

AIRWAY / BREATHING PROTOCOLS

Airway / Breathing Guidelines.....	2-2
Airway Adjuncts	2-3
Adult Airway.....	2-4
Adult Foreign Body Airway Obstruction (FBAO)	2-6
Adult Respiratory Distress Asthma & COPD	2-8
Congestive Heart Failure (CHF) & Pulmonary Edema	2-10
CPAP	2-12
Traumatic Breathing	2-14

AIRWAY / BREATHING GUIDELINES

GUIDELINES OF AIRWAY ASSESSMENT

PARTIAL OBSTRUCTION

- May include coughing with some air movement. Give 100% Oxygen and encourage the patient to cough. Monitor for changes. Transport immediately.

FOREIGN BODY AIRWAY OBSTRUCTIONS (FBAO)

- Should be removed immediately if able. Visualize airway and either suction or sweep out liquids and other materials. Solids must be hooked with finger or instrument. A laryngoscope may be used for direct visualization of the airway. If unable to clear airway by these methods, use Heimlich maneuver if conscious and begin CPR if unconscious as appropriate.

GUIDELINES OF BREATHING ASSESSMENT

STRIDOR

- High pitched crowing sound caused by obstruction of the upper airway. (e.g. CHF)

WHEEZING

- A whistling or sighing sound, usually lower airway and found upon expiration. (e.g. pneumonia)

RALES

- Fine to coarse crackle representing fluid in the lower airway indicative of CHF/Pulmonary Edema and also a secondary infection (eg. Pneumonia).

RHONCHI

- Coarse upper airway sound representing mucus blocking the larger bronchioles.

COPD

- Pulmonary disease (emphysema / chronic bronchitis) that is characterized by chronic typically irreversible airway obstruction resulting in a slowed rate of exhalation

CROUP

- Inflammation of the larynx and upper airway leading to airway narrowing especially in infants and young children (3 months to 3 years) that is typically caused by a virus and is marked by episodes of difficulty breathing and hoarse barking cough.

EPIGLOTTITIS

- Inflammation of the epiglottis usually caused by HIB microbes, now uncommon in children.

KEY POINTS

Airway Assessment

- If you don't have an airway – you don't have anything!
- C-Spine precautions must be considered prior to the insertion of airway adjuncts. Provide manual stabilization prior to insertion.
- See PEDIATRIC Section for pediatric airway management.

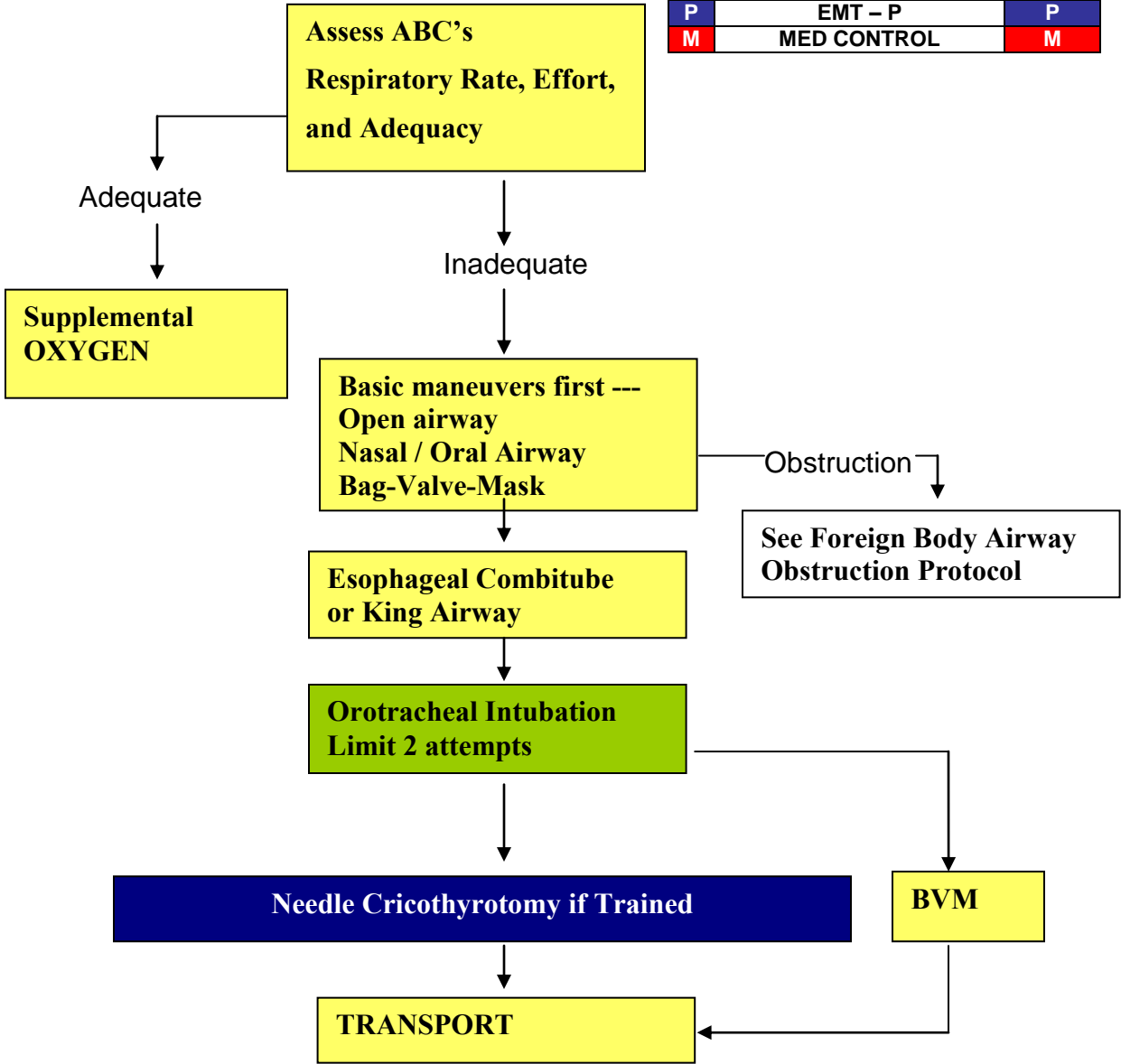
Breathing Assessment

- Be sure that the airway is open before assessing breathing.
- When assessing breathing, observe rate, quality, depth, and equality of chest movement.
- COPD patients maintain on low flow oxygen (usually <2 L which keeps their O2 Sat in the low 90's%). Some may stop breathing on high flow due to diminished respiratory drive. However - if the COPD patient needs high flow oxygen - it should be given. Be prepared to support breathing with BVM if needed.
- Always record vital signs when treating breathing problems.

ADJUNCT	INDICATIONS	CONTRAINDICATIONS	COMMENTS
Suction	Indispensable for all patients with fluid or particulate debris in airway	NONE	No more than 15 seconds per attempt
Modified jaw thrust	Initial airway maneuver for all trauma patients	NONE	Does not protect against aspiration in a patient with a depressed level of consciousness
Hyperextension of neck	Opening airway of non-trauma patient	Potential cervical spine injury	Same as above
Nasal airway	Obstruction by tongue with gag reflex present	Potential mid-face injury	Same as above
Oral airway	Obstruction of tongue	Positive gag reflex	Same as above
Orotracheal intubation	Failure of above; provides airway protection	NONE	Difficult in patients with severe maxillofacial injuries
Combitube	Failure to place ETT successfully Pt's 4'-5'6" = 37Fr Pt's taller than 5' = 41Fr	Height under 4' ft	Remove dentures and use caution if trauma with broken teeth – may tear balloon
King LT Airway	Failure to place ETT successfully	Positive gag reflex Known esophageal disease Ingestion of caustic substance	Remove dentures and use caution if trauma with broken teeth – may tear balloon
Needle Cricothyrotomy Tracheostomy device	High obstructed airway – Unable to clear; Unable to establish any other airway; Unable to ventilate; Unable to oxygenate; Maxillo facial trauma	Must be able to identify cricoid ring; Not best for anterior neck trauma	Must have training in procedure

AIRWAY / BREATHING
AIRWAY (ADULT)

B	EMT- B	B
I	EMT - I	I
P	EMT - P	P
M	MED CONTROL	M



KEY POINTS

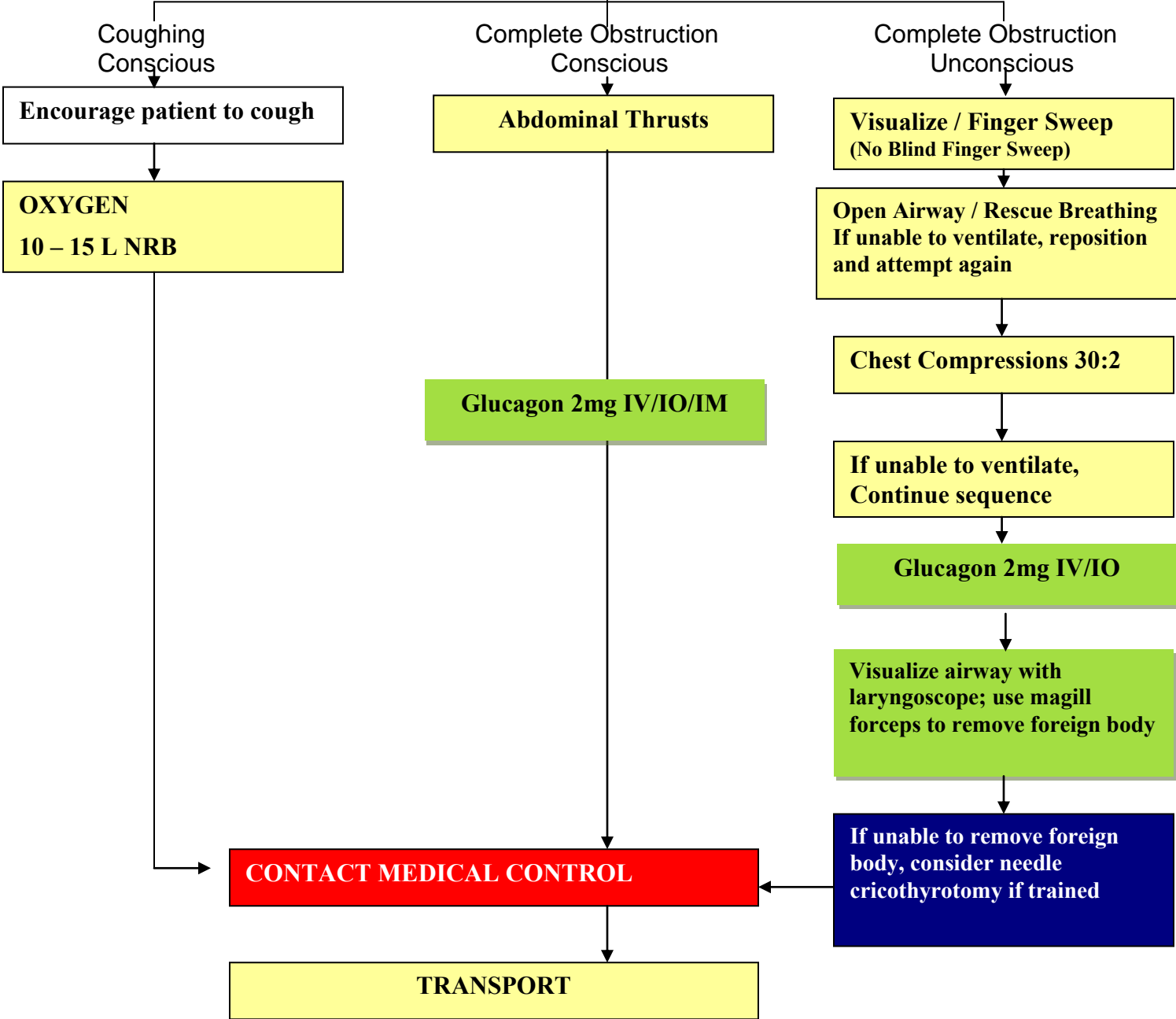
- For this protocol, adult is defined as post start of puberty.
- When intubation is performed, 4 confirmation methods need to be used and documented including electronic capnometry if available.
- Examples of confirmation methods: EZ-cap. breath sounds, chest rise, Capnography, no gastric sounds.
- Maintain C-spine immobilization for patients with suspected spinal injury.
- Do not assume hyperventilation is psychogenic -- use oxygen, not a paper bag.
- Sellick's maneuver should be used to assist with intubations to reduce risk of aspiration.
- Paramedics should consider using a Combitube or King Airway when they are unable to intubate a patient.
- Consider c-collar to maintain ETT placement for all intubated patients in addition to commercial tube securing device (REMOVE COLLAR upon patient TRANSFER).
- EMT-B's are only able to use Combitube and King Airway if the patient is pulseless AND apneic.
- EMT-I's are only able to use Combitube and King Airway, and orotracheal intubation if the patient is apneic.
- EMT-P's are able to use Combitube and King Airway, and orotracheal intubation as necessary per the appropriate protocol.

AIRWAY / BREATHING
FOREIGN BODY AIRWAY OBSTRUCTION (FBAO) - ADULT

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

**Head Tilt / Chin Lift/ Jaw Thrust
Airway Maneuvers**



AIRWAY / BREATHING

FOREIGN BODY AIRWAY OBSTRUCTION (FBAO) - ADULT

INDICATIONS	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none">• Coughing• Choking• Inability to speak• Unresponsive	<ul style="list-style-type: none">• Witnessed Aspiration• Sudden Episode of Choking• Gagging• Audible Stridor• Change in Skin Color• Decreased LOC• Increased or Decreased Respiratory Rate• Labored Breathing• Unproductive Cough	<ul style="list-style-type: none">• Cardiac Arrest• Respiratory Arrest• Anaphylaxis

KEY POINTS

- With complete obstruction, positive-pressure ventilation may be successful.
- Chest thrust should be used in place of abdominal thrust on pregnant or obese patients.
- If airway can not be cleared in 60 seconds, transport should be immediate.
- Cardiac Monitor and IV Protocol shall not delay transport.

ASTHMA / COPD

B	EMT - B	B
I	EMT - I	I
P	EMT - P	P
M	MED CONTROL	M

UNIVERSAL PATIENT CARE PROTOCOL

Administer Oxygen / Apply Cardiac Monitor

Assist with patients prescribed inhaler, if available

IV PROTOCOL

Mild

Slight wheezing and SOB: Treat with DuoNeb aerosol & Oxygen as needed

Moderate

Tachypnea & Wheezing:
Treat with DuoNeb aerosol & Oxygen

Severe

Tachypnea, wheezing accessory muscle use, difficulty speaking: Treat with DuoNeb aerosol & Oxygen Follow up pulse-ox; Repeat aerosol

Follow up pulse-ox;
Repeat DuoNeb aerosol

Consider CPAP with aerosol treatment for severe hypoxia not responding to treatment

Administer Solumedrol
125 mg slow IVP

Administer Solumedrol
125 mg slow IVP

Administer Magnesium Sulfate
45 mg/kg to a total of 75 mg/kg SLOW IVP

Administer Magnesium Sulfate
45 mg/kg to a total of 75 mg/kg

Consider Nebulized Epinephrine
1:1000 2mg (2ml) mixed in 1ml NS

If >50 yrs old or known heart disease
Contact Med Control if Considering Epi
1:1000, SQ 0.3 - 0.5mg

Consider Intubation or
BID

CONTACT MEDICAL CONTROL

TRANSPORT

Approx Mag Dose
Child <10 1 gram
Child 10-16 1-2 grams
Adult 3-4 grams

AIRWAY / BREATHING

Asthma / COPD

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Asthma; Congestive heart failure; COPD -- chronic bronchitis, emphysema, • Home treatment (oxygen, nebulizer, inhaler) • Medications (theophylline, steroids, inhalers) • Toxic exposure, smoke inhalation 	<ul style="list-style-type: none"> • Shortness of breath • Pursed lip breathing • Decreased ability to speak • Increased respiratory rate and effort • Wheezing, rhonchi • Use of accessory muscles • Fever, cough • Tachycardia • Retractions 	<ul style="list-style-type: none"> • Asthma • Anaphylaxis • Aspiration • COPD (Emphysema, Bronchitis) • Pleural effusion • Pneumonia • Pulmonary embolus • Pneumothorax • Cardiac (MI or CHF) • Pericardial tamponade • Hyperventilation • Inhaled toxin (Carbon monoxide, etc.)

KEY POINTS

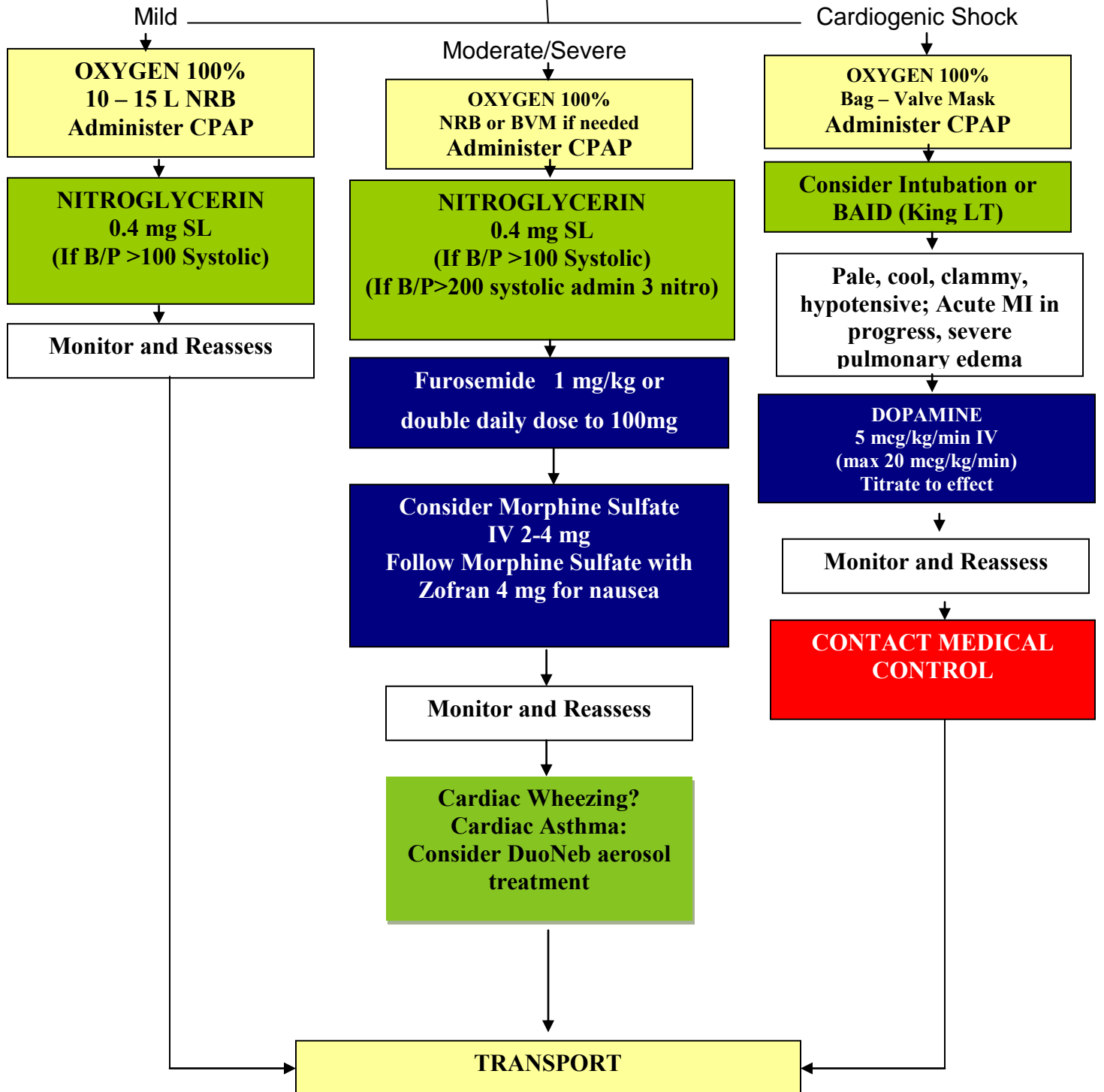
<ul style="list-style-type: none"> • Exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro • Status asthmaticus -- severe prolonged asthma attack unresponsive to therapy -- life threatening! • Contact Medical Control prior to administering epinephrine in patients who are >50 years of age, have a history of cardiac disease, or if the patient's heart rate is >150. Epinephrine may precipitate cardiac ischemia. • A silent chest in respiratory distress is a pre-respiratory arrest sign. • Be alert for respiratory depression in COPD patients on prolonged high flow oxygen administration. DO NOT withhold oxygen from hypoxic patients. • If DuoNeb is given, monitor the patient's cardiac rhythm and consider IV. • If assisting with patient's prescribed bronchial dilator inhaler, you shall: assure medication is prescribed for patient, check medication expiration date/administration method, contact medical control prior to administration if possible, record patient reaction to medication including vital signs and relay to medical control. Administer medication by having the patient exhale, then activate spray during inhalation, and have patient hold breath for ten seconds so medication can be absorbed. Use patient's spacer if available.

AIRWAY / BREATHING
CONGESTIVE HEART FAILURE (CHF)/PULMONARY EDEMA

UNIVERSAL PATIENT CARE PROTOCOL

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MED CONTROL	M

Cardiac Monitor **IV PROTOCOL**



AIRWAY / BREATHING
CONGESTIVE HEART FAILURE (CHF)/PULMONARY EDEMA

I – MILD	II – MODERATE	III – SEVERE
Heart Rate Normal Range Blood Pressure Normal or slightly elevated Breath Sounds Bilateral Rales Wheezing possible Some difficulty breathing	Heart Rate Tachycardia Blood Pressure Hypertension Breath Sounds Bilateral Diffuse Rales Wheezing possible Diminished Working hard to breath Frothy sputum may occur	Heart Rate Tachycardia then drops to Bradycardia Blood Pressure Hypertension then drops to Hypotension Breath Sounds May be ominously quiet Fatigued from work of breathing

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> • Congestive heart failure • Past medical history • Medications (digoxin, lasix) • Viagra, etc. • Cardiac history --past myocardial infarction 	<ul style="list-style-type: none"> • Respiratory distress, bilateral rales • Apprehension, orthopnea • Jugular vein distention • Pink, frothy sputum • Peripheral edema, diaphoresis • Hypotension, shock • Chest pain • Positive Hepato-jugular reflex 	<ul style="list-style-type: none"> • Myocardial infarction • Congestive heart failure • Asthma • Anaphylaxis • Aspiration • COPD • Pleural effusion • Pneumonia • Pulmonary embolus • Pericardial tamponade

KEY POINTS
<ul style="list-style-type: none"> • Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro • Obtain 12-lead EKG to evaluate for AMI. • If the patient has taken their own nitroglycerin without relief, consider potency of the medication and repeat per protocol as needed. • Monitor for hypotension after administration of nitroglycerin and morphine. • Be suspicious of a “Silent MI” in the elderly, diabetics, and women. • DO NOT administer Nitroglycerin to a patient who took an erectile dysfunction medication (Viagra, Cialis, Levitra, etc.) within the last 48 hours. • Nitroglycerin can be administered to a patient by EMS if the patient has already taken 3 of their own prior to your arrival. Document if the patient had any changes in their symptoms or a headache after taking their own Nitroglycerin. Check and document the expiration date of the patient’s prescribed nitroglycerin. • Nitroglycerin can be administered without an IV as long as the patient takes Nitroglycerin at home and has a BP greater than 120 mmHg or (BP greater than 150 mmHg if over 70 years old).

Simple calculation for approx 5 mcg/kg/min (must be 1600 mcg/ml concentration)
 *Take the Patients weight in lbs and remove the last digit (175lbs = 17)
 * Subtract 2 from that figure (17-2=15)
 *This gives you the number of drops per min using a 60gtts set. (titrate to desired effect)

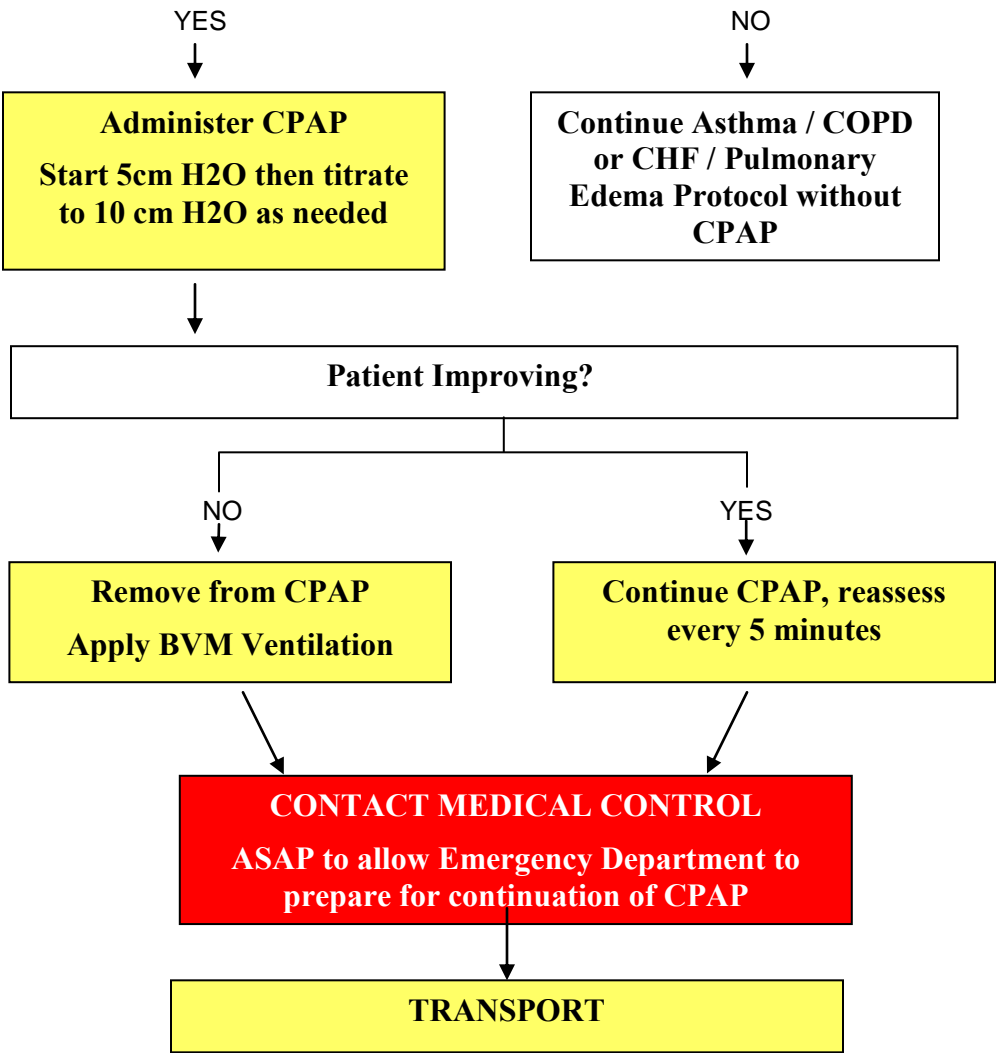
Example: 175lbs patient.
 175 remove the 5 is 17
 17 – 2 = **15 drops per min** (approx 5 mcg/kg/min)

AIRWAY / BREATHING PROTOCOL
Continuous Positive Airway Pressure (CPAP)

UNIVERSAL PATIENT CARE PROTOCOL

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MED CONTROL	M

- Breathing patient whose condition is not improving with O2 therapy and/or medication
- Respiratory distress or failure due to pulmonary edema, asthma, pneumonia, bronchitis, CHF, or COPD/emphysema
- SpO2 < 94%
- Patient spontaneously breathing without altered level of consciousness
- You may use an Aerosol Treatment with CPAP in Asthma



KEY POINTS

Indications: Breathing patient whose condition is not improving with O₂ therapy, respiratory distress or failure due to pulmonary edema, asthma, pneumonia, bronchitis, CHF, or COPD/emphysema.

- **Associated Signs and Symptoms:** Dyspnea, tachypnea, chest pain, hypertension, tachycardia, anxiety, altered LOC, rales and/or wheezes, frothy sputum, accessory muscle use and/or retractions, pulse ox <94%.

- Patient must be adequately and spontaneous breathing.

- **Contraindications:** BP <90 systolic, respiratory arrest, agonal respirations, unconscious, shock associated with cardiac insufficiency, pneumothorax, penetrating chest trauma, persistent nausea and vomiting, facial anomalies, facial trauma, known blebs, unable to follow commands, apnea, hypercarbia, airway compromise, respiratory compromise, open stoma or tracheostomy.

AIRWAY / BREATHING
Traumatic Breathing

UNIVERSAL PATIENT CARE PROTOCOL
Evidence of Trauma – Blunt or Penetrating
Abnormal breath sounds, Inadequate Respiratory rate, Unequal symmetry. Diminished chest excursion. Cyanosis

B	EMT – B	B
I	EMT – I	I
P	EMT – P	P
M	MED CONTROL	M

Jaw Thrust Airway Maneuver
Give High Flow Oxygen

Suspect Sucking Chest Wound?
Apply 3-sided Occlusive Dressing

Suspect Flail Chest?
Splint with bulky dressing
Assist with ventilation – gentle positive pressure

Suspect Penetrating Object?
Immobilize Object
Apply sterile saline dressing

Suspect Tension Pneumothorax?
Confirm and Decompress Chest by Needle
Decompression if trained

CONTACT MEDICAL CONTROL

TRANSPORT

KEY POINTS

- These injuries involve the airway and are life-threatening.
- Do not become distracted by non life-threatening injuries that appear terrible.
- A **sucking chest wound** is when the thorax is open to the outside. The occlusive dressing may be anything such as petroleum gauze, plastic, or a defibrillator pad. Tape only 3 sides down so that excess intrathoracic pressure can escape, preventing a tension pneumothorax. It may help respirations to place patient on the injured side, allowing the unaffected lung to expand easier.
- A **flail chest** is when there are extensive rib fractures present, causing a loose segment of the chest wall resulting in paradoxical and ineffective air movement. This movement must be stopped by applying a bulky pad to inhibit the outward excursion of the segment. Positive pressure breathing via BVM will help push the segment and the normal chest wall out with inhalation and to move inward together with exhalation, getting them working together again. Do not use too much pressure to prevent additional damage or pneumothorax.
- A **penetrating object** must be immobilized by any means possible. If it is very large, cutting may be possible, with care taken to not move it when making the cut. Place an occlusive & bulky dressing over the entry wound.
- A **tension pneumothorax** is life threatening. Look for unequal breath sounds, JVD, increasing respiratory distress, decreased mental status, and lastly, tracheal displacement. The pleura must be decompressed with a needle to provide relief. Use either the midclavicular (2nd or 3rd intercostal space) or the midaxillary (5th or 6th space) landmarks, going in on the top side of the rib. Once the catheter is placed, watch closely for reocclusion. Repeat if needed. You may attach the finger of a glove to the outside end of the catheter to assist in watching air movement.

MEDICATIONS
DOPAMINE (Intropine)

Back to Table of Contents

P	EMT – P	P
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ACTIONS	Alpha and beta adrenergic receptor stimulator Dopaminergic receptor stimulator Dilates renal and mesenteric blood vessels Vasoconstriction Arterial resistance Increases cardiac output Increases preload
INDICATIONS	Cardiogenic shock Distributive Shock Cyanide poisoning (contact Medical Control)
CONTRAINDICATIONS	Known hypersensitivity /Allergy Hypovolemic hypotension VF or VT
PRECAUTIONS	Do not mix with bicarbonate, dopamine may be inactivated by alkaline solutions Extravasation may cause tissue necrosis
SIDE EFFECTS	Ectopic beats, palpitations Tachycardia, angina Nausea/vomiting VF or VT Dyspnea Headache
ADULT DOSAGE	2 -20mcg/kg/min IV drip. Start 5 micrograms/kg/minute IV/IO infusion, titrate to effect

Simple calculation for approx 5 mcg/kg/min (must be 1600 mcg/ml concentration)
 *Take the Patients weight in lbs and remove the last digit (175lbs = 17)
 * Subtract 2 from that figure (17-2=15)
 *This gives you the number of drops per min using a 60gtts set. (titrate to desired effect)

Example: 175lbs patient.
 175 remove the 5 is 17
 17 – 2 =**15 drops per min** (approx 5 mcg/kg/min)

MEDICATIONS
DuoNeb

[Back to Table of Contents](#)

I	EMT – I	I
P	EMT – P	P

ACTIONS	<p>(Albuterol) Parasympatholytic bronchodilator Dries respiratory tract secretions</p> <p>(Ipratropium – Atrovent) B₂ selective bronchodilator Increases HR</p>
INDICATIONS	<p>Asthma exacerbation COPD exacerbation Patients that have used their prescribed inhaler more than once Pulmonary edema with wheezing</p>
CONTRAINDICATIONS	<p>Known hypersensitivity /Allergy Allergy to peanuts Acute myocardial infarction Arrhythmias</p>
PRECAUTIONS	<p>Cardiovascular disease Hypertension history CHF</p>
SIDE EFFECTS	<p>Palpitations Anxiety Nausea Dizziness</p>
ADULT DOSAGE	<p>Unit dose inhaled via nebulizer. May repeat as needed</p>

MEDICATIONS

EPINEPHRINE (Adrenaline)

Back to Table of Contents

I	EMT – I	I
P	EMT – P	P

ACTIONS	<p>Alpha and Beta adrenergic agonist Bronchodilation Increases heart rate and automaticity Increases cardiac contractility Increases myocardial electrical activity Increases systemic vascular resistance Increases blood pressure</p>
INDICATIONS	<p>Cardiac arrest Allergic reaction/Anaphylaxis Respiratory distress Acute Asthma Pediatric Bradycardia</p>
CONTRAINDICATIONS	<p>Hypersensitivity Tachycardia Hypertension Hypothyroidism Angina / Chest pain Coronary artery disease</p>
PRECAUTIONS	<p>Pregnancy Blood pressure, pulse, and EKG must be routinely monitored</p>
SIDE EFFECTS	<p>Palpitations, ectopic beats, tachycardia Anxiety / Tremors Hypertension VF / VT Angina</p>
ADULT DOSAGE	<p><u>Asthma and Anaphylaxis</u> Mild Reaction (1-1,000) 0.3-0.5mg SQ Consider 1:1000 2mg mixed with 1ml NS in nebulizer for Asthma <u>Severe Anaphylaxis</u> (1:10,000) 0.5 mg slow IV/IO over 5 minutes - EMT-P Only</p> <p><u>Cardiac Arrest</u> 1:10,000 1 mg IV/IO every 3-5 minutes – EMT-P Only</p>
PEDIATRIC DOSAGE	<p><u>Asthma and Anaphylaxis</u> Mild Reaction Ages 10-16 yrs (1:1,000) 0.03 mg/kg SQ Under 10 yrs (1:1,000) 0.01mg/kg SQ May use 1:1000 2mg mixed with 1ml NS in nebulizer aerosolized <u>Severe Anaphylaxis Pending Arrest</u> Ages 10-16 yrs (1:10,000) 0.01mg/kg IV/IO over 5 minutes – EMT-P Only <u>Cardiac Arrest</u> 1:10,000 0.01 mg/kg IV/IO push 0.1ml/kg – EMT-P Only or 0.1 mg/kg 1:1000 ETT 0.1ml/kg – EMT-P Only</p>
KEY POINTS	<p>Administer SQ dose prior to contacting Medical Direction. IV dose in non-cardiac patient consult Medical Direction</p>

MEDICATIONS**FUROSEMIDE (*Lasix*)**[Back to Table of Contents](#)

P	EMT – P	P
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ACTIONS	Potent diuretic Decreases preload Vasodilator
INDICATIONS	Acute pulmonary edema Congestive heart failure Acute pulmonary edema secondary to hypertension
CONTRAINDICATIONS	Pregnant patient Hypokalemia Pregnancy Dehydration Pneumonia Allergy to Lasix
SIDE EFFECTS	Hypokalemia Dehydration Depletion of potassium Hypotension
ADULT DOSAGE	0.5 – 1.0mg/kg SLOW IVP or double the daily oral dose. 100mg maximum dose
PEDIATRIC DOSAGE	1 mg/kg slow IVP
KEY POINTS	

MEDICATIONS**GLUCAGON**[Back to Table of Contents](#)

I	EMT – I	I
P	EMT – P	P

ACTIONS	Accelerates the breakdown of glycogen to glucose in the liver, causing an increase in blood glucose level Relaxes smooth muscle of GI tract
INDICATIONS	Hypoglycemia when IV/IO is not able to be established and oral glucose is contraindicated Esophageal obstruction Beta Blocker overdose
CONTRAINDICATIONS	Known hypersensitivity Pheochromocytoma
PRECAUTIONS	Glucagon is only effective in patients with sufficient stores of glycogen Use caution in patients with renal or cardiovascular disease Glucagon can be administered on scene, but do not wait for it to take effect
SIDE EFFECTS	Nausea/Vomiting
ADULT DOSAGE	1mg IM for Hypoglycemia 2mg IV/IO/IM in esophageal foreign body obstruction 2 – 4mg IV/IO for hypotension / bradycardia in Betablocker overdose and Calcium Channel overdose
PEDIATRIC DOSAGE	<20kg give 0.5mg/kg IM >20kg give 1mg IM
KEY POINTS	Response is usually noticed in 5-20 minutes Glucagon is NOT a substitute for D25, or D12.5. IV must be attempted prior to administering Glucagon

MEDICATIONS
MAGNESIUM SULFATE

Back to Table of Contents

P	EMT – P	P
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<i>ACTIONS</i>	Anticonvulsant Antiarrhythmic CNS depressant
INDICATIONS	Seizures secondary to eclampsia Ventricular ectopy refractory to Amiodarone Torsades Adjunct to alleviate acute asthma attack
CONTRAINDICATIONS	Renal disease Heart blocks
SIDE EFFECTS	Respiratory depression CNS depression Hypotension Cardiac arrest
ADULT DOSAGE	1.0 – 4.0 grams SLOW IVP over 2-3 minutes (Max dose 4 grams Asthma dose 45mg/kg IV to a total of 75mg/kg
KEY POINTS	

Approx Mag Dose	
Child < 10	1 gram
Child 10 16	1 to 2

MEDICATIONS		
MORPHINE SULFATE		

I	EMT – I	I
P	EMT – P	P

[Back to Table of Contents](#)

ACTIONS	Narcotic Analgesic Causes peripheral vasodilation
INDICATIONS	Pulmonary edema MI pain unrelieved with nitro Pain management Pain secondary to burns
CONTRAINDICATIONS	Known hypersensitivity / Allergy Head injury or head trauma Hypotension Altered LOC Undiagnosed abdominal pain(consult Med Command) COPD Bradycardia Multiple trauma patients
PRECAUTIONS	If the patient responds with respiratory depression or hypotension, administer Narcan to reverse the effects Routinely monitor the patient’s respiratory effort and SpO ₂
SIDE EFFECTS	Respiratory depression Altered LOC, constricted pupils Bradycardia Nausea/Vomiting Hypotension
ADULT DOSAGE	2-4 mg slow IV/IO, Intranasal (If no relief, may repeat at 2 to 4 mg) For further doses over 10mg of Morphine, contact medical direction. Follow with 4mg Zofran
PEDIATRIC DOSAGE	<u>Pain Management:</u> 0.1-0.2 mg/kg slow IV, IM, SQ
KEY POINTS	

EDICATIONS
NITROGLYCERIN

Back to Table of Contents

I	EMT – I	I
P	EMT – P	P

<i>ACTIONS</i>	Decreases preload and afterload Increases coronary blood flow
INDICATIONS	Cardiac chest discomfort, angina STEMI Pulmonary edema
CONTRAINDICATIONS	Known hypersensitivity Hypotension (systolic BP <110, diastolic BP <60) Increased intracranial pressure Glaucoma CVA Erectile dysfunction drugs (contact med control)
SIDE EFFECTS	Headache Hypotension Dizziness, weakness Syncope Dilated pupils
ADULT DOSAGE	<u>Cardiac Chest Discomfort</u> 0.4 mg SL or spray May repeat every 5 minutes up to 3 doses if B/P systolic > 90mmHg <u>Pulmonary Edema with systolic BP >200</u> 1.2mg SL (3 tablets simultaneously)
PEDIATRIC DOSAGE	Not recommended in the prehospital setting
KEY POINTS	

MEDICATIONS**METHYPREDNISOLONE (Solumedrol)**[Back to Table of Contents](#)**P** **EMT – P** **P**

ACTIONS	Anti-inflammatory steroid
INDICATIONS	Anaphylaxis Asthma COPD
CONTRAINDICATIONS	NONE in emergency setting
SIDE EFFECTS	GI bleeding Prolonged wound healing Suppression of natural steroids
ADULT DOSAGE	125 mg IVP
PEDIATRIC DOSAGE	1-2 mg/kg IVP
KEY POINTS	

MEDICATIONS**ONDANSETRON (Zofran)****P****EMT – P****P**[Back to Table of Contents](#)

<i>ACTIONS</i>	Antiemetic
INDICATIONS	Nausea & vomiting
CONTRAINDICATIONS	Hypersensitivity
SIDE EFFECTS	Drowsiness, vertigo Blurred vision, headache Hypotension
ADULT DOSAGE	4 mg slow IV, IM
PEDIATRIC DOSAGE	Contact Medical Control
KEY POINTS	