2019 PREHOSPITAL FORMULARY

EL DORADO COUNTY
EMERGENCY MEDICAL SERVICES AGENCY
2900 Fair Lane Court
Placerville, CA 95667

17th Edition
Effective: July 1, 2019

TABLE OF CONTENTS

Acetaminophen 3
Activated Charcoal 4
Adenocard 5
Albuterol Sulfate 6
Amiodarone 7
Aspirin 9
Atropine Sulfate 10
Atrovent (Duoneb) 12
Calcium Chloride 13
Dextrose 50% in Water 14
Dextrose 10% in 100cc NS 14
Diphenhydramine 16
Dopamine 17
Dopamine Drip Chart 18
Dopamine Clock Method 19
Epinephrine Hydrochloride 20
EpiPen 22
EpiPen JR 22
Fentanyl 23
Glucagon 24
Glutose 25
Ibuprofen 26
Lidocaine Hydrochloride 27
Lidocaine Jelly 28
Magnesium Sulfate 29
Midazolam 30
Morphine Sulfate 31
Naloxone 32
Neosynephrine 33
Nitroglycerin 34
Nitrous Oxide 35
Ondansetron 36
Oxygen 37
Oxygen Devices 38
Sodium Bicarbonate 39
Sodium Chloride 0.9% 40
REFERENCE SECTION 41
Dosage Calculations: 41
Flow Rate Calculations 42
Key To Controlled Substances Categories 43

Key To FDA Use-In-Pregnancy Ratings 44
Formulary Abbreviations* 45
Equivalents 46
Approved IFT IV Fluids 46
CHEMPACK INFORMATION 47
Treatment Capacity: 47
Mark I auto-injector 48
Atropine Sulfate 49
Pralidoxime 50
Chloride 50
Diazepam 51
PEDIATRIC DRUG REFERENCE CARDS 52
Dosage Chart 52
Broselow color: GREY 53
Broselow color: PINK 54
Broselow color: RED 55
Broselow color: PURPLE 56
Broselow color: YELLOW 57
Broselow color: WHITE 58
Broselow color: BLUE 59
Broselow color: ORANGE 60
Broselow color: GREEN 61
ACETAMINOPHEN DOSAGE CHART: 62
IBUPROFEN DOSAGE CHART: 63
Oxygen Tank Calculation 64

Acetaminophen EXPANDED SCOPE EMT	(Tylenol, APAP, N-acetyl-para-aminophenol, Paracetamol)
Classification:	Analgesic, antipyretic
Actions:	The exact mechanism of action is not known. It may reduce the production of prostaglandins in the brain. Prostaglandins are chemicals that cause inflammation and swelling. Acetaminophen relieves pain by elevating the pain threshold. It reduces fever through its action on the heat-regulating center of the brain.
Indications:	EMS: Pediatric febrile seizure patient who has either not been given any antipyretics or who have been given ibuprofen without a marked reduction in fever.
Contraindications:	• Liver disease
Adverse effects:	• Typically none for short term use
Adult Administration:	NONE
Pediatric Administration:	15 mg/kg every 4 hours. For specific dosing instructions and concentration see chart on page 60.
Onset:	0.5 -1.0 hours
Duration:	3-8 hours
Pregnancy Safety:	Category B
Comments:	This medication should not be taken on an empty stomach. Overuse may cause liver damage and/or kidney damage. Use should be avoided in patients who drink > 3 alcoholic beverages per day.

Activated Charcoal	(Charcoal Slurry)
Classification:	Chemical adsorbent
Actions:	Inhibits gastrointestinal absorption of drugs or chemicals
Indications:	Suspected overdose or accidental ingestion of drugs or chemicals
Contraindications:	• Altered level of consciousness • No gag reflex • Ingestion of caustics, corrosives, or petroleum distillates
Adverse effects:	• Vomiting • Aspiration
Adult Administration:	50 gm (250ml) PO
Pediatric Administration:	25gm (125ml, half the contents of a bottle) unless a large quantity of intoxicant has been ingested, and where there is risk of life. In these circumstances, administer 50gm (25oml)
Onset:	Immediate
Duration:	24 hours
Pregnancy Safety:	Not established
Comments:	• Milk products ingested prior to activated charcoal can reduce its effectiveness. • Most effective if administered within 30 minutes of ingestion. • Activated charcoal without Sorbitol is the only approved type.

Adenocard	(Adenosine)
Classification:	Antidysrhythmic agent
Actions:	Slows conduction through the A-V node, can interrupt the re-entry pathways through the A-V node, and can restore normal sinus rhythm in patients with PSVT
Indications:	Supra-ventricular tachycardia (stable) Monomorphic wide-complex tachycardia (stable)
Contraindications:	• 2nd or 3rd degree heart block • Sick sinus syndrome • Hypersensitivity to adenosine
Adverse effects:	• Facial flushing • Headache • Dizziness • Dyspnea • Nausea/vomiting • Chest pressure • Transient asystole • Bronchoconstriction in some asthma patients
Adult Administration:	6 mg Rapid IVP followed with 10 mL NS flush. Repeat 12 mg followed with 10 mL NS flush if needed. May repeat X1. (Total dose 30 mg) Draw up adenosine and saline flush in separate syringes to allow for a more rapid bolus.
Pediatric Administration:	0.1 mg/kg rapid IVP followed with 5 mL NS flush (Max. dose 6 mg). MR in 3 minutes at 0.2 mg/kg followed with 5 mL NS flush (Max. dose 12 mg.) Draw up adenosine and saline flush in separate syringes to allow for a more rapid bolus.
Onset:	Immediate
Duration:	10 seconds
Pregnancy Safety:	Category C
Comments:	• 1/2 life is "10 seconds." • A brief period of asystole (up to 15 seconds) following conversion, followed by resumption of NSR is common after rapid administration. • Not indicated for patients with a known history of atrial fibrillation/atrial flutter, but may be used to determine rhythm in irregular tachycardias. Once atrial fibrillation or atrial flutter is confirmed you should discontinue any further administration.

Albuterol Sulfate (Proventil, Ventolin)	
Classification:	Bronchodilator
Actions:	Relaxes bronchial smooth muscle by stimulating beta$_2$ receptors resulting in bronchodilation
Indications:	• Acute asthma • Allergic reaction • COPD/bronchitis • Bronchospasm
Contraindications:	• Prior hypersensitivity reaction to Albuterol • Symptomatic tachycardia • Chest pressure
Adverse effects:	• Tachycardia • Hypertension • Palpitations • Dizziness • Dysrhythmias • Restlessness • Nausea
Adult Administration:	**Bronchospasm:** 2.5 mg/3 mL NS via nebulizer. If severe distress persists, initiate continuous Albuterol via nebulizer, not to exceed 15 mg/hr. May also be administered via facemask, BVM, or ETT. **Crush Syndrome:** 5.0 mg in 6 ml NS via nebulizer. Run continuously before and after extrication. **FireLine Medic:** Albuterol HFA 108mcg/inhalation with attached Aerochamber Spacer. Inhale 2 puffs every 4 hours as needed for coughing, wheezing, or Shortness of breath.
Pediatric Administration:	**Bronchospasm:** 2.5 mg in 3 mL NS via nebulizer. If severe distress persists repeat at 0.5 mg/kg hr to a maximum of 15 mg/hr. **Crush Syndrome:** < 2 years old: 2.5 mg in 3 mL of NS/SW. > 2 years old: 5.0 mg in 6 ml NS via nebulizer. Run continuously before and after extrication. Per Base MD Order.
Onset:	Within 5 minutes
Duration:	3 - 4 hours
Pregnancy Safety:	Category C
Comments:	Use with caution in patients with: • Heart disease

	• Hypertension • Tachydysrhymias • Patients being treated with MAO inhibitors • Patients that are hypersensitive to sympathomimetics

Amiodarone	(Cordarone, Pacerone)
Classification:	Antiarrhythmic agent
Actions:	• Delays repolarization, Prolongs action potential • Delays impulses from SA and AV nodes • Slows conduction through accessory pathways • Vasodilatation
Indications:	• Ventricular fibrillation • Wide-complex tachycardia
Contraindications:	• Cardiogenic shock • Bradycardia/Heartblocks • Iodine allergies
Adverse effects:	• Hypotension • Bradycardia • AV block • Asystole • PEA • Hepatoxicity
Adult Administration:	**VF/VT (pulseless)** – 300 mg slow IV/IO push (over 1-2 Min.) followed in 5 minutes by 150 mg IV/IO push. **VT (with pulses**) – 150 mg IV/IO **Slowly** infuse over 10 min.
Pediatric Administration:	**VF/VT (pulseless)** – 5 mg/kg slow IV/IO push (over 1-2 Min.) followed by 5 mg/kg slow IV/IO q 5 Min. to Max. of 15 mg/kg. **VT (with pulses)** – 5 mg/kg IV/IO **Slowly** over 30 minutes Using 100 cc bag NS infuse over 30 minutes • Using a 100cc bag of NS and micro drip tubing (60gtts/mL): add Amiodarone and mix well. Run at 3gtts per second • Using a 100cc bag of NS and macro drip tubing (10gtts/mL): add Amiodarone and mix well. Run at 1gtt every 2 seconds.
Onset:	2-3 minutes
Duration:	Days to weeks
Pregnancy Safety:	Category D
Comments:	Contact base for ROSC patients • Consider Amiodarone 150 mg IV over 10 minutes for recurrent VF/VT with periods of ROSC where no antiarrhythmic has yet been given. **TO SET UP A DRIP:**

	1. Place 150 mg Amiodarone in a 100cc bag of NS and mix well. 2. Piggy back bag into IV line using a10 gtt (Macro) tubing. 3. Run at 1.5 gtts per second. This will = approx. a 10 minute drip.

Aspirin (ASA, Acetylsalicylic Acid) EXPANDED SCOPE EMT	
Classification:	Antiplatelet, Analgesic, Antipyretic, Anti-inflammatory
Actions:	Inhibition of platelet aggregation and platelet synthesis Reduction of risk of death in patients with a history of myocardial infarction or unstable angina
Indications:	Chest pain with suspected myocardial ischemia
Contraindications:	• Allergy to ASA • Peptic ulcer disease • Hypersensitivity to salicylates
Adverse effects:	• Nausea-GI upset • Hepatotoxicity • Occult blood loss • Anaphylaxis
Adult Administration:	324 - 325 mg (chewable baby ASA) PO
Pediatric Administration:	Not recommended for prehospital use
Onset:	30-60 minutes
Duration:	4-6 Hours
Pregnancy Safety:	Pregnancy safety: Consult M.D., not recommended in third trimester
Comments:	Salicylism signs and symptoms: dizziness, tinnitus, difficulty hearing, nausea, vomiting, and mental confusion. ASA should be given even when a patient states that they have already taken some. If ASA was administered by another healthcare provider (e.g., Call at a nursing home, doctor's office, or other healthcare setting) it is up to the paramedic's discretion. In either case, an additional dose of ASA is not going to be harmful.

Atropine Sulfate	
Classification:	Parasympathetic blocker (Anticholinergic), Antidysrhythmic agent
Actions:	Inhibits parasympathetic stimulation by blocking acetylcholine receptors Decreases vagal tone resulting in increased heart rate and AV conduction Dilates bronchioles and decreases respiratory tract secretions Decreases gastrointestinal secretions and motility
Indications:	• Symptomatic bradycardia • Organophosphate poisoning (OPP) • Nerve agent exposure (See pages 38-45)
Contraindications:	None - See Comments
Adverse effects:	• Tachycardia • Increased myocardial 0_2 demand • Headache • Dizziness • Palpitations • Dries mucous membranes • Nausea/vomiting • Flushed skins • Dilated pupils • Increased intraocular pressure
Precautions:	• Use with caution in patients with suspected acute myocardial infarction (AMI) and glaucoma patients • Will not be effective for Type II AV Block and new Third Degree Block with wide QRS complexes (In these patients may cause paradoxical slowing. Be prepared to pace)
Adult Administration:	**Bradycardia:** IVP/IO 0.5- q 3-5 min to Max. of 3 mg. ET: 1 mg followed by 5 mL normal saline flush and 5 normal ventilations. May repeat every 5 minutes to a Max. of 6 mg. **Organophosphate Poisoning** IV/IO/IM: administer 2 mg. May be repeated every 5 minutes until symptoms clear. ET: administer 4 mg followed by 5 mL normal saline flush and 5 normal ventilations. May be repeated every 5 minutes until symptoms clear. If symptoms are severe or the patient does not respond to treatment, higher doses of atropine may be ordered by base station.

Atropine Sulfate (Cont)	
Pediatric Administration:	**Bradycardia:** IVP/IO: 0.02 mg/kg. Minimum dose of 0.1 mg and a Max. dose of 0.5 mg for a child; 1.0 mg for an adolescent. This dose may be repeated after 5 minutes for a Max. total dose of 1.0 mg for a child and 2.0 mg for an adolescent. ET: 0.03 mg/kg followed by 5 mL NS or SW flush and 5 normal ventilations. This dose may be repeated in 5 minutes. **Organophosphate Poisoning** 12yrs and under: 0.02mg/kg IV/IO initially, repeat every 30 minutes until muscarinic symptoms reverse. Over 12yrs: 2mg IV/IO initially, then 2mg IV/IO every 30 minutes until muscarinic symptoms reverse. **Contact Poison Control for contraindication guidelines.**
Onset:	2 – 5 minutes
Duration:	20 minutes
Pregnancy Safety:	Category C
Comments:	• Bradycardia in pediatrics is usually due to hypoxia. • Atropine is not recommended in neonates. Neonatal bradycardia often resolves itself quickly without corrective treatment. • Antihistamines, phenothiazines, and tricyclic antidepressants enhance the effects of atropine. • Atropine is not recommended in asymptomatic bradycardia. The increase in myocardial O2 demand may cause/extend an AMI.

Atrovent (Duoneb)	Ipratropium Bromide + Albuterol Sulfate (In a DuoNeb pillow)
Classification:	Parasympathetic blocker (Anticholinergic), Bronchodilator
Actions:	Dilates bronchioles and decreases respiratory tract secretions. Inhibits parasympathetic stimulation by blocking acetylcholine receptors. Anticholinergics prevent the increase of cyclic guanosine monophosphate which is caused by interaction of acytecholine with the muscarinic receptor on bronchial smooth muscle.
Indications:	• Asthma • COPD • Allergic reaction • Bronchospasm
Contraindications:	None
Adverse effects:	• Tachycardia • Blurred vision • Headache • Dizziness • Nausea/vomiting • Cough • Increased intraocular pressure
Precautions:	• Use with caution in glaucoma patients
Adult Administration:	0.5 mg premixed with 2.5 mg albuterol (3 mL total solution) via nebulizer. **Single dose only**.
Pediatric Administration:	0.5 mg premixed with 2.5 mg albuterol (3 mL total solution) via nebulizer. **Single dose only.**
Onset:	5– 15 minutes
Duration:	2-4 hours
Pregnancy Safety:	Category B
Comments:	Atrovent is given as a single dose only.

Calcium Chloride	($CaCL_2$)
Classification:	Inotropic Agent (electrolyte)
Actions:	Couples electrical and mechanical events of the myocardium. Increases myocardial contractility. Increases ventricular irritability.
Indications:	• Hyperkalemia • Overdose of calcium channel blockers • Crush Injury with suspected hyperkalemia
Contraindications:	Patients taking digitalis based medications
Adverse effects:	• Bradycardia • Hypotension • Syncope
Adult Administration:	**Hyperkalemia / Overdose of Calcium Channel Blockers:** Administer 10 mg/kg **slow** IV push. Per Base MD Order. **Crush Syndrome:** Give 1 gm IV/IO **slowly** over 5 minutes. Repeat if symptoms persist. (Flush line with NS before and after administration) for suspected hyperkalemia (Compression ≥4 hrs and: absent P waves, Peaked T waves, and/or prolonged QRS)
Pediatric Administration:	**Hyperkalemia / Overdose of Calcium Channel Blockers:** Administer 20mg/kg (0.2 mL/kg) **slow** IV push. Per Base MD Order **Crush Syndrome:** 20 mg/kg **slow** IV/IO push over 1 minute may be ordered Per Base MD. Repeat if symptoms persist (Flush line with NS before and after administration). For suspected hyperkalemia (Compression ≥4 hrs and: absent P waves, Peaked T waves, and/or prolonged QRS)
Onset:	5 – 15 minutes
Duration:	Dose dependant (effects may persist for up to 4 hours)
Pregnancy Safety:	Category C
Comments:	• Hyperkalemia may be caused by potassium retention in dialysis patients or overdose of potassium supplements. • Causes tissue necrosis if injected into interstitial space. • Can precipitate, flush the IV line if sodium bicarbonate is used.

Dextrose 50% in Water	($D_{50}W$, Glucose)
Classification:	Hyperglycemic agent, hypertonic solution
Actions:	Provides immediate source of glucose which is rapidly utilized for cellular metabolism.
Indications:	Altered level of consciousness due to suspected hypoglycemia Hypoglycemia is defined as: • Neonate < 1 month (b.s. < 50 mg/dL) • Infant/child >1 month (b.s. < 60 mg/dL) • Adult (b.s. =<60 mg/dL)
Contraindications:	None
Adverse effects:	• CVA • Intra-cranial hemorrhage • Thrombophlebitis • Rhabdomyolysis • May worsen Wernicke's encephalopathy
Adult Administration:	50 mL (25 gm) IVP. MR once (Can be used during Pulseless Arrest)
Pediatric Administration:	**Neonate (**< 1 month): **D10W** 2 mL/kg IV/IO MR Dilute 5:1 with sterile water to make a 10% solution. **Infant/child (**> 1 month)**: D25W** 2 mL/kg IV/IO MR Dilute 50:50 with sterile water to make a 25% solution.
Onset:	30 - 60 seconds
Duration:	Depends on level of hypoglycemia
Pregnancy Safety:	Category A
Comments:	• Causes tissue necrosis if injected into interstitial space. • Use as large a vein as possible. • Use caution in patients with suspected intracranial hemorrhage. • May increase cerebral ischemia in CVA.

Dextrose 10% in 100cc NS (D10W, Glucose)	
Classification:	Hyperglycemic agent, Isotonic solution
Actions:	Provides immediate source of glucose which is rapidly utilized for cellular metabolism.
Indications:	Altered level of consciousness due to suspected hypoglycemia Hypoglycemia is defined as: • Neonate < 1 month (b.s. < 50 mg/dL) • Infant/child >1 month (b.s. < 60 mg/dL) Adult (b.s. =<60 mg/dL)
Contraindications:	None
Adverse effects:	• CVA • Intra-cranial hemorrhage • Thrombophlebitis • Rhabdomyolysis May worsen Wernicke's encephalopathy
Adult Administration:	Administer 100cc of a 250cc bag of Dextrose 10% (10gm) IV Bolus, May Repeat every 5 minutes until b.s. is at normal limits
Pediatric Administration:	**Neonate (**< 1 month): **D10W** 2 mL/kg IV/IO MR **Infant/child (**> 1 month)**:** **D10W** 5 mL/kg IV/IO MR Use 250cc bag of Dextrose 10% for IV Bolus, May Repeat every 5 minutes until b.s. is at normal limit.
Onset:	30 - 60 seconds
Duration:	Depends on level of hypoglycemia
Pregnancy Safety:	Category A
Comments:	• Causes tissue necrosis if injected into interstitial space. • Use as large a vein as possible. • Use caution in patients with suspected intracranial hemorrhage. • May increase cerebral ischemia in CVA.

Diphenhydramine (Benadryl) EXPANDED SCOPE EMT	
Classification:	Antihistamine
Actions:	Competes with histamines at receptor sites. Reverses muscle spasms associated with dystonic reactions (phenothiazine).
Indications:	• Allergic reactions • Muscle spasms associated with dystonic reactions
Contraindications:	• Glaucoma • Acute asthma • COPD
Adverse effects:	• Hypotension • Drowsiness • Tachycardia • Bradycardia • Dry mouth
Adult Administration:	**Allergic Reaction/Anaphylaxis:** 50 mg IV/IO, IM, or PO. **Dystonic Reaction:** 25 mg IV/IO, IM, or PO
Pediatric Administration:	1 mg/kg slow IV/IO/IM or PO (Max. of 25 mg)
Onset:	IV/IO: 1-5 minutes IM/PO: 15 minutes
Duration:	3-4 hours
Pregnancy Safety:	Category B
Comments:	May cause depressed level of consciousness in elderly patients. Overdoses may result in seizures, coma, and death.

Dopamine	(Intropin)
Classification:	Sympathomimetic agent (Catecholamine)
Actions:	**Low dose (1-2 µg/kg/min)** Dilates renal and mesenteric arteries by stimulating dopaminergic receptors. May decrease BP due to vasodilation. **Moderate dose (2-10 µg/kg/min)** Increases inotropy (force) without increasing chronotropy (heart rate). Increases BP by stimulating $beta_1$ receptors. **High dose (over 10 µg/kg/min)** Causes vasoconstriction. Increases inotropy and chronotropy. Increases BP by stimulating alpha and $beta_1$ receptors.
Indications:	• Cardiogenic shock • Distributive shock
Contraindications:	• Hypovolemia
Adverse effects:	• Hypertension (High doses) • Hypotension (Low doses) • Tachycardia • Dyspnea
Adult Administration:	2-20 µg/kg/min IV infusion, titrate slowly to effect per Base MD Order **Bradycardia** – 2-10 µg/kg/min **Hypotension** – 10-20 µg/kg/min
Pediatric Administration:	5 -10 µg/kg/min. via volutrol with micro drip per Base MD Order
Onset:	5 minutes
Duration:	5-10 minutes
Pregnancy Safety:	Not well established
Comments:	Not for use in hypovolemia. Causes tissue necrosis if injected into interstitial space. MAO inhibitors may increase its effects.

Dopamine Drip Chart

Run pre-mixed Dopamine 400 mg in 250 mL solution via micro drip (60 gtts/mL) tubing at the following rates: (Note: *Dial-a-Flow device requires an additional calculation to convert mL/hr to gtts/min)*

	5 Mcg	10 Mcg	15 Mcg	20 Mcg
Weight/Kg	**gtts/min**	**gtts/min**	**gtts/min**	**gtts/min**
40	8	16	24	36
50	10	20	30	40
60	12	24	36	48
70	14	28	42	56
80	16	32	48	64
90	18	36	54	72
100	20	40	60	80
110	22	44	66	88
120	24	48	72	96
130	26	52	78	104
140	28	56	84	112
150	30	60	90	120
160	32	64	96	128
170	34	68	102	136
180	36	72	108	144

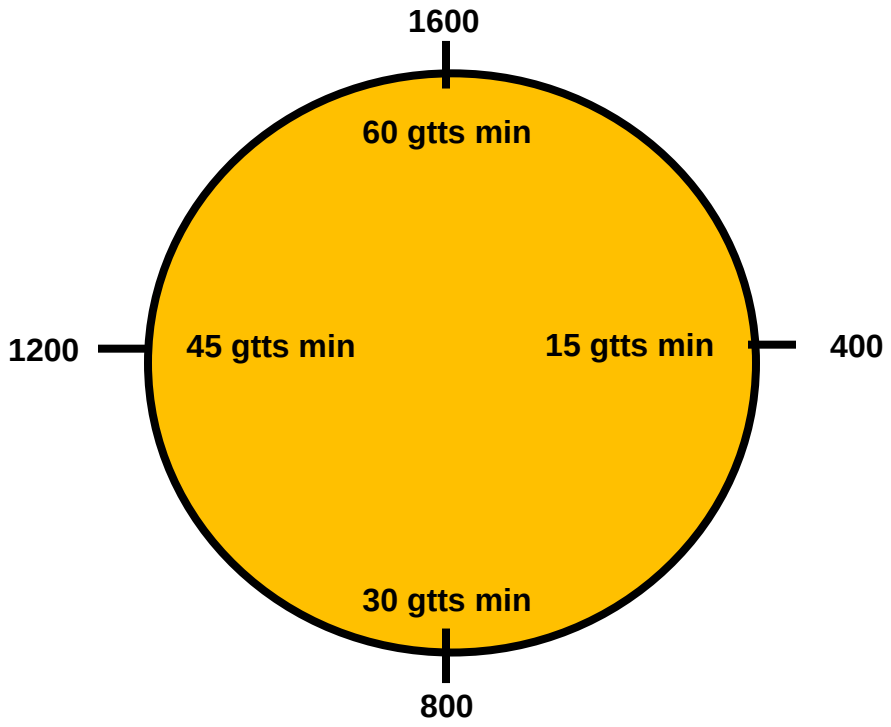
Dopamine Clock Method

1) Multiply the patient's weight in Kg x 10 (i.e., 80 x 10 = 800)

2) Find the 800 on the outside of the clock and the corresponding number on the inside of the clock will give you the number of drops per minute to equal 10 mcg/kg/min.

3) To give 5 mcg/kg/min just divide the inside number in half. To give 20 mcg/kg/min, double the inside number.

4) Run the dopamine via either micro drip tubing or macro drip tubing with a Dial a Flow device.



Epinephrine Hydrochloride (Adrenalin)	
Classification:	Sympathomimetic agent (Catecholamine)
Actions:	Acts directly on Alpha & Beta receptors of the SNS. Beta effect is more profound than Alpha effects. Effects include: • Increased HR (chronotropy) • Increased cardiac contractile force (inotropy) • Increased electrical activity with in myocardium (dromotropy) • Increased systemic vascular resistance • Increased blood pressure • Increased automaticity • Increased bronchial smooth muscle dilation • Increases coronary perfusion during CPR by increasing aortic diastolic pressure
Indications:	• Cardiopulmonary arrest: VFib/Pulseless VT, Asystole, PEA • Allergic reaction/anaphylaxis • Asthma • Refractory pediatric bradycardia, unresponsive to O2 and ventilation • Stridor (croup, airway burns, laryngeal edema)
Contraindications:	• Hypertension
Adverse effects:	• Hypertension-tachycardia • Increases myocardial oxygen demand and potentially increases myocardial ischemia
Adult Administration:	**Pulseless Arrest**: IV/IO: 1 mg 1:10,000, repeat q 3 to 5 minutes If rhythm persists ETT: 2 mg 1:1000 diluted to 5-10 mL, Followed with 5 normal ventilations. repeat every 3 to 5 minutes If rhythm persists. **Bronchospasm:** 0.3 mg of 1:1,000 IM, may repeat in 10-minute intervals***** ***Epinephrine can be given prior to base station contact only if the patient is in extremis: low O2 saturation, unable to speak, signs of ALOC** **Allergic Reaction/Anaphylaxis:** Bronchospasm: 0.3 mg of 1:1,000 IM, may repeat in 10 minutes X1 Hypotension /Airway Compromise: 0.3- mg of 1:1,000 IM q 10 minutes if there is no improvement. Impending Arrest: 0.1mg 1:10,000 diluted to 10 mL with NS slow IVP over 5 minutes. (Diluted dose is equivalent to 1:100,000). **For Stridor (croup/airway burns/laryngeal edema, anaphylaxis):** Nebulized Epinephrine 1:1,000 5 mL (5 mg) over 5 min. Repeated as needed q 10 minute intervals. This should be in addition to IM epinephrine.

Epinephrine Hydrochloride	(CONT)
Pediatric Administration:	**Pulseless Arrest:** **IV/IO**: 0.01 mg/kg (1:10,000, 0.1 mL/kg) repeat q 3-5min if rhythm persists **ETT:** 0.1 mg/kg (1:1000, 0.1 mL/kg) Followed with 5-10 mL NS or SW flush and 5 normal ventilations, repeat every 3 to 5 minutes If rhythm persists. **Bronchospasm:** 0.01 mg/kg (max. 0.3 mg) of 1:1,000 IM, may repeat in 10 minutes X1 **Epinephrine can be given prior to base station contact only if the patient is in severe distress:** low oxygen saturation, is unable to speak, or shows signs of decreased level of consciousness. **Refractive Bradycardia** IV/IO: 0.01 mg/kg (1:10,000, 0.1 ml/kg) repeat dose every 3-5 minutes. **Allergic Reaction/Anaphylaxis:** Bronchospasm: 0.01 mg/kg of 1:1,000 IM q 10 minutes if there is no clinical improvement. Hypotension /Airway Compromise: 0.01 mg IM (Max. 0.3 mg), q 10 minutes if there is no clinical improvement. Impending Arrest: 0.01 mg/kg (1;10,000, 0.1mL/kg), diluted with NS to 10 mL **slow** IV push over 5 minutes, repeat q 5 minutes if there is inadequate response to treatment. (Dose is equivalent to 1:100,000 after dilution). **Anaphylaxis Related Cardiac Arrest:** Refer to Pulseless Arrest. **For Stridor (croup/airway burns/laryngeal edema, anaphylaxis):** Nebulized Epinephrine 1:1,000 0.5 mL/kg (not to exceed 5 mL). For doses less than 3 mL dilute in normal saline to 5 mL to allow for nebulization. Repeat as necessary q 10 minute intervals until stridor subsides * continuous monitoring. This should be in addition to IM epinephrine.
Onset:	IVP/Nebulizer - Immediate SQ/IM - 5-10 minutes
Duration:	IVP/Nebulizer - 3 -5 minutes SQ/IM - 20 minutes
Pregnancy Safety:	Category C
Comments:	High dose epinephrine is no longer recommended (except in adult patients in anaphylaxis related cardiac arrest). High doses do not improve survival or neurologic outcome and may contribute to post resuscitation myocardial dysfunction.

EpiPen **EpiPen JR** EXPANDED SCOPE EMT	(Adrenalin, Epinephrine Hydrochloride)
Classification:	Sympathomimetic agent (Catecholamine)
Actions:	Acts directly on Alpha & Beta receptors of the SNS. Beta effect is more profound than Alpha effects. Effects include: • Increased HR (chronotropy) • Increased blood pressure • Increased cardiac contractile force (inotropy) • Increased electrical activity with in myocardium (dromotropy) • Increased systemic vascular resistance • Increased automaticity • Increased bronchial smooth muscle dilation • Increases coronary perfusion during CPR by increasing aortic diastolic pressure
Indications:	Severe asthma Allergic reaction/anaphylaxis as evidenced by: • Shortness of breath (wheezing, hoarseness, other abnormal sounds) • Itching/hives that are severe and rapidly progressing • Oral swelling/laryngospasm/difficulty swallowing • Hypotension/unresponsiveness • Patients with an exposure to known allergen with progressively worsening symptoms
Contraindications:	• None when indicated
Adverse effects:	• Hypertension-tachycardia, palpitations, headache • Tremor, weakness • Pallor, sweating, nausea, vomiting, nervousness, anxiety • Increases myocardial oxygen demand and potentially increases myocardial ischemia • Pain and redness at the injection site
Adult Administration:	Patients over 30kg (66 lbs): EpiPen (Adult Size) 0.3 mg (0.3 mL, 1:1,000) IM (lateral thigh is preferred) May repeat in 10 min. if ALS response is delayed and condition warrants.
Pediatric Administration:	Patients 15-30 kg (33-66 lbs): EpiPen JR 0.15 mg (0.3 mL, 1:2,000) IM (lateral thigh is preferred) May repeat in 10 min. if ALS response is delayed and condition warrants.
Onset:	IVP - Immediate SQ/IM - 5-10 minutes
Duration:	20 minutes
Pregnancy Safety:	Category C
Comments:	Use with caution in elderly or pregnant patients, but do not withhold if patient has serious signs or symptoms (i.e., airway compromise, severe SOB, profound hypotension).

Fentanyl	(Fentanil, Matrifen, Haldid, Instanyl, Sublimaze, Actiq, Durogesic, Duragesic, Fentoro, Onsolis, Abstral, Lazanda)
Classification:	Narcotic analgesic
Actions:	Produces analgesia by inhibiting the ascending pain pathways Depresses the central nervous system by interacting with receptors in the brain.
Indications:	• Moderate to severe pain from medical or traumatic situations • Transcutaneous pacing
Contraindications:	• Use with caution in hypertension or hypotension • Use with caution in patients with increased ICP • Use with caution in elderly patients • Hypersensitivity to drug
Adverse effects:	• Severe respiratory difficulty as a result of thoracic rigidity (if given too fast IV or IO) • Respiratory depression • Hypotension/ Bradycardia • Altered mental status • Nausea/vomiting
Adult Administration:	50 mcg **SLOW** IV/IO **given over 2 minutes**, IN*, or IM. Titrate to relief of pain. May repeat every 5 minutes to a Max. total dose of 200 mcg. If Systolic BP drops below < 100 mm Hg withhold/discontinued dosing. Contact Base for dosing above 200 mcg. *Intranasal dose = 25 mcg (0.5mL) per nostril. Consider lower dose (25 mcg) for smaller or elderly patients.
Pediatric Administration:	1 mcg/kg **SLOW** IV/IO **given over 2 minutes**, IN*, or IM (Max. individual dose of 50 mcg). Titrate to relief of pain. May repeat every 5 minutes to a Max. total dose of 200 mcg. Contact base station if Pt. < 2 y/o or for dosing above 200 mcg. *Intranasal dosing = give ½ of dose per nostril.
Onset:	IV/IO/IN - Immediate IM - 7-8 minutes
Duration:	1-2 hours
Pregnancy Safety:	Category C
Comments:	Fentanyl is a Schedule II medication under the Controlled Substances Act of 1970. Monitor vital signs closely before and after administration. May be used in multi-system trauma and abdominal pain when appropriate. Have Narcan/Atropine and respiratory assistance readily available. Check for Fentanyl patch before administration. Fentanyl is 10 times more potent than morphine (100 **mcg** of Fentanyl = 10 **mg** of MS).

Glucagon	
Classification:	Hyperglycemic agent (pancreatic hormone)
Actions:	Elevates blood glucose by converting liver glycogen into glucose. Increases cardiac output by increasing inotropy and chronotropy. Stimulates the release of catecholamines. Relaxes smooth muscle of the gastrointestinal tract, bronchioles, and blood vessels.
Indications:	• Hypoglycemia • Beta blocker OD • Allergic reaction
Contraindications:	Not significant in the above indications.
Adverse effects:	Nausea/vomiting.
Adult Administration:	Hypoglycemia : 1 mg IM/IN. Allergic reaction: 2-4 mg IV/ IN/ IM Base MD Order Beta blocker OD: 2-4 mg IV/ IN/ IM Base MD Order
Pediatric Administration:	Hypoglycemia: 0.1 mg/kg IN/ IM (Max. 1mg). Allergic reaction: 0.1 mg/kg IV/ IN/ IM Base MD Order Beta blocker OD: 0.1 mg/kg IV/ IN/ IM Base MD Order
Onset:	IVP/IN: 1 - 3 minutes IM: 5 - 20 minutes
Duration:	IVP/IN: 15 - 20 minutes IM: 15 - 30 minutes
Pregnancy Safety:	Category B
Comments:	Use with caution in patients with cardiovascular disease.

Glucose EMT	(Oral Glucose)
Classification:	Monosaccharide carbohydrate
Actions:	After absorption from GI tract, glucose is distributed in the tissues and provides a rapid increase in circulating blood sugar.
Indications:	Suspected or known Hypoglycemia
Contraindications:	Patient not able to follow commands
Adverse effects:	• Nausea/vomiting • Aspiration • Hyperglycemia
Adult Administration:	15 Grams PO may repeat if no response and IV dextrose is not available.
Pediatric Administration:	15 Grams PO may repeat if no response and IV dextrose is not available.
Onset:	5-10 minutes.
Duration:	Variable
Pregnancy Safety:	Category A
Comments:	Not a substitute for IV dextrose in extreme cases of hypoglycemia (i.e., BS < 40) unless IV access is unobtainable.

Ibuprofen (Motrin, Advil, IBU, Midol, Nuprin) EXPANDED SCOPE EMT	
Classification:	Non-steroidal anti-inflammatory (NSAID), antipyretic, analgesic
Actions:	Its mode of action, like that of other NSAIDs, is not completely understood, but may be related to prostaglandin synthetase inhibition.
Indications:	EMS: Pediatric febrile seizure patient who has either not been given any antipyretics or who have been given acetaminophen without a marked reduction in fever.
Contraindications:	• Asthma • Ulcers • Renal failure • CHF
Adverse effects:	• Tinnitus • Headache • Abdominal pain • Diarrhea • Constipation • Heartburn • Rash
Adult Administration:	Usual adult dosage is 200mg – 800mg 3-4 times per day (Maximum of 3200 mg in 24 hours). **Adult dosing provided for use on fireline paramedic assignments or for personal use only. Not indicated for routine EMS use in adult patients.**
Pediatric Administration:	10 mg/kg PO. See chart on page 67.
Onset:	1-2 hours (peak)
Duration:	6-8 hours
Pregnancy Safety:	Category C
Comments:	Supplied: • Ibuprofen Suspension, 100 mg/5 mL • Orange-colored, berry- flavored suspension Bottles of 120 mL – NDC 0045-0448-04 Bottles of 480 mL – NDC 0045-0448-16 Shake well before using. Store at controlled room temperature [15° to 30°C (59° to 86°F)]

Lidocaine Hydrochloride	(Xylocaine)
Classification:	Antidysrhythmic, anesthetic
Actions:	Suppresses ventricular dysrhythmias by decreasing ventricular irritability. Increases fibrillatory threshold by elevating the electrical stimulation of the ventricles. Depresses conduction in ischemic tissues. May reduce ICP. Blocks the conduction of impulses and stabilizes neuronal membranes, thereby relieving pain.
Indications:	• Pre-intubation for Head injured patients • Pain management post intraosseous insertion • Ventricular dysrhythmias VTach, Vfib • Post defibrillation or cardioversion of ventricular rhythms • May be used if patient is allergic to Amiodarone
Contraindications:	• High degree heart block (Mobitz II – Complete block) • Junctional bradycardia • Ventricular ectopy associated with bradycardia • Idioventricular or escape rhythms • Hypersensitivity
Adverse effects:	• Lightheadedness, Confusion, Seizures • Bradycardia, Hypotension • May be pro-arrhythmic
Adult Administration:	**Pre-intubation:** 1.5 mg/kg IV/IO push. (Max dose 100 mg) Administered 2 minutes prior to intubation attempt, when feasible. **Post IO insertion pain:** 40 mg IO push. May repeat 20 mg. **VF/VT no pulses:** 1.0 - 1.5 mg/kg IV/IO push* or double the dose via ETT. May repeat in 3 – 5 minutes. (Max. dose 3 mg/kg). **VT with pulses:** 1.0 – 1.5 mg/kg slow IV/IO push*. If rhythm persists, repeat ½ initial dose in 5 –10 minutes. (Max. dose 3 mg/kg). **Repeat doses should be half of the initial dose for Patients > 70 years with CHF, chronic liver disease, or impaired circulation.** ***IVP is the preferred route of administration.**
Pediatric Administration:	**Pre-intubation:** 1 mg/kg IV/IO. (Max. dose 50 mg.) Administered 2 min. prior to intubation attempt, when feasible. **Post IO insertion pain:** 0.5 mg/Kg IO push. **VF/VT no pulses:** IV/IO*: 1 mg/kg. If rhythm persists, repeat dose in 10 min (Max. dose 3 mg/kg.). Only bolus therapy shall be used. ETT: 2 mg/kg. If rhythm persists, repeat in 10 min (Max. dose 3 mg/kg). **VT with pulses:** IV/IO*: 1 mg/kg. If rhythm persists, repeat dose in 10 min. ETT: 2 mg/kg. If rhythm persists, repeat dose in 10 minutes. ***IVP/IO is the preferred route of administration.**
Onset:	45-90 seconds
Duration:	10-20 minutes
Pregnancy Safety:	Category B

Lidocaine Jelly	(Viscous Xylocaine)
Classification:	Anesthetic, Lubricant
Actions:	Blocks the conduction of impulses and stabilizes neuronal membranes, thereby relieving pain. Lubricates mucous membranes to allow for insertion of advanced airways or gastric tubes.
Indications:	• Nasotracheal intubation • Nasogastric insertion
Contraindications:	Hypersensitivity or allergy
Adverse Effects:	None
Adult Administration:	Apply generous amount of jelly to NG tube, NPA, or ETT before insertion.
Pediatric Administration:	Apply generous amount of jelly to NPA or NG tube before insertion. **Nasal tracheal intubation is contraindicated in pediatrics.**
Onset:	15-30 seconds
Duration:	10-20 minutes
Pregnancy Safety:	Category B
Comments:	None

Magnesium Sulfate	($MgSO_4$)
Classification:	Antidysrhythmic, Electrolyte
Actions:	Controls ventricle response rate. Increases the movement of potassium into cells. Blocks the release of acetylcholine.
Indications:	• Seizures related to eclampsia • Torsades de Pointes: Vfib, Pulseless V-Tach (VF/VT) V-tach with a pulse Post conversion of VF/VT
Contraindications:	• Hypersensitivity • Sinus bradycardia • Pediatrics
Adverse effects:	• Hypotension • Hypertension • Dysrhythmias • Facial flushing • Diaphoresis • Depressed reflexes • Bradycardia
Adult Administration:	Torsades De Pointe pulseless: 2 gm in 10 mL NS or SW IV/IO bolus. Torsades De Pointe **with** a pulse: 2 gm in 10 mL NS or SW slow IV/IO push over 1-2 minutes. Eclampsia 6 gm in 10 mL NS or SW **slow** IV/IO push over 15 min. Base MD Order. **Use the most proximal port possible for administration**
Pediatric Administration:	**Not recommended for prehospital use.**
Onset:	Immediate
Duration:	3-4 hours
Pregnancy Safety:	Category A
Comments:	Magnesium is a naturally occurring positive ion present in all cells of the body. Check deep tendon reflexes every 15 minutes and continuously monitor respirations. Discontinue administration if either become depressed.

Midazolam	(Versed)
Classification:	Short-acting benzodiazepine, CNS depressant
Actions:	Reduces anxiety, depresses CNS function, and induces amnesia.
Indications:	• Seizures • Pre-synchronized cardioversion • Treatment of severe agitation • **Transcutaneous pacing (TCP) - May <u>only</u> be used for TCP if patient has an allergy to Opioids**
Contraindications:	• Hypotension • Hypersensitivity
Adverse effects:	• Hypotension • Respiratory depression • Headache • Nausea
Adult Administration:	**<u>Seizures/Precardioversion/TCP:</u>** IV/IO - 2.5 mg diluted in 5 mL NS slow IV/IO push titrated to effect. May repeat in 5 minutes. (Max. total dose of 5 mg). IN – 5 mg via MAD atomizer (Max. of 1 mL per nostril). IM – 5 mg. For doses above 5 mg contact base station. **<u>Severely Agitated Patient:</u>** 5 mg IM/IN q 10 minutes to effect. (Giving IM injection through patient's clothing is okay if personal safety is compromised). If IV is already established give 2.5 mg IVP q 10 minutes to effect.
Pediatric Administration:	IV/IO - 0.1 mg/kg diluted in 5 mL of sterile water slow IV/IO push over 2-5 minutes, titrated to effect.(max dose 3mg) IN – 0.1 mg/kg via MAD atomizer (Max. of 1 mL per nostril) May repeat once (in different nostril).(max dose 3mg) IM - 0.1 mg/kg(max dose 3mg) After max dose of 3mg contact base station for additional repeat doses. **(Max total dose of 3 mg) All doses administered from different routes apply to the total max dose.**
Onset:	IV/IO/IN: 3-5 minutes; dose dependent IM: 15 minute
Duration:	2-6 hours; dose dependent
Pregnancy Safety:	Category D
Comments:	• May cause apnea, especially in children and the elderly. Be prepared to support respiration. • Effects are intensified by ETOH or other CNS depressant medications. Carefully monitor vital signs including EKG and pulse oximetry. • Midazolam is a Schedule IV medication under the Controlled Substances Act of 1970.

Morphine Sulfate	(MS, MSO4)
Classification:	Narcotic analgesic
Actions:	Produces analgesia by inhibiting the ascending pain pathways. Depresses the central nervous system by interacting with receptors in the brain. Causes venous pooling due to peripheral vasodilatation resulting in decreased systemic vascular resistance and decreased venous return.
Indications:	• Moderate to severe pain • Pain associated with transcutaneous pacing • Snakebite • Chest pain
Contraindications:	• Patients with ALOC • Pain of unknown etiology • Patients at risk of respiratory depression • Head injury • Hypovolemia • Blood pressure <100 • Multi-system trauma
Adverse effects:	• Respiratory depression • Hypotension • Seizures • Bradycardia • Altered mental status
Adult Administration:	4 mg **slow** IV push or IM Titrate to relief of pain. (Max dose 20mg) Dosing shall be withheld/discontinued for Systolic BP< 100 **For doses above 20mg, base station order is required.**
Pediatric Administration:	0.05 mg/kg slow IV/IO push or IM Titrated to pain relief (Max. total dose of 6 mg). **Contact base station if < 2 y/o**
Onset:	IVP - Immediate IM - 5-30 minutes
Duration:	3-5 hours
Pregnancy Safety:	Category C
Comments:	Morphine is a Schedule II medication under the Controlled Substances Act of 1970. **Morphine should only be used when Fentanyl is not available.**

Naloxone EXPANDED SCOPE EMT	(Narcan)
Classification:	Narcotic antagonist
Actions:	Reverses the effects of narcotics by competing for opiate receptor sites in the central nervous system.
Indications:	Suspected narcotic overdose with altered level of consciousness and respiratory depression
Contraindications:	• None
Adverse effects:	• Hypertension • Tremors • Nausea/vomiting • Dysrhythmias • Diaphoresis
Adult Administration:	IV: 0.5 mg **slow** IV push q1 minute, titrated to effect (Max. 2 mg). IN: 0.5 mg (Max 1 mL per nostril) repeat in 5 min. if no response IM: 1 mg if unable to establish IV, repeat in 5 min. if no response ET: 1 mg diluted to 5-10 mL, repeat in 5 min if no response. Prefilled Single Dose Nasal Spray 4mg/0.1mL: Administer full dose in nostril. If partial response in breathing or consciousness, repeat 4mg/0.1mL single dose administration in nostril opposite to first dose. **If no response to normal doses or if patient is in extremis, administer 2 mg IV/IN/IM/ETT q 5 min until adequate respirations.**
Pediatric Administration:	0.1 mg/kg IV/IN/IO/IM titrated to effect (Max. 2 mg). May repeat initial dose if no response within 5 minutes. **NEONATE:** 0.05 – 0.1 mg/kg (Max. 2 mg). IV/IN/IO/IM only. May repeat initial dose if no response within 5 minutes. **Contact base before administration in neonates.**
Onset:	IVP, IN, or ETT -- Immediate IM - 5-10 minutes
Duration:	20-30 minutes
Pregnancy Safety:	Category B
Comments:	• The goal of Narcan administration is to improve respiratory drive, **NOT** to return patient to their full mental capacity. • Medications like Methadone and Darvon may require higher doses of Narcan. • Rapid reversal of narcotic effects may lead to combative behavior, possible severe withdrawal, seizures, hypertension, chest pain, severe headache, nausea and vomiting. • May not reverse hypotension.

Neosynephrine (Phenylephrine) EXPANDED SCOPE EMT	
Classification:	Synthetic sympathomimetic agent
Actions:	Produces long-acting vasoconstriction without chronotropic or inotropic actions on the heart
Indications:	• Epistaxis • Naso-tracheal Intubation
Contraindications:	• Hypersensitivity to Phenylephrine or sulfites • Severe hypertension • Ventricular tachycardia • Closed-angle glaucoma
Adverse effects:	• Headache • Reflex bradycardia • Excitability • Restlessness
Adult Administration:	**Epistaxis:** 1-2 spray(s) per effected nare. **NTI:** Spray into each nostril for 1-2 seconds
Pediatric Administration:	**Epistaxis:** 1-2 spray(s) per effected nare.
Onset:	Immediate
Duration:	20-50 minutes
Pregnancy Safety:	Category C
Comments:	Adverse effects are minimal when Neosynephrine is applied topically.

Nitroglycerin	(Nitro Spray, Nitrostat, NTG, Nitro Paste, Nitro-Dur)
Classification:	Vasodilator
Actions:	• Dilates arterial and venous vessels resulting in venous pooling • Reduces preload and after load resulting in decreased myocardial workload and reduced oxygen demand • Relaxes all smooth muscle • Dilates coronary vessels resulting in increased perfusion of the myocardium • Relieves coronary vasospasm
Indications:	• Chest pain of suspected myocardial origin • Congestive heart failure/cardiogenic pulmonary edema
Contraindications:	• Signs/symptoms of neurological deficit • Systolic blood pressure of <100 mm/Hg • Use of erectile dysfunction medication within last 48 hrs (Viagra®, Cialis®, or Levitra®)
Adverse effects:	• Hypotension • Nausea/vomiting • Headache • Postural syncope
Adult Administration:	SL: 0.4 mg (1 spray or 1 tab). May repeat q 5 min. to a Max of 3 doses. Contact base station for additional doses. Transdermal: 1" of NTG paste placed on applicator and applied to bare skin. (Left chest preferred site)
Pediatric Administration:	**Not recommended for prehospital use**
Onset:	1-2 minutes
Duration:	15-30 minutes
Pregnancy Safety:	Category C
Comments:	Healthcare provider may experience adverse effects if accidentally inhaled or absorbed. If complications occur such as hypotension, or the need to cardiovert or defibrillate arises you should remove the applicator and wipe the area clean with a towel or some gauze.

Nitrous Oxide	(Nitronox, $N_20:0_2$)
Classification:	Analgesic gas
Actions:	Produces rapid, reversible relief from pain
Indications:	• Fractures, Sprains, Soft tissue injuries, Burns • Amputations • Low back pain (below level of thoracic spine) • Snakebite • Kidney stones • Contact base station for any other use
Contraindications:	• Administration in ambulance or small confined space • Patient unable to hold mouthpiece/mask • Severe COPD • Decompression sickness • Head injury • GCS <14 • Hypotension • Pregnancy • Sedated or intoxicated patients • Pneumothorax • Bowel obstruction • Chronic ear or sinus infection • Chest / upper back pain from any cause
Adverse effects:	• Hypotension • Dizziness/lightheadedness • ALOC • Nausea/vomiting
Adult Administration:	Nitronox is self-administered. 1. Set up equipment (outside of ambulance). 2. Explain the procedure to the patient. 3. Instruct the patient to do the following: a. Hold the facemask securely over nose and mouth. b. Breath normally until the pain is relieved. c. Discontinue if Pt. becomes drowsy or experiences side effects. 4. Turn off nitrous oxide once patient is secured within ambulance Higher elevations require higher concentrations of Nitrous Oxide: Above 4000 ft: 60/40 Below 4000ft: 50/50
Pediatric Administration:	Nitronox may be administered to any age patient as long as they are able to follow instructions and hold mouthpiece/mask.
Onset:	2-5 minutes
Duration:	2-5 minutes
Pregnancy Safety:	Category X
Comments:	Nitrous Oxide is a Schedule III medication: Controlled Substances Act of 1970.

Ondansetron (Zofran)	
Classification:	Antiemetic
Actions:	Serotonin receptor antagonist
Indications:	Treatment of nausea/vomiting
Contraindications:	• Known sensitivity to Ondansetron or other 5-HT3 antagonists: Granisetron (Kytril) Dolasetron (Anzemet) Palonosetron (Aloxi) • Pregnancy • Concomitant use with Apomorphine (Parkinson's medication) • Congenital Long Q-T syndrome
Adverse effects:	• Tachycardia • Hypotension • Syncope (if given too fast)
Adult Administration:	4 - 8 mg IV/IM/IO/ODT (IVP over 30 seconds or more*) *IV/IO should be given over 2-5 minutes and not less than 30sec. **When administering IV push it is critical that you administer SLOWLY in order to avoid profound hypotension.** May repeat once in10 minutes. Contact Base for additional doses.
Pediatric Administration:	**Age ≥ 4 years (>34 kg):** 4 mg IV/IM/IO/ODT (IVP over 30 seconds or more*) May repeat once in10 minutes. **Age 1- 4 years:** 2 mg IV/IM/IO/ODT (IVP over 30 seconds or more*) May repeat once in10 minutes. Pill splitter is required for 2 mg ODT dose in pediatrics. *IV/IO should be given over 2-5 minutes and not less than 30sec. **When administering IV push it is critical that you administer SLOWLY in order to avoid profound hypotension.** **Age < 1 year old:** Contact Base Contact Base for additional doses.
Onset:	Up to 30 minutes (usual response is 5-10 minutes)
Duration:	Half life is 4 hours
Pregnancy Safety:	Category B
Comments:	• Can cause profound hypotension. ECG monitoring is recommended in patients with electrolyte abnormalities (hypokalemia or hypomagnesemia), CHF, Brady arrhythmias or patients taking other medicinal products that lead to QT prolongation. • Can develop Serotonin Syndrome with concomitant use of SSRI's, SNRI's, MAOI's, mirtazapine, fentanyl, lithium, tramadol. Signs and symptoms can include: ALOC, tachycardia, labile BP, neuromuscular symptoms and seizures.

Oxygen EMT	(O_2)
Classification:	Gas
Actions:	• Oxidizes glucose to provide energy at the cellular level • Essential for normal metabolic function (aerobic metabolism)
Indications:	• Whenever oxygen demands may be increased • Oxygen saturation of < 94%
Contraindications:	Not significant in the above indications
Adverse effects:	Not significant in the above indications
Adult Administration:	• For patients with mild respiratory distress: give 2 to 6 L of oxygen per minute • For patients with severe respiratory distress, acute congestive heart failure, or cardiac arrest: use a system that provides a high-inspired oxygen concentration (preferably 100%) • Titrate oxygen up or down according to oxygen saturation value keeping saturation at or above 94% • Patients with chronic COPD may normally maintain saturation values below 94%; do not withhold oxygen if patient is in distress • In the most serious cases, move quickly to advanced airway devices, intubation, and 100% oxygen
Pediatric Administration:	Same as above
Onset:	Immediate
Duration:	Up to 30 minutes
Pregnancy Safety:	Category A
Comments:	• Oxygen therapy should never be withheld from a patient in respiratory distress. • Use with caution in COPD patients and observe for changes in respiratory and mental status

Oxygen Devices	
Nasal Cannula:	• Starting device; provides up to 44% oxygen • A nasal cannula is a low flow system in which the tidal volume mixes with ambient gas (room air). Inspired oxygen concentration depends on the flow rate through the cannula and the patient's tidal volume • Increasing oxygen flow by 1 L/min (starting with 1L/min) will increase the inspired oxygen concentration by approximately 4%: ❖ 1 L/min: 24% ❖ 2 L/min: 28% ❖ 3 L/min: 32% ❖ 4 L/min: 36% ❖ 5 L/min: 40% ❖ 6 L/min: 44%
Face Mask:	Up to 60% oxygen can be supplied through the oxygen port at 6 to 10 L/min
Face Mask with Oxygen Reservoir:	• Provides up to 90% to 100% oxygen • In this system a constant flow of oxygen enters an attached reservoir. Each liter-per-minute increase in flow over 6 L/min will increase the inspired oxygen content by 10%: ❖ 6L/min: 60% oxygen ❖ 7L/min: 70% oxygen ❖ 8L/min: 80% oxygen ❖ 9L/min: 90% oxygen ❖ 10L/min: almost 100% oxygen **Use a face mask with a reservoir for:** • Patients who are seriously ill, responsive, and spontaneously breathing and require high oxygen concentrations • Patients who may avoid tracheal intubation if acute interventions produce a rapid clinical effect (patients with acute pulmonary edema, COPD, severe asthma) • Patients who have relative indications for tracheal intubation but have clenched teeth or other physical barriers to immediate intubation (e.g., head injury, CO poisoning, or near drowning) These patients may have diminished levels of consciousness and may be at risk for nausea and vomiting. A tight fitting mask always requires close monitoring. Suctioning devices should be immediately available

Sodium Bicarbonate	($NaHCO_3$)
Classification:	Alkalinizing agent
Actions:	Combines with hydrogen ions to form carbonic acid, Increases blood pH
Indications:	• Cardiopulmonary arrest states when drug therapy and/or defibrillation have not been successful • Overdose of tricyclic antidepressants (cardiac toxicity)
Contraindications:	Not significant in the above indications
Adverse effects:	• Metabolic alkalosis • Pulmonary edema
Adult Administration:	**Cardiac Arrest / Tricyclic Overdose:** 1 mEq/kg IVP. May repeat ½ initial dose every 10-15 minutes. **Crush Syndrome:** 1 mEq/kg Max dose100 mEq IVP/IO.
Pediatric Administration:	**Cardiac Arrest:** 1 mEq/kg IVP/IO. **Tricyclic Overdose:** 1 mEq/kg IVP. May repeat ½ initial dose every 10-15 minutes. Per Base MD Order. **Crush Syndrome:** 1 mEq/kg IVP/IO. Per Base MD Order
Onset:	Immediate
Duration:	30-60 minutes
Pregnancy Safety:	Category C
Comments:	Flush IV tubing before and after administration.

Sodium Chloride 0.9%	(Normal Saline)
Classification:	Isotonic solution
Actions:	Replaces fluid and electrolytes lost from the intravascular and intracellular spaces
Indications:	• Initial fluid replacement in hypovolemia and dehydration • Intravenous access for drug administration
Contraindications:	Not significant in above indications
Adverse effects:	Circulatory fluid volume overload
Administration:	• Flow rate dependent on patient's condition • Titrate to response of vital signs • Fluid challenge=250-500 mL
Pediatric:	• Flow rate dependent on patient's condition • Titrate to response of vital signs • Fluid challenge=20 mL/kg
Onset:	Immediate
Duration:	Remains in intravascular space less than one hour
Pregnancy Safety:	Category A
Comments:	Monitor infusion rate closely and auscultate breath sounds prior to administration.

Dosage Calculations

To calculate the amount of drug to be drawn up or administered, the following information is required:

⇒**WHAT**	Type and amount of drug ordered
⇒**QUANTITY**	Volume of fluid in the container
⇒**HAVE**	Amount of drug in the container

To calculate the amount of drug to be drawn up or administered, use the following formula:

WHAT multiplied by the **QUANTITY** divided by **HAVE** = the amount to be administered.

Example:

The base station orders Snorazil 75 mg IVP. Snorazil comes as an ampule containing 50mg/mL. How many mL should be given?

$$\frac{\text{WHAT x QUANTITY}}{\text{HAVE}} = \frac{75\text{mg x 1 mL}}{50\text{mg}} = 1.5\text{ mL}$$

Another way of conversion is:

DOCTOR'S ORDERS ÷ WHAT'S ON HAND x VOLUME

$$\frac{\text{DO}}{\text{OH}} \text{ x VOLUME} = \frac{75\text{mg x 1 mL}}{50\text{mg}} = 1.5\text{ mL}$$

To calculate the desired dose to be administered according to **body weight**, convert the pounds to kilograms and multiply by the given dose.

Example:

The base station orders Sodium Bicarbonate 2 mEq/kg for a patient weighing approximately 200 pounds. How many mEq will be administered:

Divide 200 lb. by 2 = 100kg, then multiply by 2 mEq.
100 kg x 2 mEq = 200 mEq

REFERENCE SECTION

Flow Rate Calculations

To calculate the flow rate of an IV in gtts per minute, you must have the following information:

⇒ **VOLUME** — The amount of fluid to be infused
⇒ **DRIP FACTOR** — Number of drops per milliliter
⇒ **MINUTES/TIME** — Time of the infusion

To calculate the flow rate of an IV solution use the following formula:

$$\frac{\textbf{VOLUME x DRIP FACTOR}}{\textbf{MINUTES}} = \text{Number of drops/minute to the solution}$$

Example:

The Base Hospital orders a fluid challenge of 100 mL NS to be infused over 20 minutes. The IV tubing drip factor is 20 drops/milliliter. The flow rate should be adjusted to how many drops per minute:

$$\frac{100 \text{ cc x } 20 \text{ gtts/mL}}{20 \text{ minutes}} = \frac{2000 \text{ gtts}}{20 \text{ min}} = 100 \text{ gtts min}$$

The Base Hospital orders an IV of 1000 mL NS to run at 120 mL/hr. The drip factor of the IV tubing is 10 drops/mL.
The flow rate should be adjusted to how many drops per minute:

$$\frac{120 \text{ cc x } 10 \text{ gtts/mL}}{60 \text{ minutes}} = \frac{1200 \text{ gtts}}{60 \text{ min}} = 20 \text{ gtts/min}$$

REFERENCE SECTION

Key To Controlled Substances Categories

Products listed with the numerals shown below are subject to the Controlled Substances Act of 1970. These Drugs are categorized according to their potential for abuse. The greater the potential, the more severe the limitations on their prescription.

CATEGORY	INTERPRETATION
II	High potential for abuse. Use may lead to severe physical or psychological dependence. Prescriptions must be written in ink, or typewritten, and signed by the practitioner. Verbal prescriptions must be confirmed in writing within 72 hours, and may be given only in a genuine emergency. No renewals are permitted.
III	Some potential for abuse. Use may lead to low-to-moderate physical dependence or high psychological dependence. Prescriptions may be oral or written. Up to 5 renewals are permitted within 6 months.
IV	Low potential for abuse. Use may lead to limited physical or psychological dependence. Prescriptions may be oral or written. Up to 5 renewals are permitted within 6 months.
V	Subject to state and local regulation. Abuse potential is low; a prescription may not be required.

REFERENCE SECTION

Key To FDA Use-In-Pregnancy Ratings

The Food and Drug Administration's Pregnancy Categories are based on the degree to which available information has ruled out risk to the fetus, balanced against the drug's potential to the patient. Ratings range from "A", for drugs that have been tested for teratogenicity under controlled conditions without showing evidence of damage to the fetus, to "D" and "X" for drugs that are definitely teratogenic. The "D" rating is generally reserved for drugs with no safer alternatives. The "X" rating means there is absolutely no reason to risk using the drug in pregnancy.

CATEGORY	INTERPRETATION
A	**Controlled studies show no risk.** Adequate, well-controlled studies in pregnant women have failed to demonstrate risk to the fetus.
B	**No evidence of risk in humans.** Either animal findings show risk, but human findings do not; or, if no adequate human studies have been done, animal findings are negative.
C	**Risk cannot be ruled out.** Human studies are lacking, and animal studies are either positive for fetal risk or lacking. However, potential benefits may justify the potential risk.
D	**Positive evidence of risk.** Investigational or post-marketing data show risk to the fetus. Nevertheless, potential benefits may outweigh the potential risk.
X	**Contraindicated in pregnancy.** Studies in animals or human, or investigational or post-marketing reports have shown fetal risk, which clearly outweighs any possible benefit to the patient.

REFERENCE SECTION

Formulary Abbreviations*

* This list of abbreviations only covers this Prehospital Formulary. For a complete list of County approved abbreviations refer to the El Dorado County EMS Agency Policy and Procedure Manual.

ASA	aspirin
AV	atrio-ventricular
BHO	base hospital order
BP	blood pressure
BPO	base physician order
BPM	beats per minute
b.s.	blood sugar
cc	cubic centimeter
CHF	congestive heart failure
COPD	chronic obstructive pulmonary disease
CNS	central nervous system
CVA	cerebral vascular accident
Deciliter	dL
EKG	electrocardiogram
ET	endotracheal
ETAD	esophageal tracheal airway device
ETOH	alcohol
GCS	Glasgow coma scale
GI	gastro-intestinal
gm or G	gram
gtt	drop
HR	heart rate
IM	intramuscularly
IO	intraosseous
IV	intravenous
IVP	intravenous push
kg	Kilogram
lb	Pound
L	Liter
LOC	level of consciousness
MAO	monoamine oxidase
mcgtt	microdrip
mEq or meq	milliequivalent
mL	milliliter
mg	milligram
MR	may repeat
NS	normal saline
NSR	normal sinus rhythm
OD	overdose
OH	on hand
OPP	organophosphate poisoning
PEA	pulseless electrical activity
PO	by mouth
PRN	as needed
PVC	premature ventricular contraction
q	every
SOC	state of consciousness
SQ	subcutaneous
SW	sterile water
U	unit
µg	microgram

REFERENCE SECTION

	Equivalents
	1 kg = 2.2 lb 1 kg = 1000 gm 1 gm = 1000 mg 1 L = 1000 mL 1 mL = 60 mcgtts (micro tubing) 1 mL = 10/15/20 gtts (macro tubing) 1 mL and 1 cc are interchangeable

	Approved IFT IV Fluids
	• Normal Saline • D5W • Lactated Ringers • Any combination of the above solutions • Any one of the above solutions containing Potassium less than or equal to 20 mEq/L

CHEMPACK INFORMATION

Treatment Capacity:	454 Patients	
MEDICATION	UNIT PACK	NUMBER OF CASES
Mark I auto-injector	240	5
Atropine Sulfate 0.4 mg/ml 20mL	100	1
Pralidoxime 1 gm inj 20 mL	276	1
Atropen 0.5 mg	144	1
Atropen 1.0 mg	144	1
Diazepam 5 mg/mL auto-injector	150	2
Diazepam 5 mg/mL vial 10 mL	25	2
Sterile water for injection 20 mL vials	100	2

Mark I auto-injector	(Atropine / Pralidoxime)
Classification:	Nerve agent antidote
Indications:	**MILD EXPOSURES:** • Rhinorrhea, Chest tightness, Dyspnea, Bronchospasm **MODERATE EXPOSURES:** • Salivation, Lacrimation, Urination, Defecation, GI symptoms, Emesis, Miosis (SLUDGEM) **SEVERE EXPOSURES:** • Jerking, Twitching, Staggering, Seizures • Headache, Drowsiness, Coma • Apnea
Contraindications:	Do not use auto-injectors in patients under 30 kg
Adverse effects:	**ATROPINE:** • Tachycardia, Palpitations, Increased myocardial 02 demand • Headache, Dizziness • Flushed skins, Dry mucous membranes, Nausea/vomiting • Dilated pupils, Increased intraocular pressure **PRALIDOXIME:** • Pain at injection site • Hypertension, Tachycardia • Blurry vision, Diplopia • Nausea • Increases atropine effects
Adult Administration:	See respective meds for dosing
Pediatric Administration:	Not indicated for pediatrics <10 years or <30 kg
Onset:	Immediate – 15 minutes
Duration:	Half life: 2-Pam 74-77 minutes; Atropine 10 minutes
Pregnancy Safety:	Category C
Comments:	Kits contain: • Atropine 2 mg/0.7 mL auto-injector • Pralidoxime 600 mg/2 mL auto-injector Nerve agents are the most toxic of the known chemical agents. They are hazards in their liquid and vapor states and can cause death within minutes after exposure. Nerve agents inhibit acetylcholinesterase in tissue, and their effects are caused by the resulting excess acetylcholine. Nerve agents are considered to be major military and terrorist threats. Common names for nerve agents include Tabun (GA), Sarin (GB), and Soman (GD), GF and VX. Nerve agents are liquids under normal temperature conditions. When dispersed, the most volatile ones constitute both a vapor and liquid hazard

Atropine Sulfate	
Classification:	Parasympathetic blocker (Anticholinergic) Antidysrhythmic agent
Actions:	Inhibits parasympathetic stimulation by blocking acetylcholine receptors Decreases vagal tone resulting in increased heart rate and AV conduction Dilates bronchioles and decreases respiratory tract secretions Decreases gastrointestinal secretions and motility
Indications:	• Organophosphate poisoning (OPP) • Nerve agent exposure
Contraindications:	Neonates (bradycardia and asystole/PEA in neonates is usually caused by hypoventilation; also the vagus nerve in neonates is underdeveloped and atropine will usually have no effect.
Adverse effects:	• Tachycardia, Palpitations, Increased myocardial 02 demand • Headache, Dizziness • Flushed skins, Dry mucous membranes, Nausea/vomiting • Dilated pupils, Increased intraocular pressure
Precautions:	Do not under-dose pediatrics (Min. dose is 0.1 mg)
Adult Administration:	**Mild Exposure:** 1 auto-injector IM or 2 mg IV/IO/IM. May repeat 2 mg every 3-5 minutes until symptoms improve **Moderate Exposure**: 2 auto-injectors IM or 4 mg IV/IO/IM. May repeat 2 mg every 3-5 minutes until symptoms improve **Severe Exposure:** 3 auto-injectors IM or 6 mg IV/IO/IM. May repeat 1 auto-injector or 2 mg every 3-5 minutes until symptoms improve
Pediatric Administration:	0.02 mg/kg IV/IO/IM (minimum dose of 0.1 mg) May repeat every 3-5 minutes until symptoms improve Autoinjector/Atropen information: • For children 0-2 y/o (<18 kg) use 0.5 mg Atropen • For children 2-10 y/o (18-30 kg) use 1.0 mg Atropen • For patients ≥10 y/o (>30 kg) use 2 mg atropine autoinjector Atropens and autoinjectors may be repeated every 3-5 min until symptoms improve.
Onset:	2 – 5 minutes
Duration:	20 minutes
Pregnancy Safety:	Category C
Comments:	Atropine should be given prior to 2-Pam.

Pralidoxime Chloride	**(2-Pam, Protopam)**
Classification:	Cholinesterase reactivator
Actions:	• Removes organophosphate agent from cholinesterase and reactivates the cholinesterase • Re-establishes normal skeletal muscle contractions
Indications:	• Antidote for organophosphate poisoning (not carbamates) • Antidote for nerve agent poisoning
Contraindications:	Hypertension is relative contraindication
Adverse effects:	• Pain at injection site • Hypertension • Blurry vision • Diplopia • Tachycardia • Nausea • Increases atropine effects
Adult Administration:	**Auto injector** Mild: Administer one (1) autoinjector; 600 mg IM. Moderate: Administer one (1) autoinjector; 600 mg IM. May repeat in 5-10 min. Severe: Administer three (3) autoinjectors; 1800 mg IM. **Elderly (>65 years):** Limit to one (1) auto injector. Contact Base MD if additional doses are required **IV/IO Infusion** 1-2 Gram IV/IO over 30 minutes May repeat in 1 hour **Elderly (>65 years):** 7.5 mg/kg IV/IO (Max 1 gram) over 30 minutes. Contact Base MD if additional doses are required
Pediatric Administration:	20 mg/kg IM or IV/IO. Maximum of 1 gram given IV over 30 minutes; may repeat in 1 hour. No autoinjectors on children < 10 years (<30 kg)
Onset:	5-15 minutes
Duration:	Half life: 75 minutes
Pregnancy Safety:	Category C
Comments:	Atropine should be given first

Diazepam (Valium)		
Classification:	Benzodiazepine	
Actions:	• Decreases neurologic activity • Skeletal muscle relaxant • Amnesic	
Indications:	• Seizures as a result of nerve agent exposure	
Contraindications:	• Hypersensitivity to benzodiazepines • Myasthenia gravis	
Adverse effects:	• Drowsiness • Fatigue • Ataxia • Confusion • Constipation • Depression • Diplopia • Dysarthria • Headache • Hypotension	• Incontinence • Jaundice • Nausea • Rash • Tremor • Urinary retention • Vertigo • Blurred vision • Anxiety • Injection site reaction
Precautions:	• Can exacerbate grand mal seizures in epileptics • Glaucoma • Lung, liver, or heart disease	
Adult Administration:	5 mg Slow IVP/IO. May repeat every 5 minutes as needed	
Pediatric Administration:	**0-5 years:** 0.2 -0.5 mg/kg IV/IO (5 mg max) May repeat every 2-5 minutes as needed **>5 years:** 1 mg IV/IO (max 10 mg) May repeat every 2-5 minutes as needed	
Onset:	1 – 5 minutes	
Duration:	15 minutes to 1 hour	
Pregnancy Safety:	Category D	
Comments:	Use with caution in elderly patients or patients that are under the influence of CNS depressants. Does not prevent seizures, do not give prophylactically.	

PEDIATRIC DRUG REFERENCE CARDS

Dosage Chart

MEDICATION	DOSE
Acetaminophen PO	15 mg/kg
Activated Charcoal PO	1-2 G/kg (Max 100 gm)
Adenosine RIVP 1st	0.1 mg/kg RIVP (Max 6 mg)
Adenosine RIVP 2nd	0.2 mg/kg RIVP (Max 12 mg)
Albuterol-Nebulized	2.5 mg/3 ml
Amiodarone VT SIVP/Drip	5 mg/kg Drip (Max 15 mg/kg)
Amiodarone PL VT/VF	5 mg/kg SIVP (Max 15 mg/kg)
Atropine (Brady) IV/IO	0.02 mg/kg
Atropine ET	0.04-0.06 mg/kg
Atropine Pre-Intubation IV/IO	0.02 mg/kg
Atrovent-Nebulized	0.5 mg/2.5 ml (3 ml total)
Benadryl IV/IM/IO/PO	1 mg/kg SIVP (Max 25 mg)
Calcium Chloride SIVP	0.2 ml/kg SIVP
Dextrose 25% >1mo IV/IO	2 ml/kg
Dextrose 10% <1 mo IV/IO	2 ml/kg
Dopamine (Volutrol)	5-10 mcg/kg/min
Epinephrine IV/IO 1:10,000	0.01 mg/kg
Epinephrine ET 1:1,000	0.1 mg/kg
Epinephrine IM 1:1,000	0.01 mg/kg (Max 0.3mg)
Epinephrine Nebulized 1:1,000	0.5 ml/kg (Max 5 ml)
Fentanyl IV/IO/IN/IM	1 mcg/kg (Max 50 mcg)
Glucagon (Hypo) IN/IM	0.1 mg/kg (Max 1 mg)
Glucagon (Allergic/BBOD) IV/IN/IM	0.1 mg/kg
Ibuprofen PO	10 mg/kg
Lidocaine 2% IO for pain	0.5 mg/kg
Lidocaine 2% Head injury	1 mg/kg (Max 50 mg)
Morphine IV/IO (<2 yo BHO)	0.05 mg/kg (Max total 6 mg)
Narcan IV/IO/IN/IM	0.1 mg/kg (Max 2 mg)
Narcan (prefilled single dose nasal spray)	4mg/0.1mL
Nitrous Oxide	Self Admin
Normal Saline	20 ml/kg (10 ml/kg neonate)
Sodium Bicarb IV	1 meq/kg
Versed IV/IN/IM/IO	0.1 mg/kg (Max 3 mg)
Zofran IV/IM/IO/ODT (<1yr BHO)	< 4yrs 2 mg / > 4yrs 4 mg

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: GREY

Kg range: 3-5 kg	**Approx KG: 4 kg**		**1st**	**2nd**	**3rd**
Approximate LBS:	**8 lbs**	**Defib:**	**8 J**	**15 J**	**15 J**
ETT Uncuffed:	**3.5**				
NG tube size	**5-8 Fr**		**1st**	**2nd**	**3rd**
		Cardiovert:	**2 J**	**8 J**	**8 J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	60 mg	***
19 ml	Activated Charcoal PO	4 G	50 G/240 ml
0.15 ml	Adenosine RIVP 1st	0.4 mg	6 mg/2 ml
0.3 ml	Adenosine RIVP 2nd	0.8 mg	6 mg/2 ml
3 ml	Albuterol-Nebulized	2.5 mg/3 ml	2.5 mg/3 ml
0.4 ml	Amiodarone (VT) Drip	20 mg	150 mg/3 ml
0.4 ml	Amiodarone (VF/ PLVT) SIVP	20 mg	150 mg/3 ml
0.8 ml	Atropine (BRADY/Pre-ET) IV/IO	0.08 mg	1 mg/10 ml
0.5 ml	Atropine ET	0.20 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.1 ml	Benadryl IV/IM/IO/PO	4 mg	50 mg/1 ml
0.8 ml	Calcium Chloride SIVP	80 mg	1 G (100 mg/1ml)
8 ml	Dextrose 25% IV/IO >1 mo.	8 ml	25 G/50 ml
8 ml	Dextrose 10% IV/IO <1 mo.	8 ml	250 ml bag
15 ml	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
0.4 ml	Epinephrine IV/IO	0.04 mg	1:10,000 1 mg/10 ml
0.4 ml	Epinephrine ET	0.4 mg	1:1,000 1 mg/1 ml
0.05 ml	Epinephrine IM	0.04 mg	1:1,000 1 mg/1 ml
2 ml	Epinephrine Nebulized	2 mg	1:1,000 (dilute to 3 ml)
0.1 ml	Fentanyl IV/IO/IN/IM	4 mcg	100 mcg/2 ml
0.4 ml	Glucagon (Hypoglycemia)	0.4 mg	(1 unit) 1 mg/1 ml
0.4 ml	Glucagon (Allergic/BBOD)	0.4 mg	(1 unit) 1 mg/1 ml
***	Ibuprofen	40 mg	***
0.1 ml	Lidocaine 2% IO for pain	2 mg	100 mg/5 ml
0.2 ml	Lidocaine 2% IV/IO (Head Injury)	4 mg	100 mg/5 ml
0.05 ml	Morphine IV/IO (<2 yo BHO)	0.2 mg	4 mg/1 ml
0.4 ml	Narcan IV/IO/IN/IM	0.4 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
40-80 ml	Normal Saline	40-80ml	1000 ml bag
4 ml	Sodium Bicarb IV/IO	4 meq	50 meq/50 ml
0.1 ml	Versed IV/IN/IM/IO	0.4 mg	5 mg/1 ml
BHO	Zofran IV/IM/IO/ODT <1yr BHO	BHO	4 mg/2 ml

*** See product packaging for dosing instructions

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: PINK

Kg range: 6-7 kg **Approx KG: 6 kg**
Approximate LBS: **13lbs**
ETT uncuffed size: **3.5**
NG tube size **5-8 Fr**

	1st	2nd	3rd
Defib:	**15 J**	**30 J**	**30 J**
Cardiovert:	**3 J**	**12 J**	**12 J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	90 mg	***
29 ml	Activated Charcoal PO	6 G	50 G/240 ml
0.2 ml	Adenosine RIVP 1st	0.6 mg	6 mg/2 ml
0.4 ml	Adenosine RIVP 2nd	1.2 mg	6 mg/2 ml
3 ml	Albuterol-Nebulized	2.5 mg/3 ml	2.5 mg/3 ml
0.6 ml	Amiodarone (VT) Drip	30 mg	150 mg/3 ml
0.6 ml	Amiodarone (VF/ PLVT) SIVP	30 mg	150 mg/3 ml
1.2 ml	Atropine (BRADY/Pre-ET) IV/IO	0.12 mg	1 mg/10 ml
0.7 ml	Atropine ET	0.3 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.15 ml	Benadryl IV/IM/IO/PO	6 mg	50 mg/1 ml
1.2 ml	Calcium Chloride SIVP	120 mg	1 G (100 mg/1ml)
12 ml	Dextrose 25% IV/IO >1 mo.	12 ml	25 G/50 ml
12 ml	Dextrose 10% IV/IO <1 mo.	12 ml	250 ml bag
22.5 ml	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
0.6 ml	Epinephrine IV/IO	0.06 mg	1:10,000 1 mg/10 ml
0.6 ml	Epinephrine ET	0.6 mg	1:1,000 1 mg/1 ml
0.06 ml	Epinephrine IM	0.06 mg	1:1,000 1 mg/1 ml
3 ml	Epinephrine Nebulized	3 mg	1:1,000 1 ml/1 mg
0.1 ml	Fentanyl IV/IO/IN/IM	6 mcg	100 mcg/2 ml
0.6 ml	Glucagon (Hypoglycemia)	0.6 mg	(1 unit) 1 mg/1 ml
0.6 ml	Glucagon (Allergic/BBOD)	0.6 mg	(1 unit) 1 mg/1 ml
***	Ibuprofen	60 mg	***
0.15 ml	Lidocaine 2% IO for pain	3 mg	100 mg/5 ml
0.3 ml	Lidocaine 2% IV/IO (Head Injury)	6 mg	100 mg/5 ml
0.1 ml	Morphine IV/IO (<2 yo BHO)	0.3 mg	4 mg/1 ml
0.6 ml	Narcan IV/IO/IN/IM	0.6 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
120 ml	Normal Saline	120 ml	1000 ml bag
6 ml	Sodium Bicarb IV/IO	6 meq	50 meq/50 ml
0.15 ml	Versed IV/IN/IM/IO	0.6 mg	5 mg/1 ml
BHO	Zofran IV/IM/IO/ODT <1yr BHO	BHO	4 mg/2 ml

*** See product packaging for dosing instructions

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: RED

Kg range: 8-9 kg	**Approx KG: 8 kg**		**1st**	**2nd**	**3rd**
Approximate LBS:	**16lbs**	**Defib:**	**15 J**	**30 J**	**30 J**
ETT uncuffed size:	**3.5**				
NG tube size	**5-8 Fr**		**1st**	**2nd**	**3rd**
		Cardiovert:	**4 J**	**16 J**	**16 J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	120 mg	***
38.5 ml	Activated Charcoal PO	8 G	50 G/240 ml
0.3 ml	Adenosine RIVP 1st	0.8 mg	6 mg/2 ml
0.5 ml	Adenosine RIVP 2nd	1.6 mg	6 mg/2 ml
3 ml	Albuterol-Nebulized	2.5 mg/3 ml	2.5 mg/3 ml
0.8 ml	Amiodarone (VT) Drip	40 mg	150 mg/3 ml
0.8 ml	Amiodarone (VF/ PLVT) SIVP	40 mg	150 mg/3 ml
1.6 ml	Atropine (BRADY/Pre-ET) IV/IO	0.16 mg	1 mg/10 ml
1 ml	Atropine ET	0.4 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.15 ml	Benadryl IV/IM/IO/PO	8 mg	50 mg/1 ml
1.6 ml	Calcium Chloride SIVP	160 mg	1 G (100 mg/1ml)
16 ml	Dextrose 25% IV/IO >1 mo.	16 ml	25 G/50 ml
16 ml	Dextrose 10% IV/IO <1 mo.	16 ml	250 ml bag
30 ml	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
0.8 ml	Epinephrine IV/IO	0.08 mg	1:10,000 1 mg/10 ml
0.8 ml	Epinephrine ET	0.8 mg	1:1,000 1 mg/1 ml
0.08 ml	Epinephrine IM	0.08 mg	1:1,000 1 mg/1 ml
4 ml	Epinephrine Nebulized	4 mg	1:1,000 1 ml/ 1 mg
0.2 ml	Fentanyl IV/IO/IN/IM	8 mcg	100 mcg/2 ml
0.8 ml	Glucagon (Hypoglycemia)	0.8 mg	(1 unit) 1 mg/1 ml
0.8 ml	Glucagon (Allergic/BBOD)	0.8 mg	(1 unit) 1 mg/1 ml
***	Ibuprofen	80 mg	***
0.2 ml	Lidocaine 2% IO for pain	4 mg	100 mg/5 ml
0.4 ml	Lidocaine 2% IV/IO (Head Injury)	8 mg	100 mg/5 ml
0.1 ml	Morphine IV/IO (<2 yo BHO)	0.4 mg	4 mg/1 ml
0.8 ml	Narcan IV/IO/IN/IM	0.8 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
160 ml	Normal Saline	160 ml	1000 ml bag
8 ml	Sodium Bicarb IV/IO	8 meq	50 meq/50 ml
0.2 ml	Versed IV/IN/IM/IO	0.8 mg	5 mg/1 ml
BHO	Zofran IV/IM/IO/ODT <1yr BHO	BHO	4 mg/2 ml

*** See product packaging for dosing instructions

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: PURPLE

			1st	2nd	3rd
Kg range: 10-11 kg	**Approx KG: 10 kg**				
Approximate LBS:	**20lbs**	**Defib:**	**20 J**	**40 J**	**40 J**
ETT uncuffed size:	**4**				
NG tube size	**8-10 Fr**		**1st**	**2nd**	**3rd**
		Cardiovert:	**5 J**	**20 J**	**20 J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	150 mg	***
48 ml	Activated Charcoal PO	10 G	50 G/240 ml
0.35 ml	Adenosine RIVP 1st	1 mg	6 mg/2 ml
0.7 ml	Adenosine RIVP 2nd	2 mg	6 mg/2 ml
3 ml	Albuterol-Nebulized	2.5 mg/3 ml	2.5 mg/3 ml
1.0 ml	Amiodarone (VT) Drip	50 mg	150 mg/3 ml
1.0 ml	Amiodarone (VF/ PLVT) SIVP	50 mg	150 mg/3 ml
2 ml	Atropine (BRADY/Pre-ET) IV/IO	0.2 mg	1 mg/10 ml
1.3 ml	Atropine ET	0.5 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.2 ml	Benadryl IV/IM/IO/PO	10 mg	50 mg/1 ml
2 ml	Calcium Chloride SIVP	200 mg	1 G (100 mg/1ml)
20 ml	Dextrose 25% IV/IO >1 mo.	20 ml	25 G/50 ml
20 ml	Dextrose 10% IV/IO <1 mo.	20 ml	250 ml bag
37.5 ml	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
1 ml	Epinephrine IV/IO	0.1 mg	1:10,000 1 mg/10 ml
1 ml	Epinephrine ET	1 mg	1:1,000 1 mg/1 ml
0.1 ml	Epinephrine IM	0.1 mg	1:1,000 1 mg/1 ml
5 ml	Epinephrine Nebulized	5 mg	1:1,000 1 ml/ 1 mg
0.2 ml	Fentanyl IV/IO/IN/IM	10 mcg	100 mcg/2 ml
1 ml	Glucagon (Hypoglycemia)	1 mg	(1 unit) 1 mg/1 ml
1 ml	Glucagon (Allergic/BBOD)	1 mg	(1 unit) 1 mg/1 ml
***	Ibuprofen	100 mg	***
0.25 ml	Lidocaine 2% IO for pain	5 mg	100 mg/5 ml
0.5 ml	Lidocaine 2% IV/IO (Head Injury)	10 mg	100 mg/5 ml
0.15 ml	Morphine IV/IO (<2 yo BHO)	0.5 mg	4 mg/1 ml
1 ml	Narcan IV/IO/IN/IM	1 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
200 ml	Normal Saline	200 ml	1000 ml bag
10 ml	Sodium Bicarb IV/IO	10 meq	50 meq/50 ml
0.25 ml	Versed IV/IN/IM/IO	1.0mg	5 mg/1 ml
1 ml	Zofran IV/IM/IO/ODT <1yr BHO	2 mg	4 mg/2 ml

*** See product packaging for dosing instructions

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: YELLOW

Kg range: 12-14 kg **Approx KG: 13 kg**
Approximate LBS: **26lbs**
ETT uncuffed size: **4.5**
NG tube size **10 Fr**

	1st	2nd	3rd
Defib:	**25 J**	**50 J**	**50 J**
Cardiovert:	**7 J**	**26J**	**26 J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	195 mg	***
62 ml	Activated Charcoal PO	13 G	50 G/240 ml
0.45 ml	Adenosine RIVP 1st	1.3 mg	6 mg/2 ml
0.9 ml	Adenosine RIVP 2nd	2.6 mg	6 mg/2 ml
3 ml	Albuterol-Nebulized	2.5 mg/3 ml	2.5 mg/3 ml
1.3 ml	Amiodarone (VT) Drip	65 mg	150 mg/3 ml
1.3 ml	Amiodarone (VF/ PLVT) SIVP	65 mg	150 mg/3 ml
2.6 ml	Atropine (BRADY/Pre-ET) IV/IO	0.26 mg	1 mg/10 ml
1.6 ml	Atropine ET	0.65 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.25 ml	Benadryl IV/IM/IO/PO	13 mg	50 mg/1 ml
2.6 ml	Calcium Chloride SIVP	260 mg	1 G (100 mg/1ml)
26 ml	Dextrose 25% IV/IO >1 mo.	26 ml	25 G /50 ml
48.8 ml	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
1.3 ml	Epinephrine IV/IO	0.13 mg	1:10,000 1 mg/10 ml
1.3 ml	Epinephrine ET	1.3 mg	1:1,000 1 mg/1 ml
0.13 ml	Epinephrine IM	0.13 mg	1:1,000 1 mg/1 ml
5 ml	Epinephrine Nebulized	5 mg	1:1,000 1 ml/ 1 mg
0.3 ml	Fentanyl IV/IO/IN/IM	13 mcg	100 mcg/2 ml
1 ml	Glucagon (Hypoglycemia)	1 mg	(1 unit) 1 mg/1 ml
1.3 ml	Glucagon (Allergic/BBOD)	1.3 mg	(1 unit) 1 mg/1 ml
***	Ibuprofen	130 mg	***
0.35 ml	Lidocaine 2% IO for pain	6.5 mg	100 mg/5 ml
0.65 ml	Lidocaine 2% IV/IO (Head Injury)	13 mg	100 mg/5 ml
0.2 ml	Morphine IV/IO > 2 yo	0.65 mg	4 mg/1 ml
1.3 ml	Narcan IV/IO/IN/IM	1.3 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
260 ml	Normal Saline	260 ml	1000 ml bag
13 ml	Sodium Bicarb IV/IO	13 meq	50 meq/50 ml
0.3 ml	Versed IV/IN/IM/IO	1.3 mg	5 mg/1 ml
1 ml	Zofran IV/IM/IO/ODT >4 yo	2 mg	4 mg/2 ml

*** See product packaging for dosing instructions

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: WHITE

Kg range: 15-18 kg	**Approx KG: 16 kg**		**1st**	**2nd**	**3rd**
Approximate LBS:	**32lbs**	**Defib:**	**30 J**	**60 J**	**60 J**
ETT Cuffed size:	**5**				
NG tube size	**10 Fr**		**1st**	**2nd**	**3rd**
		Cardiovert:	**8 J**	**30 J**	**30J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	240 mg	***
76.8 ml	Activated Charcoal PO	16 G	50 G/240 ml
0.5 ml	Adenosine RIVP 1st	1.6 mg	6 mg/2 ml
1 .1 ml	Adenosine RIVP 2nd	3.2 mg	6 mg/2 ml
3 ml	Albuterol-Nebulized	2.5 mg/3 ml	2.5 mg/3 ml
1.6 ml	Amiodarone (VT) Drip	80 mg	150 mg/ 3 ml
1.6 ml	Amiodarone (VF/ PLVT) SIVP	80 mg	150 mg / 3 ml
3.2 ml	Atropine (BRADY/Pre-ET) IV/IO	0.32 mg	1 mg/10 ml
2 ml	Atropine ET	0.8 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.3 ml	Benadryl IV/IM/IO/PO	16 mg	50 mg/1 ml
3.2 ml	Calcium Chloride SIVP	320 mg	1 G (100 mg/1ml)
32 ml	Dextrose 25% IV/IO >1 mo.	32 ml	25 G/50 ml
56.3 ml	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
1.5 ml	Epinephrine IV/IO	0.15 mg	1:10,000 1 mg/10 ml
1.5 ml	Epinephrine ET	1.5 mg	1:1,000 1 mg/1 ml
0.15 ml	Epinephrine IM	0.15 mg	1:1,000 1 mg/1 ml
5 ml	Epinephrine Nebulized	5 mg	1:1,000 1 ml/ 1 mg
0.3 ml	Fentanyl IV/IO/IN/IM	16 mcg	100 mcg/2 ml
1 ml	Glucagon (Hypoglycemia)	1 mg	(1 unit) 1 mg/1 ml
1.6 ml	Glucagon (Allergic/BBOD)	1.6 mg	(1 unit) 1 mg/1 ml
***	Ibuprofen	160 mg	***
0.4 ml	Lidocaine 2% IO for pain	8 mg	100 mg/5 ml
0.8 ml	Lidocaine 2% IV/IO (Head Injury)	16 mg	100 mg/5 ml
0.2 ml	Morphine IV/IO > 2 yo	.8 mg	4 mg/1 ml
1.6 ml	Narcan IV/IO/IN/IM	1.6 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
320 ml	Normal Saline	320 ml	1000 ml bag
16 ml	Sodium Bicarb IV/IO	16 meq	50 meq/50 ml
0.3 ml	Versed IV/IN/IM/IO	1.6 mg	5 mg/1 ml
1 ml	Zofran IV/IM/IO/ODT >4 yo	2 mg	4 mg/2 ml

*** See product packaging for dosing instructions

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: BLUE

			1st	2nd	3rd
Kg range: 19-22 kg	**Approx KG: 20 kg**				
Approximate LBS:	**40lbs**	**Defib:**	**40 J**	**80 J**	**80 J**
ETT uncuffed size:	**5.5**				
ETT cuffed size:	**6.0**		**1st**	**2nd**	**3rd**
NG tube size	**12-14 Fr**	**Cardiovert:**	**10 J**	**40 J**	**40 J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	300 mg	***
96 ml	Activated Charcoal PO	20 G	50 G/240 ml
0.7 ml	Adenosine RIVP 1st	2 mg	6 mg/2 ml
1.3 ml	Adenosine RIVP 2nd	4 mg	6 mg/2 ml
3 ml	Albuterol-Nebulized	2.5 mg/3 ml	2.5 mg/3 ml
2 ml	Amiodarone (VT) Drip	100 mg	150 mg/3 ml
2 ml	Amiodarone (VF/ PLVT) SIVP	100 mg	150 mg/3 ml
4 ml	Atropine (BRADY/Pre-ET) IV/IO	0.4 mg	1 mg/10 ml
2.5 ml	Atropine ET	1 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.4 ml	Benadryl IV/IM/IO/PO	20 mg	50 mg/1 ml
4 ml	Calcium Chloride SIVP	400 mg	1 G (100 mg/1ml)
40 ml	Dextrose 25% IV/IO>1 mo.	40 ml	25 G/50 ml
75 ml	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
2 ml	Epinephrine 1:10 IV/IO	0.2 mg	1:10,000 1 mg/10 ml
2 ml	Epinephrine 1:1 ET	2 mg	1:1,000 1 mg/1 ml
0.2 ml	Epinephrine 1:1 IM	0.2 mg	1:1,000 1 mg/1 ml
5 ml	Epinephrine Nebulized	5 mg	1:1,000 1 ml/ 1 mg
0.4 ml	Fentanyl IV/IO/IN/IM	20 mcg	100 mcg/2 ml
1 ml	Glucagon (Hypoglycemia) IV/IM	1 mg	(1 unit) 1 mg/1 ml
2 ml	Glucagon (Allergic/BBOD) IV/IN/IM	2 mg	(1 unit) 1 mg/1 ml
***	Ibuprofen	200 mg	***
1 ml	Lidocaine 2% IV/IO (Head Injury)	20 mg	100 mg/5 ml
0.5 mg	Lidocaine 2% IO for pain	10 mg	100 mg/5 ml
0.25 ml	Morphine IV/IO > 2 yo	1 mg	4 mg/1 ml
2 ml	Narcan IV/IO/IN/IM	2 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
400 ml	Normal Saline	400 ml	1000 ml bag
20 ml	Sodium Bicarb IV/IO	20 meq	50 meq/50 ml
0.4 ml	Versed IV/IN/IM/IO	2 mg	5 mg/1 ml
1 ml	Zofran IV/IM/IO/ODT >4 yo	2 mg	4 mg/2 ml

*** See product packaging for dosing instructions

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: ORANGE

Kg range: 24-28 kg **Approx KG: 25kg**
Approximate LBS: **50lbs**
ETT Cuffed size: **6**
NG tube size **14-18 Fr**

	1st	2nd	3rd
Defib:	**50 J**	**100 J**	**100 J**
Cardiovert:	**15 J**	**50 J**	**50 J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	375 mg	***
120 ML	Activated Charcoal PO	25 G	50 G/240ml
.8 ml	Adenosine RIVP 1st	2.5 mg	6mg/2ml
1.7 ml	Adenosine RIVP 2nd	5 mg	6mg/2ml
3 ml	Albuterol-Nebulized	2.5mg/3ml	2.5mg/3ml
2.5 ml	Amiodarone (VT) Drip	125 mg	150 mg/3 ml
2.5 ml	Amiodarone (VF/ PLVT) SIVP	125 mg	150 mg/3 ml
5 ml	Atropine (BRADY) IV/IO	0.5 mg	1 mg/10 ml
3.1 ml	Atropine ET	1.25 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.5 ml	Benadryl IV/IM/IO/PO	25 mg	50 mg/1 ml
5 ml	Calcium Chloride SIVP	500 mg	1 G (100 mg/1 ml)
50 ml	Dextrose 25% IV/IO >1 mo.	50 ml	25 G/50 ml
97.5 ml	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
2.5 ml	Epinephrine IV/IO	0.25 mg	1:10,000 1 mg/10 ml
2.5 ml	Epinephrine ET	2.5 mg	1:1,000 1 mg/1 ml
0.25 ml	Epinephrine IM	0.25 mg	1:1,000 1 mg/1 ml
5 ml	Epinephrine Nebulized	5 mg	1:1,000 1 ml/ 1 mg
0.5 ml	Fentanyl IV/IO/IN/IM	25 mcg	100 mcg/2 ml
1 ml	Glucagon (Hypoglycemia)	1 mg	(1 unit) 1 mg/1 ml
2.5 ml	Glucagon (allergic/BBOD) IV/IN/IM	2.5 mg	1 unit (mg)/1 ml
***	Ibuprofen	250 mg	***
0.6 ml	Lidocaine 2% IO for pain	12.5 mg	100 mg/5 ml
1.25 ml	Lidocaine 2% IV/IO (Head Injury)	25 mg	100 mg/5 ml
0.3 ml	Morphine IV/IO >2 yo	1.25 mg	4 mg/1 ml
2 ml	Narcan IV/IO/IN/IM	2 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
25 ml	Sodium Bicarb IV/IO	25 Meq	50 meq/50 ml
500 ml	Normal Saline	500 ml	1000ml bag
0.5 ml	Versed IV/IN/IM/IO	2.5 mg	5 mg/1 ml
1 ml	Zofran IV/IM/IO/ODT >4 yo	2 mg	4 mg/2 ml

*** See product packaging for dosing instructions

PEDIATRIC DRUG REFERENCE CARDS

Broselow color: GREEN

			1st	2nd	3rd
Kg range: 30-36 kg	**Approx KG: 34 kg**				
Approximate LBS:	**70lbs**	**Defib:**	**70 J**	**140 J**	**140 J**
ETT cuffed size:	**6.5**				
NG tube size	**16-18 Fr**		**1st**	**2nd**	**3rd**
		Cardiovert:	**20 J**	**68 J**	**68 J**

VOL	MEDICATION	DOSE	CONCENTRATION
***	Acetaminophen	480 mg	***
165 ml	Activated Charcoal PO	34 G	50 G/240 ml
1.2 ml	Adenosine RIVP 1st	3.4 mg	6 mg/2 ml
2.3 ml	Adenosine RIVP 2nd	6.8 mg	6 mg/2 ml
3 ml	Albuterol-Nebulized	2.5 mg/3 ml	2.5 mg/3 ml
3.4 ml	Amiodarone (VT) Drip	170 mg	150 mg/3 ml
3.4 ml	Amiodarone (VF/ PLVT) SIVP	170 mg	150 mg/3 ml
7 ml	Atropine (BRADY) IV/IO	0.7 mg	1 mg/10 ml
4.25 ml	Atropine ET	1.7 mg	0.4 mg/1 ml
3 ml	Atrovent-Nebulized	0.5 mg	0.5 mg/2.5 ml
0.5 ml	Benadryl IV/IM/IO/PO	25 mg	50 mg/1 ml
6.8 ml	Calcium Chloride SIVP	680 mg	1 G (100 mg/1ml)
68 ml	Dextrose 25% IV/IO >1 mo.	68 ml	25 G/50 ml
127.5 ml*	Dopamine dilute in Volutrol (100 ml)	5-20 ml/hr	400 mg/250 ml
3.4 ml	Epinephrine 1:10 IV/IO	0.34 mg	1:10,000 1 mg/10 ml
3.4 ml	Epinephrine 1:1 ET	3.4 mg	1:1,000 1 mg/1 ml
0.3 ml	Epinephrine 1:1 IM	0.3 mg	1:1,000 1 mg/1 ml
5 ml	Epinephrine Nebulized	5 mg	1:1,000 1 ml/ 1 mg
0.7 ml	Fentanyl IV/IO/IN/IM	34 mcg	100 mcg/2 ml
1 ml	Glucagon (Hypoglycemia) IV/IM	1 mg	(1 unit) 1 mg/1 ml
3.4 ml	Glucagon (Allergic/BBOD) IV/IN/IM	3.4 mg	(1 unit) 1 mg/1 ml
***	Ibuprofen	340 mg	***
1.7 ml	Lidocaine 2% IV/IO (Head Injury)	34 mg	100 mg/5 ml
0.9 ml	Lidocaine 2% IO for pain	17 mg	100 mg/5 ml
0.4 ml	Morphine IV/IO > 2 yo	1.7 mg	4 mg/1 ml
2 ml	Narcan IV/IO/IN/IM	2 mg	2 mg/2 ml
	Nitrous Oxide	Self Admin	
680 ml	Normal Saline	680 ml	1000 ml bag
34 ml	Sodium Bicarb IV/IO	34 meq	50 meq/50 ml
0.7 ml	Versed IV/IN/IM/IO	3.4 mg	5 mg/1 ml
1 ml	Zofran IV/IM/IO/ODT >4 yo	2 mg	4 mg/2 ml

* May require multiple fills of Volutrol

*** See product packaging for dosing instructions

ACETAMINOPHEN DOSAGE CHART:

Recommended Dosages

Important Note: Infant concentrated drops have been phased out but are safe to use if the dose is correct. They're three times as concentrated a
caution: Know your baby's weight and follow the dosage chart.

Your child's weight: 6 to 11 lbs **Dose:** 40 mg **Old Infant drops:** ½ dropper (0.4 ml) **New Infant liquid:** 1.25 ml in syringe	**Your child's weight:** 12 to 17 lbs **Dose:** 80 mg **Old infant drops:** 1 dropper (0.8 ml) **New infant liquid:** 2.5 ml in syringe **Children's liquid:** ½ tsp (2.5 ml in cup)	**Your child's weight:** 18 **Dose:** 120 mg **Old infant dro** **New infant liq** **Children's liqu** **Children's che** **Junior-strengt**
Your child's weight: 24 to 35 lbs **Dose:** 160 mg **Old infant drops:** 2 droppers (1.6 ml) **New infant liquid:** 5 ml in syringe **Children's liquid:** 1 tsp (5 ml in cup) **Children's chews or meltaways:** 2 **Junior-strength chews or meltaways:** 1	**Your child's weight:** 36 to 47 lbs **Dose:** 240 mg **Children's liquid:** 1 ½ tsp (7.5 ml in cup) **Children's chews or meltaways**: 3 **Junior-strength chews or meltaways:** 1 ½	**Your child's weight:** 48 **Dose:** 320 mg **Children's liqu** **Children's che** **Junior-strengt**
Your child's weight: 60 to 71 lbs **Dose:** 400 mg **Children's liquid:** 2 ½ tsp (12.5 ml in cup) **Children's chews or meltaways:** 5 **Junior-strength chews or meltaways:** 2 1/2 **Adult regular-strength tabs (325 mg):** 1	**Your child's weight:** 72 to 95 lbs **Dose:** 480 mg **Children's liquid:** 3 tsp (15 ml in cup) **Children's chews or meltaways:** 6 **Junior-strength chews or meltaways:** 3 **Adult regular-strength tabs (325 mg):** 1 to 1 ½	**Your child's weight:** 96 **Dose:** 640 mg **Children's liqu** **Children's che** **Junior-strengt** **Adult regular-**

Active Ingredients

Old infant drops: 80 mg/0.8 ml per dropper (shake well before using)
New infant liquid: 160 mg/5 ml per included syringe (shake well before using)
Children's liquid: 160 mg/5 ml per teaspoon (shake well before using)
Children's chews or meltaways: 80 mg each
Junior-strength chews or meltaways: 160 mg each
Adult regular-strength tablets: 325 mg each

Six Safety Tips for Acetaminophen

1. Don't give to a baby under 3 months without a doctor's approval.
2. Don't confuse infant drops with the new infant liquid. Infant drops are three times more concentrated.
3. Always use the measuring device that comes with the medicine.
4. The proper dosage is based on weight, not age. To determine the weight of a very young child, weigh yourself and then weigh yourself w
   your weight from the combined weight.
5. Never give acetaminophen to a child who's taking other medicines unless directed by a doctor. Other me
   overdose.
6. Don't exceed five doses in 24 hours.

IBUPROFEN DOSAGE CHART:

Recommended Dosages

Note: The proper dosage for your child is based on weight, not age. If you don't know how much your child weighs, and he's too young to s
while holding him, and then weigh yourself alone. Subtract your weight from the combined weight to get his current weight.

Your child's weight: 12 to 17 lbs **Dose:** 50 mg **Infant drops:** 1 dropper OR 2/3 syringe (1.25 ml) **Children's liquid:** ½ tsp	**Your child's weight:** 18 to 23 lbs **Dose:** 75 mg **Infant drops:** 1½ droppers OR 1 syringe (1.875 ml) **Children's liquid:** ¾ tsp	**Your child's we** **Dose:** 100 mg **Infant drop** **Children's**
Your child's weight: 36 to 47 lbs **Dose:** 150 mg **Infant drops:** 3 droppers OR 2 syringes (3.75 ml) **Children's liquid:** 1 ½ tsp **Children's chews:** 3 chews	**Your child's weight:** 48 to 59 lbs **Dose:** 200 mg **Infant drops:** 4 droppers OR 2 2/3 syringe (5.0 ml) **Children's liquid:** 2 tsp **Children's chews:** 4 **Junior-strength chews or caplets:** 2	**Your child's we** **Dose:** 250 mg **Children's** **Children's** **Jr. strength** **Adult regul**
Your child's weight: 72 to 95 lbs **Dose:** 300 mg **Children's liquid:** 3 tsp **Children's chews:** 6 **Junior-strength chews or caplets:** 3 **Adult regular-strength tabs:** 1 to 1 ½	**Your child's weight:** 96+ lbs **Dose:** 400 mg **Children's liquid:** 4 tsp **Children's chews:** 8 **Junior-strength chews or caplets:** 4 **Adult regular-strength tabs:** 2	

Active Ingredients

Infant drops: 50 mg (1.25 ml) per dropper / 1.875 ml (50 mg) per syringe (shake well before using)
Note: The drops come with either a dropper or a syringe, depending on the brand.
Children's liquid: 100 mg (5 ml) per teaspoon (shake well before using)
Children's chewables: 50 mg each
Junior-strength chewables or caplets: 100 mg each
Adult regular-strength tablets: 200 mg each

5 Safety Tips for Ibuprofen

1. Don't give it to a baby under 6 months without a doctor's approval.
2. Always use the measuring device that comes with the medicine – not a spoon from the kitchen.
3. Never give to a child who's taking other medicines unless directed by a doctor. The other medicine may also contain ibuprofen, cre
4. Don't confuse infant drops with children's liquid. Infant drops are much more concentrated. Hint: Drops come with a dropper; childr
5. You can repeat the dose every six to eight hours. Don't exceed four doses in 24 hours.

OXYGEN TANK CALCULATION

Formula - PSI x Tank factor / Liters per minute (lpm)
For ventilated patients: Tidal Volume X Resp Rate = lpm

D Cylinder (0.16)	**PSI 1800**	**PSI 1500**	**PSI 1000**	**PSI 500**
2 lpm	144 mins	120 mins	80 mins	40 mins
4 lpm	72	60	40	20
6 lpm	48	40	26	13
8 lpm	36	30	20	10
10 lpm	28	24	16	8
12 lpm	24	20	13	6
14 lpm	21	17	11	5
M Cylinder (1.56)	**PSI 1800**	**PSI 1500**	**PSI 1000**	**PSI 500**
2 lpm	23.4 hrs	19.5 hrs	13 hrs	6 hrs
4 lpm	11.7	9.7	6.5	3.2
6 lpm	7.8	6.5	4.3	2.1
8 lpm	5.8	4.8	3.2	1.6
10 lpm	4.6	3.9	2.6	1.3
12 lpm	3.9	3.2	2.1	1
14 lpm	3.3	2.7	1.8	54 mins