



# Southwest General

Partnering with



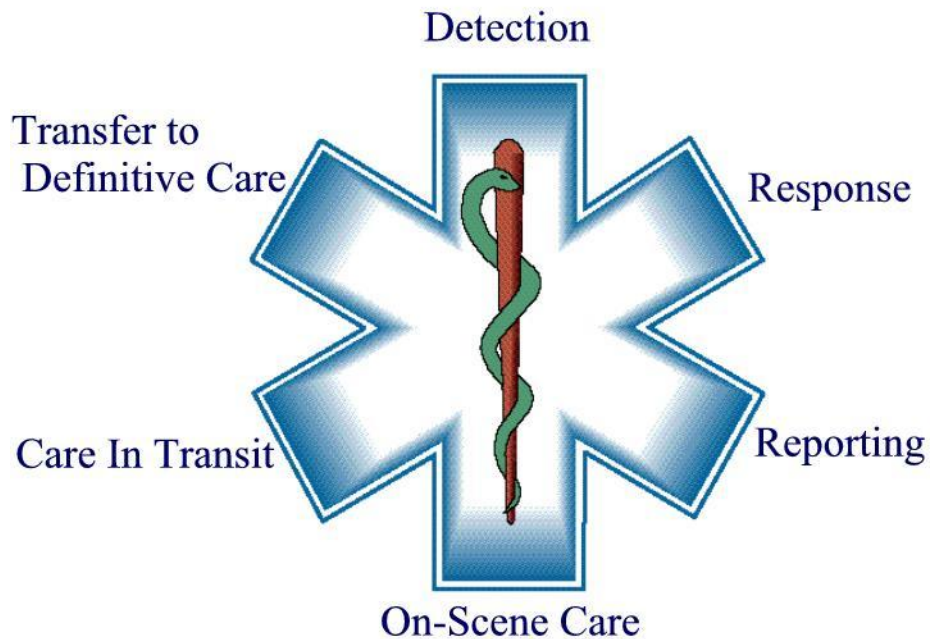
University Hospitals

*EMS Services*

***PRE-HOSPITAL CARE***

***MEDICAL CONTROL***

***PROTOCOLS AND PROCEDURES***





## 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. Transport immediately and prepare for complete obstruction.

##### **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 and abdominal or chest thrusts as appropriate.

##### **STRIDOR**

- High pitched wheeze-like sound caused by partial obstruction of the upper airway.

##### **WHEEZING**

- A whistling or sighing sound, usually involving the lower airways and typically more pronounced on expiration. Occurs due to air flowing through narrowed or constricted airways.

#### Guidelines of Breathing Assessment

##### **RALES**

- Clicking, bubbling, or rattling sounds believed to occur when air opens previously closed air spaces. Can be fine to course.

##### **RHONCHI**

- Low pitched, coarse snoring sounds caused by airway secretions and/or airway narrowing resulting in turbulent airflow.

##### **COPD**

- Chronic Obstruction Pulmonary Disease is lung disease characterized by chronic obstruction of airflow through the lung. The obstruction to airflow is generally not fully reversible.

##### **CROUP**

- Inflammation, edema, and subsequent obstruction of the larynx, trachea, and bronchi especially of infants and young children that is typically caused by a virus and is marked by episodes of difficult breathing and hoarse metallic cough.

##### **EPIGLOTTITIS**

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

### **GENERAL CONSIDERATIONS:**

#### **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 usually maintain on low flow oxygen (2 – 4 LP in which keeps their O<sub>2</sub> Sat in the 90's%), and some patients with severe COPD may have a hypoxic drive and exhibit depressed respirations when faced with higher PaO<sub>2</sub> levels. However, if the COPD patient needs high flow oxygen it should be given. Be prepared to support breathing with ambu-bag if needed.
- Always record vital signs when treating breathing problems.

**AIRWAY / BREATHING**

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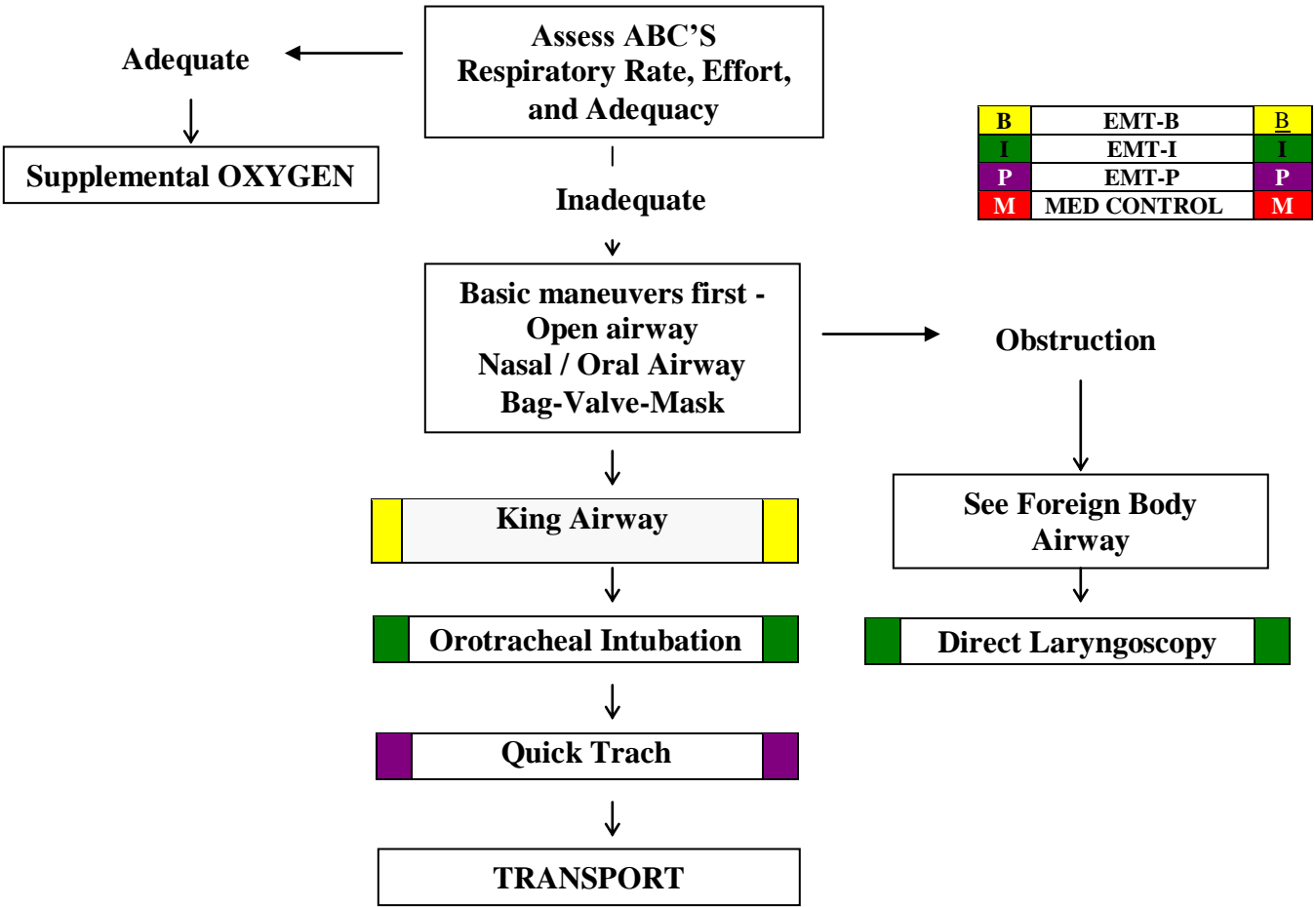
**AIRWAY ADJUNCTS**

<b>ADJUNCT</b>	<b>INDICATIONS</b>	<b>CONTRAINDICATIONS</b>	<b>COMMENTS</b>
Suction	Indispensable for all patients with fluid or particulate debris in airway	NONE	No more than 10 seconds per attempt
Modified jaw thrust	Initial airway maneuver for all trauma patients	NONE	None of these adjuncts protects against aspiration in patient with depressed consciousness
Hyperextension of neck	Opening airway of non-trauma patient	Potential cervical spine injury	Same see above
Nasal airway	Obstruction by tongue with gag reflex present	Potential mid-face injury	Same see above
Oral airway	Obstruction due to tongue, etc.	Positive gag reflex	Same see above
Orotracheal intubation	Failure of above provides airway protection	Gag reflex	Difficult in patients with severe maxillofacial injuries.
King Airway	Failure to place ETT successfully after 3 attempts. Airway device for BLS providers	Positive gag reflex, ingestion of caustic agents, esophageal disease.	Primary salvage airway Size appropriately
Needle Cricothyrotomy "Quick-Trach" or other tracheotomy device	High obstructed airway (unable to clear) Unable to establish any other airway	Must be able to identify cricoid ring. Not best for anterior neck trauma.	Must have training in procedure

**AIRWAY / BREATHING**

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**AIRWAY (ADULT)**



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

- General Considerations**
- For this protocol, adult is defined as 8 years old or greater.
  - CO<sub>2</sub> monitor is mandatory with all methods of intubation. Document results.
  - Capnography Recommendation: Continuous quantitative waveform capnography is now recommended for intubated patients throughout the periarrest period. When quantitative waveform capnography is used for adults, applications now include recommendations for confirming tracheal tube placement and for monitoring CPR quality and detecting ROSC based on end-tidal carbon dioxide.
  - Maintain C-spine immobilization for patients with suspected spinal injury.
  - Do not assume hyperventilation is psychogenic – use oxygen, not a paper bag.
  - Paramedics/Intermediates should consider using a King Airway when they are unable to intubate a patient.

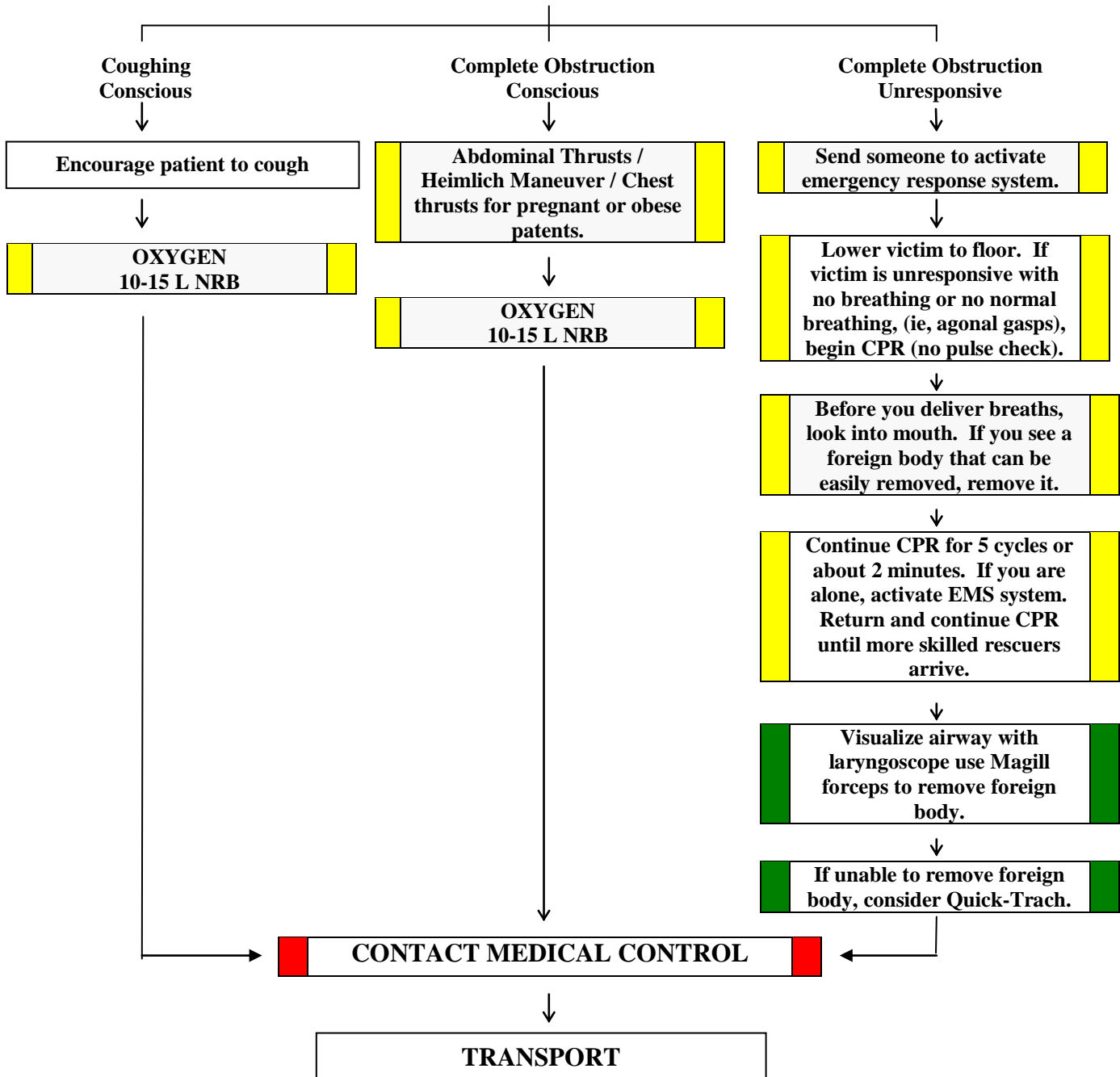
**AIRWAY / BREATHING**

**FOREIGN BODY AIRWAY OBSTRUCTION (FBAO) – ADULT**  
(Adolescent/Puberty/and older)

UNIVERSAL PATIENT CARE PROTOCOL

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

Head Tilt / Chin Lift / Jaw Thrust  
Airway Maneuvers



**FOREIGN BODY AIRWAY OBSTRUCTION (FBAO) - ADULT**

<b>History</b>	<b>Signs and Symptoms</b>	<b>Differential Diagnosis</b>
<ul style="list-style-type: none"> <li>• Coughing</li> <li>• Choking</li> <li>• Inability to speak</li> <li>• Unresponsive</li> </ul>	<ul style="list-style-type: none"> <li>• Witnessed Aspiration</li> <li>• Sudden Episode of Choking</li> <li>• Gagging</li> <li>• Audible Stridor</li> <li>• Change in Skin Color</li> <li>• Decreased LOC</li> <li>• Increased or Decreased Respiratory Rate</li> <li>• Labored Breathing</li> <li>• Unproductive Cough</li> </ul>	<ul style="list-style-type: none"> <li>• Cardiac Arrest</li> <li>• Respiratory Arrest</li> <li>• Anaphylaxis</li> </ul>

**GENERAL CONSIDERATIONS:**

- With complete obstruction, positive-pressure ventilation may be successful.
- Needle cricothyrotomy will provide short term oxygenation only (not ventilation) and is used to “buy time” until other interventions can assure appropriate ventilation.
- Quicktrach kits have a larger internal diameter and thus will provide some minimal ventilation.
- Quicktrach kits are bridge devices to surgical intervention and meant only for short term use.

**AIRWAY / BREATHING**

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**RESPIRATORY DISTRESS  
ASTHMA AND COPD**

**UNIVERSAL PATIENT CARE  
PROTOCOL**

<b>B</b>	EMT-B	<b>B</b>
<b>I</b>	EMT-I	<b>I</b>
<b>P</b>	EMT-P	<b>P</b>
<b>M</b>	MED CONTROL	<b>M</b>

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**Administer Oxygen /  
Assist with patients own Metered  
Dose Inhaler**

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**IV PROTOCOL**

**Mild**  
Slight wheezing and SOB.  
Treat with aerosol Albuterol  
Oxygen as needed.

**Moderate**  
Tachypnea wheezing, short  
of breath, use of accessory  
muscles. Treat with  
Albuterol and Atrovent  
Aerosol

**Severe**  
Tachypnea, short of breath,  
wheezing accessory muscle use,  
difficulty speaking. Treat with:  
Oxygen as needed Pulse-ox  
Aerosol Albuterol and  
Atrovent Aerosol.  
(If intubated 1 Albuterol only can  
be given down the ET Tube)

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**Oxygen as needed:  
Follow up pulse-ox,  
Repeat Albuterol.  
x2 if needed**

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**May repeat x1 additional  
Albuterol/Atrovent if needed.**

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**Consider:  
CPAP for severe hypoxia not  
responding to treatment.**

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**If symptoms severe or  
not improving with  
Albuterol; Epi 1:1000  
subcut. 0.3-0.5 mg  
Contact Medical  
Control if age 65 or  
older or Cardiac  
History**

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**CONTACT MEDICAL CONTROL**

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**TRANSPORT**

**RESPIRATORY DISTRESS  
ASTHMA AND COPD**

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

**CPAP should be used as a last resort only in asthmatic patients. Prepare to intubate and ventilate.**

**SEVERE ASTHMA / STATUS ASTHMATICUS patients not moving the mist from an aerosol treatment give Epinephrine (Adrenaline) 1:1000 0.3 mg IM/SQ only if patient is under 65 years old and has no cardiac disease. If patient is over 65 of age, or has preexisting cardiac disease, contact Medical Control.**

**GENERAL CONSIDERATIONS:**

- 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:
  - greater than 65 years of age
  - have a history of cardiac disease
  - or if the patient's heart rate is greater than 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 and Atrovent are given, monitor the patient's cardiac rhythm and initiate IV.
- If CPAP is used for asthma or COPD, start at 5cm H<sub>2</sub>O; may increase up to 10cm H<sub>2</sub>O to keep pulse ox ≥ 92%.

**AIRWAY / BREATHING**

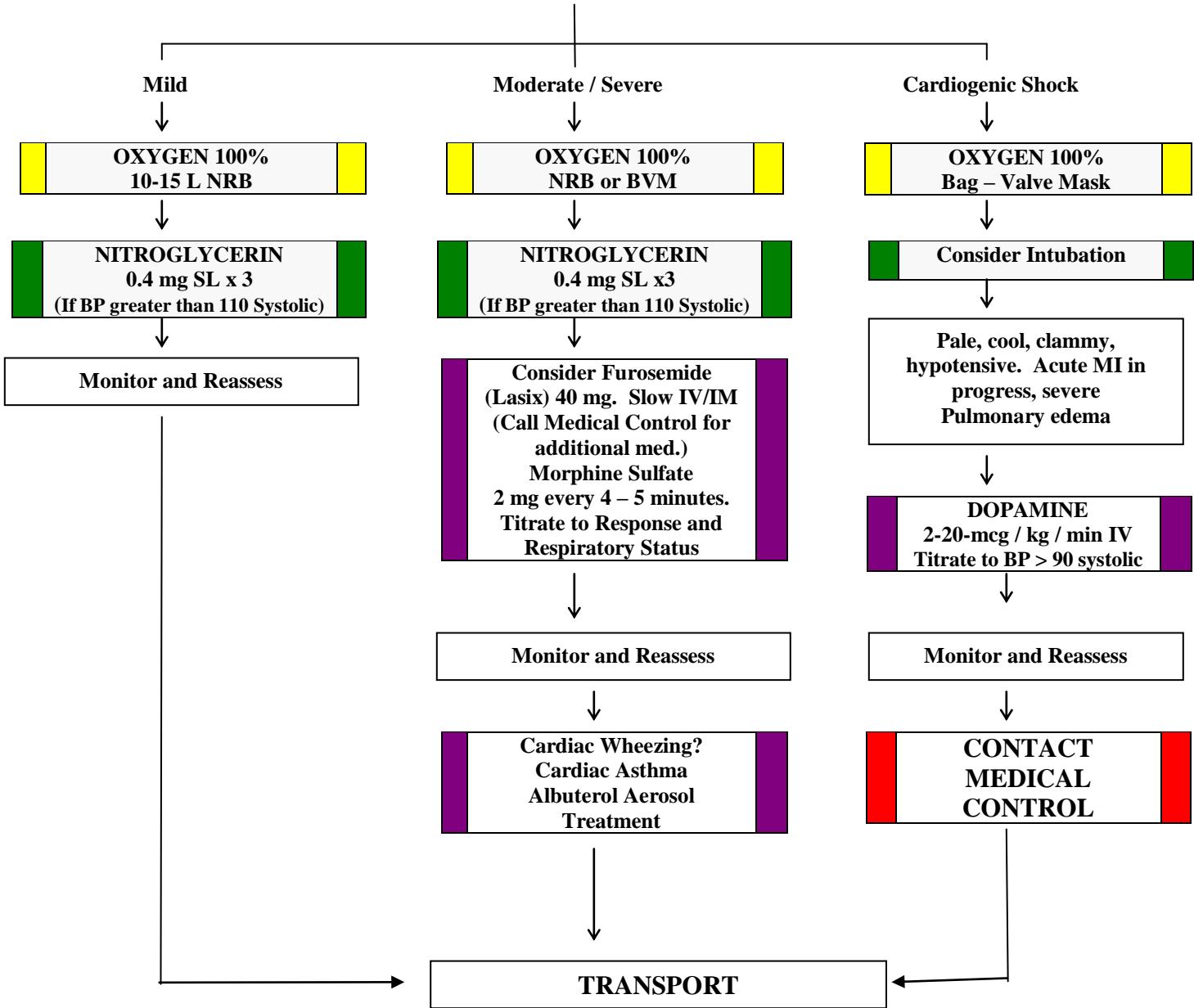
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**CONGESTIVE HEART FAILURE (CHF) / PULMONARY EDEMA**

UNIVERSAL PATIENT CARE PROTOCOL

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

IV PROTOCOL



**PULMONARY EDEMA / CONGESTIVE HEART FAILURE (CHF)**

History	Signs and Symptoms	Differential Diagnosis
<ul style="list-style-type: none"> <li>• Congestive heart failure</li> <li>• Past medical history</li> <li>• Medications (digoxin, lasix)</li> <li>• Viagra (erectile dysfunction medication use)</li> <li>• Cardiac history –past</li> <li>• myocardial infarction</li> </ul>	<ul style="list-style-type: none"> <li>• Respiratory distress, bilateral rales</li> <li>• Apprehension, orthopnea</li> <li>• Jugular vein distention</li> <li>• Pink, frothy sputum</li> <li>• Peripheral edema, diaphoresis</li> <li>• Hypotension, shock</li> <li>• Chest pain</li> <li>• Positive hepato-jugular reflex</li> </ul>	<ul style="list-style-type: none"> <li>• Myocardial infarction</li> <li>• Congestive heart failure</li> <li>• Asthma</li> <li>• Anaphylaxis</li> <li>• Aspiration</li> <li>• COPD</li> <li>• Pleural effusion</li> <li>• Pneumonia</li> <li>• Pulmonary embolus</li> <li>• Pericardial tamponade</li> </ul>
CONGESTIVE HEART FAILURE (CHF) / PULMONARY EDEMA		
I - Mild	II - Moderate	III - Severe
<p><b>Heart Rate:</b> Normal Range</p> <p><b>Blood Pressure:</b> Normal or slightly elevated</p> <p><b>Breath Sounds:</b> Bilateral Rales Rhonchi Wheezing possible Some difficulty breathing</p>	<p><b>Heart Rate:</b> Tachycardia</p> <p><b>Blood Pressure:</b> Elevated HIGH</p> <p><b>Breath Sounds:</b> Bilateral Diffuse Rales, Wheezing possible Diminished Working hard to breathe Frothy sputum</p>	<p><b>Heart Rate:</b> Tachycardia then drops to Bradycardia</p> <p><b>Blood Pressure:</b> Elevated HIGH then drops to Hypotension</p> <p><b>Breath Sounds:</b> May be ominously quiet, fatigue from work of breathing</p>

**GENERAL CONSIDERATIONS:**

- Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Obtain 12-lead EKG to evaluate for MI. Be suspicious of “Silent MI” in the elderly, diabetic and women.
- DO NOT administer Nitroglycerin to any patient who has used erectile dysfunction medications (Viagra, Cialis, Levitra, etc.) in the past 48 / 72 hours due to possible severe hypotension.
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- Nitroglycerin can be administered to a patient by EMS if the patient has already taken 3 of their own prior to your arrival.
- Document it if the patient had any changes in their symptoms or a headache after taking their own.
- Document the expiration date of the patients prescribed nitroglycerin.
- Monitor for hypotension after administration of Nitroglycerin and Morphine.
- Contraindications to Morphine include severe COPD and respiratory distress. Monitor the patient closely.
- Consider other causes of chest pain such as aortic aneurysms, pericarditis and pulmonary embolisms.
- Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Careful monitoring of LOC, BP, and respiratory status with above interventions is essential.
- Allow the patient to be in their position of comfort to maximize their breathing effort.
- Not all “wet” lung sounds are pulmonary edema. Other causes of rales and rhonchi include: pneumonia, emphysema and bronchitis.
- Acute pulmonary edema may be a sign of acute cardiac ischemia, which may give rise to cardiovascular collapse and hypotension as well as malignant atrial and ventricular arrhythmias.
- If the patient is already on Nitroglycerin, then the paramedic can administer Nitroglycerin without an IV.
- Be alert for respiratory depression in COPD patients on prolonged high flow oxygen administration. DO NOT withhold oxygen from hypoxic patients.
- The IV dose of Furosemide (Lasix) should be the same amount as their total daily dose, up to 80 mg. A patient taking a total dose of Furosemide of 40 mg PO daily, should receive a 40 mg IV dose. Call Medical Control for dose over 40 mg
- If CPAP is used for CHF/pulmonary edema, the minimum level is 5cm H<sub>2</sub>O and the maximum level is 10 cm H<sub>2</sub>O (see protocol)

<b>AIRWAY / BREATHING</b>
<b>TRAUMATIC BREATHING</b>

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

<b>B</b>	<b>EMT-B</b>	<b>B</b>
<b>I</b>	<b>EMT-I</b>	<b>I</b>
<b>P</b>	<b>EMT-P</b>	<b>P</b>
<b>M</b>	<b>MED CONTROL</b>	<b>M</b>

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Jaw Thrust Airway Maneuver / Give High Flow Oxygen

↓  
Suspect Sucking Chest Wound? Apply 3-sided occlusive dressing / valved chest seal

↓  
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

↓  
**CONTACT MEDICAL CONTROL**

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**TRANSPORT**

**General Considerations**

- 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, defibrillator pad or a valved chest seal. Tape only 3 sides down so that excess intrathoracic pressure can escape, preventing a tension pneumothorax. May help respirations to place patient on the injured side, allowing 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 about when making the cut. Place an occlusive and 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 pleural space must be decompressed with a needle to provide relief. Use the midclavicular (2<sup>nd</sup> or 3<sup>rd</sup> intercostal space), going in on the topside of the rib. Use the designated needle contained in the drug box. The ARS Needle Decompression System located in the drug box (10g 3 ¼ in) or 14g. 2 inch nonretractable angiocath for pediatrics or smaller statured patient. Once the catheter is placed, watch closely for reocclusion. Repeat if needed.