patients taking vasopressors

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PRALIDOXIME
 2-Pam, Protopam Chloride
 (Special Purpose: Toxicology)



INDICATIONS:	<input type="checkbox"/> Cholinergic crisis due to acetylcholinesterase inhibition caused by organophosphate toxicity (e.g. dichlorvos, dioxanthion, echothiophate iodide, endothion, fenthion, formothion, isofluorophate, malathion, methyl parathion, parathion, TEPP, diazinon). Poisoning by nerve agents having anticholinesterase activity.
ADMINISTRATION:	<input type="checkbox"/> IV, IM (if IV access not feasible)
DOSAGE:	
ADULT:	1 - 2 Gram, over 10-15 minutes in 100 cc NS. If not practicable or in the event of pulmonary edema, administer slowly as 5% solution in water over not less than 5 minutes.
PEDIATRIC:	20-40 mg/kg/dose over 10-15 minutes
THERAPEUTIC EFFECTS:	Reactivation of phosphorylated acetylcholinesterase. Reversal of nicotinic effects of acetylcholinesterase inhibition, particularly on skeletal muscle. Reversal of muscarinic effects of cholinesterase inhibition, usually additive with atropine.
RELATIVE CONTRAINDICATIONS:	Cholinergic crisis due to acetylcholinesterase inhibition by carbamate insecticides or other short acting cholinesterase inhibitors (physostigmine, neostigmine, etc.).
SIDE EFFECTS:	Occasional Sinus Tachycardia, laryngospasm, and muscle rigidity seen with too rapid injection. Occasional dizziness, headache, blurred vision, nausea, or diplopia (all of which may be related to the underlying poison as well).
SPECIAL NOTES / RESTRICTIONS:	<p align="center">Special Purpose Drug for TOXICOLOGY</p> <p align="center">May be administered per standing order.</p>

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PROCAINAMIDE

Procan, Pronestyl

INDICATIONS:	<ul style="list-style-type: none"><input type="checkbox"/> PVCs refractory to lidocaine<input type="checkbox"/> Ventricular tachycardia refractory to lidocaine<input type="checkbox"/> Pediatric: symptomatic tachyarrhythmias not responsive to primary therapy
ADMINISTRATION:	<ul style="list-style-type: none"><input type="checkbox"/> IV, IV infusion, IO
DOSAGE:	
ADULT:	<ul style="list-style-type: none">- 20 mg/min slow IV push administration- Up to a total of 17 mg/kg- 1-4 mg/min IV infusion
PEDIATRIC:	<p style="text-align: center;">**DIRECT MEDICAL ORDER REQUIRED**</p> <ul style="list-style-type: none">- 15 mg / kg over 30 – 60 minutes
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none">- Elevates ventricular fibrillation threshold- Suppresses ventricular ectopic activity
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none">- High degree heart blocks (Mobitz II Second Degree; Third Degree)- PVCs in conjunction with profound bradycardia
SIDE EFFECTS:	<ul style="list-style-type: none">- Hypotension- Widening of QRS
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"><input type="checkbox"/> Constant monitoring of BP essential<input type="checkbox"/> Should be withheld until 3 mg/kg of lidocaine has been given & has demonstrated no clinical response<input type="checkbox"/> Should be given until:<ul style="list-style-type: none">a. Dysrhythmia is suppressedb. Hypotension developsc. QRS widens by 50%d. Total of 17 mg/kg given<input type="checkbox"/> In urgent situations (such as refractory VF) may administer up to 30 mg/min.<input type="checkbox"/> DIRECT MEDICAL ORDER REQUIRED



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PROCHLORPERAZINE COMPAZINE

INDICATIONS:	<input type="checkbox"/> May be administered by paramedics for emesis.
ADMINISTRATION:	<input type="checkbox"/> IV, IM, IO
DOSAGE:	
ADULT:	10mg IV, IM, or IO
PEDIATRIC:	2.5 to 5mg IV, IM, or IO
THERAPEUTIC EFFECTS:	Anti - emetic
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Comatose or greatly depressed states - Those with CNS depressants already received or administered (ETOH, etc.) - Known hypersensitivity - Severe hypotension
SIDE EFFECTS:	<ul style="list-style-type: none"> - Dizziness/blurred vision - Hypotension - Constipation - Photosensitivity
SPECIAL NOTES / RESTRICTIONS:	Not approved for administration in children under 2 years of age or under 20 pounds

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PROPARACAINE
Ocu-Caine (Alcaine)

INDICATIONS:	To ease discomfort associated with the following: <ul style="list-style-type: none"> <input type="checkbox"/> Ocular foreign bodies <input type="checkbox"/> Corneal abrasions <input type="checkbox"/> Ocular burns <input type="checkbox"/> Prolonged eye irrigation
ADMINISTRATION:	<input type="checkbox"/> Eye Drops Only
DOSAGE:	
ADULT:	1 to 2 drops in the affected eye Q 5-10 minutes
PEDIATRIC:	1 to 2 drops in the affected eye Q 5-10 minutes
THERAPEUTIC EFFECTS:	Topical ophthalmic analgesia
RELATIVE CONTRAINDICATIONS:	Known hypersensitivity
SIDE EFFECTS:	<ul style="list-style-type: none"> - Occasional stinging - Burning - Conjunctival redness - Severe hyperallergenic corneal reaction
SPECIAL NOTES / RESTRICTIONS:	<p>△ Can NOT be stored at room temperature</p> <p>➤ Must be Refrigerated at 2 - 8° C.</p> <ul style="list-style-type: none"> - Throw away after one use - Very few side effects

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PROPRANOLOL

Inderal

INDICATIONS:	<input type="checkbox"/> Hemodynamically significant tachydysrhythmias or ventricular irritability unresponsive to, or when standard antidysrhythmics may be contraindicated. (e.g. Myocardial and neural hypersensitivity due to chlorinated hydrocarbon toxicity.)
ADMINISTRATION:	<input type="checkbox"/> IV SLOWLY (over not less than 1 minute)
DOSAGE:	DIRECT MEDICAL ORDER REQUIRED
ADULT:	0.5 - 1.0mg may be repeated up to a total of 3mg upon further order if desired effect does not occur within 5 minutes of administration.
PEDIATRIC:	Not indicated
THERAPEUTIC EFFECTS:	Competitive inhibition of beta ₁ and beta ₂ adrenergic receptor sites.
RELATIVE CONTRAINDICATIONS:	<input type="checkbox"/> Bradydysrhythmias and/or conduction disturbances. <input type="checkbox"/> Asthma or underlying chronic pulmonary disease (relative)
SIDE EFFECTS:	1. Bradydysrhythmias or conduction disturbances 2. Bronchoconstriction 3. Hypotension
SPECIAL NOTES / RESTRICTIONS:	Reduced effect of catecholamines Increased effect of standard antidysrhythmics **DIRECT MEDICAL ORDER REQUIRED**

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VITAMIN B6
Pyridoxine HCl

INDICATIONS:	<input type="checkbox"/> Hydrazine poisoning.
ADMINISTRATION:	<input type="checkbox"/> IV Only
DOSAGE:	
ADULT:	◇ 25 mg/kg over five (5) minutes
PEDIATRIC:	◇ 25 mg/kg over five (5) minutes
THERAPEUTIC EFFECTS:	Provides a required synthetic cofactor that enables the brain to regenerate GABA and stop seizures
RELATIVE CONTRAINDICATIONS:	None
SIDE EFFECTS:	None acutely; peripheral neuropathy with chronic, excessive dosing; Pyridoxine withdrawal seizures in neonates of mothers who took chronic, excessive doses of pyridoxine during pregnancy
SPECIAL NOTES / RESTRICTIONS:	

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RACEMIC EPINEPHRINE
MicroNEFRIN, Vaponephrine

INDICATIONS:	<input type="checkbox"/> Croup (Laryngotracheobronchitis)
ADMINISTRATION:	<input type="checkbox"/> Inhalation only
DOSAGE:	
ADULT:	Not indicated for adult patients.
PEDIATRIC:	0.5 ml (diluted to 3.0 ml with NS). Only used initially and not repeated
THERAPEUTIC EFFECTS:	Bronchodilation from B2 receptor stimulation
RELATIVE CONTRAINDICATIONS:	Should not be used in the management of epiglottitis.
SIDE EFFECTS:	Can result in tachycardia and possible arrhythmias.
SPECIAL NOTES / RESTRICTIONS:	Usually supplied in vials of 7.5 cc. Note that medication is diluted up to 3.0 cc with Normal Saline. Physician in receiving ED should be notified that treatment has been administered.

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SODIUM BICARBONATE (NaHCO₃)

INDICATIONS:	<ul style="list-style-type: none"> <input type="checkbox"/> Severe metabolic acidosis <input type="checkbox"/> Cardiac arrest (after ventilation problems are corrected) <input type="checkbox"/> Certain medication overdoses <input type="checkbox"/> Hyperkalemia
ADMINISTRATION:	<ul style="list-style-type: none"> <input type="checkbox"/> IV, IV infusion, IO
DOSAGE:	
ADULT:	<ul style="list-style-type: none"> - 1 mEq/kg - Repeat 0.5 mEq/kg Q 10 minutes
PEDIATRIC:	<ul style="list-style-type: none"> - 1 mEq/kg ▽ Age < 2 years: Must be diluted 1:1 with D5W or NS prior to administration
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Provides bicarbonate ion to buffer strong acids - Increases PH
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - CHF - Hypokalemia
SIDE EFFECTS:	<ul style="list-style-type: none"> - Metabolic alkalosis - Increased vascular volume - Pulmonary edema - Dysrhythmias through serum potassium depletion - Transiently raises the arterial PCO₂

SPECIAL NOTES / RESTRICTIONS:	<p>May add up to 50 mEq to 500-1000 ml of D5W, Saline (Normal or ½ Normal) or Ringer's Lactate, infuse at rate determined by medical control</p> <p>ONLY WITH DIRECT MEDICAL ORDER</p> <p>▽ Age < 2 years: Must be diluted 1:1 with D5W or NS prior to administration</p> <ul style="list-style-type: none">- Administration & dosage best determined by ABG's in cardiac arrest situations- Administration must be accompanied by controlled hyperventilation to blow-off excess CO2 produced by NaHCO3 administration
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SODIUM CHLORIDE 0.9%

Normal Saline

INDICATIONS:	<input type="checkbox"/> Heat exhaustion and related heat problems <input type="checkbox"/> Diabetic disorders <input type="checkbox"/> Freshwater Drowning <input type="checkbox"/> Head injury (depending upon Medical Control Physician) <input type="checkbox"/> Hypovolemia
ADMINISTRATION:	<input type="checkbox"/> IV infusion, IO
DOSAGE:	
ADULT:	Dependent upon patient condition and situation being treated
PEDIATRIC:	Dependent upon patient size and condition
THERAPEUTIC EFFECTS:	Provides fluid and sodium replacement
RELATIVE CONTRAINDICATIONS:	Congestive Heart Failure
SIDE EFFECTS:	<input type="checkbox"/> Volume Overload <input type="checkbox"/> Congestive Heart Failure <input type="checkbox"/> Diuresis <input type="checkbox"/> Thirst
SPECIAL NOTES / RESTRICTIONS:	<p><i>Normal saline or lactated ringers is the preferred infusion solution during cardiac arrest, although D5W remains acceptable</i></p> <p>— Any combination of Dextrose and Sodium Chloride is approved. Some other combinations include:</p> <ul style="list-style-type: none"> - 5% Dextrose in 0.9% Sodium Chloride (D5NS) - 5% Dextrose in 0.2% Sodium Chloride (D5 0.2NS) - 3.3% Dextrose in 0.3% Sodium Chloride



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SODIUM NITRITE
(Special Purpose for Toxicology)



INDICATIONS:	<input type="checkbox"/> Acute cyanide poisoning <input type="checkbox"/> Acute sulfide poisoning
ADMINISTRATION:	<input type="checkbox"/> IV
DOSAGE:	
ADULT:	300mg (10 ml) over 3-5 minutes
PEDIATRIC:	4- 6 mg/kg to a maximum of 300mg (10ml) over 3-5 minutes
THERAPEUTIC EFFECTS:	Produces methemoglobin (oxidizes ferrous [Fe ⁺²] iron in normal hemoglobin to ferric [Fe ⁺³] iron or methemoglobin.
RELATIVE CONTRAINDICATIONS:	
SIDE EFFECTS:	<ol style="list-style-type: none"> 1. Excessive methemoglobinemia, as characterized by progressive and persistent cyanosis unresponsive to oxygen therapy and the appearance of chocolate brown color of the blood. 2. Use of oxidizing agents may produce an acute hemolytic reaction in patients with glucose-6-phosphodehydrogenase (G6PD) deficiency.
SPECIAL NOTES / RESTRICTIONS:	Methylene blue, a reducing agent, may be used to reverse excessive methemoglobinemia. Special Purpose Drug for TOXICOLOGY May be administered per standing order

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SODIUM THIOSULFATE
(Special Purpose for Toxicology)



INDICATIONS:	<input type="checkbox"/> Acute cyanide poisoning following administration of nitrates.
ADMINISTRATION:	<input type="checkbox"/> IV, IO
DOSAGE:	
ADULT:	12.5 grams (50 ml) over 1-2 minutes
PEDIATRIC:	250 mg/kg (1 ml/kg) to a maximum of 12.5 G over 3-5 minutes
THERAPEUTIC EFFECTS:	Removes cyanide ion from ferrocyanate complex formed with methemoglobin, producing thiocyanate; excreted by the kidneys.
RELATIVE CONTRAINDICATIONS:	
SIDE EFFECTS:	No significant side effects in setting of cyanide poisoning following administration of nitrates.
SPECIAL NOTES / RESTRICTIONS:	May rarely be ordered without previous administration of nitrate if history is unclear. Special Purpose Drug for TOXICOLOGY May be administered per standing order

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SOLUMEDROL
Methylprednisolone

INDICATIONS:	<input type="checkbox"/> Anaphylaxis <input type="checkbox"/> Bronchodilator for Asthma refractory to Albuterol.
ADMINISTRATION:	<input type="checkbox"/> IV, IO
DOSAGE:	
ADULT:	40 – 125 MG IV
PEDIATRIC:	1 – 2 mg/kg IV
THERAPEUTIC EFFECTS:	Potentiates vascular smooth muscle relaxation by beta adrenergic agonists..
RELATIVE CONTRAINDICATIONS:	Use with caution in patients with: <ul style="list-style-type: none"> • GI Bleeding • Diabetes Mellitus • Severe Infection
SIDE EFFECTS:	Headache, Hypertension, Sodium and water retention, Hypokalemia, Alkalosis
SPECIAL NOTES / RESTRICTIONS:	Hypoglycemic responses to insulin and oral Hypoglycemic agents may be blunted; Potassium depleting agents may potentiate Hypokalemia induced by corticosteroids.

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SUCCINYLCHOLINE
Anectine



INDICATIONS:	<ul style="list-style-type: none"> ❑ Skeletal muscle relaxation during operative and manipulative procedures ❑ Facilitate management of patients undergoing mechanical ventilation ❑ Adjunct to general anesthesia
ADMINISTRATION:	<ul style="list-style-type: none"> ❑ IV, IO
DOSAGE:	
ADULT:	-1.5mg/kg over 30 seconds; not to exceed 150mg total dose
PEDIATRIC:	- NOT INDICATED.
THERAPEUTIC EFFECTS:	-Prevents neuromuscular transmission by blocking the effect of acetylcholine at the myoneural junction
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> -Hypersensitivity to succinylcholine -History of malignant hyperthermia -Skeletal muscle myopathies -Penetrating eye injury
SIDE EFFECTS:	<ul style="list-style-type: none"> -Apnea -Cardiac arrhythmias -Increased intraocular pressure -Muscle fasciculations

**SPECIAL NOTES /
RESTRICTIONS:**

-Succinylcholine has no effect on consciousness, pain threshold, or cerebation. Must be used only with adequate sedation.

- In elderly time of onset may be delayed due to slower circulation time in cardiovascular disease.

-Use with extreme caution in patients with severe burns, electrolyte imbalance, hyperkalemia, and those receiving quinidine or digitalis.

-The potential for releasing histamine is present following succinylcholine use. Serious histamine-mediated flushing, hypotension, and bronchoconstriction are, however, uncommon in clinical usage.

-Incidence of side effects increase with second or subsequent doses.

- **STORAGE:** Refrigerate at 35 ° - 46 ° F. Multi-dose vials are stable for up to 14 days at room temperature.

RSI MAY BE initiated by Standing Order or Protocol. It is RECOMMENDED – where feasible – that On-Line Medical Control be obtained prior to initiation– but this should not supercede the appropriate care of the patient.

➔ 100% QI / PI is required for ALL RSI runs.

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TERBUTALINE SULFATE

Brethine

INDICATIONS:	<input type="checkbox"/> Moderate to severe bronchial asthma <input type="checkbox"/> Reversible bronchospasm in COPD
ADMINISTRATION:	<input type="checkbox"/> SQ only
DOSAGE:	
ADULT:	0.25 mg (0.25 ml)
PEDIATRIC:	0.01 mg/kg ▽ Maximum Dose = 0.25 mg
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none">- Bronchodilator through selective beta 2 stimulation- Relatively little effect on heart rate- Relaxes bronchial smooth muscle
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none">- Angina- Dysrhythmias- Hypertension- Hypersensitivity to the drug
SIDE EFFECTS:	<ul style="list-style-type: none">- Palpitations- Tremor- Drowsiness- Headache- Sweating- Nausea- Muscle cramping
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none">- May repeat dosage in 15-30 minutes- Do not give with other sympathomimetic drugs

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TETRACAINE OPHTHALMIC DROPS

Pontocaine

INDICATIONS:	<input type="checkbox"/> Scleral/corneal abrasions <input type="checkbox"/> Blunt/non-penetrating eye trauma <input type="checkbox"/> Burns to the eye <input type="checkbox"/> Aid in irrigation of the eye
ADMINISTRATION:	<input type="checkbox"/> 1 to 2 drops to affected eye
DOSAGE:	
ADULT:	<input type="checkbox"/> 1 to 2 drops in affected eye every 5-10 minutes as needed for pain control.
PEDIATRIC:	Same dosage as adult
THERAPEUTIC EFFECTS:	Relief of pain
CONTRAINDICATIONS:	<input type="checkbox"/> Known hypersensitivity to the drug <input type="checkbox"/> Penetrating eye trauma <input type="checkbox"/> Use with caution with patients that are pregnant or nursing.
RELATIVE CONTRAINDICATIONS:	<input type="checkbox"/> None
SIDE EFFECTS:	<input type="checkbox"/> Occasional stinging sensation or conjunctival redness <input type="checkbox"/> Burning sensation <input type="checkbox"/> Sensitivity to light <input type="checkbox"/> Rare pupillary dilation and/or blurred vision
SPECIAL NOTES / RESTRICTIONS:	Does not require refrigeration

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THIAMINE

Biamine

INDICATIONS:	<input type="checkbox"/> Coma and seizures of unknown origin, especially if alcohol use is suspected <input type="checkbox"/> Delirium Tremens
ADMINISTRATION:	<input type="checkbox"/> IV, IM, IO
DOSAGE:	
ADULT:	100 milligrams
PEDIATRIC:	10-25 mg (rarely used)
THERAPEUTIC EFFECTS:	Provides the appropriate thiamine levels to allow glucose to be utilized in sufficient amounts, thus reversing cellular hypoglycemia secondary to thiamine deficiency
RELATIVE CONTRAINDICATIONS:	Known hypersensitivity to Thiamine
SIDE EFFECTS:	Be alert for sensitivity (allergic) reactions in patients
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> - A few cases of hypersensitivity have been reported but these cases are rare. - Deaths, while rare, have resulted from IV administration. However the possibility of Wernicke's Syndrome following glucose administration presents substantially greater risk than the possibility of significant hypersensitive reaction.

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VASOPRESSIN

Pitressin

INDICATIONS:	<input type="checkbox"/> VF / pulseless VT, asystole
ADMINISTRATION:	<input type="checkbox"/> IV, IO
DOSAGE:	
ADULT:	40 U IV, single dose, 1 time only
PEDIATRIC:	Not recommended in pediatrics
THERAPEUTIC EFFECTS:	Vasopressin produces the same positive effects as epinephrine in terms of vasoconstriction and increasing the blood flow to the brain and heart during CPR. Moreover, vasopressin does not have the negative, adverse effects of epinephrine on the heart, such as increased ischemia and irritability and, paradoxically, the propensity for VF.
RELATIVE CONTRAINDICATIONS:	None when administered for indications
SIDE EFFECTS:	None when administered for indications
SPECIAL NOTES / RESTRICTIONS:	

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VECURONIUM BROMIDE
Norcuron



INDICATIONS:	<ul style="list-style-type: none"> ❑ Facilitates endotracheal intubation by paralysis of skeletal muscle ❑ To increase pulmonary compliance during mechanical ventilation
ADMINISTRATION:	<ul style="list-style-type: none"> ❑ IV, IO
DOSAGE:	
ADULT:	0.1mg/kg over 30-60 seconds Onset of 2-3 min., duration of 25-30 min.
PEDIATRIC:	NOT INDICATED
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> -Prevents neuromuscular transmission by blocking the effect of acetylcholine at the myoneural junction -Skeletal muscle paralysis
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Hypersensitivity to vecuronium
SIDE EFFECTS:	<ul style="list-style-type: none"> - No side effects have occurred except with overdoses
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> - Paralysis may be prolonged by succinylcholine, quinidine, and beta blockers <p><u>RSI MAY BE initiated by Standing Order or Protocol. It is RECOMMENDED – where feasible – that On-Line Medical Control be obtained prior to initiation – but this should not supercede the appropriate care of the patient.</u></p> <p>➡ 100% QI / PI is required for ALL RSI runs.</p>

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XOPENEX
Levalbuterol HCl

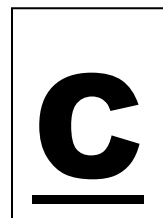
INDICATIONS:	Adults and adolescents 12 years of age and older with reversible obstructive airway disease.
ADMINISTRATION:	Nebulized Inhalation
DOSAGE:	
ADULT:	.63 or 1.25 mg
PEDIATRIC:	For ages 12 and over, same as adult dosage; not indicated for ages less than 12 years.
THERAPEUTIC EFFECTS:	Bronchodilation
CONTRAINDICATIONS:	History of sensitivity to levalbuterol or Racemic albuterol
SIDE EFFECTS:	Tachycardia, Leg Cramps, Nervousness, Tremor
SPECIAL NOTES / RESTRICTIONS:	

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❖ **ZIPRASIDONE** ❖
Geodon



INDICATIONS:	<ul style="list-style-type: none"> ❑ Agitation/combativeness ❑ Schizophrenia
ADMINISTRATION:	<ul style="list-style-type: none"> ❑ IM
DOSAGE:	
ADULT:	<ul style="list-style-type: none"> - 10 mg administered intramuscular <li style="text-align: center;">**DIRECT MEDICAL ORDER REQUIRED **
PEDIATRIC:	**NOT APPROVED**
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Chemical restraint for psychotic and/or combative patients
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Known hypersensitivity - Recent acute MI - Uncompensated heart failure - Use with caution in: <ul style="list-style-type: none"> -Elderly patients -Dementia patients -Renal impairment patients -Seizure disorder -Diabetes mellitus -Hypotension -Cardio/cerebrovascular disease
SIDE EFFECTS:	<ul style="list-style-type: none"> - Headache - Dizziness - Nausea - Urticaria - Dry mouth - Extrapyramidal effects

**SPECIAL NOTES /
RESTRICTIONS:**

ONLY WITH DIRECT MEDICAL ORDER

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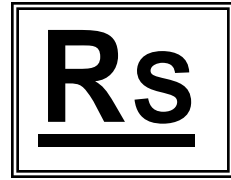
ZOFRAN
Ondansetron

INDICATIONS:	<input type="checkbox"/> Nausea / Vomiting
ADMINISTRATION:	<input type="checkbox"/> IV,IM, IO
DOSAGE:	
ADULT:	<input type="checkbox"/> 4 mg slow IV administration over 2 minutes <input type="checkbox"/> 4-8 mg IM
PEDIATRIC:	<input type="checkbox"/> 0.15 mg/kg to a max dose of 4 mg slow IV administration over 2 minutes. <input type="checkbox"/> 4-8 mg IM
THERAPEUTIC EFFECTS:	Prevents nausea and vomiting
CONTRAINDICATIONS:	<input type="checkbox"/> Hypersensitivity to the drug
RELATIVE CONTRAINDICATIONS:	<input type="checkbox"/> None
SIDE EFFECTS:	Extra-pyramidal reaction (rare)
SPECIAL NOTES / RESTRICTIONS:	To administer Zofran over two (2) minutes, draw up 8ml of NS and 2ml/4mg of Zofran. This equals 10cc of fluid. Give 2.5 cc every thirty (30) seconds.

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RAPID SEQUENCE INDUCTION



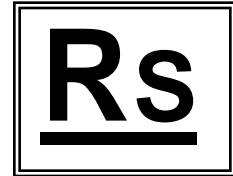
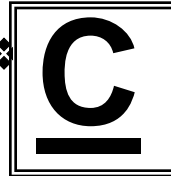
ETOMIDATE
Amidate

INDICATIONS:	<input type="checkbox"/> For use in RSI protocol – for anesthesia induction.
ADMINISTRATION:	<input type="checkbox"/> IV, IO
DOSAGE:	
ADULT:	◇ .3mg/kg
PEDIATRIC:	◇ .3mg/kg
THERAPEUTIC EFFECTS:	Hypnotic drug (no analgesic activity)
RELATIVE CONTRAINDICATIONS:	Known sensitivity to drug
SIDE EFFECTS:	Transient venous pain, skeletal muscle movement
SPECIAL NOTES / RESTRICTIONS:	

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❖ **MIDAZOLAM** ❖
 Versed
 CIV



INDICATIONS:	<input type="checkbox"/> Major Motor Seizures <input type="checkbox"/> Status epilepticus <input type="checkbox"/> Pre-Medication prior to cardioversion or Transcutaneous Pacing <input type="checkbox"/> Skeletal muscle relaxant <input type="checkbox"/> Acute Anxiety States <input type="checkbox"/> Medication for combative patients and difficult intubations
ADMINISTRATION:	<input type="checkbox"/> Slow IV, IM, IO
DOSAGE:	
ADULT:	<ul style="list-style-type: none"> - NON-RSI Indications: - 0.5 mg – 2.5 initial dose. - RSI Indications: - .02 - .05 mg/kg not to exceed 5 mg - For administration of initial dose of Versed consider decreased dose if systolic BP is 80 – 100 mm hg - After successful intubation / airway control, additional IV Versed may be administered based on patient effect up to a total of 10 mg IV. - Repeat doses may be administered with Direct Medical Order.
PEDIATRIC:	<ul style="list-style-type: none"> - Not Indicated
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Short-acting benzodiazepine CNS depressant - Short-term sedation - Postoperative amnesia
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Hypersensitivity to versed - Glaucoma - Shock - ETOH - Coma - Pregnancy - Renal Failure

SIDE EFFECTS:	<ul style="list-style-type: none"> - Apnea - Cardiac arrhythmias - Hypotension
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> - Impairs memory in 90% of patients. - Flumazenil will reverse sedative effects. <p><u>RSI MAY BE initiated by Standing Order or Protocol. It is RECOMMENDED – where feasible – that On-Line Medical Control be obtained prior to initiation – but this should not supercede the appropriate care of the patient</u></p> <p>➡ 100% QI / PI is required for ALL RSI runs.</p>



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SUCCINYLCHOLINE
Anectine



INDICATIONS:	<ul style="list-style-type: none"> ❑ Skeletal muscle relaxation during operative and manipulative procedures ❑ Facilitate management of patients undergoing mechanical ventilation ❑ Adjunct to general anesthesia
ADMINISTRATION:	<ul style="list-style-type: none"> ❑ IV, IO
DOSAGE:	
ADULT:	-1.5mg/kg over 30 seconds; not to exceed 150mg total dose
PEDIATRIC:	- NOT INDICATED.
THERAPEUTIC EFFECTS:	-Prevents neuromuscular transmission by blocking the effect of acetylcholine at the myoneural junction
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> -Hypersensitivity to succinylcholine -History of malignant hyperthermia -Skeletal muscle myopathies -Penetrating eye injury
SIDE EFFECTS:	<ul style="list-style-type: none"> -Apnea -Cardiac arrhythmias -Increased intraocular pressure -Muscle fasciculations -Bradycardia in children

**SPECIAL NOTES /
RESTRICTIONS:**

-Succinylcholine has no effect on consciousness, pain threshold, or cerebration. Must be used only with adequate sedation.

- In elderly time of onset may be delayed due to slower circulation time in cardiovascular disease.

-Use with extreme caution in patients with severe burns, electrolyte imbalance, hyperkalemia, and those receiving quinidine or digitalis.

-The potential for releasing histamine is present following succinylcholine use. Serious histamine-mediated flushing, hypotension, and bronchoconstriction are, however, uncommon in clinical usage.

-Incidence of side effects increase with second or subsequent doses.

- **STORAGE:** Refrigerate at 35 ° - 46 ° F. Multi-dose vials are stable for up to 14 days at room temperature.

RSI MAY BE initiated by Standing Order or Protocol. It is RECOMMENDED – where feasible – that On-Line Medical Control be obtained prior to initiation– but this should not supercede the appropriate care of the patient.

➔ 100% QI / PI is required for ALL RSI runs.

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VECURONIUM BROMIDE
Norcuron



INDICATIONS:	<ul style="list-style-type: none"> ❑ Facilitates endotracheal intubation by paralysis of skeletal muscle ❑ To increase pulmonary compliance during mechanical ventilation
ADMINISTRATION:	<ul style="list-style-type: none"> ❑ IV, IO
DOSAGE:	
ADULT:	0.1mg/kg over 30-60 seconds Onset of 2-3 min., duration of 25-30 min.
PEDIATRIC:	NOT INDICATED
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> -Prevents neuromuscular transmission by blocking the effect of acetylcholine at the myoneural junction -Skeletal muscle paralysis
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Hypersensitivity to vecuronium
SIDE EFFECTS:	<ul style="list-style-type: none"> - No side effects have occurred except with overdoses
SPECIAL NOTES / RESTRICTIONS:	<ul style="list-style-type: none"> - Paralysis may be prolonged by succinylcholine, quinidine, and beta blockers <p><u>RSI MAY BE initiated by Standing Order or Protocol. It is RECOMMENDED – where feasible – that On-Line Medical Control be obtained prior to initiation – but this should not supercede the appropriate care of the patient.</u></p> <p>➡ 100% QI / PI is required for ALL RSI runs.</p>

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TOXICOLOGIC EMERGENCIES FORMULARY

ACTIVATED CHARCOAL USP
Actidose, CharcoAid



INDICATIONS:	<input type="checkbox"/> Poisoning <input type="checkbox"/> Overdose <input type="checkbox"/> Particularly effective in binding: <input type="checkbox"/> Aspirin <input type="checkbox"/> Amphetamines <input type="checkbox"/> Dilantin <input type="checkbox"/> Strychnine <input type="checkbox"/> Phenobarbital
ADMINISTRATION:	PO, NG tube
DOSAGE:	
ADULT:	1 gm/kg mixed with water
PEDIATRIC:	∇ 1 gm/kg mixed with water ONLY WITH DIRECT MEDICAL ORDER
THERAPEUTIC EFFECTS:	- It binds & absorbs ingested toxins still present in the gastro-intestinal tract following emesis. - Once bound, the combined complex is excreted
RELATIVE CONTRAINDICATIONS:	- Should not be given before or together with ipecac, as it will absorb the ipecac & render it ineffective. - Should not be given in cyanide poisoning. - Of no value in poisoning due to: - Methanol - Caustic alkalis/acids - Iron tablets - Lithium
SIDE EFFECTS:	None, unless the airway cannot be adequately controlled.
SPECIAL NOTES / RESTRICTIONS:	Should only be given PO or NG in a slurry solution mixed with water / premixed.

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AMYL NITRITE
(Special Purpose: Toxicology)



INDICATIONS:	<input type="checkbox"/> Cyanide Poisoning
ADMINISTRATION:	<input type="checkbox"/> Inhalation only
DOSAGE:	
ADULT:	One or two inhalants of amyl nitrite should be crushed and inhaled for 15 to 30 seconds.
PEDIATRIC:	One inhalant should be crushed and inhaled for 15 to 30 seconds. (Smallest effective dosage should be used.)
THERAPEUTIC EFFECTS:	It is effective in the emergency management of cyanide poisoning. Amyl nitrite causes the oxidation of hemoglobin to a compound called methemoglobin. Methemoglobin reacts with the toxic cyanide ion to form cyanomethemoglobin, which can be enzymatically degraded.
RELATIVE CONTRAINDICATIONS:	No contraindications for amyl nitrite in the management of cyanide poisoning.
SIDE EFFECTS:	Headache and hypotension have been known to occur following inhalation.
SPECIAL NOTES / RESTRICTIONS:	Special Purpose Drug for TOXICOLOGY

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**ATROPINE AND PRALIDOXIME
CHLORIDE INJECTION
DUODOTE AUTO INJECTOR**



INDICATIONS:	<input type="checkbox"/> Poisoning by nerve agents having anticholinesterase activity.
ADMINISTRATION:	<input type="checkbox"/> IM
DOSAGE:	
ADULT:	2.1 mg atropine, 600 mg pralidoxime chloride via auto injector. May be repeated to a total of 3 doses.
PEDIATRIC:	NOT INDICATED
THERAPEUTIC EFFECTS:	Competitively blocks the effects of acetylcholine, including excess acetylcholine due to organophosphorous poisoning at muscarinic cholinergic receptors and in peripheral autonomic ganglia and the central nervous system. Reactivation of phosphorylated acetylcholinesterase. Reversal of nicotinic effects of acetylcholinesterase inhibition, particularly on skeletal muscle. Reversal of muscarinic effects of cholinesterase inhibition, usually additive with atropine.
CONTRAINDICATIONS:	In the presence of life-threatening poisoning by organophosphorous nerve agents or insecticides, there are no absolute contraindications. When symptoms of poisoning are not severe, DuoDote Auto-Injector should be used with extreme caution in people with heart disease, arrhythmias, recent myocardial infarction, severe narrow angle glaucoma, pyloric stenosis, prostatic hypertrophy, significant renal insufficiency, chronic pulmonary disease, or hypersensitivity to any component of the product.
SIDE EFFECTS:	Blurred vision, dry mouth, flushing of skin, pupillary dilatation, urine retention, dizziness, headache, drowsiness, nausea, tachycardia, hypertension, hyperventilation, and muscular weakness.
SPECIAL NOTES / RESTRICTIONS:	MAY ADMINISTER PER STANDING ORDER

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CALCIUM GLUCONATE (Tox)
(Special Purpose: Toxicology)



INDICATIONS:	<input type="checkbox"/> Hydrofluoric acid burns and exposure
ADMINISTRATION:	<input type="checkbox"/> Topical application, IV, or by nebulizer; rarely by direct injection
DOSAGE:	
ADULT:	<input type="checkbox"/> 10ml mixed with one ounce of water soluble lubricant for topical application, IV as ordered, or 2.5% solution nebulized with oxygen for inhalation exposure; 0.3-0.5 ml of 5% solution/cm ² burn area injected directly for deep or subungual burns.
PEDIATRIC:	Same as adult
THERAPEUTIC EFFECTS:	Binds with fluoride ion, prevents or reverses hypocalcemia.
RELATIVE CONTRAINDICATIONS:	Not to be injected for GENERAL SKIN BURNS from THERMAL SOURCE.
SIDE EFFECTS:	Hypercalcemia, local tissue damage, pressure necrosis if injected under nail beds.
SPECIAL NOTES / RESTRICTIONS:	⊗ Special Purpose Utilization: TOXICOLOGY Infiltration of wound with local anesthetic should not be used, regional blocks may be necessary to provide adequate treatment of large or deeply penetrated burns. Ocular exposure should be treated with 1% aqueous irrigation following proparacaine anesthetic.

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HYDROXOCOBALAMIN INJECTION

CYANOKIT



INDICATIONS:	<input type="checkbox"/> Known or suspected cyanide poisoning.
ADMINISTRATION:	<input type="checkbox"/> IV, IO
DOSAGE:	
ADULT:	5 g in 200 ml of 0.9% NaCL over 15 min. 5 g may be repeated for total dose of 10 g.
PEDIATRIC:	NOT INDICATED
THERAPEUTIC EFFECTS:	Binds cyanide ions for excretion.
RELATIVE CONTRAINDICATIONS:	NONE
SIDE EFFECTS:	Hypertension, chromaturia, anaphylaxis, chest tightness, edema, urticaria, pruritus, dyspnea, and rash.
SPECIAL NOTES / RESTRICTIONS:	MAY ADMINISTER PER STANDING ORDER

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METHYLENE BLUE



INDICATIONS:	<ul style="list-style-type: none"> <input type="checkbox"/> Treatment of cyanide poisoning and symptomatic methemoglobinemia (iatrogenic or accidental exposure to oxidizing agents)
ADMINISTRATION:	<ul style="list-style-type: none"> <input type="checkbox"/> IV, IO
DOSAGE:	DIRECT MEDICAL ORDER REQUIRED
ADULT:	1 mg/kg IV SLOWLY (over 10-15 minutes)
PEDIATRIC:	Same as adult dose, but must be used with extreme caution due to potential for producing methemoglobinemia.
THERAPEUTIC EFFECTS:	Reduces methemoglobin (ferric [Fe ⁺³] iron in methemoglobin to ferrous [Fe ⁺²] iron in normal hemoglobin.
RELATIVE CONTRAINDICATIONS:	Excessive methemoglobinemia in the treatment of cyanide or sulfide poisoning due to possible release of cyanide or sulfide back into cellular sites with subsequent toxicity. Patients with renal insufficiency or known allergy to methylene blue
SIDE EFFECTS:	<ul style="list-style-type: none"> <input type="checkbox"/> Excessive methemoglobinemia, as characterized by progressive and persistent cyanosis unresponsive to oxygen therapy and the appearance of chocolate brown color of the blood. <input type="checkbox"/> Use of oxidizing agents may produce an acute hemolytic reaction in patients with glucose-6-phosphodehydrogenase (G6PD) deficiency. <input type="checkbox"/> Blue-green urine <input type="checkbox"/> May cause bladder irritation, nausea, vomiting, and diarrhea. Large doses may produce abdominal and precordial pain, dizziness, profuse sweating, fever, and/or mental confusion.
SPECIAL NOTES / RESTRICTIONS:	<p>Rapid administration may produce increased methemoglobin formation, especially in the presence of other oxidizing agents.</p> <p style="text-align: center;">**DIRECT MEDICAL ORDER REQUIRED**</p>

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PRALIDOXIME
 2-Pam, Protopam Chloride
 (Special Purpose: Toxicology)



INDICATIONS:	<input type="checkbox"/> Cholinergic crisis due to acetylcholinesterase inhibition caused by organophosphate toxicity (e.g. dichlorvos, dioxanthion, echothiophate iodide, endothion, fenthion, formothion, isofluorophate, malathion, methyl parathion, parathion, TEPP, diazinon). Poisoning by nerve agents having anticholinesterase activity.
ADMINISTRATION:	<input type="checkbox"/> IV, IM (if IV access not feasible)
DOSAGE:	
ADULT:	1 - 2 Gram, over 10-15 minutes in 100 cc NS. If not practicable or in the event of pulmonary edema, administer slowly as 5% solution in water over not less than 5 minutes.
PEDIATRIC:	20-40 mg/kg/dose over 10-15 minutes
THERAPEUTIC EFFECTS:	Reactivation of phosphorylated acetylcholinesterase. Reversal of nicotinic effects of acetylcholinesterase inhibition, particularly on skeletal muscle. Reversal of muscarinic effects of cholinesterase inhibition, usually additive with atropine.
RELATIVE CONTRAINDICATIONS:	Cholinergic crisis due to acetylcholinesterase inhibition by carbamate insecticides or other short acting cholinesterase inhibitors (physostigmine, neostigmine, etc.).
SIDE EFFECTS:	Occasional Sinus Tachycardia, laryngospasm, and muscle rigidity seen with too rapid injection. Occasional dizziness, headache, blurred vision, nausea, or diplopia (all of which may be related to the underlying poison as well).
SPECIAL NOTES / RESTRICTIONS:	MAY ADMINISTER PER STANDING ORDER

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VITAMIN B6

Pyridoxine HCl

INDICATIONS:	<input type="checkbox"/> Hydrazine poisoning.
ADMINISTRATION:	<input type="checkbox"/> IV Only
DOSAGE:	
ADULT:	◇ 25 mg/kg over five (5) minutes
PEDIATRIC:	◇ 25 mg/kg over five (5) minutes
THERAPEUTIC EFFECTS:	Provides a required synthetic cofactor that enables the brain to regenerate GABA and stop seizures
RELATIVE CONTRAINDICATIONS:	None
SIDE EFFECTS:	None acutely; peripheral neuropathy with chronic, excessive dosing; Pyridoxine withdrawal seizures in neonates of mothers who took chronic, excessive doses of pyridoxine during pregnancy
SPECIAL NOTES / RESTRICTIONS:	

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SODIUM NITRITE
(Special Purpose for Toxicology)



INDICATIONS:	<input type="checkbox"/> Acute cyanide poisoning <input type="checkbox"/> Acute sulfide poisoning
ADMINISTRATION:	<input type="checkbox"/> IV
DOSAGE:	
ADULT:	300mg (10 ml) over 3-5 minutes
PEDIATRIC:	4- 6 mg/kg to a maximum of 300mg (10ml) over 3-5 minutes
THERAPEUTIC EFFECTS:	Produces methemoglobin (oxidizes ferrous [Fe ⁺²] iron in normal hemoglobin to ferric [Fe ⁺³] iron or methemoglobin.
RELATIVE CONTRAINDICATIONS:	
SIDE EFFECTS:	<ol style="list-style-type: none"> 1. Excessive methemoglobinemia, as characterized by progressive and persistent cyanosis unresponsive to oxygen therapy and the appearance of chocolate brown color of the blood. 2. Use of oxidizing agents may produce an acute hemolytic reaction in patients with glucose-6-phosphodehydrogenase (G6PD) deficiency.
SPECIAL NOTES / RESTRICTIONS:	Methylene blue, a reducing agent, may be used to reverse excessive methemoglobinemia. May Administer Per Standing Order

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SODIUM THIOSULFATE
(Special Purpose for Toxicology)



INDICATIONS:	<input type="checkbox"/> Acute cyanide poisoning following administration of nitrates.
ADMINISTRATION:	<input type="checkbox"/> IV, IO
DOSAGE:	
ADULT:	12.5 grams (50 ml) over 1-2 minutes
PEDIATRIC:	250 mg/kg (1 ml/kg) to a maximum of 12.5 G over 3-5 minutes
THERAPEUTIC EFFECTS:	Removes cyanide ion from ferrocyanate complex formed with methemoglobin, producing thiocyanate; excreted by the kidneys.
RELATIVE CONTRAINDICATIONS:	
SIDE EFFECTS:	No significant side effects in setting of cyanide poisoning following administration of nitrates.
SPECIAL NOTES / RESTRICTIONS:	May rarely be ordered without previous administration of nitrate if history is unclear. May Administer Per Standing Order

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IV INFUSION FLUIDS

EDIROLHC MUIDOS/ESORTXED NOITANIBMOC*
5% dextrose in 0.45% Sodium chloride (D51/2NS)

INDICATIONS:	<input type="checkbox"/> Heat exhaustion <input type="checkbox"/> Diabetic disorders <input type="checkbox"/> Impaired Renal Function (TKO) <input type="checkbox"/> Cardiovascular function (TKO)
ADMINISTRATION:	IV infusion, IO
DOSAGE:	
ADULT:	Dependent upon patient condition and situation being treated
PEDIATRIC:	∇Used for Maintenance Only. Dependent upon patient size and condition
THERAPEUTIC EFFECTS:	Provides electrolyte and sugar replacement
RELATIVE CONTRAINDICATIONS:	Need for Rapid fluid replacement indicated
SIDE EFFECTS:	Rare
SPECIAL NOTES / RESTRICTIONS:	<p>CLASSIFICATION: Slightly hypertonic sugar and electrolyte solution <i>Normal saline or lactated ringers is the preferred infusion solution during cardiac arrest, although D5W remains acceptable</i></p> <p>— Any combination of Dextrose and Sodium Chloride is approved. Some other combinations include: - 5% Dextrose in 0.9% Sodium Chloride (D5NS) - 5% Dextrose in 0.2% Sodium Chloride (D5 0.2NS) - 3.3% Dextrose in 0.3% Sodium Chloride</p>

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DEXTROSE 5% IN WATER D5W

INDICATIONS:	<input type="checkbox"/> IV access for emergency drugs (cardiac) <input type="checkbox"/> For dilution of concentrated drugs for IV infusion <input type="checkbox"/> Patients with actual or potential for volume overload <input type="checkbox"/> Patients requiring sodium restriction
ADMINISTRATION:	IV infusion, IO
DOSAGE:	
ADULT:	Generally administered to keep open (TKO)
PEDIATRIC:	Generally administered to keep open (TKO) vein for medications. ONLY WITH DIRECT MEDICAL ORDER
THERAPEUTIC EFFECTS:	Glucose nutrient solution
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - As a main line for blood transfusion - For fluid replacement in hypovolemic states
SIDE EFFECTS:	Rare
SPECIAL NOTES / RESTRICTIONS:	<p>CLASSIFICATION: Hypotonic Sugar Solution <i>Normal saline or lactated ringers is the preferred infusion solution during cardiac arrest, although D5W remains acceptable</i></p> <p><input checked="" type="checkbox"/> In Pediatric Patients: ONLY WITH DIRECT MEDICAL ORDER</p>

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LACTATED RINGERS (LR)

INDICATIONS:	<input type="checkbox"/> Hypovolemic shock <input type="checkbox"/> Dehydration <input type="checkbox"/> Burns
ADMINISTRATION:	IV infusion, IO
DOSAGE:	
ADULT:	As indicated by the patient condition and situation being treated
PEDIATRIC:	As indicated by the patient condition and situation being treated
THERAPEUTIC EFFECTS:	<ul style="list-style-type: none"> - Source of electrolytes - Increase circulating volume
RELATIVE CONTRAINDICATIONS:	<ul style="list-style-type: none"> - Congestive heart failure - Renal failure
SIDE EFFECTS:	Rare
SPECIAL NOTES / RESTRICTIONS:	<p>CLASSIFICATION: Isotonic crystalloid</p> <p>Normal saline or lactated ringers is the preferred infusion solution during cardiac arrest, although D5W remains acceptable</p>

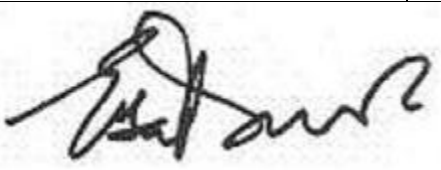
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SODIUM CHLORIDE 0.9%
Normal Saline

INDICATIONS:	<input type="checkbox"/> Heat exhaustion and related heat problems <input type="checkbox"/> Diabetic disorders <input type="checkbox"/> Freshwater Drowning <input type="checkbox"/> Head injury (depending upon Medical Control Physician) <input type="checkbox"/> Hypovolemia
ADMINISTRATION:	IV infusion, IO
DOSAGE:	
ADULT:	Dependent upon patient condition and situation being treated
PEDIATRIC:	Dependent upon patient size and condition
THERAPEUTIC EFFECTS:	Provides fluid and sodium replacement
RELATIVE CONTRAINDICATIONS:	Congestive Heart Failure
SIDE EFFECTS:	<input type="checkbox"/> Volume Overload <input type="checkbox"/> Congestive Heart Failure <input type="checkbox"/> Diuresis <input type="checkbox"/> Thirst
SPECIAL NOTES / RESTRICTIONS:	<p><i>Normal saline or lactated ringers is the preferred infusion solution during cardiac arrest, although D5W remains acceptable</i></p> <p>___ Any combination of Dextrose and Sodium Chloride is approved. Some other combinations include:</p> <ul style="list-style-type: none"> - 5% Dextrose in 0.9% Sodium Chloride (D5NS) - 5% Dextrose in 0.2% Sodium Chloride (D5 0.2NS) - 3.3% Dextrose in 0.3% Sodium Chloride



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END OF FORMULARY

IMPLANTED / INVASIVE DEVICE LIST

INTRODUCTION

Invasive / Implanted Device List

The purpose of this manual is to denote medical devices not specifically covered in EMS training which may be transported by EMS personnel and are in place at the time of arrival of the EMTs.

Any invasive or implanted device not described within this manual should NOT be transported by EMS personnel without an accompanying nurse or physician capable of caring for the device. Additions to this manual will be considered yearly after requests for inclusion of a new device are received by DHEC's EMS Division. A request must be signed by the requesting service's medical director and regional medical director. The appropriate request form accompanies this manual.

This list should be treated in a manner similar to the state-approved drug list. EMS services and their medical control physicians may choose not to transport patients - interhospital - with any of the included devices. However, given the likelihood that an EMT may be called upon to transport a patient with one of these devices in an emergency situation, all services **MUST** provide inservice training on these devices to their personnel.

AUTOMATIC INTERNAL CARDIAC DEFIBRILLATOR (AICD)

TRADE NAMES:	Various names
USAGE:	Device implanted under skin which detects dangerous ventricular arrhythmias and automatically delivers a countershock directly to the heart to defibrillate the heart if such an arrhythmia develops.
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	<ul style="list-style-type: none"> △ Approved for transport only. △ May not be manipulated by EMS personnel.
SPECIAL NOTES / IMPORTANT POINTS:	<ul style="list-style-type: none"> ▽ Presence of device has only a minimal potential for minor shock to EMTs and no effect on cardiac resuscitation protocols.

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INVASIVE / IMPLANTED DEVICE

TUBE THORACOSTOMY / CHEST TUBE

TRADE NAMES:	Various names
USAGE:	Placed into pleural cavity to drain fluid, evacuate blood or remove air for treatment of pneumothorax. Tube usually attached to a device which establishes and maintains a vacuum in the pleural space, or a one-way valve (e.g. Heimlich valve).
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	<ul style="list-style-type: none"> Δ Approved for transport only. Δ Can not be manipulated or inserted by EMS personnel. Δ May place attached vacuum control device to suction if instructed to do so by referring physician or medical control.
SPECIAL NOTES / IMPORTANT POINTS:	Keep suction device upright at all times. If tube is accidentally dislodged, cover wound with occlusive dressing taped on three sides, monitor for development of pneumothorax and contact medical control.

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INVASIVE / IMPLANTED DEVICE

PERITONEAL DIALYSIS CATHETERS

TRADE NAMES:	Tenckhoff Catheter
USAGE:	Fluid infused into abdomen through catheter. Peritoneal lining acts as a dialysis filter.
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	<p>Δ Approved for transport only.</p> <p>Δ If catheter actively in use at time of transport a physician, nurse or individual actively involved in patient dialysis regimen must accompany patient in ambulance. (Awake, alert patient may fill this role.)</p>
SPECIAL NOTES / IMPORTANT POINTS:	<p>▽ If catheter accidentally dislodges, apply sterile pressure dressing and contact medical control.</p>



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<h1 style="margin: 0;">INVASIVE / IMPLANTED DEVICE</h1>

EPIDURAL CATHETERS

TRADE NAMES:	Various
USAGE:	Catheter placed in epidural space around spinal cord for administration of analgesic medications.
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	<ul style="list-style-type: none"> Δ Approved for transport only. Δ May NOT be used for administration of any medication during transport. Δ May NOT be manipulated by EMS personnel.
SPECIAL NOTES / IMPORTANT POINTS:	<ul style="list-style-type: none"> ▽ If catheter accidentally dislodges, apply sterile pressure dressing and contact medical control.



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INVASIVE / IMPLANTED DEVICE

URETHRAL/SUPRAPUBIC CATHETER

TRADE NAMES:	Foley Catheter, others
USAGE:	Placed into bladder to drain urine and monitor urine output.
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	Approved for transport only. Can not be manipulated or inserted by EMS personnel.
SPECIAL NOTES / IMPORTANT POINTS:	If accidentally dislodged, contact medical control.



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INVASIVE / IMPLANTED DEVICE

IMPLANTABLE CENTRAL VENOUS CATHETERS

TRADE NAMES:	Hickman Catheter, Broviac Catheter
USAGE:	Surgically implanted venous access device for patients requiring long term venous access for medications or dialysis. May have more than one lumen.
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	<p>Δ PARAMEDICS (only) may administer medications through previously placed percutaneous central venous line when no other option is available, under direct on-line medical control or standing protocols.</p> <p>Δ Intermediates and Basic EMTs may transport IV fluids in place only (no medications).</p>
SPECIAL NOTES / IMPORTANT POINTS:	<p>▽ Maintenance of sterility of significant importance. Maintain dressing and, if new medications being initiated through line, sterile technique must be maintained when accessing line.</p>

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INVASIVE / IMPLANTED DEVICE

SURGICALLY PLACED GASTROINTESTINAL TUBES

TRADE NAMES:	Gastrostomy Tube, Jejunostomy Tube, Baker Tube, Peg Tube, others
USAGE:	Tubes placed into GI tract directly through the skin. Used for drainage or feeding.
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	
SPECIAL NOTES / IMPORTANT POINTS:	If accidentally dislodged, place dressing over site and contact medical control. If used for feedings, can be a continuous feed.



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<h1 style="margin: 0;">INVASIVE / IMPLANTED DEVICE</h1>

PERCUTANEOUS DRAINAGE TUBES

TRADE NAMES:	Percutaneous Nephrostomy, Pigtail catheter, others
USAGE:	Used to drain fluid or pus from interior of body.
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	Approved for transport only. Can not be manipulated or inserted by EMS personnel.
SPECIAL NOTES / IMPORTANT POINTS:	If accidentally dislodged, place dressing over site and contact medical control.



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INVASIVE / IMPLANTED DEVICE

COMPLETELY IMPLANTABLE VENOUS ACCESS PORT

TRADE NAMES:	Porta-cath, others
USAGE:	Used for infusion of fluids or long-term medication (antibiotic, chemotherapy, etc.) therapy.
TRAINING LEVEL:	ALL Levels
RESTRICTIONS:	<p>Δ MAY NOT BE ACCESSED BY EMS PERSONNEL.</p> <p>Δ May continue infusions initiated prior to transport.</p> <p>Δ PARAMEDICS may administer medications through previously placed lines when no other option is available under direct on-line medical control or standing protocol and when device is already accessed prior to transport.</p>
SPECIAL NOTES / IMPORTANT POINTS:	<p>▽ 1) Requires special needle to access. Any other needle will destroy device.</p> <p>▽ 2) If needle in accessing port should become dislodged, discontinue infusions and contact medical control.</p>



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INVASIVE / IMPLANTED DEVICE

SURGICAL DRAINS

TRADE NAMES:	Sump drain, Jackson Pratt drain, Penrose drain, others
USAGE:	Placed to evacuate fluid or debris from surgical fields. Some are placed to continuous suction. Others have attached devices to apply suction and collect fluid.
TRAINING LEVEL:	All Levels
RESTRICTIONS:	Approved for transport only. Can not be manipulated or inserted by EMS personnel.
SPECIAL NOTES / IMPORTANT POINTS:	If drain becomes dislodged, place dressing over wound and contact medical control.



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END OF DEVICE LIST