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# ACTIVATED CHARCOAL

<table>
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<tr>
<th>Activated Charcoal, Activated Carbon</th>
<th>[Basic / Intermediate / RN/ Paramedic]</th>
</tr>
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<tbody>
<tr>
<td><strong>Class:</strong> Absorbent</td>
<td></td>
</tr>
<tr>
<td><strong>Actions:</strong> Absorbs toxins by binding to them to prevent GI absorption.</td>
<td></td>
</tr>
<tr>
<td><strong>Indications:</strong> Adsorbent used in overdoses and poisonings, if emesis is not indicated.</td>
<td></td>
</tr>
<tr>
<td><strong>Contraindication</strong></td>
<td></td>
</tr>
<tr>
<td>1. Acetaminophen [Tylenol] ingestion</td>
<td></td>
</tr>
<tr>
<td>2. Petroleum product ingestion</td>
<td></td>
</tr>
<tr>
<td>3. Corrosive (mineral acids, strong bases) ingestion</td>
<td></td>
</tr>
<tr>
<td>4. Alcohol (ethanol, methanol, isopropanol, ethylene glycol) ingestion</td>
<td></td>
</tr>
<tr>
<td>5. Lithium ingestion</td>
<td></td>
</tr>
<tr>
<td>6. Metals (iron, lead, mercury, etc.) ingestion</td>
<td></td>
</tr>
<tr>
<td><strong>Side Effects:</strong> Vomiting, aspiration</td>
<td></td>
</tr>
<tr>
<td><strong>Dosage:</strong> Adults: 50 gm PO</td>
<td></td>
</tr>
<tr>
<td>Peds: 1 gm/kg PO, up to 50 gm</td>
<td></td>
</tr>
<tr>
<td><strong>Supply:</strong> 25 gm bottles</td>
<td></td>
</tr>
<tr>
<td><strong>Comments:</strong> 1. Activated Charcoal interferes with Ipecac and many antidotes.</td>
<td></td>
</tr>
<tr>
<td>2. Patient must be alert to avoid aspiration.</td>
<td></td>
</tr>
<tr>
<td>3. Shake vigorously before using.</td>
<td></td>
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</table>
# ADENOSINE

## Adenosine, (Adenocard)  

<table>
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<tr>
<th><strong>Class:</strong></th>
<th>Antiarrhythmic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actions:</strong></td>
<td>Slows conduction through the AV node.</td>
</tr>
</tbody>
</table>
| **Indications:** | Unstable Narrow-QRS Tachycardia refractory to vagal maneuvers  
1. Chest pain, systolic BP < 90, decreased LOC, or CHF  
2. Rate ≥ 150/min. (adult), ≥ 220 (children)  
3. Regular rhythm  
4. QRS < 0.12 seconds |
| **Contraindications:** | Wide QRS (> 0.12 seconds) Tachycardia  
Second or Third degree H.B.  
Sick Sinus Syndrome  
Hypersensitivity to the drug |
| **Side Effects:** | Transient asystole, AV block, PVCs, hypotension |
| **Dosage:** | **Adults:** 6 mg (2 ml) IV/IO over 1-2 sec.  
If not effective after 2 min., administer 12 mg [4 ml] IV/IO.  
*Free-flowing IV. Use injection port closest to body. Follow with a 10 ml IV flush from a separate syringe.*  
**Peds:** 0.1 mg/kg IV/IO over 1-2 sec.  
If not effective after 2 min., give 0.2 mg/kg. MAX dose: 12 mg.  
*Free-flowing IV. Use injection port closest to body. Follow with a 5 ml IV flush from a separate syringe.* |
| **Supply:** | 6mg/2ml Prefilled syringe  
12mg/4ml Prefilled syringe |
| **Comments:** | 1. Does not convert atrial flutter, atrial fibrillation, or ventricular tachycardia. May cause temporary slowing.  
2. Adenosine antagonized by Methylxanthines, such as caffeine, Theophylin. May require larger dose to treat.  
3. Adenosine effects are potentiated by dipryidomole and will require smaller doses to treat.  
4. Presence of carbamazepine (Tegretol), may produce higher degrees of HB. or may develop asystole (1%) and can last for 3 days. |
# ALBUTEROL

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<tr>
<th>Class:</th>
<th>Sympathomimetic ($\beta_2$ selective)</th>
</tr>
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<tr>
<td>Actions:</td>
<td>Bronchodilation</td>
</tr>
<tr>
<td>Indications:</td>
<td>Asthma, Emphysema, COPD, Anaphylactic respiratory distress</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Avoid in the following unless symptoms are severe:</td>
</tr>
<tr>
<td></td>
<td>1. Chest pain</td>
</tr>
<tr>
<td></td>
<td>2. Pulse &gt; 140/min. (adults) or &gt; 180/min. (children)</td>
</tr>
<tr>
<td></td>
<td>3. Systolic BP &gt; 180</td>
</tr>
<tr>
<td>Side Effects:</td>
<td>Tachycardia, hypertension, arrhythmias, tremor, anxiety, headache</td>
</tr>
<tr>
<td>Dosage:</td>
<td>&lt; 4 yrs old: nebulizer held under the face</td>
</tr>
<tr>
<td></td>
<td>≥ 4 yrs old: nebulizer with mouth piece or face mask</td>
</tr>
<tr>
<td></td>
<td>Set oxygen at 6-10 LPM [until nebulizer mists]</td>
</tr>
<tr>
<td></td>
<td>May repeat every 10 minutes</td>
</tr>
<tr>
<td>Supply:</td>
<td>Bottle of 0.083% solution contains 2.5 mg in 3 ml.</td>
</tr>
<tr>
<td>Comments:</td>
<td>EMT-B’s may assist with use of patient’s own prescribed inhaler.</td>
</tr>
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</table>
# Amiodarone

**Class:** Antiarrhythmic  

**Actions:** Depresses automaticity of SA node. Slows conduction & increases refractoriness of the AV node. Increases Atrial & Ventricular refractoriness  

**Indications:** Pulseless VF / VT, V-tach with pulse, Wide complex Tachycardia  

**Contraindications:** None in the face of pulseless VF / VT  

**Side Effects:** May produce vasodilation, hypotension, a prolonged QT interval, and a negative inotropic effect  

**Dosage:**  
1. V-fib / Pulseless V-tach. 300 mg IV/IO may repeat once in 3 – 5 min. at 150 mg IV/IO. If pt converts administer drip at rate of 1mg/min  
2. V-tach with pulse / Wide complex Tachycardia. 150 mg in 100 ml LR or NS. Rapid infusion of 15 mg/min over 10 min., may repeat 150mg rapid infusion in 10 min. If pt converts administer drip at rate of 1mg/min  

**Supply:**  
- 150mg in 3 ml preload  
- 150mg in 3 ml vial  

**Comments:**  
- **Maintenance drip:** May mix drip 150 mg in 100ml LR or NS and administer at 45 gtts to give 1mg/min on Micro drip set.  
- **Rapid Infusion:** Mix in macro solu-set, or 150 mg in 100 ml LR or NS and administer at 150 gtts/min. over 10 min. for 15 mg/min infusion. (Approx. 37 gtts/15 sec.)
## AMYL NITRITE

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<td><strong>Class:</strong></td>
<td>Inhalant</td>
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<td><strong>Actions:</strong></td>
<td>Amyl Nitrate has affinity for cyanide ions; reacts with hemoglobin to form methemoglobin.</td>
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<td><strong>Indications:</strong></td>
<td>Cyanide or hydrocyanic poisoning</td>
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<td><strong>Contraindications:</strong></td>
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<tr>
<td><strong>Side Effects:</strong></td>
<td>Headache</td>
</tr>
<tr>
<td><strong>Dosage:</strong></td>
<td>Adults &amp; Pediatric: Breathe Amyl Nitrate vapors for 30 seconds, then breathe Oxygen for 30 seconds repeat this procedure continuously</td>
</tr>
<tr>
<td><strong>Supply:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Comments:</strong></td>
<td>Protect yourself from exposure to cyanide sources. DO NOT BECOME A VICTIM YOURSELF.</td>
</tr>
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</table>
### Acetylsalicylic Acid, Aspirin

**Class:** Analgesic, antipyretic  
**Actions:** Blocks platelet aggregation  
**Indications:** Chest pain suggestive of new AMI  
**Contraindications:** Hypersensitivity, intolerance, Allergy  
**Side Effects:** Urticaria, angioedema, bronchospasm, anaphylactic shock, nausea, vomiting, heartburn, GI bleed and prolonged bleeding  
**Dosage:** 4 chewable baby aspirin (81 mg each) PO  
**Supply:** 81 mg tablets  
**Comments:** Avoid in pediatrics
ATIVAN (Lorazepam)

Class: Tranquilizer, Anti-convulsant and Skeletal muscle relaxant.

Actions: Binds specifically to sites in the brain acting to inhibit the chaotic neurotransmission seen in seizures.

Indications: 1. Status seizures
2. As an amnesic / anxiolytic prior to cardioversion
3. Chemical restraint

Contraindications: Hypersensitivity to the drug, acute narrow-angle glaucoma

Side Effects: 1. Drowsiness, dizziness, fatigue and ataxia.
2. Most likely to produce respiratory depression in patients who have taken other depressant drugs, especially alcohol and barbiturates, or when given rapidly.

Dosage: 1. Generalized convulsive status epilepticus (GCSE)
   Adult 0.5-2.0 mg IV/IO/IM         Pediatric 0.1mg/kg IV/IO/IM
2. Cardioversion premedication    Adult 0.5-2.0 mg IV/IO/IM
3. Chemical Restraint 0.5-2.0 mg IV/IO/IM slow push to a maximum dose of 4.0 mg. If given IM, do not dilute. Dilute 1 – 1 for IV/IO.
4. For pain management with MS, 0.5 -1 mg IV/IO/IM.

Supply: 2 mg/ml Carpuject / Vial
2 mg/ml – 2 ml Vial

Comments: 1. Lorazepam’s advantage over Diazepam is that it is shorter acting and does not markedly suppress respirations as does Diazepam.
2. Consider rectal administration (if unable to administer IV) in seizing children. Contact Medical Control hospital prior to doing so.
ATROPINE SULFATE

Atropine Sulfate

Class: Parasympatholytic (anticholinergic)

Actions: Blocks acetylcholine receptors (decreases vagal tone thus increasing heart rate)

Indications: 1. Narrow-QRS (< 0.12 sec) Bradycardia with systolic BP < 90, decreased LOC, chest pain, or PVC’s
2. Asystole
3. Narrow-QRS (< 0.12 sec) PEA with rate < 60/min.
4. Severe organophosphate (insecticide) poisoning

Contraindications: 1. Wide-QRS (≥ 0.12 sec) Bradycardia in (adults only)
2. Glaucoma

Side Effects: Tachycardia, chest pain, blurred vision, headache, dry mouth, flushing, urinary retention

Dosage: Bradycardia: 0.5 mg IV/IO. Repeat in 5 min. if needed. Total Max dose = 0.04 mg/kg.
Asystole: 1 mg IV/IO or 2 mg ET. Repeat in 5 min. if needed. Max Dose = 0.04 mg/kg
Children: 0.02 mg/kg IV/IO or 0.04 mg/kg ET (Avoid age < 1 month).
Repeat dose in 5 min. if the heart rate is < 80/min.

MINIMUM DOSE: 0.1 mg
MAXIMUM TOTAL DOSE (child): 1.0 mg 0.04 mg/kg
MAXIMUM TOTAL DOSE (adolescent): 2.0 mg 0.04 mg/kg

Organophosphate Poisoning: 1 - 2 mg IV, IO, IM repeated q. 20 to 30 min. until muscarinic symptoms disappear or atropine toxicity appears.

Supply: Prefilled syringe contains 1 mg (10 ml)
Vial: 20 ml – 0.4 mg/ml

Comments: 1. Use cautiously in patients with chest pain
2. Severe organophosphate poisoning requires double doses if:
   • Systolic BP < 90
   • Decreased LOC
   • Respiratory distress
   • Excessive oral secretions
   • Pulse < 60
ATROVENT (Ipratropium Bromide)

**Atrovent (ipratropium Bromide)**

- **Class:** Anticholinergic
- **Actions:** Inhibits interaction of acetylcholine at receptor sites of the bronchial smooth muscle resulting in bronchial dilation.
- **Indications:** For Relief of Bronchospasms in those with COPD
- **Contraindications:** Glaucoma,
- **Side Effects:** N/V, Dry mouth, cramps, anxiety, dizziness, H/A, cough, worsening of Bronchospasms
- **Dosage:** Adult and pediatric 0.5 mg nebulized mixed with albuterol dose.
- **Supply:** 2.5 ml of solution per preloaded dose for nebulization
- **Comments:** Mix with Albuterol to form “Duoneb” – Administer once, all subsequent Neb treatments are to be Albuterol. Duoneb will be second treatment for pediatric patients if Albuterol treatment does not break asthma.

**NOTE:** Atrovent (meter dose inhaler, auto inhaler only) should not be administered to individuals allergic to soya lecithin or related food products, e.g. soya beans or peanuts. Current formulations of NEBULIZED Atrovent do not contain these agents and can be administered to individuals allergic to soya lecithin.
CALCIUM GLUCONATE

Class: Membrane stabilizer and antidote

Actions: Calcium is the most common cation in the human body and the majority of the body stores are located in bone. It is critical in many different cellular processes and is essential for the functional integrity of muscle (skeletal, smooth and cardiac) and nervous tissues.

Indications: 1. As a membrane stabilizer in suspected hyperkalemia. Reverses EKG changes pending correction of the extracellular potassium concentration. 2. As a potential antidote in suspected calcium channel blocker overdoses, hydrofluoric acid poisoning and iatrogenic magnesium intoxication.

Contraindications: 1. Digoxin Poisoning. 2. Hypercalcemia

Side Effects: Rapid IV administration can cause bradycardia, vasodilatation, hypotension, syncope and local burning.

Dosage: 10 - 20 mL calcium gluconate (0.2 - 0.3 mL/kg children) over 10 - 20 minutes

Supply: 10 mL of 10% solution contains 93 mg (4.65 mEq) of calcium.

Comments: • Administer slowly (no faster then 2.0 ml/min) and stop if the patient complains of pain. • Inject using a small needle in large vein and do not mix with bicarbonate. • Avoid use with patients who are on Digoxin since calcium can augment the positive inotropic and negative chronotropic effects of digitalis preparations. • Suspect hyperkalemia in patient with wide complex arrhythmia or tall peaked T-waves and Hx of renal failure.
Captopril (Capoten)

Class: Ace Inhibitor

Actions: Prevents conversion of angiotensin I to angiotensin II, a potent vasoconstrictor. Decreases peripheral arterial resistance so there is reduced sodium and water retention and lowers blood pressure. Onset occurs in 15-30 minutes. Persist for 6-12 hours.

Indications:
1. Flash pulmonary Edema
2. CHF

Contraindications:
1. Pts. Hypersensitive to the drug
2. Pts. Sensitive to any other ACE inhibitor

Precautions:
1. Use with caution in Pts. With impaired renal function
2. Pts. with serious auto-immune disease (Lupus, etc.)
3. Elderly may be more sensitive to drug’s hypotensive effects.

Side Effects:
1. May cause tachycardia, hypotension, angina.
2. Nausea, vomiting, abdominal pain.
3. Severe Reaction may be rash, swelling of tongue, angioedema of the face and extremities.

Dosage: 12.5 mg Sub lingual 1 time. (May dampen with small amount of sterile water or normal saline to help tablet to dissolve.)

Supplied: 12.5 mg white tab.
**DEXAMETHASONE (Decadron)**

**Dexamethasone (Decadron)**  [Paramedic]

**Class:** Corticosteroid

**Actions:** Dexamethasone is a synthetic steroid that suppresses acute and chronic inflammation. In addition, it potentiates vascular smooth muscle relaxation by beta-adrenergic agonists and may alter airway hyperactivity.

**Indications:** Moderate to severe asthma/COPD.
- Severe allergic reactions.
- Croup

**Precautions:** May cause hypertension and hyperglycemia.

**Dosage:**
- **Adult (≥40):** 10mg IV, IO, IM, PO.
- **Pediatric (≤40):** 0.3mg/kg, up to 10 mg, IV, IO, IM, PO.

**Comments:** May cause nausea, vomiting, headache or dizziness.
DEXTROSE 50%

Class: Carbohydrate

Actions: Elevates blood glucose level

Indications:
1. GCS ≤ 12
2. Rapid glucose determination < 70 mg/dl
3. Rapid glucose determination – Stroke Patient < 60 mg/dl
4. Seizures lasting ≥ 3 minutes

Contraindications: None if life-threatening. Relative contraindications are intracranial hemorrhage and stroke.

Side Effects: Tissue injury if infiltration occurs. Aspirate blood before and during the injection.

Dosage:
Adult: 25 gm IV/IO
Child: 25-50 lbs – 12.5 gm (25.0 ml D50 mixed with 25.0 ml NaCl)
< 25 lbs – 6.25 gm (12.5 ml D50 mixed with 37.5 ml NaCl)
Repeat one dose in 2 minutes if the GCS is ≤ 12.

Supply: Prefilled syringe contains 25 gm (50 ml)

Comments: Perform rapid glucose determination before administration.
**DEXTROSE (ORAL)**

<table>
<thead>
<tr>
<th>Class:</th>
<th>Oral Glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions:</td>
<td>Glucose is the body's basic fuel.</td>
</tr>
<tr>
<td>Indications:</td>
<td>1. Hypoglycemic states usually associated with insulin shock in diabetes</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Patients who are semiconscious or are experiencing a diminishing level of consciousness should not be given oral glucose due to potential airway compromise.</td>
</tr>
<tr>
<td>Side Effects:</td>
<td></td>
</tr>
<tr>
<td>Dosage:</td>
<td>Give patient oral glucose or sugared juice, honey, molasses, Kayro syrup, etc.... if patient awake.</td>
</tr>
<tr>
<td>Supply:</td>
<td>25 g per tube</td>
</tr>
<tr>
<td></td>
<td>Glutose 15 gm tube</td>
</tr>
<tr>
<td>Comments:</td>
<td>Effect is delayed in elderly people with poor circulation.</td>
</tr>
</tbody>
</table>
**DIPHENHYDRAMINE**

<table>
<thead>
<tr>
<th>Diphenhydramine HCL, Benadryl ®</th>
<th>[Intermediate / RN / Paramedic]</th>
</tr>
</thead>
</table>

**Class:** Antihistamine  

**Actions:**  
1. Blocks histamine receptors  
2. Has an antiemetic effect  

**Indications:**  
1. Second Line for Anaphylaxis  
2. Dystonic reactions to antipsychotic drugs.  

**Contraindications:**  
1. Asthma  
2. Glaucoma  
3. Allergy to Benadryl  
4. Weight < 22 lbs (10 kg)  

**Side Effects:** Decreased LOC, seizures, tachycardia, hypotension, dry mouth, urinary retention  

**Dosage:**  
1. Adults 25 to 50 mg slow IV/IO or deep IM  
2. Pediatric 1 mg/kg IM/IV/IO, not to exceed 50 mg  

**Supply:** Prefilled carpject contains 50 mg (1 ml)
DOPAMINE HCL, (Intropin)

Class: Sympathomimetic

Actions: 1. Increases cardiac contractility
2. Causes peripheral vasoconstriction
3. Increases chronotropic and inotropic effects

Low Dose Action (< 10 mcg/kg/min.) → β effects predominate
High Dose Action (> 10 mcg/kg/min.) → α effects

Indications: Non-hypovolemic shock

Contraindications: Hypovolemic shock (volume replacement MUST be accomplished prior to using Dopamine)

Side Effects: Tachycardia, hypertension, arrhythmias, chest pain

Dosage:
1. Adult Infusion: 5–20 mcg/kg/min. IV/IO. Titrate to systolic BP = 100. Place 400 mg in 250 ml D₅W [1600 mcg/ml]. Shake.
2. Pediatric Start at 2 – 5 mcg/kg/min titrate for effect. Mix 100mg in 250ml D₅W [400 mcg/ml]

Supply: Vial contains 200 mg (5 ml)
Premixed – 1600mcg/250ml NS

Comments: Not compatible with Sodium Bicarbonate or other Alkaline solutions

<table>
<thead>
<tr>
<th>mcg/kg/min</th>
<th>Patient weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.5</td>
</tr>
<tr>
<td>2 mcg</td>
<td>1.5</td>
</tr>
<tr>
<td>5 mcg</td>
<td>1</td>
</tr>
<tr>
<td>10 mcg</td>
<td>1</td>
</tr>
<tr>
<td>15 mcg</td>
<td>1.4</td>
</tr>
<tr>
<td>20 mcg</td>
<td>2</td>
</tr>
</tbody>
</table>

Microdrops per minute (or ml/hr)

Mix 400 mg in 250 ml D5W (1600 mcg/ml) or Mix 800 mg in 500 ml D5W (1600 mcg/ml) & run at:

EXAMPLE 1: Rapid calculation of 5 mcg/kg administration = Patient weight in pounds, drop the last digit, minus 2 from the remainder. This will equal ml/hr (microdrops per min.).
Patient weighs 126 pounds: 126, drop 6, minus 2 = 10 ml/hr or microdrops per minute.

EXAMPLE 2: Take the patients weight in kg and divide that by 25. The answer is multiplied by the dose you want (eg. 5, 10, 15, 20 mcg’s).
100kg patient / 25 = 4X5 mcg = 20 gtts/min.
<table>
<thead>
<tr>
<th>Class:</th>
<th>Bronchodilator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions:</td>
<td>Medicine that opens up narrowed breathing passages in asthma, chronic bronchitis, and emphysema. Smooth muscle relaxant.</td>
</tr>
<tr>
<td>Indications:</td>
<td>Asthma, Emphysema, COPD, Anaphylactic respiratory distress.</td>
</tr>
</tbody>
</table>
| Contraindications: | Pts. with chest pain.  
Pulse > 140 /min. (adults) or > 180/min. (children)  
Systolic B/P > 180  
Pts. with glaucoma. |
| Precautions: | Monitor Pt. Heart rate, B/P, Breath sounds |
2. Fast or irregular heartbeat.  
3. Shortness of breath or wheezing  
4. Skin rash or hives (allergic reaction). |
| Dosage: | Adults: 3 ml vial Duoneb (2.5 mg Albuterol / 0.5 mg Atrovent) in nebulizer.  
Children: Same as adults |
| Supplied: | 3 ml vial (Fish) 2.5 mg Albuterol / 0.5 mg Atrovent |
| Comments: | All subsequent neb treatments are to be Albuterol unless directed otherwise by OLMC. |
EPINEPHRINE 1:1,000

Epinephrine 1:1,000, (Adrenalin)  
[**Basic / Intermediate / RN / Paramedic]

**Class:** Sympathomimetic

**Actions:**
1. $\alpha$ - Vasoconstriction: improves coronary blood flow and supports BP in anaphylactic shock.
2. $\beta_1$ – Inotropic and chronotropic effects.
3. $\beta_2$ – Bronchodilation.

**Indications:**
1. Anaphylaxis
2. Pediatric cardiac arrest (see Epinephrine 1:10,000)
3. Bronchial asthma
4. Stridor & lower airway wheezing not broken by albuterol
5. ACLS applications (VF, pulseless VT, Asystole, PEA)

**Contraindications:** Avoid use in the following unless symptoms are severe:
1. Chest pain
2. Pulse > 140/min. (adults) or > 180/min. (children)
3. Systolic BP > 180
4. Age > 40 years, contact OLMC.

**Side Effects:** Tachycardia, hypertension, arrhythmias, tremor, anxiety, headache, chest pain

**Dosage:**

**ANAPHYLAXIS:**

*Adults:* 0.3 mg (0.3 ml) SQ, IM

*Children:* 0.2 mg (0.2 ml) SQ, IM

*Infant:* 0.1 mg (0.1 ml) SQ, IM

May repeat this dose once after 10 min. if needed.

**Paramedic**

*Adults:* 0.3-0.5 mg SQ, IM

*Peds:* 0.1 mg SQ, IM

**RESPIRATORY DISTRESS:**

*Adults & Peds:* Stridor, wheezing not broken with Albuterol

3 ml in nebulizer

**CARDIAC:**

*Adult:* ET tube – 2mg followed with flush of 8 ml NS

*Peds:* ET tube – 0.1 ml/kg flushed with NS

**Supply:** 30 ml Vial – 1 mg/ml

**Comments:**

Cardiac doses are listed under Epinephrine 1:10,000.

**FIRST RESPONDERS** must use Epi Pens.

EMT-B’s may assist with administration of patient’s own prescribed Epi pen or EPI pen Jr., Qualified departments administer Epi pen/Epi pen Jr., or Epi (1:1,000) at prescribed dose with 1 cc syringe marked in 0.1 cc (0.1mg) increments.
### EPINEPHRINE 1:10,000

<table>
<thead>
<tr>
<th>Class:</th>
<th>Sympathomimetic</th>
</tr>
</thead>
</table>
| **Actions:**      | 1. $\alpha$ - Vasoconstriction: improves coronary blood flow and supports BP in anaphylactic shock.  
                   2. $\beta_1$ – Inotropic and chronotropic effects.  
                   3. $\beta_2$ – Bronchodilation.          |
| **Indications:**  | 1. V-Fib and Pulseless V-Tach  
                   2. Asystole  
                   3. PEA  
                   4. Pediatric Bradycardia unresponsive to ventilation (Paramedic Only) |
| **Contraindications:** | None                                    |
| **Side Effects:** | Tachycardia, hypertension, arrhythmias |
| **Dosage:**       | **Paramedic**                           |
|                   | Anaphylaxis:                           |
|                   | Adults: 0.5 mg (5 ml) IV/IO            |
|                   | Child/Infant: 0.01 mg/kg (0.1 ml/kg) IV/IO |
|                   | **Paramedic/Intermediate**             |
|                   | Cardiac ACLS:                          |
|                   | Adults: 1 mg (10 ml) IV/IO. Repeat every 3-5 minutes until pulse returns.  
                   | Children: 0.01 mg/kg (0.1 ml/kg) IV/IO. Repeat every 3-5 minutes until pulse returns or bradycardia resolves.  |
| **Supply:**       | Preload 1 mg /10 ml (1 ml = 0.1mg)     |
FENTANYL

Fentanyl (Sublimaze)  [Intermediate/RN/Paramedic]

Class: Narcotic Analgesic

Actions: Acts on the opiate receptors in the brain to block the sensation of pain
1. Approximately 80 times more potent than Morphine
2. No prominent hemodynamic changes
3. Has sedative effects
4. Duration of action 30 – 60 min, Onset 2 – 3 min

Indications: 1. Allergy to Morphine or as 1st line analgesic with the following:
   2. Traumatic injuries with severe pain; (i.e., orthopedic injuries.)
   3. Non traumatic pain; (i.e., cancer, abdominal pn., kidney stones.)
   4. Pain from Burns
   5. Analgesic of choice in pediatrics

Contraindications: 1. Allergy
   2. Pts’ taking MAO inhibitors currently or within the last 14 days.

Precautions Use with Caution in pts with hepatic or head injury

Side Effects: 1. Respiratory depression or arrest.
   2. Nausea & Vomiting
   3. Bradycardia
   4. Hypotension
   5. Raised ICP

Dosage: Adults: 25 – 100 mcg IV/IO/IM (1 mcg/kg) initial loading dose, slowly over 1-2 min., repeat with ½ initial dose as needed, titrate to BP, Pain and respiratory status.
Pediatric: 1 -2 mcg/kg IV/IO/IM for initial loading dose, slowly over 1-2 min. repeat with ½ initial dose as needed, titrate to BP, Pain and respiratory status.

Supply: Carpuject 100 mcg / 2 ml

Comments: Rapid administration may cause muscle rigidity of respiratory muscles. Muscle rigidity may have to be treated with Succs or Zemuron. MAO Inhibitors will potentiate Fentanyl administration.
FUROSEMIDE, (Lasix)

Class: Diuretic

Actions: 1. Inhibits reabsorption of NaCl
2. Promotes prompt diuresis
3. Vasodilatation

Indications: Pulmonary edema with signs and symptoms of volume overload (recent weight gain, peripheral edema, JVD).

Contraindications: Pregnancy
                  Systolic BP < 100
                  Known severe hypokalemia
                  Allergy to sulfa compounds

Side Effects: Hypotension, low potassium (hypokalemia)

Dosage: Adults: 40 mg (4 ml) IV/IO at 15-20 mg/min. Double the dose (80 mg) for patients taking PO Lasix daily.
        Children: 1 mg/kg (0.1 ml/kg) IV/IO at 15-20 mg./min.

Supply: Vial contains 40 mg (4 ml)
         Ansyr LL Syringe – 40 mg / 4 ml

Comments:
**GLUCAGON HCL**

<table>
<thead>
<tr>
<th>Class:</th>
<th>Hormone (Antihypoglycemic agent)</th>
</tr>
</thead>
</table>
| Actions: | 1. Causes breakdown of glycogen to glucose  
2. Elevates blood glucose level |
| Indications: | Unable to administer IV D50 in:  
1. GCS ≤ 12  
2. Rapid glucose determination < 70 mg/dl.  
3. Rapid glucose determination suspected stroke pt.< 60 mg/dl  
4. Seizure lasting ≥ 3 min. |
| Contraindications: | Allergy to protein compounds |
| Side Effects: | Nausea, vomiting |
| Dosage: |  
**Adults:** 1 mg (1 ml) IM  
**Children:** 1 mg (1 ml) IM < 20 kg – 0.5 mg IM |
| Supply: | Vial containing 1 mg powder, vial containing 1 ml diluent. |
| Comments: | Useful in β-blocker overdoses. Requires significant quantity to be effective. |
**IV SOLUTION (BSS)**

**Class:** Electrolyte

**Actions:** They provide water and electrolytes for replacement of acute extracellular fluid losses and they do not disturb the normal electrolyte balance since the electrolyte composition and tonicity approach that of normal plasma.

**Indications:** A balanced salt solution is indicated for replacement of fluid volume losses such as in trauma, burns, dehydration, or shock.

**Contraindications:**

**Side Effects:** Balanced salt solutions should be used with caution in patients with renal impairment (hyperkalemia), cardiac and respiratory disorders (fluid overload), or extremes of age.

**Dosage:** See procedure on CONTROL AND MONITORING OF INTRAVENOUS SOLUTIONS. Administer IV/IO

**Supply:** 100, 250, 500 and 1,000 ml

**Comments:** Either Lactated Ringers or Normal Saline 0.9%
LABETALOL (Trandate)

**Class:** Alpha- and beta-adrenergic blocker

**Actions:** Competitive alpha1-receptor blocker as well as a nonselective beta-receptor blocker.

**Indications:** Hypertensive Crisis – BP approx. 200/115

**Contraindications:**
1. Bronchial asthma Congestive heart failure
2. Second- and third-degree heart block Bradycardia
3. Cardiogenic shock

**Side Effects:**
1. Headache, Dizziness, Ventricular dysrhythmias
2. Hypotension, Dyspnea, Allergic reaction
3. Facial flushing, Diaphoresis, Postural hypotension

**Dosage:** 10mg slow IV/IO over 1-2 min; additional dose of 10 - 20 mg can be given at 10-min interval to max dose 150 mg.

**Supply:** 20 mg Carpuject

**Comments:**
1. Blood pressure, pulse rate, ECG should be continuously monitored.
2. Observe for signs of congestive heart failure, bradycardia, and bronchospasm.
3. Should only be administered with the patient in a supine position.
4. Produces a predictable fall in BP within 5 – 10 minutes
LIDOCAINE HCL

Class: Antiarrhythmic

Actions: 1. Suppresses ventricular ectopy  
2. Elevates threshold of ventricular fibrillation  
3. Decreases ventricular automaticity

Indications: 1. V-Fib and V-Tach  
2. Prevention of V-Fib and V-Tach  
3. Numbing solution of bone marrow after conscious IO insertion.

Contraindications: 1. Lidocaine allergy and local anesthetics  
2. Slow V-Tach (heart rate < 100/min., QRS ≥ 0.12 sec)  
3. Bradycardia (heart rate < 60/min. adult; < 80/min. children)  
4. Torsades de pointes

Side Effects: Decreased LOC, hypotension, numbness, seizures

Dosage: Adults: **Cardiac arrest VF/VT**  
1.5 mg/kg IV/IO or 3 mg/kg ET (one dose only). Repeat IV in 5 minutes, if unsuccessful, to a max of 3 mg/kg.

**Adults:** **Wide QRS Tachycardia**  
1.5 mg/kg IV/IO at 50 mg/min. or 3 mg/kg ET. Subsequent IV doses: Administer 0.75 mg/kg at 50 mg/min. every 5 min. up to 2 doses (3 mg/kg total). Avoid additional doses in CHF, shock, liver failure, and age > 70 yrs.

**Children:** **Cardiac arrest VF/VT**  
1.0 mg/kg IV/IO or 2 mg/kg ET (one dose only). Repeat IV dose every 5 minutes, if unsuccessful, to a max of 3 mg/kg.

**Children:** **Wide QRS Tachycardia**  
1.0 mg/kg IV over 1 minute or 2 mg/kg ET. Subsequent IV doses: Administer 1.0 mg/kg over 1 minute every 5 min. up to a max of 3 mg/kg. Avoid additional doses in CHF, shock, and liver failure.

**Adults:** **Conscious IO**  
0.5 mg/kg IO; 30 – 60 seconds for full effect; Not to exceed 50 mg.

Supply: Prefilled syringe contains 100 mg (5 ml), 2% solution
# LIDOCAINE PRE-MIX

<table>
<thead>
<tr>
<th>LIDOCAINE HCL PRE-MIX</th>
<th>[Intermediate / RN / Paramedic]</th>
</tr>
</thead>
</table>

**Class:** Antiarrhythmic

**Actions:**
1. Suppress ventricular ectopy after RSC.
2. Elevates threshold of ventricular fibrillation.
3. Decreases ventricular automaticity.

**Indications:**
1. Control of V-Fib & V-tach after RSC.
2. Prevention of V-Fib & V-tach after RSC.

**Contraindications:**
1. Lidocaine allergy and local anesthetics
2. Slow V-tach (heart rate < 100/min., QRS > 0.12 sec.)
3. Bradycardia (heart rate, 60/min. adult; < 80/min. children)
4. Torsades de pointes

**Side Effects:** Decreased LOC, hypotension, numbness, seizures

**Dosage:** As a drip to suppress return of V-Fib or V-Tach. Use pump or Micro-drip Soluset to administer at starting rate of 1 mg/min. May increase dosage to 2, 3, or 4 mg/min. as break-thru ectopy occurs.

**How Supplied:** Pre-mixed 2 gm in 250 ml D5W bag
**MAGNESIUM SULFATE 50%**

**Class:** Anticonvulsant

**Actions:**
1. CNS depressant
2. Anticonvulsant
3. Smooth muscle relaxant (vasodilation, bronchodilation)

**Indications:**
1. Refractory V-Fib and Pulseless V-Tach
2. Eclampsia
3. Torsades de Pointes
4. Asthma with increasing ETCO2, shark fin tracing and neb tx not working

**Contraindications:**
1. Complete heart block
2. If reflexes disappear in the eclamptic patient, do not repeat dose.

**Side Effects:** Flushing, sweating, hypotension, bradycardia, complete heart block, depressed reflexes, respiratory paralysis, confusion

**Dosage:**
- **V-Fib or Pulseless V-Tach:** 2 gm (10% - 20 ml) IV/IO
- **Eclampsia:** 4 gm (10% - 40 ml) IV/IO over 4 minutes
- **Torsades de Pointes:** 2 gm (10% - 20 ml) IV/IO over 1 minute
  Doses may be repeated in 5 min.

**Supply:** Vial contains 10 gm/ 20 ml. This equals 1 gm/2 ml of a 50% solution. To make 10% solution, add 8 ml of Normal Saline to each 1 gm (2 ml) of Magnesium Sulfate.

**Comments:**
1. Torsades de Pointes is a form of V-Tach characterized alternating groups of positive and negative deflections on the cardiac monitor.

**Note:** Magnesium drip: Add 1gm=2ml Magnesium Sulfate to 250 ml NS and run through macro drip @ 60 gtt per min. for 1 gm per hour.
MIDAZOLAM HCL (Versed)

Class: Sedative, hypnotic (Benzodiazepine)
Actions: Sedation by direct action on CNS
Indications: 1. Seizures not caused by hypoglycemia
2. Sedation for cardioversion, TCP.
3. Sedation for RSI.
4. Severe agitation, tachycardia, or hallucinations caused by alcohol intoxication/withdraw
5. Seizures, tachydyssrhythmias, altered vital signs from cocaine or Methamphetamine overdose.
6. Sedation
2. Hypotension
3. Shock
4. Coma
Side Effects: Respiratory depression, hypotension, amnesia, apnea
Dosage: Seizures  
- Adult: 2 – 10 mg IV/IO or 5 – 15 mg IM  
- Pediatric: 0.2 mg/kg – max 5 mg IM  
  0.05 – 0.1 mg/kg IV/IO; max 2.5 mg; may repeat to 5 mg for Sz. Lasting more than 5 min.
Cardioversion / RSI  
- Adult: 5 - 10 mg IV/IO or 15 mg IM  
- Pediatric: 0.05 mg/kg IV,IO  
  < 6 y.o. max dose 3 mg  
  > 6 y.o. max dose 5 mg  
  IM dose 0.2mg/kg max 7mg
Chemical Restraint  
2 mg – 10 mg IV/IO/IM
Pain Management  
May use 1mg – 2mg IV/IO/IM in conjunction With Morphine Sulfate.
Supply: 10mg / 2ml & 2mg / 2ml
Comments: Advanced airway management equipment must be readily available. Be prepared for respiratory depression.
# MORPHINE SULFATE

<table>
<thead>
<tr>
<th>Class: Narcotic Analgesic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions: Acts on the opiate receptors in the brain to block the sensation of pain:</td>
</tr>
<tr>
<td>CNS depressant</td>
</tr>
<tr>
<td>Narcotic analgesic</td>
</tr>
<tr>
<td>Vasodilation</td>
</tr>
<tr>
<td>Indications:</td>
</tr>
<tr>
<td>1. Pain associated with acute MI</td>
</tr>
<tr>
<td>2. Acute pain, such as isolated extremity trauma/orthopedic injuries.</td>
</tr>
<tr>
<td>3. Back Spasms</td>
</tr>
<tr>
<td>4. Pain from burns</td>
</tr>
<tr>
<td>5. Cancer</td>
</tr>
<tr>
<td>Contraindications:</td>
</tr>
<tr>
<td>Multiple trauma, especially head trauma</td>
</tr>
<tr>
<td>Decreased LOC from any cause</td>
</tr>
<tr>
<td>Systolic BP &lt; 110  (children: systolic BP &lt; 80)</td>
</tr>
<tr>
<td>Allergy to Morphine</td>
</tr>
<tr>
<td>Side Effects: Respiratory depression, hypotension, vomiting, decreased LOC</td>
</tr>
<tr>
<td>Dosage: IM dose 5 mg – 10 mg  may repeat as needed</td>
</tr>
<tr>
<td>IV/IO at 2 - 5 mg</td>
</tr>
<tr>
<td>Repeat IV/IO dose after 5 min., as needed to max dose of 10 mg. (may give up to 20 mg for burn patients)</td>
</tr>
<tr>
<td>Supply: Vial contains 10 mg (1 ml)</td>
</tr>
<tr>
<td>Carpuject 10 mg/ 1 ml</td>
</tr>
<tr>
<td>Comments: Halt the IV/IM injection if:</td>
</tr>
<tr>
<td>Pain is relieved</td>
</tr>
<tr>
<td>Systolic BP &lt; 110</td>
</tr>
<tr>
<td>Respiratory depression</td>
</tr>
</tbody>
</table>
# NALOXONE, (Narcan)

<table>
<thead>
<tr>
<th><strong>Naloxone, (Narcan)</strong></th>
<th>[Intermediate / RN / Paramedic]</th>
</tr>
</thead>
</table>

**Class:** Narcotic Antagonist  
**Actions:** Reverses effects of narcotics by competing for opiate receptors.  
**Indications:** Respiratory depression or systolic BP < 90 in a narcotic overdose.  
               Rule out narcotic OD in coma of unknown etiology  
**Contraindications:** None  
**Side Effects:** Awakened or awakening patient may become combative, may present with nausea and vomiting.  
**Dosage:**  
- **Adults:** 0.4 - 2 mg., IV/IO/IM, SQ,SL,ET Max. 8 mg  
- **Children (< 20 kg):** 0.1mg/kg, IV/IO/IM,SQ,SL,ET Max. 2 mg  
**Supply:** Carpuject contains 2 mg  
          Prefilled LL Syringe – 2 mg  
**Comments:** Halt the IV injection if agitation occurs.  
             Avoid use in intubated patients.  
             Reversal of coma, hypotension and respiratory depression is only temporary.
NITROGLYCERIN, Nitrostat

**Nitrostat, Nitroglycerin ®**

**Class:** Coronary Vasodilator

**Actions:** Smooth muscle relaxant (vasodilator)
Reduces peripheral resistance; reduces cardiac work

**Indications:** Chest pain (cardiac cause suspected)
Pulmonary Edema

**Contraindications:**
- Systolic BP < 100
- Acute stroke
- Nitroglycerin intolerance
- Patients taking erectile dysfunction drugs in last 48 hours

**Side Effects:** Hypotension, tachycardia, syncope, headache. Bradycardia may occur in AMI.

**Dosage:**
1. Tablet: 0.4 mg SL.
2. Spray (each squirt = 0.4 mg) Sublingual
   May be repeated every 5 minutes unless the systolic BP is < 100.

**Supply:**
- Bottle containing tablets.
- Pump Spray
- Packets containing ointment (1 inch/packet)

**Comments:**
If the patient has taken nitroglycerin before without problems, nitroglycerin may be administered sublingually before an IV is started.
If the patient has never taken nitroglycerin, an IV must be attempted prior to nitroglycerin administration. If unsuccessful with IV, give NTG SL, then reattempt IV.
Wear gloves when applying ointment.
Use caution in Bradycardia patients.
NUBAIN

<table>
<thead>
<tr>
<th>Nubain (nalbuphine HCL)</th>
<th>[Intermediate / RN / Paramedic]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class:</strong></td>
<td>Synthetic opioid- antagonist</td>
</tr>
</tbody>
</table>
| **Actions:** | 1. CNS depressant  
2. Narcotic analgesic  
3. Vasodilation |
| **Indications:** | Use in place of Morphine when patient is allergic to Morphine or you are a long distance from your MS supply. |
| **Contraindications:** | Hypersensitivity to the drug.  
Avoid in patients chronically using narcotics. |
| **Side Effects:** | Hypotension, hypertension, n/v, dizziness, blurred vision, sedation. |
| **Dosage:** | 2.0-10mg IV/IO/IM, every 5-30 minutes up to 10 mgs without OLMC approval. |
| **Supply:** | 10 mg/ml 1ml ampule |
| **Comments:** | 1 mg = 0.1ml |
**OXYGEN**

**Class:** Component of acid/base balance and CO₂ levels.

**Actions:** Oxygen added to the inspired air raises the amount of oxygen in the blood and, therefore, the amount delivered to the tissues.

**Indications:**
1. Suspected hypoxemia or respiratory distress from any cause.
2. Acute chest pain in which a myocardial infarction is suspected.
3. Shock (decreased oxygenation of tissues) from any cause.
4. Major Trauma.
5. Carbon monoxide poisoning.
6. Any time a patient is in respiratory distress.

**Contraindications:** None in above settings

**Side Effects:**
1. Non humidified O₂ is drying and irritating to mucous membranes.
2. Restlessness may be an important sign of hypoxia, reevaluate the delivery of the oxygen.
3. Oxygen supports combustion.
4. Oxygen toxicity (overdose) is not a hazard from acute administration.

**Dosage:**
- Patients with chronic lung disease
  - Low flow (1-2 L/min)
- Precautionary use for trauma, chest pain, etc.
  - Mod. flow (4-6 L/min)
- Severe respiratory distress, either medical or traumatic.
  - Hi. flow (10-15 L/Min)

**Supply:** Varies

**Comments:**
- Room air
  - 21%
- Nasal Canula (prongs)
  - 1 L/Min 24%
  - 2 L/Min 28%
  - 8 L/Min 40%
- Face Mask
  - 6 L/Min 50-60%
- Oxygen Reservoir (mask)
  - 10-12 L/Min 90%
- Mouth to mask
  - 10 L/Min 50%
  - 15 L/Min 80%
  - 30 L/Min 100%
- Bag/valve/mask
  - Room Air 21%
  - 12 L/Min 40%
- with 100% Valve
  - High flow regulated to inflate bag at proper rate 90%
## OXYTOCIN (Pitocin)

<table>
<thead>
<tr>
<th>Class:</th>
<th>Hormone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions:</td>
<td>Increases electrical and contractile activity in uterine smooth muscle. Oxytocin can initiate or enhance rhythmic contractions at any time during pregnancy, but the uterus is most sensitive at term.</td>
</tr>
</tbody>
</table>
| Indications:| 1. Labor augmentation (in-hospital only)  
                   2. Control of post-partum hemorrhage. **Use only by direct physician order** |
| Contraindications: |                                      |
| Side Effects:| 1. In large amount Oxytocin exhibits a transient but marked vasodilating effect and reflex tachycardia.  
                   2. Cardiac arrhythmias may be precipitated or aggravated by Oxytocin. |
| Dosage:      | IM: 10 USP units.                     |
| Supply:      | Injectable Oxytocin (Pitocin [R]) contains 10 USP units (20mg) per ml. |
| Comments:    | 1. Prior to its administration, the presence of a second fetus must be considered. Administration with fetus in uterus can cause rupture of uterus and/or death of fetus.  
                   2. Administration should follow delivery of placenta whenever possible. |
## PHENERGAN (Promethazine)

<table>
<thead>
<tr>
<th>Phenergan (Promethazine)</th>
<th>[Paramedic]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class:</strong></td>
<td>Antiemetic</td>
</tr>
<tr>
<td><strong>Actions:</strong></td>
<td>Competes with histamine for Hi-receptor sites on effector cells.</td>
</tr>
</tbody>
</table>
| **Indications:** | 1. Second line antiemetic, may be used 10 – 15 min. after use of Zofran and no improvement.  
2. Treatment of Nausea and Vomiting (Unrelated to Head Injury) |
| **Contraindications:** | Allergy |
| **Side Effects:** | 1. CNS Depression  
2. Airway / Respiratory compromise |
| **Dosage:** | 12.5 mg – 25 mg IV/IO/IM (on average adult)  
6.25 mg Adults > 60 yo |
| **Supply:** | 25 mg / 1 ml - preload |
| **Comments:** | Requires cardiac monitoring & Pulse Oximetry.  
Recommended to hang bag of NS and administer Phenergan slowly in port furthest from IV site with NS free flowing. |

**WARNING:** Inadvertent intra-arterial injection can result in gangrene of the effected extremity. Subcutaneous injection is contraindicated, for it may result in tissue necrosis.
ROCURONIUM (Zemuron)

**Class:** Neuromuscular blocking agent

**Actions:** Non-depolarizing neuromuscular blocking agent causing skeletal muscle relaxation.

**Indications:** Continued paralyzation after intubation

**Contraindications:** None in pre-hospital emergency setting

**Side Effects:**
1. Airway compromise
2. Respiratory arrest

**Dosage:** RSI or Prolonged Transport on Ventilator
   - Initial dose: 1 mg/kg IV/OA
   - Rebolus dose: 0.1 – 0.3 mg/kg IV/OA

**Supply:** 10 mg/ml - 10 ml - vial

**Comments:** Maximum neuromuscular blockade occurs within 3 to 5 minutes. Time to 25% recovery is 25 to 30 minutes.
SODIUM BICARBONATE

**Sodium Bicarbonate, NaHCO₃**

**Class:** Alkalizing agent

**Actions:** Buffers metabolic acidosis, neutralizes excess acids in the blood
Increases pH

**Indications:**
- Cardiac arrest early in dialysis Patients
- Known metabolic acidosis
- Cardiac arrest in a dialysis patient (hyperkalemia).
- Tricyclic antidepressant overdose

**Contraindications:** Hypokalemia

**Side Effects:** Metabolic alkalosis, increased sodium, decreased potassium

**Dosage:** *Adults and Pediatrics:* 1 mEq/kg IV/IO (1 ml/kg). and then 0.5 mEq/kg or 1 amp until pulse is restored

**Supply:** Prefilled syringe contains 50 mEq (50 ml)

**Comments:** Providing optimum chest compressions and ventilation best treats acidosis in cardiac arrest. Sodium Bicarbonate may worsen outcome in cardiac arrest.
Sodium Bicarbonate should be an early treatment consideration in dialysis patients in cardiac arrest.
Common tricyclic antidepressants – Elavil ® (amitriptyline), Norpramin ® (desipramine), Pamelor ® (nortriptyline), Sinequan ® (doxepin), Tofranil ® (imipramine)
SUCCINYLCHOLINE (Anectine)

**Succinylcholine (Anectine)**

**Class:** Skeletal muscle relaxant

**Actions:** Short acting, motor nerve depolarizing, skeletal muscle relaxant

**Indications:** To achieve temporary paralysis where endotracheal intubation is indicated, and where muscle tone or seizure activity prevent it.

**Contraindications:** Hypersensitivity

**Side Effects:**

**Dosage:**
- Adults: 1.5 mg/Kg IV/IO push or 2.5 mg/kg IM
- Children: <6 years: 2 mg/Kg IV/IO push or 4 mg/kg IM

**Supply:** 200 mg / 10 ml - vial

**Comments:**
1. Succinylcholine should not be administered unless personnel skilled in endotracheal intubation are present, and ready to perform the procedure.
2. Oxygen therapy equipment and resuscitation drugs should be available.
3. Succinylcholine produces paralysis, but does not alter a person’s level of consciousness. Paralysis in the conscious patient is very frightening, therefore, sedation should be provided in any conscious or responsive patient; also verbal explanation should be provided to the patient during the procedure - even if you do not think the patient can hear you.

**Concerns:** Do not administer Succs if:

1. Patient has burns greater than 24 hours or up to 2 years old.
2. Patient has a crush injury greater than 24 hours or up to 90 days old.
3. A patient has a stroke or cord trauma greater than 7 days old or up to 6 months old.
### THIAMINE

<table>
<thead>
<tr>
<th>Thiamine</th>
<th>[Paramedic]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class:</strong></td>
<td>B1 Vitamin</td>
</tr>
<tr>
<td><strong>Actions:</strong></td>
<td>Replace or supplement vitamin B1</td>
</tr>
</tbody>
</table>
| **Indications:** | 1. In suspected alcoholics before or after the administration of 50% dextrose.  
   2. In suspected Wernicke’s or Korsakoff’s syndrome.  
   3. In malnourished patients. |
| **Contraindications:** | |
| **Side Effects:** | 1. Allergic reactions occur but are extremely rare.  
   2. Rapid IV administration has been associated with hypotension. |
| **Dosage:** | 100 mg IV/IO/IM. |
| **Supply:** | 100 mg / 1 ml - vial  
   200 mg / 2 ml - vial |
| **Comments:** | |
Vasopressin

**Class:** Vasopressor

**Actions:** Vasopressin is a non peptide hormone made in the posterior pituitary. Its primary role is water regulation with secondary role of vasoconstriction. It increases GI and uterine motility, platelet aggregation, and results in secretion of ACTH, aldosterone, factor VIII. Vasopressin IV/IO is rapidly distributed. No dosage adjustments are needed for patients with renal, liver, heart failure, or advanced age.

**Indications:** V-Fib/Pulseless VT, Asystole, PEA

**Contraindications:** Hypersensitivity to the medication

**Side Effects:**

**Dosage:**
- **Adults:** 40 units IV/IO
- **Peds:** Not indicated for pediatrics

**Supplied:** 20 units/1ml Vial

**Comments:**
VECURONIUM (Norcuron)

**Class:** Neuromuscular blocking agent

**Actions:** Non-depolarizing neuromuscular blocking agent causing skeletal muscle relaxation.

**Indications:** Continued paralysis after intubation

**Contraindications:** None in pre-hospital emergency setting

**Side Effects:**
1. Airway compromise
2. Respiratory arrest

**Dosage:** RSI or prolonged transport on ventilator
   - Initial Dose: 0.1 mg/kg IV/IO
   - Rebolus Dose: 0.01 – 0.03 mg/kg IV/IO

**Supplied:** 10 mg/10 ml – Vial (Comes in two vials, to be mixed)

**Comments:** Maximum neuromuscular blockage occurs within 3-5 minutes. Time to 25% recovery is 25 to 30 minutes.
**ZOFRAN (Ondansetron HCL)**

<table>
<thead>
<tr>
<th>Class:</th>
<th>Antiemetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions:</td>
<td>Selective antagonist of a specific type of serotonin receptor (5-HT3) located in the DNS at the chemoreceptor trigger zone and in the nerve terminals of the vagus nerve.</td>
</tr>
<tr>
<td>Indications:</td>
<td>Motion sickness, nausea (unrelated to head injury), or adjunct to analgesics.</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Hypersensitivity / allergy</td>
</tr>
<tr>
<td>Side Effects:</td>
<td>1. Headache</td>
</tr>
</tbody>
</table>
| Dosage: | Adult: 4 mg IM or slow IV/IO (Over 2 min)  
4 mg Tablet placed in mouth of conscious patient.  
Repeat 4 mg dose in 15 minutes if no relief from first dose  
Pediatric: < 2 years – 2 mg IM/IV/IO  
> 2 years – 4 mg IM/IV/IO |
| Supply: | 2 mg/ml - 2 ml Vial  
4 mg oral dissolving tablet. |
| Comments: | 1. Does not typically cause sedation  
2. Peak concentration occurs 10 min after IV dose & 40 min after IM |