



Southwest General

Partnering with



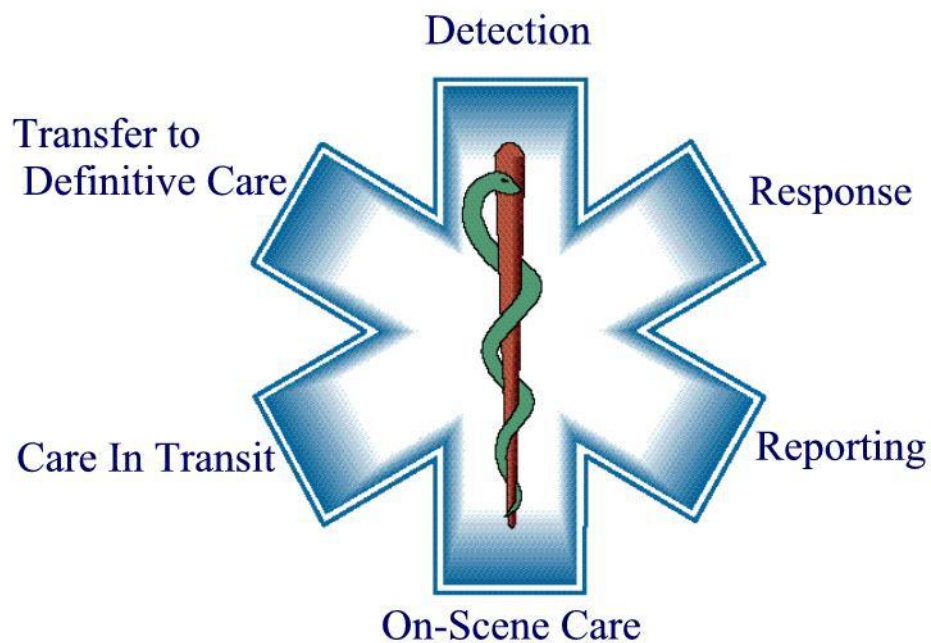
University Hospitals

EMS Services

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES



PHARMACOLOGY REVIEW

- I. **ACTIONS OF DRUGS**
 1. Local effects
 2. Systemic effects
- II. **EFFECTS DEPENDS UPON**
 1. Age of patient
 2. Condition of patient
 3. Dosage
 4. Route of administration
- III. **ROUTE OF ADMINISTRATION**
 1. **Intravenous (IV)**
 - Most rapidly effective
 - Most dangerous
 - Give **SLOWLY** through an established IV line
 - I.O. to be given only if IV is unobtainable.
 2. **Intramuscular (IM)**
 - Takes longer to act
 - Longer duration of action
 - Deltoid or Gluteus Maximus site
 - Absorption **VERY** dependent on blood flow
 3. **Subcutaneous (subcut)**
 - Slower and more prolonged absorption
 - Under skin of upper arms, thigh, abdomen
 4. **Intranasal (IN, Mucosal Atomization Device)**
 - High medication concentration
 - Atomized to be absorbed by mucus membranes
 5. **Inhalation (Aerosols)**
 - Bronchodilators
 - Steroids
 6. **Endotracheal (only administer through ET as a last resort)**
 - Epinephrine, Atropine, Lidocaine, Narcan, Vasopressin
 - The optimal dose of most drugs given by ET is unknown
 - ET drugs deliver low blood levels. All drugs except Epi are given 2-3x's normal dose.
 - Epi in low levels may produce transient, detrimental vasodilation thus...
Epi down the ET Tube are given 2-3 x's the normal dose.
 - Instill the drug while briefly holding compressions, follow with 5mL (smaller with neonates) of NS flush, followed by 5 positive-pressure ventilations.
 7. **Sublingual (SL)**
 - Rapid absorption
 8. **Oral**
 - Instant Glucose
 - Baby Aspirin
 9. **Rectal**
 - Rapid but unpredictable absorption
 10. **Intranasal (IN)**
 - Must use specific device to aerosolize medication
 - Used with specific medications only (Midazolam (Versed), Naloxone (Narcan), or Glucagon (Glucagen))
 11. **Intraosseous (IO)**
 - IO is only to be used only if IV is unobtainable, IO to be used when unable to obtain vascular access.
 - Nearly as fast as IV route
- IV. **RATES OF ABSORPTION**
 1. "Directly Related to Route of Administration"
 - IV (Fastest)
 - IO (Intraosseous)
 - Inhalation
 - ET (Endotracheal)
 - IM (Intramuscular)
 - SL (Sublingual)
 - IN (Intranasal)
 - PR (Rectal)
 - SQ (Subcutaneous)
 - Oral (Slowest)
- V. **ELIMINATION**
 1. Many methods
 2. Usually metabolized by the liver
 3. Eliminated by the kidneys, lungs, skin

6. TERMS

1. Indications – conditions drugs used for
2. Contraindications – conditions drugs not used for
3. Depressants - lessens / decreases activity
4. Stimulant - increases activity
5. Physiologic action - action from normal body amounts of drug
6. Therapeutic action - beneficial action expected
7. Untoward reaction - harmful side effect
8. Irritation - damage to tissue
9. Antagonism - opposition between effects of drugs
10. Cumulative action - increased action after several doses
11. Tolerance - decreased effects after repeated doses
12. Synergism - combined effects greater than sum of parts
13. Potentiation - enhancement of one drug by another
14. Habituation - drug necessary for feeling of "well being"
15. Idiosyncrasy - unexpected, abnormal response to a drug
16. Hypersensitivity - exaggerated response, allergy

7. AUTONOMIC NERVOUS SYSTEM

1. Parasympathetic - controls vegetative functions
2. Sympathetic - "flight or fight"

8. PARASYMPATHETIC NERVOUS SYSTEM

1. Mediated by vagus nerve
2. Acetylcholine is transmitter (cholinergic)
3. Atropine is Acetylcholine Blocker

9. SYMPATHETIC NERVOUS SYSTEM

1. Mediated by nerves from sympathetic chain
2. Norepinephrine is transmitter (adrenergic)
3. Epinephrine is released from adrenals

10. SYMPATHETIC RECEPTORS

1. Alpha (a)
2. Beta (b)

11. COMMON SYMPATHETIC AGENTS

1. Isoproterenol (Isuprel) - pure BETA
2. Epinephrine (Adrenalin) - predominately BETA
3. Dobutamine (Dobutrex) - predominately BETA, slight ALPHA
4. Norepinephrine (Levophed) - predominately ALPHA
5. Dopamine (Intropin) - BETA at low dose: ALPHA at high dose
6. Metaraminol (Aramine) - predominately ALPHA
7. Phenylephrine (Neo-Synephrine) - pure ALPHA

12. SYMPATHETIC BLOCKERS

1. Propranolol (Inderal) - BETA BLOCKER

13. DRUG ADMINISTRATION

Appropriate:

1. Medication selection based on protocol
2. Visually examine medication for particulates or discoloration and that the medication has not expired
3. Contraindications are reviewed prior to administration
4. Route is determined by protocol
5. Dose selection based on protocol
6. Dilution is per protocol
7. Rate is per protocol

MEDICATIONS

ADENOSINE (Adenocard)

P	EMT – P	P
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ACTIONS	<ol style="list-style-type: none"> 1. Slows conduction time and can interrupt re-entrant pathways through the AV node. 2. Slows the sinus rate.
INDICATIONS	<ol style="list-style-type: none"> 1. Supra Ventricular Tachycardia 2. Paroxysmal Supra Ventricular Tachycardia 3. Wide Complex Monomorphic Ventricular Tachycardia
CONTRA-INDICATIONS	<ol style="list-style-type: none"> 1. Atrial fibrillation 2. Atrial flutter 3. Wolf Parkinson's White
PRECAUTIONS	It is helpful to inform the patient of likely side effects prior to medication administration.
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Facial flushing 2. Shortness of breath / dyspnea 3. Chest discomfort 4. Brief period of sinus arrest 5. Headache 6. Dizziness 7. Hypotension
SUPPLIED	6mg / 2mL and 12mg / 4mL vials or Pre-filled syringes.
ADULT DOSAGE	<p>Initial Dose: 6mg rapid IVP (over 1-3 sec.) immediately followed with a 20 mL saline flush.</p> <p>Repeat Dose: If no response is observed after 1 min., administer 12mg rapid IVP (over 1-3 sec.) immediately followed with a 20 mL saline flush. May repeat a 3rd 12mg dose.</p>
PEDIATRIC DOSAGE	<p>Initial Dose: 0.1 mg/kg rapid IVP followed with a 10 mL saline flush.</p> <p>Repeat Dose: If no response is observed after 1-2 min., administer 0.2mg/kg rapid IVP followed with a 10 mL saline flush.</p>
GENERAL CONSIDERATIONS	<ul style="list-style-type: none"> • Adenosine has a short half life, and should be administered rapidly followed by a rapid IV flush. • Reassess after each medication administration and refer to the appropriate protocol and treat accordingly. • Perform a 12 Lead EKG prior to the administration of Adenosine and after the rhythm converts. • Use caution when administering to patients with history of asthma, because it can cause bronchospasms.

MEDICATIONS

ALBUTEROL (Proventil / Ventolin)

B	EMT-B	B
I	EMT - I	I
P	EMT - P	P

ACTIONS	Acts directly on the beta 2 adrenergic receptors to relax bronchial smooth muscle, resulting in reduced airway resistance and relief of bronchospasm.
INDICATIONS	To reverse bronchospasm (wheezing).
CONTRAINDICATIONS	Known hypersensitivity.
PRECAUTIONS	Use precaution when administering to pregnant women or patients with cardiac history.
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Headache 2. Drowsiness 3. Dizziness 4. Restlessness 5. Nausea / Vomiting 6. Tachycardia 7. Palpitations 8. Peripheral vasodilatation 9. Tremors 10. PVCs
SUPPLIED	Unit dose 2.5 mg in 3 mL of NS (EMT-B may assist patient with their own Albuterol inhaler)
ADULT DOSAGE	2.5 mg in 3 mL via unit dose nebulizer and 6 lpm oxygen (10 lpm if using a face mask).
PEDIATRIC DOSAGE	2.5 mg in 3 mL via unit dose nebulizer and 6 lpm oxygen (10 lpm if using a face mask) ½ dose if weight is less than 10 kg add additional 3cc NS
GENERAL CONSIDERATIONS	<ul style="list-style-type: none"> • May repeat treatment if relief is obtained

MEDICATIONS

AMIODARONE (Cordarone)

P	EMT – P	P
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ACTIONS	Prolongs the refractory period and action potential duration.
INDICATIONS	<ol style="list-style-type: none"> 1. Ventricular fibrillation 2. Pulseless Ventricular Tachycardia 3. Supra Ventricular Tachycardia 4. Atrial fibrillation (refractory to cardioversion) 5. Atrial flutter (refractory to cardioversion) 6. Or VTach with a pulse
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. Renal failure 3. If Lidocaine is used, DO NOT use Amiodarone
PRECAUTIONS	Second and Third degree AV block
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Vasodilatation 2. Hypotension 3. Prolonged QT interval
SUPPLIED	150 mg/mL vial injectable
ADULT DOSAGE	<p><i>Ventricular Fibrillation and Pulseless Ventricular Tachycardia:</i> 300 mg IO / IV push (May be repeated one time at 150 mg IV/IO push)</p> <p><i>Wide Complex Tachycardia:</i> 150 mg IV mixed in 50 mL D5W over 10 minutes</p>
PEDIATRIC DOSAGE	<p><i>Ventricular Fibrillation and Pulseless Ventricular Tachycardia:</i> 5 mg/kg IV/IO Bolus can repeat up to total dose of 15mg/kg If the rhythm converts to a perfusing rhythm, then administer 2.5 mg/kg IV/IO over 2-3 minutes (Wide Complex Tachycardia per Medical Control).</p>
GENERAL CONSIDERATIONS	<ul style="list-style-type: none"> • Amiodarone is the preferred antiarrhythmic medication to treat ventricular arrhythmias. • Avoid excessive movement and shaking of the medication. • Amiodarone is mixed in D5W (not NS)

MEDICATIONS
ASPIRIN (ASA)

B	EMT-B	B
I	EMT - I	I
P	EMT - P	P

ACTIONS	Blocks platelet aggregation
INDICATIONS	1. Chest pain suggestive of an MI 2. 12-Lead EKG indicating a possible MI
CONTRAINDICATIONS	1. Hypersensitivity 2. Active ulcer disease
PRECAUTIONS	1. GI bleeding 2. Upset stomach
SIDE EFFECTS	1. Heartburn 2. Nausea and vomiting
SUPPLIED	81 mg per chewable tablet
ADULT DOSAGE	324 mg 4 tablets
PEDIATRIC DOSAGE	Not recommended
GENERAL CONSIDERATIONS	

MEDICATIONS
ATROPINE SULFATE

P EMT – P P

ACTIONS	<ol style="list-style-type: none"> 1. Increases sinus node firing 2. Increases conduction through the AV node by blocking activity 3. Increases cardiac output 4. Decreases ectopic beats or fibrillation of the ventricles
INDICATIONS	<ol style="list-style-type: none"> 1. Symptomatic sinus bradycardia 2. Maybe beneficial in presence of AV Nodal Block 3. Will not be effective for Infranodal (Mobits Type II) Block
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity
PRECAUTIONS	<ol style="list-style-type: none"> 1. May increase myocardial oxygen demand 2. May trigger tachy-dysrhythmias
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Dry mouth 2. Blurred vision 3. Flushed skin 4. Urinary retention 5. Headache 6. Tachycardia 7. Pupillary dilation
SUPPLIED	Pre-filled syringes containing 1mg in 10 mL
ADULT DOSAGE	<p>Bradycardia: 0.5-1 mg IV/IO (2-2.5 mg ETT) every 3-5 minutes (max dose 0.04 mg/kg)</p> <p>Organophosphate Poisoning: 2-5 mg IV, repeat every 15-30 minutes until symptoms improve</p>
PEDIATRIC DOSAGE	<p>Bradycardia: First dose - 0.02 mg/kg IV/IO (minimum dose 0.1 mg/kg, maximum single dose of 0.5 mg for a child and 1 mg for an adolescent). May repeat dose once. (maximum total dose of 1 mg for a child and 2 mg. for an adolescent).</p> <p>Organophosphate Poisoning:0.05 mg/kg IV until vitals improve</p>
GENERAL CONSIDERATIONS	

MEDICATIONS

DEXTROSE 50 % (D50)

I	EMT – I	I
P	EMT – P	P

ACTIONS	Restores circulating blood sugar
INDICATIONS	<ol style="list-style-type: none"> 1. Correction of altered mental status due to hypoglycemia 2. Adult Blood Glucose less than 80 mg/dL, Child Blood Glucose less than 80 mg/dL, Newborn Blood Glucose less than 40 mg/dL 3. Coma with associated hypoglycemia 4. Delirium tremens with associated hypoglycemia 5. Seizure or status epilepticus with associated hypoglycemia
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hyperglycemia 2. No contraindications for hypoglycemic patients with altered mental status
PRECAUTIONS	<ol style="list-style-type: none"> 1. A blood sample should be collected prior to dextrose administration (half / quarter dose might be sufficient dependant on blood sugar and patient symptoms and or circumstances) 2. Use with caution for stroke patients 3. Use a large vein to administer D50
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Extravasation of D50 may cause necrosis 2. Hyperglycemia
SUPPLIED	Pre-filled syringes and vials containing 50 mL of 50% dextrose (= 25g of dextrose)
ADULT DOSAGE	Dextrose 50% (D50) contains 25 grams: IV (half / quarter dose might be sufficient dependant on blood sugar and patient symptoms and or circumstances)
PEDIATRIC DOSAGE	<p>Neonate: <u>D10% Solution</u> = (250mL bag NS withdraw and discard ADD 50mL of D50 to the 200mL NS to make D10 solution) <u>give:</u> 5-10mL/kg.</p> <p>Infant and children: <u>D25% Solution</u> = (mix D50 with 50 mL NS) 2-4 mL/kg IV of a D25 solution. May be repeated x1 after 5 minutes</p>
GENERAL CONSIDERATIONS	

MEDICATIONS

IPTRATROPIUM (Atrovent)

Pregnancy Category B

I	EMT – I	I
P	EMT – P	P

ACTIONS	<ol style="list-style-type: none"> 1. Blocks action of acetylcholine at receptor sites on bronchial smooth muscle, resulting in bronchodilation 2. Dries bronchial secretions
INDICATIONS	Treatment of brochospasm in patients with COPD as an adjunct to Albuterol.
CONTRAINDICATIONS	Known hypersensitivity
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Dry nose, mouth 2. Paradoxical bronchospasm 3. Nausea 4. Chest pain 5. Palpitations 6. Headache 7. Dizziness
SUPPLIED	Single unit dose 0.5 mg in 2.5 ml of nebulizer solution
ADULT DOSAGE	One unit dose 0.5 mg in 2.5 ml – Do not repeat in the field
PEDIATRIC DOSAGE	One unit dose 0.5 mg in 2.5 ml – Do not repeat in the field Ages 8+
KEY POINTS	<ul style="list-style-type: none"> • Mix with Albuterol (Proventil) for administration
PROTOCOL USE	<ul style="list-style-type: none"> • <u>Adult Respiratory Distress – Asthma and COPD</u> • <u>Pediatric Respiratory Distress – Lower Airway</u>

MEDICATIONS

DIAZEPAM (Valium)

I	EMT – I	I
P	EMT – P	P

ACTIONS	<ol style="list-style-type: none"> 1. Sedation 2. Anticonvulsant
INDICATIONS	<ol style="list-style-type: none"> 1. Status epilepticus 2. Sedation prior to transcutaneous pacing and synchronized cardioversion in the conscious patient
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. Altered mental status of unknown origin 3. Head injury
PRECAUTIONS	<ol style="list-style-type: none"> 1. Should be used with caution for hypotensive patients and patients with altered mental status 2. Diazepam potentiates alcohol or other CNS depressants 3. May cause respiratory depression, respiratory effort must be routinely monitored
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Light headed 2. Motor impairment 3. Impaired mental and psychomotor function 4. Confusion 5. Slurred speech 6. Amnesia 7. Irritability 8. Respiratory depression
SUPPLIED	In Pre-filled syringes of 10 mg / 2ml
ADULT DOSAGE	<p>Status Epilepticus: 5 mg slow IV/IO/Rectally (may repeated in 5-10 minutes one time, if seizure persists and patient systolic BP greater than 90 mmHg)</p> <p>Sedation Prior to Transcutaneous Pacing and Synchronized Cardioversion: 2.5-5 mg slow IV</p>
PEDIATRIC DOSAGE	Status Epilepticus: 0.2 mg/kg slow IV/IO/Rectally (max dose 10 mg)
GENERAL CONSIDERATIONS	

MEDICATIONS**Diphenhydramine (Benadryl)**

I	EMT – I	I
P	EMT – P	P

ACTIONS	Blocks effects of histamine at H1- receptor sites.
INDICATIONS	Allergic reactions
CONTRAINDICATIONS	Hypersensitivity to drug
PRECAUTIONS	Assure IV site is patent, will cause tissue irritation
SIDE EFFECTS	1. drowsiness 2. sedation 3. seizures 4. nausea 5. dry mouth 6. thickening of bronchial secretions
SUPPLIED	50 mg / 1 mL vial
ADULT DOSAGE	25-50 mg IV/IM
PEDIATRIC DOSAGE	1 mg/kg IV/IM
GENERAL CONSIDERATIONS	

MEDICATIONS**DOPAMINE (Intropin)****P EMT - P P**

ACTIONS	<ol style="list-style-type: none"> 1. Alpha and beta adrenergic receptor stimulator 2. Dopaminergic receptor stimulator 3. Dilates renal and mesenteric blood vessels 4. Vasoconstriction 5. Arterial resistance 6. Increase cardiac output 7. Increase preload
INDICATIONS	<ol style="list-style-type: none"> 1. Bradycardia 2. Cardiogenic shock 3. Septic shock 4. Anaphylactic shock 5. Hypovolemic shock (refractory to volume replacement therapy)
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. Hypovolemia without fluid replacement therapy 3. Pheochromocytoma
PRECAUTIONS	Extravasation may cause tissue necrosis
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Ectopic beats 2. Nausea / Vomiting 3. Tachycardia 4. Palpitations 5. Dyspnea 6. Headache 7. Angina 8. Hypertension
SUPPLIED	Mix solution 400 mg in 250 mL NS or D5W
ADULT DOSAGE	2 - 20 micrograms/kg/minute IV/IO infusion titrate to effect
PEDIATRIC DOSAGE	2 - 20 micrograms/kg/minute IV/IO infusion titrate to effect
GENERAL CONSIDERATIONS	

MEDICATIONS

EPINEPHRINE (Adrenaline)

B	EMT-B	B
I	EMT - I	I
P	EMT - P	P

ACTIONS	<ol style="list-style-type: none"> 1. Alpha and Beta adrenergic agonist 2. Bronchodilation 3. Increase heart rate and automaticity 4. Increases cardiac contractility 5. Increases myocardial electrical activity 6. Increases systemic vascular resistance 7. Increases blood pressure
INDICATIONS	<ol style="list-style-type: none"> 1. Cardiac arrest 2. Allergic reaction / Anaphylaxis 3. Respiratory distress
CONTRAINDICATIONS	Known hypersensitivity
PRECAUTIONS	Blood pressure, pulse, and ECG must be routinely monitored for all patients receiving Epinephrine
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Palpitations 2. Anxiousness 3. Headache 4. Tremor 5. Nausea / Vomiting
SUPPLIED	Pre-filled syringes containing 1 mg in 10 mL (1:10,000 solution) Ampules containing 1 mg in 1 mL (1:1000 solution) (EMT-B may assist a patient with their own Epi Pen)
ADULT DOSAGE	<p>Cardiac Arrest: 1:10,000, 1 mg IV/IO every 3-5 minutes (Epinephrine 1:10,000, 2 - 2.5 mg ETT every 3-5 minutes)</p> <p>Anaphylaxis: 1:1000, 0.3 - 0.5 mg subcut.</p> <p>Respiratory Distress Due to Status Asthmaticus: 1:1000, 0.3 - 0.5 mg subcut.</p>
PEDIATRIC DOSAGE	<p>Cardiac Arrest: 1:10,000, 0.01 mg/kg IV/IO every 3-5 minutes (Epinephrine 1:1000, 0.1 mg/kg every 3-5 minutes)</p> <p>Anaphylaxis: 1:1000, 0.01 mL/kg subcut. (max dose 0.5 mg)</p>
GENERAL CONSIDERATIONS	

MEDICATIONS**FUROSEMIDE (Lasix)****P EMT – P P**

ACTIONS	<ol style="list-style-type: none"> 1. Potent diuretic 2. Inhibits renal sodium reabsorption 3. Vasodilation, especially of the pulmonary veins
INDICATIONS	<ol style="list-style-type: none"> 1. Acute pulmonary edema secondary to CHF 2. Acute pulmonary edema secondary to hypertension
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. Known allergy to sulfamides 3. Dehydrated patient 4. Pregnant patient
PRECAUTIONS	<ol style="list-style-type: none"> 1. May cause dehydration 2. May cause hypovolemia 3. May cause hypotension 4. May cause hypokalemia
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Urination 2. Hypotension 3. Nausea and vomiting 4. Dehydration 5. Depletion of potassium
SUPPLIED	Vial of 4 mL in a concentration of 10 mg/mL
ADULT DOSAGE	<p>40 mg slow IV/IM</p> <p>If the patient is already prescribed Furosemide and is compliant, give double their usual dose up to 80 mg</p>
PEDIATRIC DOSAGE	
GENERAL CONSIDERATIONS	Medical Control to be consulted for doses greater than 40 mg

MEDICATIONS**GLUCAGON**

I	EMT – I	I
P	EMT – P	P

ACTIONS	<ol style="list-style-type: none"> 1. Causes breakdown of glycogen to glucose 2. Inhibits glycogen synthesis 3. Elevates blood glucose level
INDICATIONS	<ol style="list-style-type: none"> 1. Correction of hypoglycemia when an IV/IO is not able to be established and oral glucose is contraindicated 2. Elderly with severe CVD, ACS or pregnancy in anaphylaxis (possible option prior to epinephrine administration) 3. Esophageal obstructions
CONTRAINDICATIONS	Known hypersensitivity
PRECAUTIONS	<ol style="list-style-type: none"> 1. Glucagon is only effective in patients with sufficient stores of glycogen 2. Use caution in patients with renal or cardiovascular disease 3. Glucagon can be administered on scene but do not wait for it to take affect
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Nausea and vomiting
SUPPLIED	Vials of 1 mg Glucagon with 1 mL of diluting solution
ADULT DOSAGE	1 mg IM / IV / IN
PEDIATRIC DOSAGE	Less than 20 kg ½ mg IM/IV Greater than 20 kg 1 mg IM/IV
GENERAL CONSIDERATIONS	Response is usually noticed in 5-20 minutes. If response is delayed, dose may be repeated 1 to 2 times. Will not work if no glycogen stores.

MEDICATIONS

HALOPERIDOL (Haldol)

Pregnancy Category B

P	EMT – P	P
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ACTIONS	Chemical restraint of acute psychosis or agitated patients
INDICATIONS	Aggressive, violent, or severely agitated patients in the setting of psychosis.
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. <i>Not for use in combative or violent reactions resulting from treatable medical emergencies</i> 2. Dementia related psychosis 3. Known hypersensitivity 4. Parkinson's disease 5. CNS depression 6. Severe cardiac disease 7. Hepatic disease
PRECAUTIONS	<ol style="list-style-type: none"> 1. Elderly patients 2. Prolonged QT interval on EKG 3. Renal patients 4. Respiratory diseases 5. Seizure disorder
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Sedation 2. Extrapyramidal symptoms (EPS) / dystonic reactions 3. Orthostatic Hypotension
SUPPLIED	5 mg / 1 ml vial
ADULT DOSAGE	5 mg IM ONLY Over age 65: 2.5 mg IM ONLY
PEDIATRIC DOSAGE	Not indicated in the pre-hospital setting
KEY POINTS	<p>If administration causes extrapyramidal symptoms (EPS) give Diphenhydramine (Benadryl) 25 mg – 50 mg IV / IM</p> <p>EPS symptoms are: Involuntary purposeless movements of body, usually of the face such as grimacing, tongue protrusion, lip smacking, lip puckering, or eye blinking.</p> <p>DO NOT mix Haloperidol (Haldol) and Diphenhydramine (Benadryl) in the same syringe.</p>
PROTOCOL USE	<ul style="list-style-type: none"> • <u>Behavioral / Psychiatric Emergencies</u>

MEDICATIONS**KETOROLAC (TORADOL)**

I	EMT – I	I
P	EMT – P	P

ACTIONS	1. Nonsteroidal anti-inflammatory / analgesic
INDICATIONS	Short term management of moderate to severe pain (extremity pain, renal colic)
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. Head injury or head trauma 3. Seizure / Altered LOC 4. Asthma 5. Undiagnosed abdominal, head or back pain 6. Patients with hypotension secondary to volume depletion 7. Multiple trauma patients / hemorrhage bleeding disorders 8. Advanced renal impairments
PRECAUTIONS	<ol style="list-style-type: none"> 1. If given IM, give deep IM injection and hold pressure over site for 30 sec. 2. Toradol may mask pain, so conduct a complete assessment prior to administration
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Headache, dizziness 2. Tinnitus 3. SOB
SUPPLIED	30 mg mL vials
ADULT DOSAGE	30- 60 mg IM or 30 mg IV Elderly (over age 65 yrs.) may give half the adult dose
PEDIATRIC DOSAGE	If over 8 years of age
GENERAL CONSIDERATIONS	May take 15 – 30 minutes to take effect. Consult Medical Control for patients over 65 years of age.

MEDICATIONS

LIDOCAINE (Xylocaine) 2%

P **EMT – P** **P**

ACTIONS	<ol style="list-style-type: none"> 1. Suppresses ventricular ectopy 2. Elevates ventricular tachycardia and ventricular fibrillation threshold
INDICATIONS	<ol style="list-style-type: none"> 1. Ventricular tachycardia 2. Ventricular Fibrillation 3. Reduction of premature ventricular contractions (PVCs)
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. AV blocks 3. Idioventricular escape rhythms 4. Accelerated idioventricular rhythm 5. Sinus bradycardia or arrest or block 6. Hypotension, Shock
PRECAUTIONS	<ol style="list-style-type: none"> 1. A reduced dose should be administered if the patient is over 70 years old or has a history of liver failure, or CHF 2. DO NOT use Lidocaine if amiodarone has already been administered.
SIDE EFFECTS	<ol style="list-style-type: none"> 1. There may be a reduction in the force of ventricular contraction leading to decreased peripheral vascular resistance, cardiac output and blood pressure. 2. Dizziness, Numbness, Drowsiness, Confusion 3. Seizure, respiratory depression
SUPPLIED	<p>Pre-filled syringes containing 100 mg in 5 mL (20 mg/mL) for bolus injection</p> <p>Pre-filled bag: 2 GM in 500 mL D5W at 2-4 mg/min.</p>
ADULT DOSAGE	<p>Wide Complex Tachycardia With a Pulse: 1-1.5 mg/kg IV (0.5-.75 mg/kg if the patient is over 70 years old or has a history of liver failure, or CHF). If the rhythm converts due to Lidocaine, then initiate a Lidocaine drip at 2-4 mg/min.</p> <p>Ventricular Fibrillation or Ventricular Tachycardia Without Pulse: 1-1.5 mg/kg every 5 minutes (0.5-.75 mg/kg if the patient is over 70 years old or has a history of liver failure, or CHF) (max dose 3 mg/kg)</p>
PEDIATRIC DOSAGE	<p>Ventricular Fibrillation or Ventricular Tachycardia Without Pulse: 1 mg/kg IV/IO Q 5 minutes repeat dosages of 1 - 1.5 mg/kg. If the patient converts to a perfusing rhythm, then administer Lidocaine 0.5mg IV/IO Q 20 minutes. 2-3 mg / kg ET Route</p> <p>Wide Complex Tachycardia With a Pulse: Lidocaine 1 mg/kg IV. Repeat once at 0.5 mg/kg. 2-3 mg / kg ET Route</p>
GENERAL CONSIDERATIONS	<p>Dose for Intraosseous for pain control: (Paramedic and EMT-I Skill) Adult: 20 – 40 mg IO Pediatric: 0.5 mg/kg IV</p>

MEDICATIONS

MAGNESIUM SULFATE

P	EMT – P	P
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ACTIONS	<ol style="list-style-type: none"> 1. Central Nervous System Depressant 2. Anticonvulsant 3. Antiarrhythmic
INDICATIONS	<ol style="list-style-type: none"> 1. Eclampsia 2. Severe refractory ventricular fibrillation / pulseless ventricular tachycardia 3. Torsades de pointes
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Shock 2. Heart block
PRECAUTIONS	<ol style="list-style-type: none"> 1. Patients who are receiving digitalis 2. Hypotension 3. Patients with renal failure
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Flushing 2. Respiratory depression 3. Drowsiness
SUPPLIED	50% solution, 1 gram in 1 mL vial, injectable
ADULT DOSAGE	<p>Cardiac Arrest / Torsades or Hypomagnesia: 1-2 g IV diluted in 10 mL saline over 5 minutes</p> <p>Eclampsia: 4 g in 10 mL of Normal Saline IV over 2-3 minutes</p>
PEDIATRIC DOSAGE	25 – 50 mg /kg IV for Torsades only
GENERAL CONSIDERATIONS	

MEDICATIONS

DUO-DOTE (Atropine and Pralidoxime Chloride) VALIUM Auto Injector
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Pregnancy Category B

B	EMT-B	B
I	EMT – I	I
P	EMT – P	P

ACTIONS	<p>DuoDote:</p> <ul style="list-style-type: none"> Blocks nerve agents effects and relieves airway constriction and secretions in the lungs and gastrointestinal tract. Acts to restore normal functions at the nerve ending by removing the nerve agent and reactivating natural function. <p>Valium:</p> <ul style="list-style-type: none"> Given to treat seizures caused by exposure to nerve agents (buddy treatment) – SUPPLEMENT TO DUODOTE
INDICATIONS	Suspected or confirmed nerve agent exposure
CONTRAINDICATIONS	Both medications in the kit should be used with caution (but not withheld) in patients with preexisting cardiac disease, HTN, or CVA history.
PRECAUTIONS	
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Chest pain 2. Exacerbation of angina 3. Myocardial infarction 4. Blurred vision 5. Headache 6. Drowsiness 7. Nausea 8. Tachycardia 9. Hypertension 10. Hyperventilation
SUPPLIED	<p>DUODOTE – Each auto injector contains BOTH: Atropine 2.1 mg and Pralidoxime 600 mg</p> <p>Valium auto injector contains 10 mg</p>
ADULT DOSAGE	<p>For Nerve Agent Exposure (SLUDGE symptoms): Up to 3 auto injectors may be used for one patient based on signs (1-2 kits for self treatment – up to 3 for buddy treatment with severe symptoms)</p> <p>For Seizures Associated with Nerve Agent Exposure: 1 Valium auto injector (buddy administration)</p>
PEDIATRIC DOSAGE	DuoDotes are not authorized for the use of children under the age of 9 years
KEY POINTS	<ul style="list-style-type: none"> DuoDotes are reserved for treatment of public service personnel exposed to nerve agents
PROTOCOL USE	<ul style="list-style-type: none"> <u>Nerve Agent Exposure</u>

MEDICATIONS

MORPHINE SULFATE

I	EMT – I	I
P	EMT – P	P

ACTIONS	<ol style="list-style-type: none"> 1. Increases venous capacity reducing venous return 2. Mild vasodilatation 3. Decreases sensitivity to pain
INDICATIONS	<ol style="list-style-type: none"> 1. Cardiac chest discomfort and acute MI 2. Pain management
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. Head injury or head trauma 3. Seizure 4. Altered LOC 5. Undiagnosed abdominal pain 6. Patients with hypotension secondary to volume depletion 7. Multiple trauma patients
PRECAUTIONS	<ol style="list-style-type: none"> 1. If the patient responds with respiratory depression or hypotension, then administer Narcan to reverse the effects 2. Routinely monitor the patient’s respiratory effort 3. All patients MUST have supplemental oxygen administration 4. Morphine may mask pain, so conduct a complete assessment prior to administration 5. Routinely monitor oxygen saturation
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Respiratory depression 2. Altered LOC 3. Bradycardia 4. Nausea and vomiting 5. Constricted pupils
SUPPLIED	Pre-filled (tubex) 5 syringes containing 2 mg/mL 10mg.
ADULT DOSAGE	<p>Cardiac Chest Discomfort and Acute Pain Management and MI:</p> <p>2 mg every 4-5 min IV/IM titrate to response and resp. status (max dose 10 mg)</p>
PEDIATRIC DOSAGE	<p>Pain Management:</p> <p>0.05-0.1 mg/kg slow IV (max dose 2 mg) only per Medical Control</p>
GENERAL CONSIDERATIONS	Give morphine to patient’s with chest pain only after all three nitroglycerin have been administered.

MEDICATIONS

NALOXONE (Narcan)

I	EMT – I	I
P	EMT – P	P

ACTIONS	Reverses all effects from opioid agents such as respiratory depression and all central and peripheral nervous system effects.
INDICATIONS	<ol style="list-style-type: none"> 1. Respiratory depression due to opioids 2. Altered mental status of unknown origin
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. Caution when using on heroin overdose patients
PRECAUTIONS	<ol style="list-style-type: none"> 1. Naloxone may induce acute opiate withdrawal in patients who are physically dependent. Be prepared for a potentially combative patient. 2. Should be used and titrated to desired respiratory effect and not intended to restore full consciousness. 3. The effects of Naloxone do not usually last as long as the effects of opiates, therefore subsequent doses may need to be administered.
SIDE EFFECTS	Tachycardia, seizures, vomiting
SUPPLIED	2 mg in 2 mL pre-filled syringe
ADULT DOSAGE	2 - 4 mg IV/IM/IO may be repeated every 5 minutes to maintain respiratory effect or IN – 1mg atomized each nostril x 1
PEDIATRIC DOSAGE	0.1 mg/kg IV/IM/IO may be repeated every 5 minutes to maintain respiratory effect
GENERAL CONSIDERATIONS	

MEDICATIONS
NITROGLYCERIN

B	EMT-B	B
I	EMT - I	I
P	EMT - P	P

ACTIONS	<ol style="list-style-type: none"> 1. Vasodilatation 2. Coronary artery dilation 3. Decreases myocardial oxygen demand 4. Decreases vascular resistance
INDICATIONS	<ol style="list-style-type: none"> 1. Cardiac chest discomfort, angina and acute MI 2. Pulmonary edema 3. Hypertension
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity 2. Hypotension
PRECAUTIONS	<ol style="list-style-type: none"> 1. Avoid use in patients with intracranial pressure, glaucoma, hypotension 2. If the patient becomes hypotensive after Nitro administration, then place the patient in a semi-reclined position with legs elevated
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Throbbing headache 2. Hypotension 3. Dizzy 4. Weakness
SUPPLIED	<p>Many forms, including ointment, spray, tablets, sustained release capsules</p> <p>*** Basic EMT's may assist a patient with their own nitro.</p> <p>For use in the field, tablets of 0.4mg</p>
ADULT DOSAGE	<p>Cardiac Chest Discomfort: 0.4 mg SL every 5 minutes x 3 if BP greater than 90 with IV started, 110 without IV.</p> <p>Pulmonary Edema: 0.4 mg SL every 5 minutes x 3 if BP greater than 110</p> <p>Hypertensive Crisis: .04 mg SL x 1 ONLY If: BP greater than 120 Diastolic Repeat BP x 2 in both arms</p> <p><u>ALONG WITH:</u> signs and symptoms of CHF or Cardiac Ischemic chest pain</p> <p><u>ALONG WITH:</u> headache, blurred vision, focal deficit or altered LOC</p>
PEDIATRIC DOSAGE	Not recommended in pre-hospital setting
GENERAL CONSIDERATIONS	May repeat up to 3 doses if BP systolic greater than 90 with IV established or 110 without IV established.

MEDICATIONS

NITROUS OXIDE: OXYGEN

I	EMT – I	I
P	EMT – P	P

ACTIONS	<ol style="list-style-type: none"> 1. Nitrous oxide: oxygen is a blended mixture of 50% nitrous oxide and 50% oxygen 2. When inhaled, nitrous oxide / oxygen depresses the central nervous system, causing anesthesia. In addition, the high concentration of oxygen delivered along with the nitrous oxide increases oxygen tension in the blood, thereby reducing hypoxia. 3. Nitrous Oxide: oxygen is self-administered 4. Provides rapid, easily reversible relief of pain
INDICATIONS	<ol style="list-style-type: none"> 1. Chest pain secondary to infarction or angina 2. Acute urinary retention 3. Fractures / dislocations 4. Severe exterior burns 5. Kidney stones 6. Musculoskeletal trauma
CONTRA-INDICATIONS	<ol style="list-style-type: none"> 1. Decreased level of consciousness for any reason 2. History of drug or alcohol ingestion 3. History of COPD, emphysema, or any condition that may compromise respiratory efforts including: chest trauma, CHF, respiratory tract burns, or other trauma 4. Possible bowel obstruction or traumatic abdominal injury (gas might accumulate in the abdominal cavity or bowel) 5. Maxillofacial injuries or Head Injuries 6. OB patient not in the process of delivery 7. Pediatric patient less than 12 yrs. or less than 75 pounds 8. Intoxication 9. Psychiatric problems 10. Respiratory distress
PRECAUTIONS	In the United States, nitrous oxide for field use is supplied as Nitronox, a set containing an oxygen cylinder and a nitrous oxide cylinder joined by a valve that regulates flow to provide a 50:50 mixture of the two gasses. The mixture is piped to a demand valve apparatus.
SIDE EFFECTS	Dizziness, Apnea, Cyanosis, Nausea, Vomiting. Ambulance crew may experience giddiness if the vehicle is not properly vented.
SUPPLIED	Invert cylinder several times before use; instruct the patient to inhale deeply through a patient-held demand valve and mask or mouthpiece.
ADULT DOSAGE	Refer to nitrous oxide administration procedure.
PEDIATRIC DOSAGE	<ul style="list-style-type: none"> • Self-administered and self-regulated by the patient who must hold the mask to the face to create an airtight seal until the pain is significantly relieved or the patient drops the mask. • The child must be old enough to follow the instructions for use and large enough so that the mask creates an airtight seal. Give oxygen during intervals that nitrous oxide is not being used.
GENERAL CONSIDERATIONS	<ul style="list-style-type: none"> • Self-administered by mask: a good seal around mouth and nose is important; the gas is breathed deeply and may give relief after about two minutes; the patient should stop when relief is obtained. • The paramedic should not hold the face mask in place for the patient.

MEDICATIONS

ORAL INSTANT GLUCOSE

B	EMT-B	B
I	EMT – I	I
P	EMT – P	P

ACTIONS	Elevates blood glucose level
INDICATIONS	Correction of hypoglycemia
CONTRAINDICATIONS	1. Known hypersensitivity 2. Absents of a gag reflex
PRECAUTIONS	1. Patient must be alert and able to sufficiently swallow 2. Be alert for difficulty swallowing or choking due to the thick consistency
SIDE EFFECTS	Nausea and vomiting
SUPPLIED	One complete tube (15-25 g)
ADULT DOSAGE	One half to one complete tube (15-25 g)
PEDIATRIC DOSAGE	Half a tube
GENERAL CONSIDERATIONS	The patient must be alert and have the ability to swallow

MEDICATIONS**OXYGEN (O₂)**

B	EMT-B	B
I	EMT - I	I
P	EMT - P	P

ACTIONS	<ol style="list-style-type: none"> 1. Increases oxygen content of blood 2. Improves tissue oxygenation 3. Decreases energy expended for respirations
INDICATIONS	<ol style="list-style-type: none"> 1. Cardiac chest discomfort 2. Hypoxemia 3. Cardiopulmonary arrest 4. Trauma 5. Shortness of breath / dyspnea 6. Sedative drug administrations
CONTRAINDICATIONS	None in the pre-hospital setting
PRECAUTIONS	<ol style="list-style-type: none"> 1. Never withhold oxygen to those who need it 2. Be aware for respiratory depression in COPD patients on prolonged high flow oxygen 3. All sedative medication administration must have oxygen administration 4. Simple or partial rebreather face masks must be supplied with a minimum 10 L per minute 5. Non-rebreather face masks must be supplied with a minimum 12 L per minute 6. T-Piece Nebulizers must be supplied with 6 lpm
SIDE EFFECTS	High concentrations of oxygen may reduce the respiratory drive in some COPD patients; these patients should be carefully monitored.
SUPPLIED	As a compressed gas in cylinders of varying sizes
ADULT DOSAGE	12-15 lpm via NRB mask or 2-6 lpm via nasal cannula, 6-10 lpm via small volume nebulizer, unless otherwise indicated.
PEDIATRIC DOSAGE	12-15 lpm via NRB mask or 2-6 lpm via nasal cannula, or 6-10 lpm via unit dose nebulizer, unless otherwise indicated.
GENERAL CONSIDERATIONS	Scheduled hydrostatic tank checks

MEDICATIONS**SODIUM BICARBONATE****P EMT - P P**

ACTIONS	Restores buffering capacity of the body and neutralizes excess acid.
INDICATIONS	Cardiac arrest, metabolic acidosis
CONTRAINDICATIONS	Metabolic or respiratory alkalosis
PRECAUTIONS	Use caution in patients with renal insufficiency. Heart failure, or edematous or sodium retaining condition.
SIDE EFFECTS	Tetany, edema, metabolic alkalosis
SUPPLIED	50 mEq pre-filled syringe
ADULT DOSAGE	1 mEq/kg IV/IO
PEDIATRIC DOSAGE	1 mEq/kg IV/IO
GENERAL CONSIDERATIONS	<ul style="list-style-type: none">• Not routinely recommended for cardiac arrest because it may produce paradoxical acidosis from carbon dioxide production.• DO NOT administer through same IV line as Dopamine because it inactivates the Catecholamine effect.• Call Medical Control prior to administration of Sodium Bicarb

MEDICATIONS**TETRACAINE****P EMT – P P**

ACTIONS	Topical ophthalmic anesthetic
INDICATIONS	1. Application prior to eyes irrigation for anesthetic / pain management
CONTRAINDICATIONS	Hypersensitivity to “caine” family
PRECAUTIONS	Eye infections
SIDE EFFECTS	Local irritation
SUPPLIED	1 single dose bottle
ADULT DOSAGE	2 drops instilled in both eyes 30 seconds before eye irrigation and every 5 minutes during irrigation
PEDIATRIC DOSAGE	2 drops instilled in both eyes 30 seconds before eye irrigation and every 5 minutes during irrigation
GENERAL CONSIDERATIONS	

MEDICATIONS

VASOPRESSIN (Pitressin)

P EMT – P P

ACTIONS	<ol style="list-style-type: none"> 1. Alpha agonist 2. Causes vasoconstriction 3. Increases smooth muscle activity
INDICATIONS	<ol style="list-style-type: none"> 1. Ventricular fibrillation 2. Pulseless Ventricular tachycardia 3. Asystole / PEA
CONTRAINDICATIONS	Known hypersensitivity
PRECAUTIONS	Risk of hyponatremia
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Nausea / Vomiting 2. Diarrhea 3. Confusion 4. Pain at IV site
SUPPLIED	20 units / mL in a vial
ADULT DOSAGE	<p>Cardiac Arrest / Ventricular Fibrillation / Pulseless Ventricular Tachycardia: 40 units IV push</p>
PEDIATRIC DOSAGE	Vasopressin is not recommended for pediatric use
GENERAL CONSIDERATIONS	<ul style="list-style-type: none"> • The half-life of Vasopressin is approximately 10- 20 min. • May be used in place of 1st or 2nd dose of epinephrine

MEDICATIONS

MIDAZOLAM (Versed)

Pregnancy Category B

I	EMT – I	I
P	EMT – P	P

ACTIONS	Hypnotic and sedative effects
INDICATIONS	Premedication before cardioversion or transcutaneous pacing Status epilepticus
CONTRAINDICATIONS	<ol style="list-style-type: none"> 1. Known hypersensitivity to the drug 2. Hypotension 3. Respiratory Depression 4. Allergy to Benzodiazepines 5. Caution with CHF and COPD
PRECAUTIONS	<ol style="list-style-type: none"> 1. Use lower initial doses in elderly or debilitated patients 2. Avoid rapid injection
SIDE EFFECTS	<ol style="list-style-type: none"> 1. Drowsiness 2. Hypotensions 3. Amnesia 4. Respiratory Depression 5. CNS Depression 6. Nausea 7. Vomiting
SUPPLIED	2 mg / 2 ml vial (for IV use) 5 mg / 1 ml vial (for Intranasal use ONLY)
ADULT DOSAGE	<p>Seizure – With Vascular Access: 2 – 4 mg IV (2mg / 2 ml)</p> <p>Seizure – Without Vascular Access: 5 mg IN Atomized (5 mg / 1 ml) – (1/2 dose up each nostril)</p> <p>Procedural Sedation (Cardioversion, Pacing, Intubation) With Vascular Access: 2 – 4 mg IV (1 minute prior to procedure)</p> <p>Procedural Sedation (Cardioversion, Pacing, Intubation) No Vascular Access: 5 mg IN Atomized (5 mg / 1 ml) – (1/2 dose up each nostril – 1ml for each nostril)</p>
PEDIATRIC DOSAGE	<p>Seizure (WITH VASCULAR ACCESS): 0.1 mg / kg IV max dose 4 mg</p> <p>Seizure (WITHOUT VASCULAR ACCESS): 0.1 mg / kg IN (Use high concentration Versed 5 mg / 1 ml – (1/2 dose up each nostril)</p> <p>See <u>PEDIATRIC DRUG ADMINISTRATION CHART</u> for weight based administration</p>
KEY POINTS	Monitor respiratory status continuously Do Not Confuse Versed Concentrations. Use 2 mg / 2 ml for IV and 5 mg / 1 ml for IN (Intranasal) ATOMIZED ONLY
PROTOCOL USE	<ul style="list-style-type: none"> • <u>Adult Narrow Complex Tachycardia</u> • <u>Adult Seizures</u> • <u>Adult Wide Complex Tachycardia</u> • <u>Pediatric Seizures</u>

MEDICATIONS**ZOFRAN (Ondansetron Hydrochloride)****P EMT - P P**

ACTIONS	1. Antiemetic
INDICATIONS	1. Nausea 2. Vomiting
CONTRAINDICATIONS	1. Hypersensitivity 2. Hepatic impairment
PRECAUTIONS	1. Renal and hepatic disease 2. Pregnancy 3. Breast-feeding women
SIDE EFFECTS	1. Headache 2. Dizziness 3. Drowsiness 4. Fatigue 5. Diarrhea
SUPPLIED	2 - 2mg/mL vial 2mL vial
ADULT DOSAGE	Starting dose 2-4 mg slow IV / IM (0.15 mg/kg)
PEDIATRIC DOSAGE	2-12 yrs (greater than 40 kg) (0.15 mg/kg)
GENERAL CONSIDERATIONS	<ul style="list-style-type: none"> • IV route / assure patent IV in a large / patent vein, monitor for infiltrates • IM route, give deep IM (not subcut.) May give undiluted IM