2022 REMSA Paramedic Program Drug List (47 drugs)

Revised 4/25/2022

Acetaminophen (APAP)
Activated Charcoal
Adenosine (Adenocard)
Albuterol (Proventil)
Amiodarone (Cordarone)
Aspirin (Salicylate)
Atropine Sulfate
Calcium Chloride
Dextrose 50%, 25%, 10%
Diazepam (Valium)
Diltiazem (Cardizem)
Diphenhydramine (Benadryl)
Dopamine (Intropin)
Epinephrine (Adrenalin)
Epinephrine, Racemic (Micronefrin)
Etomidate (Amidate)
Fentanyl (Sublimaze)
Furosemide (Lasix)
Glucagon
Haloperidol (Haldol)
Hydroxocobalamin
Ibuprofen
Ipratropium (Atrovent)
Ketamine (Ketalar)
Lidocaine (Xylocaine)
Lorazepam (Ativan)
Magnesium Sulfate
Methylprednisolone (Solu-Medrol)
Metoprolol (Lopressor)
Midazolam (Versed)
Morphine Sulfate
Naloxone (Narcan)
Nitroglycerin (Nitro-Stat)
Nitro-Paste (Nitro-Bid Ointment)
Nitrous Oxide (Nitronox)
Norepinephrine (Levophed)
Ondansetron (Zofran)
Oral Glucose
Oxygen
Oxytocin (Pitocin)
Pralidoxime (2-PAM)
Pralidoxime (2-PAM)
Rocuronium
Sodium Bicarbonate
Succinylcholine (Anectine)
Thiamine (Betaxin)
Tranexamic Acid (TXA)

Acetaminophen (APAP)

Class:

Analgesic, antipyretic

Action:

Increases pain threshold by inhibiting cyclooxygenase and reduces fever by acting on the hypothalamus.

Has no anti-inflammatory properties or effect on platelets.

Indications:

Fever, pain relief

Contraindications:

Hypersensitivity and use caution in patients with liver disease.

Onset/Duration:

- Onset: 10-30 min PO
- Duration: 3-4 hours PO

Dose/route:

- Adult: 325-1000 mg PO every 4-6 hr
- Peds: 15 mg/kg PO/PR every 4-6 hr

Side Effects:

Nausea/vomiting, hepatotoxicity

Activated Charcoal

Class:

Antidote, adsorbent

Action:

Binds to and adsorbs ingested toxins thereby inhibiting their GI absorption.

Once the drug binds to the charcoal, the combined complex is excreted.

Indications:

Acute ingested poisonings that were ingested within the last hour

Contraindications:

Cyanide, mineral acids, caustic alkalis, iron, ethanol, methanol, corrosives, petroleum distillates.

Onset/Duration:

- Onset: Immediate
- Duration: Continual while in GI tract and reaches equilibrium once saturated

Dose/Route:

- Adult: 1 g/kg PO/ NG
- Peds: 1-2 g/kg PO/ NG

Side Effects:

Nausea, vomiting, abdominal cramping, constipation

Adenosine (Adenocard)

Class:

Misc. antidysrhythmic, endogenous nucleoside

Action:

Decreases electrical conduction through the AV node without causing negative inotropic effects.

It also acts on the SA node and vagal nerve terminals to decrease HR.

Indications:

Supraventricular tachycardia (SVT/PSVT)

Contraindications:

Hypersensitivity, bradycardia, drug induced tachycardia, 2nd or 3rd degree heart blocks, A-Fib, A-Flutter, V-Tach, WPW with A-Fib/flutter.

Onset/Duration:

- Onset: Immediate
- Duration/half-life: 10 seconds

Dose/Route:

- Adult: 6 mg rapid IV/IO push followed by 20 cc saline flush.
    - May repeat in 1-2 min at 12 mg rapid IV push followed by 20 cc saline flush. May repeat twice.
- Peds: 0.1mg/kg (max 6mg) IV/IO followed by 5-10 cc saline flush.
    - May repeat in 1-2 min at 0.2 mg/kg (max 12mg) IV/IO followed by 5-10 cc saline flush.

Side Effects:

Dizziness, headache, shortness of breath, hypotension, flushing, palpitations, chest pain, nausea/vomiting

Note:

Methylxanthine classified stimulants (caffeine & theophylline) usage will antagonize adenosine

Albuterol (Proventil)

Class:

Sympathomimetic, bronchodilator, beta-2 agonist

Action:

Sympathomimetic that is selective for Beta-2 adrenergic receptors.

Relaxes smooth muscles of the bronchial tree and peripheral vasculature by stimulating adrenergic receptors of sympathetic nervous system.

Indications:

Asthma, bronchospasms, reversible obstructive airway disease, anaphylaxis, hyperkalemia

Contraindications:

Hypersensitivity, caution with pts with cardiac dysrhythmias

Onset/Duration:

- Onset: 5-8 min
- Duration: 2-6 hours

Dose/Route:

- Adult/Peds: 2.5 mg diluted in 3 mL of Normal Saline, repeat as needed

Side Effects:

Tremors, tachycardia, hypertension, anxiety, nausea, headache, palpitations, cough, dizziness.

Note:

Albuterol may precipitate angina & cardiac dysrhythmias.

Use with caution in pt's with cardiovascular disorder, diabetes, seizure disorder, hyperthyroidism.

Beta blockers may antagonize albuterol.

Amiodarone (Cordarone)

Class:

Class III antidysrhythmic

Action:

Prolongs duration of the action potential and prolongs the refractory period, also may have beta adrenergic receptor and calcium channel blocking activity.

Works on both the ventricles and the atria

Indications:

V-Fib, hemodynamically unstable V-Tach, treatment for some stable atrial rhythms

Contraindications:

CHF, cardiogenic shock, bradycardia, 2nd or 3rd degree heart blocks with no pacemaker present, hypersensitivity to amiodarone or iodine

Onset/Duration:

- Onset: within minutes
- Duration: Variable but considered 30 – 45 days

Dose/Route:

- Adult:
    - Pulseless V-Tach/V-Fib arrest - 300mg IV/IO may repeat once at 150mg IV/IO.
    - V-Tach with a pulse 150mg IV drip over 10 minutes up to max of 2.2g in 24 hours
- Peds:
    - Pulseless V-Tach/V-Fib arrest - 5mg/kg IV/IO.
    - V-Tach with a pulse 5mg/kg IV drip over 20-60 minutes with a max of 15mg/kg/day.

Side Effects:

Bradycardia, hypotension, headache, CHF, abnormal liver/thyroid functions. In rare cases can cause pulmonary fibrosis

Aspirin (Salicylate)

Class:

Analgesic, nonsteroidal anti-inflammatory drug (NSAID), antipyretic, and antiplatelet

Action:

Inhibits prostaglandins involved in the production of inflammation, pain and fever.

Dilates peripheral vessels and inhibits platelet aggregation by blocking the formation of thromboxane A2.

Indications:

Acute coronary syndrome (ACS) such as myocardial infarction, ischemic chest pain or angina, and given for mild to moderate pain or fever.

Contraindications:

GI bleeding, hemorrhagic stroke, active gastric ulcers, bleeding disorders, asthma, hypersensitivity to salicylates, children

Onset/Duration:

- Onset: 15-30 min
- Duration: 4-6 hours

Dose/Route:

- Adult: Mild pain/fever – 325-650 mg PO every 4 hours.
    - ACS – 2 to 4 baby chewable aspirin, 162-324 mg OR 1 adult aspirin, 325mg PO.
- Peds: Not indicated in pre-hospital setting

Side Effects:

Stomach irritation, GI bleeding, nausea/vomiting

Note:

Children under 12 should not be given Aspirin as they may develop Reye's syndrome.

Atropine Sulfate

Class:

Anticholinergic, Parasympatholytic

Action:

Inhibits actions of acetylcholine (mostly at muscarinic receptor sites) causing decreased salivation and bronchial secretions, increased heart rate and decreased gastric motility.

Indications:

Hemodynamically unstable bradycardia, organophosphate or nerve gas poisoning

Contraindications:

Tachycardia, hypersensitivity, avoid use with hypothermic pts, caution in pts with an active MI and hypoxia

Onset/Duration:

- Onset: Rapid
- Duration: 2-6 hours

Dose/Route:

- Adult:
    - Bradycardia – 1 mg IV/IO q 3-5 min up to max total of 3 mg
    - Organophosphate poisoning – 1 to 5mg IV/IM/IO repeated 3-5 min until cessation of bronchial secretions
- Peds:
    - Bradycardia NOT responding to Epi- 0.02mg/kg IV/IO (min dose of 0.1 mg and max single dose 0.5 mg) with maximum total of 1 mg for a child and 3 mg for an adolescent.
    - Organophosphate peds < 12 yrs old - 0.05mg/kg IV/IM/IO may be repeated every 20-30 mins until cessation of bronchial secretions.

Side Effects:

Tachycardia, paradoxical bradycardia if given too slow or too small of dose, mydriasis (dilated pupils), dysrhythmias, headache, nausea/vomiting, headache, dizziness, flushed, anticholinergic effects (dry mouth/nose/skin, blurred vision, urinary retention, constipation)

Note:

Effects of atropine may be potentiated by antihistamines, procainamide, quinidine, antipsychotics, antidepressants, and thiazides.

Calcium Chloride

Class:

Electrolyte, hypertonic solution

Action:

It is an essential element for regulating the excitation threshold of nerves and muscles, normal cardiac contractility, and blood coagulation.

Indications:

Hyperkalemia, hypocalcemia, hypermagnesemia, calcium channel blocker overdose

Contraindications:

V-Fib during cardiac resuscitation, digitalis toxicity, hypercalcemia

Onset/Duration:

- Onset: 5-15 min
- Duration: Dose dependent but may last up to 4 hours

Dose/Route:

- Adult: 1-2 g (10-20 ml) slow IV of 10% solution
- Peds: 20 mg/kg slow IV of 10% solution

Side Effects:

Bradycardia, hypotension, Metallic taste in mouth, local necrosis if given IM or IV infiltration

Dextrose 50%, 25%, 10%

Class:

Carbohydrate, hypertonic solution

Action:

A monosaccharide, which provides calories for metabolic needs, spares body proteins and loss of electrolytes

Indications:

Hypoglycemia.

If protocol allows also for altered ALOC, coma, and seizure of unknown origin

Contraindications:

Intracranial hemorrhage, increased intracranial pressure, known or suspected stroke in the absence of hypoglycemia

Onset/Duration:

- Onset: 1 min
- Duration: Variable depending on degree of hypoglycemia

Dose/Route:

- Adult: 12.5-25 g slow IV (25-50 ml 50% dextrose; 125-250 ml 10% dextrose)
- Peds: 0.5-1 g/kg (2-4 ml/kg) IV of 25% dextrose
- Neonates: 0.5-1 g/kg (2-4 ml/kg) IV of 10% dextrose

Side Effects:

Hyperglycemia, thrombophlebitis

Note:

If given through infiltrated IV, will cause tissue necrosis so use large vein and flush with saline to ensure IV patency.

D50 may cause Wernicke's encephalopathy in thiamine deficient patient (alcoholics and malnourished pts) so if these conditions are suspected, administer 100 mg Thiamine IV prior to administering D50.

Diazepam (Valium)

Class:

Benzodiazepine

Action:

Increases the activity of the inhibitory neurotransmitter GABA, thereby producing a sedative effect, relaxing skeletal muscles, and raising the seizure threshold.

Indications:

Seizure activity, acute anxiety, skeletal muscle relaxation, sedation for pacing/ cardioversion, acute alcohol withdrawal

Contraindications:

Hypersensitivity, respiratory depression, head injury w/ CNS depression, shock, and coma.

Use with caution in pts with acute substance abuse.

Onset/Duration:

- Onset: 1-5 min IV and 15-30 min IM
- Duration: 15-60 min IV and 15-60 min IM

Dose/Route:

- Adult:
    - Seizures – 5 to 10 mg IV over 2 mins every 10-15 min as needed & a max of 30 mg.
    - Premedication for pacing/ cardioversion – 5-15 mg IV 10 minutes prior to
- Peds:
    - Ages 30 days to 5 yrs – 0.2-0.5 mg slow IV push over 2 mins every 2-5 min to a max of 5 mg.
    - Peds 5 yrs or older – 1 mg slow IV push over 2 mins every 2-5 min with a max of 10 mg.

Side Effects:

Respiratory depression, altered LOC, hypotension, amnesia, confusion, nausea, vomiting, blurred vision

Diltiazem (Cardizem)

Class:

Calcium channel blocker

Action:

Inhibits calcium ion influx through slow channels into the cell of myocardial and arterial smooth muscle.

Slows SA and AV nodal conduction.

Dilates coronary arteries and arterioles thus inhibits coronary artery spasms.

Indications:

A-Fib and A-Flutter, multifocal atrial tachycardia, SVT/PSVT refractory to Adenosine.

Contraindications:

Hypersensitivity, 2nd and 3rd degree heart block, hypotension, cardiogenic shock, ventricular rhythms, sick sinus syndrome, Wolf-Parkinson-White syndrome, AMI, V-Tach.

Onset/Duration:

- Onset: 2-5 min
- Duration: 1-3 hours

Dose/Route:

- Adult: 15-20 mg IV (0.25mg/kg) over 2 min, may be repeated in 15 min at 20-25 (0.35mg/kg) mg IV over 2 min.
    - Maintenance infusion 5-15 mg/hr titrated to HR.
- Peds: Not recommended in the prehospital setting

Side Effects:

Headache, dizziness, hypotension, 1st and 2nd degree heart block, bradycardia, palpitations, CHF, chest pain, ventricular rhythms.

Note:

Use caution with renal/liver impaired pt's and those taking beta blockers.

Diphenhydramine (Benadryl)

Class:

Antihistamine

Action:

Blocks histamine H_1 receptor sites thereby inhibiting actions of histamine release.

Indications:

Allergic reactions, anaphylaxis, acute extrapyramidal reaction (dystonia)

Contraindications:

Hypersensitivity, pt's taking MAO inhibitors, caution with narrow-angle glaucoma, newborns and nursing mothers.

Onset/Duration:

- Onset: 5-15 min with max effects in 1-3 hrs
- Duration: 6-12 hrs

Dose/Route:

- Adult: 25-50mg IV/IM/PO with a max of 400 mg/day
- Peds: 1 mg/kg IV/IM/PO with a max of 300 mg/day

Side Effects:

Drowsiness, palpitations, hypotension, tachycardia or bradycardia, disturbed coordination, dry mouth/throat, thickening of bronchial secretions.

Note:

Use with caution in CNS depressed pts and pts with lower respiratory tract diseases such as asthma.

Dopamine (Intropin)

Class:

Sympathomimetic, vasopressor

Action:

Acts primarily on alpha-1 and beta-1 adrenergic receptors.

At low doses (2-5 mcg/kg/min), it may act on dopaminergic receptors causing renal, mesenteric, and cerebral vascular dilation.

At moderate doses (5-10 mcg/kg/min), dopamine stimulates mostly beta 1 receptors causing increased cardiac contractility and output.

At high doses (10-20 mcg/kg/min) dopamine has mostly alpha-1 stimulation effects causing peripheral arterial and venous constriction.

Indications:

Hemodynamically significant hypotension in the absence of hypovolemia such as in cardiogenic shock, neurogenic shock, septic shock.

Second line pharmacological treatment for bradycardia after atropine.

Contraindications:

Hypovolemia, trauma, tachydysrhythmias, V-Fib, pt's with pheochromocytoma.

Onset/Duration:

- Onset: 2-4 min
- Duration: 10-15 min

Dose/Route:

- Adult: 2-20 mcg/kg/min IV drip and titrate to desired effect
- Peds: Same as adult

Side Effects:

Tachycardia, hypertension, anxiety, headache, nausea/vomiting, increased myocardial oxygen demand, mydriasis, dose-related tachydysrhythmias

Epinephrine (Adrenalin)

Class:

Sympathomimetic

Action:

Endogenous catecholamine that directly stimulates both alpha-1, beta-1 and beta-2 adrenergic receptors.

The effects this will have on the heart include increased contractile force, increased rate, and increased cardiac output.

Epinephrine is also a potent vasoconstrictor as well as a bronchodilator.

Other effects include slowing of gastric motility, miosis, and pale skin.

Indications:

Anaphylaxis, cardiac arrest, asthma, bradycardia (first line in peds), shock not caused by hypovolemia, severe hypotension accompanied with bradycardia when pacing and atropine fail.

Contraindications:

Hypovolemic shock. Caution should be used in patients with known cardiovascular disease or pts > 45 y/o

Onset/Duration:

Onset: 1-2 min IV, 5-10 mins SQ

Duration: 5-10 min IM

Dose/Route:

- Adult:
    - Cardiac arrest – 1 mg (0.1mg/1mL) IV/IO every 3-5 min with no max.
    - Anaphylaxis/asthma – 0.3-0.5 mg SQ/IM (1mg/1mL). If no response, some protocols give 0.3-0.5 mg IV (0.1mg/1mL).
    - Post cardiac arrest or for bradycardia with severe hypotension –2-10 mcg/min IV drip and titrate to effect.
- Peds:
    - Cardiac arrest – 0.01 mg/kg (0.1mg/1mL) IV/IO max of 1 mg every 3-5 mins.
    - Anaphylaxis/asthma – 0.01 mg/kg (1mg/1mL) SQ/IM with a max single dose 0.3 mg.

Side Effects: Tachycardia, hypertension, anxiety, cardiac dysrhythmias, tremors, dyspnea

Note: Always use epinephrine 1mg/1mL when given SQ/IM and 0.1mg/1mL when given IV/IO. Giving concurrently with alkaline solutions such as sodium bicarbonate will cause crystallization of fluid.

Epinephrine, Racemic (Micronefrin)

Class:

Sympathomimetic

Action:

Racemic Epinephrine is an inhaled version of epinephrine that is used as a bronchodilator and as an anti-inflammatory to treat laryngeal/tracheal swelling and edema.

Its actions are the same as epinephrine but since it is inhaled it has both systemic and localized effects.

Indications:

Laryngotracheobronchitis (croup), asthma, bronchospasms, laryngeal edema

Contraindications:

Hypertension, epiglottitis. Use caution in patients with known cardiovascular disease or in pts > 45 y/o.

Onset/Duration:

- Onset: 5 min
- Duration: 1-3 hrs

Dose/Route:

- Adult: 0.5mL (2.25%) in 5mL NS over 15 min
- Peds: All doses given via aerosolized neb.
    - For pts < 6 months – 0.25 ml (2.25%) diluted in 3 ml NS.
    - For pts > 6 months – 0.5 ml (2.25%) diluted in 3 ml NS.

Side Effects: Tachycardia, hypertension, anxiety, cardiac dysrhythmias, tremors

Etomidate (Amidate)

Class:

Anesthetic, non-barbiturate hypnotic

Action:

Etomidate is a very potent drug that acts on the reticular activating system to produce a short-acting anesthesia with amnesic properties.

Etomidate has very little effect on respiratory drive which makes it ideal for certain procedures.

Indications:

Premedication prior to procedures such as endotracheal intubation, synchronized cardioversion, conscious sedation for bone dislocation relocation.

Contraindications:

Hypersensitivity, labor and delivery

Onset/Duration:

- Onset: < 1 min
- Duration: 5-10 min

Dose/Route:

- Adult: 0.3mg/kg IV over 30-60 sec, limited to one dose
- Peds: >10 years- 0.3mg/kg IV over 30-60 sec with a max dose of 20 mg

Side Effects:

Hypotension, hypertension, dysrhythmias, hypoventilation, nausea/vomiting, cortisol suppression

Note:

Primarily used for Rapid Sequence Intubation/induction (RSI) in the prehospital setting

Fentanyl (Sublimaze)

Class:

Synthetic Opioid analgesic

Action:

Combines with the receptor sites in the brain to produce potent analgesic effects.

Indications:

Pain and sedation, sedation for invasive airway procedures

Contraindications:

Hypersensitivity to opiates, hypotension, head injury, respiratory depression, cardiac dysrhythmias, myasthenia gravis

Onset/Duration:

- Onset 1-2 min IV
- Duration 30-60 min

Dose/Route:

- Adult: 0.5 – 2 mcg/kg IV/IN/IM over 2 mins, q 5 min, max single dose of 100 mcg, max total dose of 300 mcg.
- Peds: 0.5 – 1 mcg/kg IV/IN/IM over 2 mins, q 5 min, max single dose of 100 mcg, max total dose of 3 mcg/kg.

Side Effects:

Respiratory depression, hypotension or hypertension, bradycardia, nausea/vomiting, and rigidity of chest wall muscles

Furosemide (Lasix)

Class:

Loop diuretic

Action:

Furosemide is a potent diuretic that inhibits the reabsorption of sodium and chloride in the proximal tubule and loop on Henle.

IV doses can also reduce cardiac preload by increasing venous capacitance.

Indications:

Pulmonary edema (CHF) with SBP > 90, hypertensive emergencies, hyperkalemia

Contraindications:

Anuria, hypersensitivity, hypovolemia, hypokalemia

Onset/Duration:

- Onset: 15-20 min IV
- Duration: 2 hrs

Dose/Route:

- Adult: 20-40 mg IV over 1-2 min. If no response double dose up to 2 mg/kg over 1-2 min. Most services allow up to a max of 40-80 mg IV.
- Peds: 1 mg/kg/dose IV over 1-2 min with a total max of 6 mg/kg

Side Effects:

Tinnitus and hearing loss (if given too quickly), hypotension, hypokalemia, hyponatremia, hypocalcemia, hyperglycemia

Note:

Must give slowly or may cause permanent hearing problems.

Glucagon

Class:

Pancreatic hormone

Action:

Glucagon stimulates the liver to breakdown glycogen into glucose resulting in an increase in blood glucose. Also stimulates glucose synthesis.

Glucagon also has a positive inotropic action on the heart even in the presence of beta blockade or calcium channel blockade, which makes it useful for beta-blocker or calcium channel blocker overdose.

Glucagon also relaxes smooth muscle of the GI tract, primarily the esophagus, which makes it useful for esophageal obstruction.

Indications:

Hypoglycemia (when IV access is not available), beta-blocker overdose, calcium channel blocker overdose, esophageal obstruction

Contraindications:

Hypersensitivity (usually to proteins)

Onset/Duration:

- Onset: 10-20 min IM, 1 min if IV
- Duration: 60-90 min

Dose/Route:

- Adult: Hypoglycemia – 1 mg IM/IN may repeat in 10 min if protocol allows. Can be mixed in 9mL NS for IV administration.
    - Calcium channel or beta blocker overdose – 3-10 mg IV over 3-5 min followed by an infusion at 3-5 mg/hr.
- Peds: < 20 kg – 0.5 mg IM/IN, > 20 kg - 1.0 mg IM/IN

Side Effects:

Tachycardia, hypotension, nausea/vomiting, urticaria

Note:

Glucagon requires glycogen stores in the liver to increase blood glucose. If patient is malnourished, glucagon may not work.

Haloperidol (Haldol)

Class:

Antipsychotic, neuroleptic

Action:

Blocks dopamine type-2 receptors in the brain thereby altering mood and behavior.

Indications:

Acute psychotic episodes, emergency sedation of severely agitated or delirious pts

Contraindications:

Hypersensitivity, CNS depression, pregnancy, Parkinson's disease, seizure disorder, liver or cardiac disease

Onset/Duration:

- Onset: 30-60 min IM
- Duration: 12-24 hrs

Dose/Route:

- Adult: 5 mg IV or 10 mg IM, q 5-10 min, max of 15 mg.
- Peds: (6-12 years) 1-3mg IM (max 0.15 mg/kg)

Side Effects: Dose-related extrapyramidal reactions, hypotension, nausea/vomiting, blurred vision, drowsiness.

Hydroxocobalamin (Cyanokit)

Class:

Vitamin, antidote

Action:

Active form of Vitamin B_{12} used to treat known or suspected cyanide poisoning.

Indications:

Known or suspected cyanide poisoning

Contraindications:

Hypersensitivity

Onset/Duration:

- Onset: Rapid
- Duration: > 24 hrs

Dose/Route:

- Adult: 5 g IV infusion over 15 min. Can repeat 5 g IV infusion over 2 hrs up to 10 g total.
- Peds: 70 mg/kg IV infusion over 15 min.

Side Effects:

Hypertension, headache, nausea, photophobia, red-colored urine and skin

Note:

The vial should be repeatedly inverted or rocked, not shaken, for at least 60 sec prior to administration. Use vented IV administration tubing.

Ibuprofen

Class:

Nonsteroidal Anti-Inflammatory (NSAID)

Action:

Slows prostaglandin synthesis by inhibiting COX-1 and COX-2 enzymes, thereby decreasing inflammation.

Indications:

Pain, fever, various inflammatory disorders.

Contraindications:

Hypersensitivity, bleeding disorders, renal failure or disease, active peptic ulcer disease, preterm infants with infection, congenital heart disease from patent ductus arteriosis.

Onset/Duration:

- Onset: 30-60 min
- Duration: 6-8 hrs

Dose/Route:

- Adult: 400-800 mg PO, every 6-8 hrs
- Peds: 10 mg/kg PO, (up to 400 mg) every 4-6 hrs

Side Effects:

Bleeding disorders, nausea, headache, rash, edema.

Note:

May antagonize effects of Angiotensin Converting Enzyme (ACE) inhibitors, beta blockers, angiotensin-receptor antagonist medications, salicylates, and certain classes of diuretic medications.

Ipratropium (Atrovent)

Class:

Anticholinergic, bronchodilator

Action:

Ipratropium blocks interaction of acetylcholine at receptor sites on bronchial smooth muscle resulting in bronchodilation, reduced mucus production, and decreased levels of cyclic guanosine monophosphate.

Indications:

Persistent bronchospasms, asthma, COPD exacerbation

Contraindications:

Hypersensitivity to ipratropium, atropine

Onset/Duration:

- Onset: < 15 min
- Duration: 2-4 hrs

Dose/Route:

- Adult: 0.5 mg diluted in 2.5 ml NS via nebulizer. May repeat dose twice per most protocols
- Peds: 250-500 mcg diluted in 2.5 ml saline via nebulizer every 20 mins up to 3 doses

Side Effects:

Mydriaisis, tachycardia, blurred vision, nausea/vomiting, headache, anxiety, blurred vision.

Ketamine (Ketalar)

Class:

Nonbarbiturate anesthetic

Action:

Acts on the limbic system and cortex to block afferent transmission of impulses associated with pain perception.

It produces short-acting amnesia without muscular relaxation.

A derivative of phencyclidine (PCP).

Indications:

Pain, sedation and sometimes used as an adjunct to nitrous oxide

Contraindications:

Stroke, hypersensitivity, severe hypertension, cardiac instability. Caution with schizophrenia.

Onset/Duration:

- Onset: 30 sec
- Duration: 5-10 min up to 1-2 hours

Dose/Route:

- Adult:
    - Sedation- 1-2 mg/kg IV over 1 min or 4 mg/kg IM.
    - Pain – 0.3 mg/kg IV/IO/IM/IN
- Peds
    - Sedation (> 2 y/o) 1-2 mg/kg IV over 1 min.
    - Pain – 0.3 mg/kg IV/IO/IM/IN

Side Effects:

Hypertension, increased heart rate, hallucinations, delusions, explicit dreams.

Note:

Common street use these days in conjunction with narcotics because they potentiate each other for a longer/higher euphoria.

Giving Narcan will only affect the narcotic NOT the Ketamine therefore only a minimal short-lasting effect.

Lidocaine (Xylocaine)

Class:

Class 1B Antidysrhythmic

Action:

Lidocaine is a sodium channel blocker that acts primarily on the ventricles of the heart during phase 4 diastolic depolarization which decreases automaticity, suppresses premature ventricular complexes, and raises the V-Fib threshold.

Indications:

Significant ventricular ectopy with ischemia/MI, pulseless V-tach or V-Fib cardiac arrest, stable V-tach with a pulse

Contraindications:

Hypersensitivity, prophylactic use in an acute MI, 2nd or 3rd degree heart block in the absence of a pacemaker, Stokes-Adams syndrome

Onset/Duration:

- Onset: 30-90 sec
- Duration: 10-20 min

Dose/Route:

- Adult:
    - Cardiac arrest - 1-1.5 mg/kg IV/IO bolus → may be repeated in 5-10 mins at 0.5-0.75 mg/kg with a total max of 3 mg/kg.
        - Bolus is followed by a maintenance infusion drip of 1-4 mg/min post-cardiac arrest.
    - For PVC's or V-tach with a pulse – 0.5-0.75 mg/kg IV/IO up to 1-1.5 mg/kg IV/IO and may be repeated with a total max dose of 3 mg/kg
- Peds:
    - Cardiac Arrest - 1 mg/kg IV/IO bolus followed by maintenance infusion drip of 20-50 mcg/kg/min IV/IO post-cardiac arrest.
    - For PVC's or V-tach with a pulse – 1 mg/kg IV/IO.

Side Effects:

Blurred vision, dizziness, hypotension, bradycardia, seizures, altered LOC

Note:

Use caution in patients with impaired liver/renal function and the elderly. May half the initial dose for pts >70 y/o.

Lorazapam (Ativan)

Class:

Benzodiazepine

Action:

Increases the activity of the inhibitory neurotransmitter GABA, thereby producing a sedative effect, relaxing skeletal muscles, and raising the seizure threshold.

Indications:

Seizures, agitation, anxiety, alcohol withdrawal.

Contraindications:

Hypersensitivity, hypotension, respiratory depression, CNS depression.

Onset/Duration:

- Onset: 2-10 min IV
- Duration: 6-8 hrs

Dose/Route:

- Adult: 1-4 mg IM/IV, every 15-20 min up to 8 mg max total dose.
- Peds: 0.1 mg/kg IV/IO/IM/PR/IN over 2 min, can be repeated once in 5-10 min up to 4 mg.

Side Effects:

Respiratory depression, hypotension, tachycardia, bradycardia, CNS depression, blurred vision.

Magnesium Sulfate

Class:

Electrolyte, anticonvulsant

Action:

Reduces striated muscle contractions and blocks peripheral neuromuscular transmission by reducing acetylcholine release at the myoneural junction.

Indications:

Seizures due to eclampsia after seizure activity is stopped, torsades de pointes, unstable V-Tach attributed to digitalis toxicity, hypomagnesemia, status asthmaticus unresponsive to beta-adrenergic drugs

Contraindications:

Any heart block or myocardial damage, hypotension

Onset/Duration:

- Onset: Immediate IV
- Duration: 30 min IV

Dose/Route:

- Adult:
    - Pulseless arrest (hypomagnesemia and torsades de pointes) and status asthmaticus – 1-2 g diluted in 10 ml D5W/NS IV/IO.
    - Torsades de pointes or hypomagnesemia WITH A PULSE – 1-2 g in 100ml D5W/NS over 5-60 min IV.
    - Eclampsia – 4 g IV drip over 20 min, with a max dose of 30-40 g/day
- Peds:
    - Pulseless arrest or hypomagnesemia/torsades with a pulse – 25-50 mg/kg IV/IO (max 2 g) over 10-20 mins.
    - Status asthmaticus - 25-50 mg/kg IV/IO (max 2 g) diluted 100 ml D5W/NS over 15-30 mins.

Side Effects:

Hypotension, facial flushing, hyporeflexia (decreased reflexes), bradycardia, respiratory depression, diaphoresis.

Note:

If overdose is suspected (indicated by decreased deep tendon reflexes) may give calcium chloride or calcium gluconate to reverse effects.

Methylprednisolone (Solu-Medrol)

Class:

Corticosteroid, Glucocorticoid

Action:

Synthetic steroid that suppresses acute and chronic inflammation.

It also potentiates vascular smooth muscle relaxation by beta-adrenergic agonists and may alter airway hyperactivity.

Indications:

Anaphylaxis, asthma unresponsive to bronchodilators, adrenal insufficiency

Contraindications:

Caution in pt's with GI bleeding, diabetes, severe infection

Onset/Duration:

- Onset: 1-2 hrs
- Duration: 8-24 hours

Dose/Route:

- Adult: 2 mg/kg (Max 125mg) IV
- Peds: 1-2 mg/kg (Max 60mg) IV

Side Effects:

Hypertension, hypokalemia, headache, alkalosis, sodium and water retention

Note:

Use in spinal injury and shock is controversial

Metoprolol (Lopressor)

Class:

Beta blocker

Action:

Blocks beta-adrenergic receptor sites in the heart, lungs and blood vessels.

The beta 1 blocking action on the heart decreases heart rate, conduction velocity, myocardial contractility, and cardiac output.

The beta 2 effects may cause bronchoconstriction.

Indications:

Supraventricular tachycardia (SVT/PSVT), Atrial Fibrillation, Atrial Flutter, to reduce myocardial ischemia and damage in acute myocardial infarction/unstable angina

Contraindications:

Hypersensitivity, hemodynamically unstable pts, CHF, decreased cardiac output, cardiogenic shock, 2nd or 3rd degree heart blocks, bradycardia, SBP < 100.

Onset/Duration:

- Onset: 1-2 min
- Duration: 6-8 hours

Dose/Route:

- Adult: 5 mg slow IV at 5 min intervals and may repeat up to 15 mg max.
- Peds: Not recommended in prehospital setting

Side Effects:

Bradycardia, hypotension, AV conduction delays, palpitations

Note:

If given concurrently with calcium channel blockers, such as verapamil and cardizem, may cause severe hypotension. Caution in pt's with liver/renal dysfunction and asthma.

Midazolam (Versed)

Class:

Benzodiazepine

Action:

Increases the activity of the inhibitory neurotransmitter GABA, thereby producing a sedative effect, relaxing skeletal muscles, and raising the seizure threshold.

Provides anterograde amnesia.

Indications:

Seizures and anxiety.

Premedication for intubation, cardioversion or conscious sedation procedures.

Contraindications:

Hypersensitivity, shock, respiratory depression, depressed VS.

Use caution with CNS depressants including barbiturates, alcohol, and narcotics and glaucoma.

Onset/Duration:

- Onset: 1-3 min IV
- Duration: 2-6 hours IV

Dose/Route:

- Adult: 0.1 mg/kg IV/IO/IM/IN, every 5 min up to 10 mg max total dose.
- Peds: 0.05-0.3 mg/kg IV/IO/IM/IN, every 5 min up to 5 mg max single dose.

Side Effects:

Hypotension, respiratory depression or arrest, CNS depression, hiccups, oversedation, blurred vision.

Note:

May be given IM since Midazolam is water based.

Should be given with analgesic for painful procedures.

Morphine Sulfate

Class:

Opioid analgesic

Action:

Morphine is a natural opioid analgesic.

Morphine also causes venous dilation and decreased venous return to the heart thus reducing myocardial oxygen demand.

Morphine also causes euphoria, central nervous system depression and sedation.

Indications:

Acute pain, chest pain associated with ACS, pulmonary edema

Contraindications:

Hypersensitivity to narcotics, CNS depression, respiratory depression, hypotension, hypovolemia, head injury, increased ICP, respiratory depression, pts that took MAO inhibitors in last 14 days, and caution with pt's with RV infraction/MI

Onset/Duration:

- Onset: 5-10 min
- Duration: 4-5 hrs

Dose/Route:

- Adult: 2-5 mg IV/IM repeat every 10 min prn
- Peds: 0.1 mg/kg IV, every 10 min up to 5 mg max single dose (max total dose of 15 mg)

Side Effects:

Hypotension, CNS depression, tachycardia, respiratory depression

Note:

CNS depressants and Phenothiazines may potentiate morphine. Use Narcan for Morphine overdoses.

Naloxone (Narcan)

Class:

Opioid antagonist

Action:

Narcan is a competitive opiate antagonist used in known or suspected opioid overdose.

Indications:

Suspected or known opioid overdose with respiratory depression.

Contraindications:

Hypersensitivity. Caution with narcotic dependent pt's who may experience withdrawal syndrome to include neonates of narcotic-dependent mothers. Avoid use with Meperidine induced seizures.

Onset/Duration:

- Onset: 2 min
- Duration: 30-120 min

Dose/Route:

- Adult: 0.4 – 2mg IV/IO/IM/IN may repeat up to 10 mg max
- Peds: 0.1 mg/kg IV/IO/IM/IN, max single dose of 2 mg

Side Effects:

Withdrawal symptoms, dysrhythmias, nausea/vomiting, hypertension, tachycardia, seizures, blurred vision.

Note:

Titrate to control airway and breathing, should NOT be used to completely reverse narcotic effects due to complications with withdrawal syndrome, combativeness, etc.

Nitroglycerin (Nitro-Stat)

Class:

Nitrate, vasodilator

Action:

Nitroglycerin is an organic nitrate and potent vasodilator.

It relaxes vascular smooth muscle resulting in coronary artery dilation while also reducing blood pressure, preload, afterload, and myocardial oxygen demand.

Indications:

Chest pain, acute coronary syndromes (ACS), pulmonary edema associated with CHF, hypertensive emergencies

Contraindications:

Hypersensitivity, pts that have taken erectile dysfunction drugs (Cialis, Levitra, Viagra, etc.) within the last 24-72 hours, head injury, SBP < 100, cerebral stroke or hemorrhage, extreme bradycardia or tachycardia, right ventricular infarction, volume depletion.

Onset/Duration:

- Onset: 1-3 min
- Duration: 25 min SL

Dose/Route:

- Adult: 0.4 mg SL, every 3-5 min up to three total doses for 1.2 mg; metered dosing at 0.4mg/dose (Max 5 doses within 15 min)
    - Pulmonary edema- 0.8mg (SBP >160mmHg) or 1.2mg (SBP >200mmHg)
- Peds: Not recommended in prehospital setting

Side Effects:

Headache, hypotension, palpitations, dizziness, reflex tachycardia, nausea/vomiting, postural syncope, diaphoresis.

Note:

NTG must be kept in an airtight container and, if exposed to light, air or heat, it decomposes which is why most pt's own prescription doesn't relieve their symptoms since pt's need to refill every 30 days if opened/used.

Nitro-Paste (Nitro-Bid Ointment)

Class:

Vasodilator, Nitrate

Action:

Nitroglycerin is an organic nitrate and potent vasodilator.

It relaxes vascular smooth muscle resulting in coronary artery dilation while also reducing blood pressure, preload, afterload, and myocardial oxygen demand.

Indications:

Typically given for ACS and chest pain with an associated acute myocardial infarction

Contraindications:

Hypersensitivity, pt's that have taken erectile dysfunction drugs (Cialis, Levitra, Viagra, etc.) within the last 24-72 hours, head injury, SBP < 100, cerebral stroke or hemorrhage, extreme bradycardia or tachycardia, right ventricular infarction, volume depletion.

Onset/Duration:

- Onset: 15-60 min
- Duration: 2-12 hr

Dose/Route:

- Adult: 1-2 inches applied to skin (usually the chest) that is free of hair. Applied with Nitro-Paste paper or other transdermal application paper/tape
- Peds: Not recommended in the prehospital setting

Side Effects:

Headache, hypotension, palpitations, dizziness, reflex tachycardia, nausea/vomiting, postural syncope, diaphoresis.

Note:

Nitro-Paste contains 2% nitroglycerin in an absorbent paste and is applied to the pt's skin to be absorbed through the skin (transdermal).

Typically paste is administered in the pre-hospital setting during longer ground transport times.

Nitrous Oxide (Nitronox)

Class:

Gaseous analgesic, anesthetic

Action:

Nitrous Oxide is a blended mixture of 50% nitrous oxide and 50% oxygen. When inhaled it depresses the CNS causing analgesia.

Due to being administered with high oxygen concentrations it also increases oxygen tension in the blood thereby reducing hypoxia.

Indications:

Traumatic musculoskeletal injury, burns, moderate to severe pain

Contraindications:

ALOC, hypotension, chest trauma (pneumothorax), COPD, Abdominal pain or injury, head injury, bowel obstruction.

Onset/Duration:

- Onset: 2-5 min
- Duration: 2-5 min

Dose/Route:

- Adult: Self administered by pt via held mask or mouthpiece until effects are felt
- Peds: Same as adult

Side Effects:

Altered LOC, apnea, dizziness, nausea/vomiting, malignant hypertension (rare but serious)

Note:

Must be mixed 50% Nitrous Oxide and 50% Oxygen, if 100% Nitrous Oxide is administered the patient will become hypoxic and die.

Pt MUST be able to follow instructions and hold mask/mouthpiece on their own to administer!

Norepinephrine (Levophed)

Class:

Sympathomimetic, vasopressor

Action:

Alpha-1 and beta-1 agonist, causing vasoconstriction and increased myocardial contractility.

Indications:

Cardiogenic shock, neurogenic shock, hemodynamically significant hypotension refractory to other sympathomimetics.

Contraindications:

Hypotension due to hypovolemia

Onset/Duration:

- Onset: 1-3 min
- Duration: 5-10 min

Dose/Route:

- Adult: 2-20 mcg/min IV, titrated to effect
- Peds: 0.05-0.1 mcg/kg/min IV, titrated to effect up to max of 2 mcg/kg/min

Side Effects:

Headache, dysrhythmias, tachycardia, reflex bradycardia, angina pectoris, hypertension.

Note:

Beta-adrenergic antagonists may blunt inotropic response. Can cause tissue necrosis if extravasation occurs.

Ondansetron (Zofran)

Class:

Antiemetic

Action:

First selective serotonin blocking agent to be marketed.

Blocks the serotonin 5-HT3 receptors that are found centrally in the chemoreceptor trigger zone and peripherally at the vagal nerve terminals in the intestines, which in turn minimizes nausea and vomiting.

Indications:

Nausea and vomiting

Contraindications:

Hypersensitivity, GI obstruction, and use caution with liver disease pt's.

Onset/Duration:

- Onset: 15-30 min
- Duration: 3-6 hr

Dose/Route:

- Adult: 4 mg IV/IO/IM
- Peds: (>6mo – 14 yrs) 0.15 mg/kg IV/IO/IM (Max 4mg)

Side Effects:

ECG irregularities (rare), dizziness, headache, hiccups, pruritus, chills, drowsiness

Oral Glucose

Class:

Carbohydrate

Action:

Directly increases blood glucose levels

Indications:

Known or suspected hypoglycemia

Contraindications:

Unconscious, unable to swallow, unable to protect airway. Use caution with ALOC.

Onset/Duration:

- Onset: 10-20 min
- Duration: Variable depending on dose

Dose/Route:

- Adult: 15 g buccal, variable depending on manufacturer
- Peds: Same as adult

Side Effects:

Hyperglycemia, nausea/vomiting

Note:

Place glucose on tongue blade, administer glucose between cheek and gum.

Oxygen

Class:

Gas

Action:

Odorless, tasteless, colorless gas that is present in room air at 21% concentration.

Oxygen enters the body through the respiratory system and is transported to the body tissues for energy.

Used to reverse hypoxemia and, in doing so, helps oxidize glucose to produce adenosine triphosphate (metabolic energy).

Indications:

Hypoxia, hypoperfusion, ischemic chest pain, respiratory insufficiency, suspected stroke, confirmed/suspected carbon monoxide poisoning, cardiac insufficiency or arrest.

Contraindications:

None in the prehospital emergency setting

Onset/Duration:

- Onset: Immediate
- Duration: Less than 2 min

Dose/Route:

- Adult: 1-6 lpm via nasal cannula and 10-15 lpm via nonrebreather mask
- Peds: Same as adult but using age appropriate sized devices

Side Effects:

Nausea/vomiting, irritation to respiratory tract

Note:

Administer and titrate to maintain a minimum SpO2 of 94%. Use caution with high flow oxygen in patients with stroke and acute coronary syndrome patients.

Oxytocin (Pitocin)

Class:

Hormone

Action:

Oxytocin is a natural hormone secreted by the posterior pituitary gland.

Oxytocin promotes contraction of the uterus and promotes milk ejection.

Indications:

Post-partum hemorrhage

Contraindications:

Hypertonic or hyperactive uterus, presence of 2nd fetus, fetal distress.

Onset/Duration:

- Onset: immediate
- Duration: 20 min

Dose/Route:

- Adult: 10-40 units diluted in 1000 mL NS, titrated to control bleeding
- Peds: Not recommended

Side Effects:

Hypotension, tachycardia, chest pain/coronary artery spasm, cardiac dysrhythmias, hypertension, seizures, nausea/vomiting, uterine rupture.

Pralidoxime (2-PAM)

Class:

Cholinesterase reactivator and antidote

Action:

Pralidoxime reactivates the enzyme acetylcholinesterase, which allows acetylcholine to be degraded, thus relieving the parasympathetic overstimulation caused by excess acetylcholine as seen in organophosphate poisoning.

Indications:

Organophosphate poisoning

Contraindications:

Hypersensitivity

Onset/Duration:

- Onset: Within minutes
- Duration: Variable depending on amount poison exposure

Dose/Route:

- Adult: 600 mg IM, every 15 min up to 3 doses. 1-2 g IV over 15-30 min
- Peds: 20-50 mg/kg IV over 15-30 min

Side Effects:

Tachycardia, hypertension, laryngospasm, hyperventilation, nausea, weakness

Note:

Should be given concurrently with Atropine.

Commonly seen in the prehospital setting packaged with atropine in DuoDote or Mark 1 autoinjector kits.

Promethazine (Phenergan)

Class:

Phenothiazine, antihistamine, antiemetic

Action:

Promethazine is an H1 receptor antagonist that blocks the actions of histamine by competitive antagonism at the H1 receptor.

Promethazine also acts as an antiemetic and sedative agent with some anticholinergic properties.

Indications:

Nausea and vomiting, motion sickness, to potentiate the effects of analgesics, pre/post-op obstetrical sedative, allergic reactions

Contraindications:

Hypersensitivity, CNS depression or coma, CNS depression from alcohol, barbiturates, or narcotics, signs associated with Reyes syndrome.

Use with caution in pt's with asthma, peptic ulcer disease, and bone marrow depression.

Onset/Duration:

- Onset: Rapid
- Duration 4-12 hrs

Dose/Route:

- Adult: 12.5 – 25 mg IV (diluted in 10cc Normal Saline with doses of 25 mg or less) given over 10-15 min.
    - Deep IM doses can be given undiluted (FDA recommends IM over IV)
- Peds: Not recommended in prehospital setting since can cause hallucinations, seizures, and death in children

Side Effects:

Sedation, dizziness, hypotension, dystonias/EPS reaction, hallucinations, dysrhythmias, phlebitis, hyperexcitability, nausea/vomiting.

Extravasation may cause massive tissue damage/ necrosis

Note:

If dystonias/EPS reactions occur, administer Diphenhydramine.

Rocuronium (Zemuron)

Class:

Non-depolarizing neuromuscular blocker

Action:

Competitively blocks acetylcholine at the neuromuscular junction causing chemical paralysis.

Indications:

Paralysis for advanced airway placement and mechanically ventilated patients.

Contraindications:

Hypersensitivity and anticipated difficult/ failed airway, chronic neuromuscular conditions (myasthenia gravis).

Onset/Duration:

- Onset: 1 min
- Duration: 26-40 min

Dose/Route:

- Adult: 1 mg/kg IV with 0.5 mg/kg for subsequent doses
- Peds: Same as adult dose

Side Effects:

Apnea, tachycardia, hypertension, anaphylaxis, dysrhythmias

Note:

Rocuronium has no sedative/ analgesic effects.

Sodium Bicarbonate

Class:

PH buffer, alkalizing agent, electrolyte supplement

Action:

Sodium bicarbonate is a short acting, potent acid buffer. The bicarbonate (HCO_3) binds to hydrogen ions (H^+) to make carbonic acid (H_2CO_3). This is broken down in the lungs and exhaled as water (H_2O) and carbon dioxide (CO_2). Plasma hydrogen ion concentration decreases causing blood pH to rise.

Indications:

Tricyclic antidepressant (TCA) overdose, management of metabolic acidosis, prolonged cardiac arrest down time, known preexisting hyperkalemia, DKA, alkalinization treatment for specific intoxications/rhabdomyolysis

Contraindications:

Hypocalcemia, suspected metabolic and respiratory alkalosis, hypokalemia, hypernatremia, pt's with chloride loss due to vomiting and GI suction, severe pulmonary edema

Onset/Duration:

- Onset: Rapid
- Duration: 8-10 min

Dose/Route:

- Adult: 1 mEq/kg IV
- Peds: Same as adult but infuse slowly and only if ventilations are adequate

Side Effects:

Metabolic alkalosis, seizures, electrolyte disturbance.

Note:

Should not be given at the same time as other electrolytes or vasopressors, be sure to flush IV thoroughly or use separate IV sites.

Not recommended for and ineffective in hypercarbic acidosis such as seen in cardiac arrest and CPR without intubation

Succinylcholine (Anectine)

Class:

Depolarizing neuromuscular blocker

Action:

Succinylcholine is a short acting, depolarizing neuromuscular blocking agent that binds to acetylcholine receptor sites. This produces complete muscle paralysis but since it is a depolarizing agent it causes fasciculations and muscular contractions making it the drug of choice for rapid sequence intubation.

Indications:

To facilitate endotracheal intubation, terminate laryngospasm, muscle relaxation.

Contraindications:

Hypersensitivity, burns or crush injuries > 72 old, skeletal muscle myopathies, inability to control the airway or support ventilations with O2 and positive pressure (BVM), family or personal history of malignant hyperthermia, rhabdomyolysis.

Use with caution in pt's that may have hyperkalemia (renal failure, trauma/burns, electrolyte disturbances, crush injury etc.)

Onset/Duration:

- Onset: less than 1 min
- Duration: 5-10 min

Dose/Route:

- Adult: 1-1.5 mg/kg IV/IO for RSI
- Peds: 1-1.5mg/kg IV/IO for RSI
- Infants: 2 mg/kg IV/IO for RSI

Side Effects:

Fasciculations, bradycardia, hypotension, tachycardia, hypertension, dysrhythmias, malignant hyperthermia, hyperkalemia, respiratory depression, excessive salivation, hyperkalemia

Note:

Although after administering Succinylcholine it may appear that the patient is not conscious, it has NO effect on the central nervous system, so the patient will be completely aware of procedures unless appropriate sedation is also given.

Thiamine (Betaxin)

Class:

Vitamin (B1)

Action:

Thiamine is also known as vitamin B1. Thiamine combines with adenosine triphosphate to form thiamine pyrophosphate, a coenzyme necessary for carbohydrate metabolism. The brain is especially sensitive to thiamine deficiency.

Indications:

Hypoglycemia with malnourishment or suspected alcoholism, delirium tremors, Wernicke's encephalopathy

Contraindications:

None in the emergency prehospital setting

Onset/Duration:

- Onset: Rapid
- Duration: Variable depending on degree of deficiency

Dose/Route:

- Adult: 100 mg slow IV or IM
- Peds: Not recommended in the prehospital setting

Side Effects:

Hypotension (if given rapidly or too large a dose), nausea/vomiting, anxiety, diaphoresis

Tranexamic Acid (TXA)

Class:

Antifibrinolytic, hemostatic agent

Action:

Binds with lysine sites on plasminogen, preventing conversion of plasminogen to plasmin and ultimately inhibiting the breakdown of fibrin during bleeding episodes.

Indications:

Trauma, hemorrhage following surgery or dental procedures, excessive menstrual bleeding.

Contraindications:

Hypersensitivity, thromboembolic disorders, certain vision disorders, onset of bleeding > 3 hrs.

Onset/Duration:

- Onset: Unknown
- Duration: 7-8 hrs

Dose/Route:

- Adult: 1 g IV slow push over 1-2 minutes
- Peds: 10 mg/kg IV

Side Effects:

Seizures, headache, visual changes, hypotension, thromboembolism.