

AIRWAY / BREATHING PROTOCOLS

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AIRWAY / BREATHING

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 OBSTRUCTION (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 and abdominal or chest thrusts as appropriate.

GUIDELINES OF BREATHING ASSESSMENT

STRIDOR

- High pitched crowing sound caused by obstruction of the upper airway. (Epiglottitis/Croup)

WHEEZING

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

RALES

- Fine to coarse crackle representing fluid in the lower airway. (CHF)

RHONCHI

- Coarse upper airway sound representing various levels of upper airway obstruction. (Pneumonia)

COPD

- Pulmonary disease (emphysema / chronic bronchitis) that is characterized by chronic typically irreversible airway obstruction resulting in a slower 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 is 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.
- Maintain COPD patients 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.

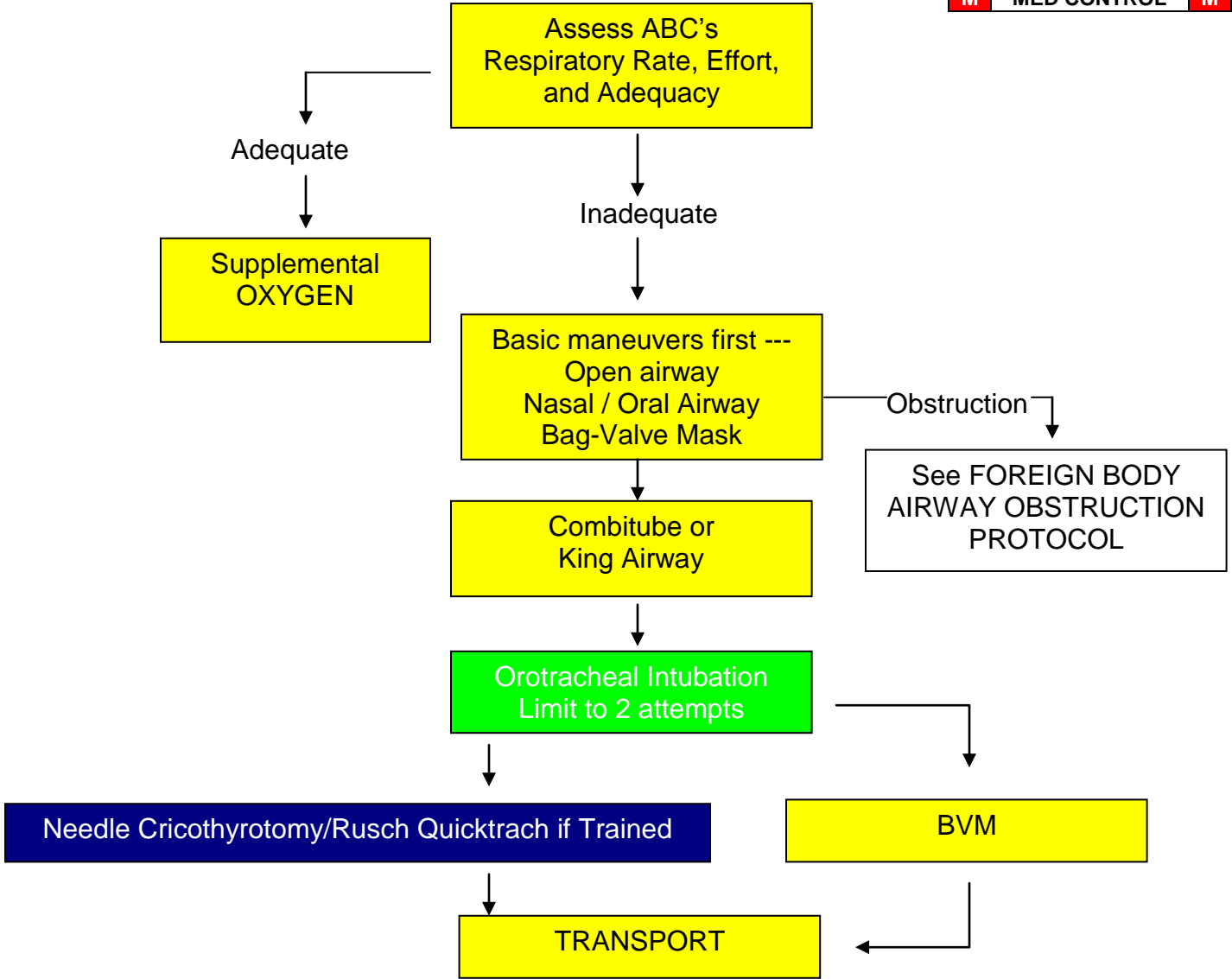
AIRWAY / BREATHING

AIRWAY ADJUNCTS

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 2 ^o to 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 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 (Rusch Quicktrach)	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



AIRWAY / BREATHING

AIRWAY (ADULT)

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, 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, King Airway, and orotracheal intubation if the patient is apneic.
- EMT-P's are able to use Combitube, King Airway, and orotracheal intubation as see 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

Coughing
Conscious

Complete Obstruction
Conscious

Complete Obstruction
Unconscious

Encourage patient to cough

Abdominal Thrusts

Visualize / Finger Sweep
(No Blind Finger Sweep)

OXYGEN
10 - 15 L NRB

Open Airway / Rescue
Breathing

If unable to ventilate,
reposition and attempt
again

Chest Compressions 30:2

If unable to ventilate,
continue sequence

Visualize airway with
laryngoscope; use Magill
forceps to remove foreign
body

CONTACT MEDICAL CONTROL

If unable to remove foreign
body, consider Needle
Cricothyrotomy / Rusch
Quicktrach

TRANSPORT

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 cannot be cleared in 60 seconds, transport should be immediate.
- Cardiac Monitor and IV Protocol shall not delay transport.

**AIRWAY / BREATHING
ASTHMA / COPD**

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

UNIVERSAL PATIENT CARE PROTOCOL

Administer OXYGEN

Assist with patient's prescribed inhaler, if available

Cardiac Monitor and IV PROTOCOL

Mild
Slight wheezing and SOB: Treat with ALBUTEROL Or XOPENEX aerosol; OXYGEN as needed

Moderate
Tachypnea & Wheezing: Treat with ALBUTEROL Or XOPENEX aerosol & OXYGEN

Severe
Tachypnea, wheezing accessory muscle use, difficulty speaking: Treat with ALBUTEROL Or XOPENEX aerosol & Oxygen

Follow up pulse-ox; Repeat ALBUTEROL Or XOPENEX aerosol

Follow up pulse-ox; Repeat aerosol

Asthma:
With Med Control Consider EPI 1:1,000 0.3 - 0.5 mg SQ Or GLUCAGON 0.5 -1mg IM

Consider CPAP PROTOCOL for severe hypoxia not responding to treatment

Consider Intubation or 2° Airway Device

CONTACT MEDICAL CONTROL

TRANSPORT

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

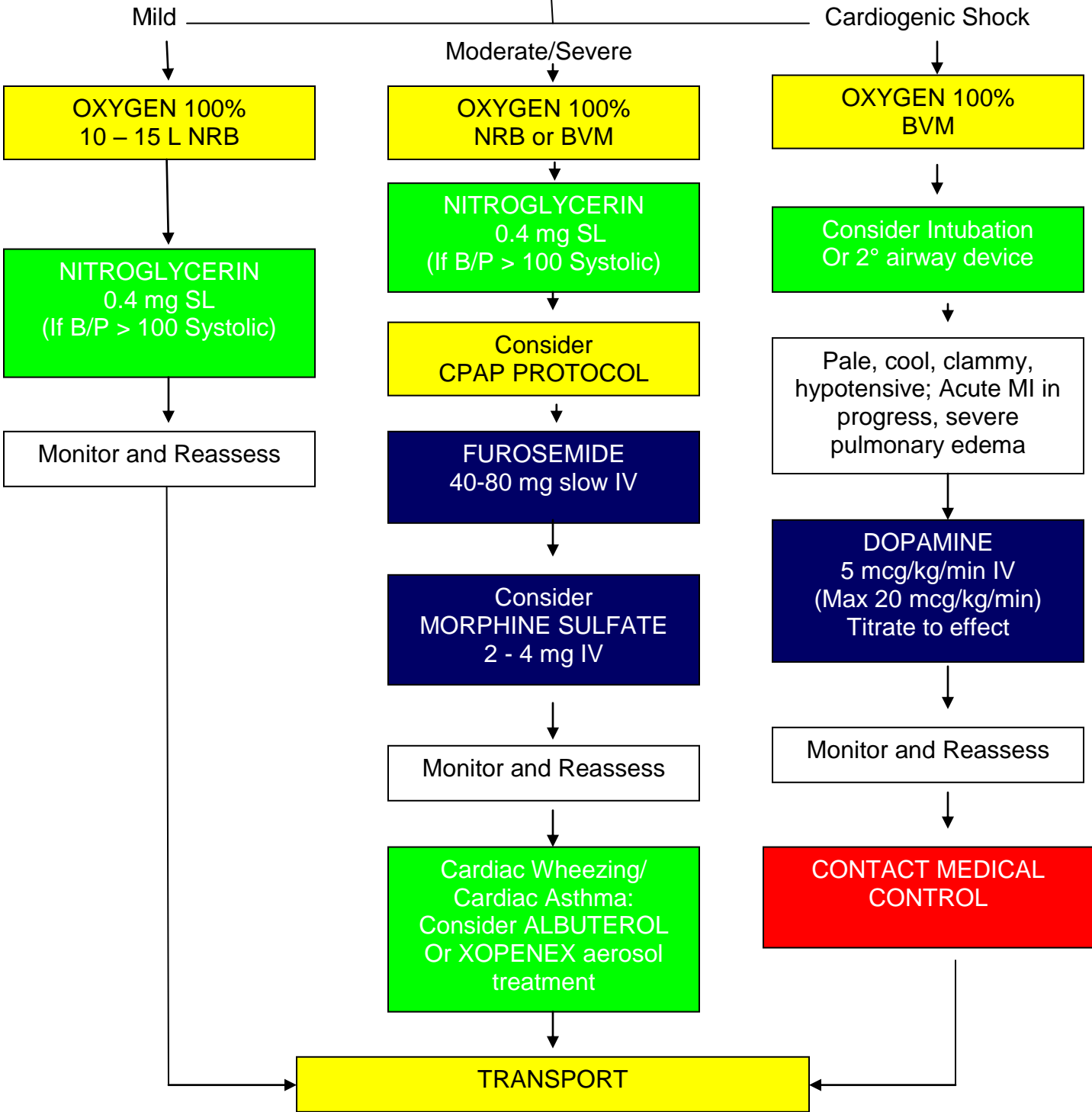
- Exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro
- Status asthmaticus -- severe prolonged asthma attack unresponsive to therapy -- life threatening!
- **Contact Medical Control prior to administering epinephrine in patients who are >40 years of age, have a history of 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 Albuterol or Xopenex is given, monitor the patient's cardiac rhythm and consider IV.
- If assisting with patient's prescribed bronchial dilator inhaler, ensure 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

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

UNIVERSAL PATIENT CARE PROTOCOL

Cardiac Monitor and 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

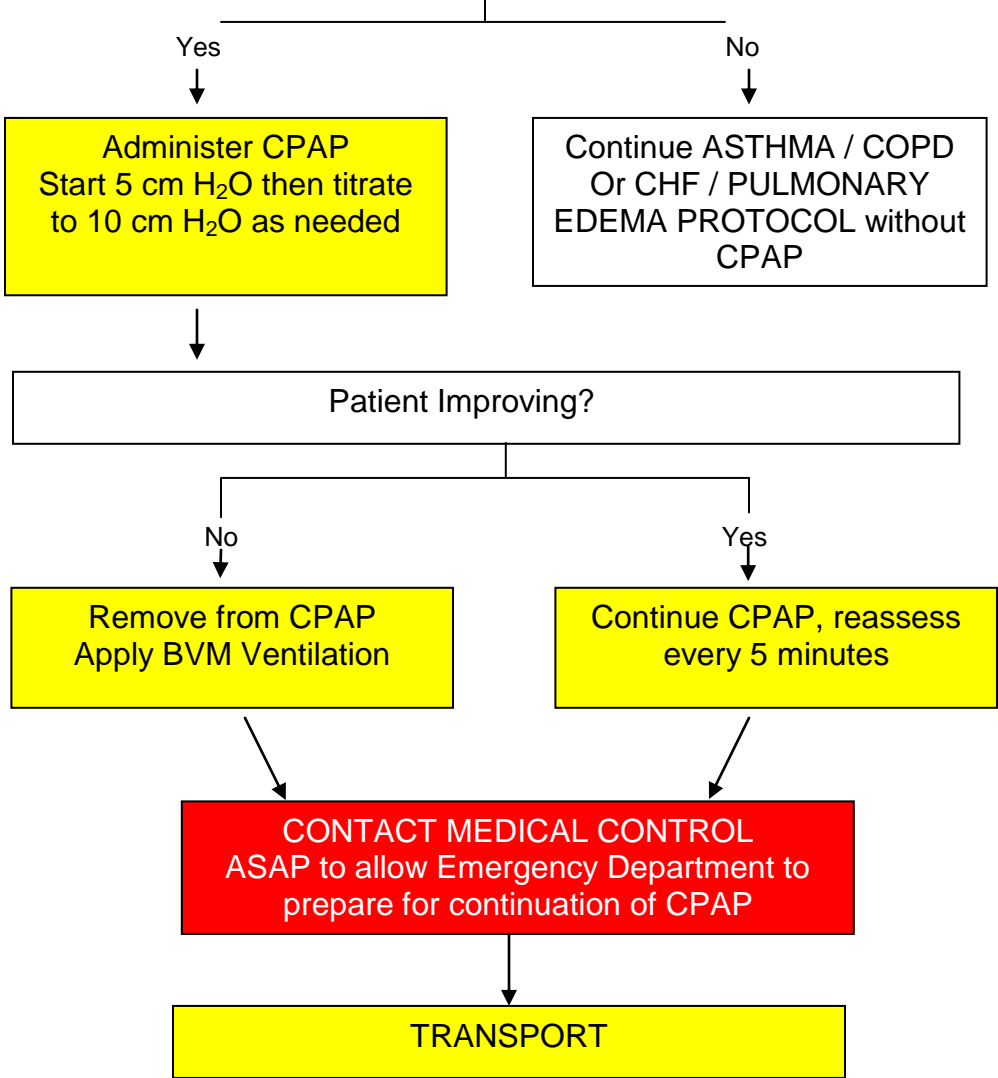
- Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Obtain 12-lead EKG to evaluate for AMI.
- If the patient has taken their own nitroglycerin without relief, consider potency of the medication and repeat per protocol as needed.
- Monitor for hypotension after administration 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).

AIRWAY / BREATHING
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

- Patient must be 15 years of age or older.
- Breathing patient whose condition is not improving with O₂ therapy and/or medication.
- Respiratory distress or failure due to pulmonary edema, pneumonia, bronchitis, CHF, or COPD/emphysema.
- SpO₂ < 94%
- Patient spontaneously breathing without altered level of consciousness.



AIRWAY / BREATHING

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

KEY POINTS

- PATIENTS MUST BE 15 YEARS OF AGE OR OLDER!
- Indications: Breathing patient whose condition is not improving with O₂ therapy, respiratory distress or failure due to pulmonary edema, 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 spontaneously 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

CONTACT MEDICAL CONTROL

TRANSPORT

AIRWAY / BREATHING
TRAUMATIC BREATHING

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.