A. There are a number of different treatments for respiratory distress depending on the cause. Some of these interventions can be dangerous if given to the wrong person. It is therefore important to try to determine the cause as accurately as possible.

B. This protocol includes management of the following respiratory emergencies:
   1. Apneic patient
   2. Airway obstruction
   3. Wheezing (Asthma and COPD)
   4. Rales / pulmonary edema (CHF)

C. General assessment and management of all patients in respiratory distress should include:
   1. Assess and manage airway:
      a. Administer oxygen as needed to treat shock and/or respiratory distress
      b. Apply pulse oximeter and treat per pulse oximeter procedure
      c. Be prepared to assist ventilations
   2. Evaluate patient’s general appearance, relevant history of condition and determine OPQRSTI and SAMPLE. Especially ask about the severity of the patient’s underlying disease. When was the last time they seen by a doctor or hospitalized for this? Ever intubated? Ask about medication compliance.
   3. Has the patient had any recent illnesses/infections that might’ve exacerbated an underlying respiratory condition (e.g. a cold that triggered a COPD flare?)
   4. Don’t overlook other causes of dyspnea that aren’t caused by chronic pulmonary problems (e.g. Acute MI, shock, pneumothorax, fever) – keep your differential diagnosis broad!
   5. Try to obtain patient’s resuscitation status (i.e., DNR Comfort Care or DNR Comfort Care Arrest). Intubation is an aggressive treatment and may be against the patient’s wishes.
   6. Auscultate lung fields anteriorly, comparing side-to-side, and posteriorly when possible. (If patient is able to sit up)
   7. Allow patient to assume position of comfort
   8. Contact Medical Control, advise of patient condition and TRANSPORT immediately unless an ALS unit is en route with an ETA < 5 minutes.

**APNEIC PATIENT**

**Basic EMT**

A. Patient’s airway is open, breathing absent, pulse present: Provide positive-pressure ventilations with 100% oxygen. Each breath is delivered over one second with enough volume to cause chest rise
   1. Pediatric rate: one breath every 3-5 seconds
   2. Adult rate: one breath every 5-6 seconds

**Advanced EMT / Paramedic**

A. Secure airway. Refer to Advanced Airway Procedures.
B. Place patient on cardiac monitor
C. Obtain and transmit 12-lead EKG if situation permits
D. Start IV normal saline, TKO
E. Transport

**OBSTRUCTED AIRWAY**

**Basic & Advanced EMT**

A. Foreign body obstruction; patient able to speak / cough:
   1. Reassure patient
   2. Allow patient to attempt clearing airway by self

B. Foreign body obstruction; patient unable to cough / speak, airway obstructed:
   1. Adult / Child > 1 year old: Deliver abdomen / chest thrusts. Repeat until effective or patient becomes unresponsive
   2. Infant (< 1 year of age): Deliver series of five backblows and five chest thrusts. Repeat until effective or patient becomes unresponsive
   3. If patient becomes unresponsive, begin CPR per current AHA guidelines. CCR does not apply to respiratory arrests like these. Look in mouth when opening airway during CPR. Use finger sweeps ONLY to remove visible foreign body.
   4. If airway cannot be cleared in 60 seconds, transport immediately to nearest appropriate hospital

C. Airway obstruction due to medical cause (epiglottitis, croup, anaphylaxis) treat underlying cause
   1. Croup (barking cough, stridor, retractions, typically between 6 months and 4 years old, more prevalent in fall and winter): Keep patient upright, administer humidified oxygen if available
   2. Epiglottitis (sudden onset, drooling, sore throat, muffled voice, stridor): Transport upright immediately. Do NOT agitate the child. Do NOT examine throat.
   3. Anaphylaxis (massive facial, tongue and lip swelling, stridor): Transport upright immediately. If patient has an epinephrine pen, help them administer it IM in the lateral thigh.

**Advanced EMT**

A. Foreign body airway obstruction not relieved by manual maneuvers - try to visualize obstruction with laryngoscope and remove foreign body with Magill forceps if possible

B. Suspected croup: consider epinephrine 1:1000 0.5 mg/kg (max 5mg or 5ml) administered by nebulizer / aerosol.
A. If airway cannot be cleared – perform a cricothyroidotomy (must contact Medical Control for pediatric patients)

B. Anaphylaxis: Administer 125 mg IV Methylprednisolone (2mg/kg IV, max 125 mg in Peds), 0.3 mg IM 1:1000 Epinephrine in the lateral thigh (0.01 mg/kg 1:1000 IM lateral thigh, max 0.3 mg in Peds), Benadryl 25-50 mg IV (1-2 mg/kg IV, max 50 mg, in Peds), Duoneb nebulizer treatments as needed

Basic EMT

A. If suspected allergic reaction / anaphylaxis, See Allergic Reaction / Anaphylactic Shock Protocol

B. Apply supplemental oxygen. In asthmatics, use high-flow O2. In COPD patients, dial back the oxygen to maintain SaO2 of 92-99% as they have a hypoxic drive to breathe.

C. Consider CPAP for adult patients. See CPAP Procedure

D. May assist with prescribed metered-dose inhaler (MDI)
   1. Assure that medication is prescribed for patient
   2. Check medication – dose, expiration date
   3. Administer MDI by having patient exhale, then activate device during inhalation and have patient hold breath so that medication can be absorbed. Consider using a spacer device with younger patients.

Advanced EMT

A. Suspected asthma or COPD administer:
   1. Duoneb (ipratropium bromide 0.5 mg and albuterol sulfate 3 mg in 3 ml) aerosol:
      a. Adolescent and Adult Dose: 3ml by nebulizer / aerosol
      b. Child Dose: 1.5 ml by nebulizer / aerosol
   2. If additional treatments are required, optimal care is to administer a new Duoneb treatment every 5 minutes for a max of 3 Duoneb treatments. If you only have one Duoneb available, give that first, then follow it with Albuterol nebulizer instead.

C. Suspected bronchiolitis (typically child < 2 years, history of RSV, nasal secretions, low-grade temperature, frequently occurs in winter months) – consider epinephrine 1:1000 0.5 mg/kg (max 5mg or 5ml) administered by nebulizer / aerosol.

Paramedic

A. For asthma and COPD, administer methylprednisolone (Solu-Medrol), the earlier the better:
1. **Adult Dose:** 125 mg Slow IVP  
2. **Pediatric Dose:** 2 mg/kg Slow IVP, max 125 mg

B. In addition to the Duoneb treatments, consider CPAP. Early use of CPAP can improve work of breathing and prevent the need for intubation. Employ this early if the patient does not look like they are improving with initial therapies.

C. **Magnesium sulfate** can act as an adjunct bronchodilator, but is not the first treatment option. Administer 2g IV magnesium sulfate over 10 minutes in adults, 25-50 mg/kg IV (max 2g) over 10 mins in Peds.

D. If patient condition continues to deteriorate, consider epinephrine, 1:1000 IM in lateral thigh  
   1. **Adult Dose:** 0.3 mg IM  
   2. **Pediatric Dose:** 0.01 mg/kg IM, max 0.3 mg

   Do not administer if patient is pregnant or has history of heart disease.

E. Intubate as indicated. Consider administering midazolam (Versed) prior to intubation. See Procedural Sedation Protocol

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**PULMONARY EDEMA (CHF)**

Pulmonary edema is most commonly associated with flare-ups of congestive heart failure and may be the result of an old (or new!) myocardial infarction, but it can also result from pulmonary infections, sepsis, inhaled toxins, narcotic overdose, too much naloxone, pulmonary embolism, and decreased atmospheric pressure. Acute pulmonary edema can develop rapidly in the elderly. Remember to ask about recent high salt intake or missing/changes in medications.

Pulmonary edema causes severe dyspnea associated with congestion. Other signs and symptoms include:  
- Rapid, labored breathing  
- Cough with blood-stained sputum or pink, frothy sputum  
- Cyanosis  
- Moist crackles on auscultation of lung fields; severe cases may have rhonchi or wheezing – unless they have COPD as well, do NOT give them nebulizers as this will make things worse  
- Dyspnea when supine - orthopnea  
- Accessory muscle use

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**Basic EMT**

A. Sit patient upright  
B. Administer high-flow O2  
C. Obtain and transmit a 12-lead EKG  
D. Consider CPAP for adult patients. See CPAP Procedure.
Advanced EMT

A. Obtain IV access – Normal Saline, TKO only; fluid boluses are counterproductive

B. Place on cardiac monitor, obtain and transmit a 12-lead EKG

C. Administer Nitroglycerin 0.4-0.8 mg SL, every 5 minutes as needed. **HOLD** if SPB < 100 mmHg

Paramedic

A. Sit upright, O2, EKG, Nitroglycerin and CPAP as above. There is no role for pre-hospital Lasix or Morphine in CHF patients.

B. Intubate as indicated. Consider administering midazolam (Versed) prior to intubation. See Procedural Sedation Protocol.
RESPIRATORY EMERGENCIES
APNEIC PATIENTS

- ASSESS AIRWAY
- IF AIRWAY IS OPEN, BREATHING IS ABSENT AND A PULSE IS PRESENT: PROVIDE POSITIVE-PRESSURE VENTILATIONS WITH OXYGEN. DELIVER EACH BREATH OVER ONE SECOND WITH ENOUGH VOLUME TO CAUSE CHEST RISE
  - PEDIATRIC RATE: ONE BREATH EVERY 3-5 SECONDS
  - ADULT RATE: ONE BREATH EVERY 5-6 SECONDS
- MAINTAIN O2 SATS >95%
- EVALUATE PATIENT CONDITION
- OBTAIN MEDICAL HISTORY
  - SEVERITY OF UNDERLYING DISEASE?
  - EVER SEEN PHYSICIAN OR HOSPITALIZED FOR THIS?
  - HAS THE PATIENT EVER BEEN INTUBATED?
  - MEDICATION COMPLIANCE?
  - DNR STATUS?
- MONITOR VITAL SIGNS
- REASSURE PATIENT
- TRANSPORT

- SECURE AIRWAY. REFER TO ADVANCED AIRWAY PROCEDURES.
- IV NS (BOLUS AS NEEDED TO MAINTAIN PERFUSION)
- ACQUIRE 12 LEAD ECG AND TRANSMIT IF SITUATION PERMITS
- MONITOR ECG
ASSESS AIRWAY
- IF AIRWAY IS OPEN, BREATHING IS ABSENT AND A PULSE IS PRESENT: PROVIDE POSITIVE-PRESSURE VENTILATIONS WITH OXYGEN. DELIVER EACH BREATH OVER ONE SECOND WITH ENOUGH VOLUME TO CAUSE CHEST RISE
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  - DNR STATUS?
- MONITOR VITAL SIGNS
- REASSURE PATIENT
- TRANSPORT

SECURE AIRWAY. REFER TO ADVANCED AIRWAY PROCEDURES.
- IV NS (BOLUS AS NEEDED TO MAINTAIN PERFUSION)
- MONITOR ECG
RESPIRATORY EMERGENCIES
OBSTRUCTED AIRWAY

- ASSESS AIRWAY
- FOREIGN BODY OBSTRUCTION:
  o IF *PATIENT ABLE TO SPEAK / COUGH* – ALLOW PATIENT TO ATTEMPT CLEARING AIRWAY BY SELF
  o IF *PATIENT UNABLE TO SPEAK / COUGH* –
    ▪ ADULT – DELIVER ABDOMINAL THRUSTS. REPEAT UNTILL EFFECTIVE OR PATIENT IS UNRESPONSIVE
  o IF *PATIENT UNRESPONSIVE* BEGIN CPR. FINGER SWEEP ONLY TO REMOVE VISIBLE FOREIGN BODY.

- TRANSPORT TO NEAREST APPROPRIATE HOSPITAL IF UNABLE TO CLEAR AIRWAY IN 60 SECONDS

- ATTEMPT TO VISUALIZE OBSTRUCTION WITH LARYNGOSCOPE AND REMOVE WITH MAGILL FORCEPS.

- IF AIRWAY CAN NOT BE CLEARED PERFORM CRICOTHYROTOMY

KEY

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IF ALLERGIC REACTION / ANAPHYLAXIS SUSPECTED – SEE ALLERGIC REACTION / ANAPHYLAXIS PROTOCOL
### Respiratory Emergencies

**Obstructed Airway**

- Assess Airway

- **Foreign Body Obstruction:**
  - If **Patient Unable to Speak / Cough** — Deliver Abdominal Thrusts. Repeat until effective or patient is unresponsive.
  - If **Patient Unable to Speak / Cough** —
    - Child > 1 year old — Deliver Abdominal Thrusts. Repeat until effective or patient is unresponsive.
    - Infant < 1 year old — Deliver series of five backblows and five chest thrusts. Repeat until effective or patient is unresponsive.
  - If **Patient Unresponsive** begin CPR. Finger sweep only to remove visible foreign body.

- If airway obstruction due to medical cause — treat underlying cause:
  - Croup — keep patient upright, administer humidified oxygen if available.
  - Epiglottitis — transport upright immediately. Do not agitate the child. Do not exam the throat.

- Transport to nearest appropriate hospital if unable to clear airway in 60 seconds.

- Administer **Epinephrine 1:1000 0.5 mg/kg** (max 5 mg or 5 ml) in nebulizer / aerosol for croup patient.

- Attempt to visualize obstruction with laryngoscope and remove with Magill forceps.

- If pediatric airway cannot be cleared perform cricothyroidotomy.
RESPIRATORY EMERGENCIES
WHEEZING

- Assess and manage airway
- Maintain O2 SATS >95%
- Evaluate patient condition
- Obtain medical history
  - Severity of underlying disease?
  - Ever seen physician or hospitalized for this?
  - Has the patient ever been intubated?
  - Medication compliance?
  - DNR status?
- Monitor vital signs
- Reassure patient
- If lung sounds reveal wheezes:
  - Consider CPAP for adult patients
  - Assist patient with prescribed metered-dose-inhaler if available
  - If allergic reaction / anaphylaxis suspected – see allergic reaction / anaphylaxis protocol
- Consider CPAP
- Transport

- For suspected asthma / bronchitis:
  - Administer Duoneb - Ipatropium Bromide (Atrovent) 0.5 mg and Albuterol Sulfate (Proventil) 3 mg in 3 ml. Can repeat every 5 minutes to a max of 3 doses.

- Administer Methylprednisolone (Solu-Medrol)
  - Adult dose: 125 mg IV push
- Consider Magnesium Sulfate – 2g IV over 10 minutes
- If patient condition continues to deteriorate: Administer Epinephrine 1:1000 0.3 mg IM
- Intubate as indicated – see procedural sedation protocol.

KEY
- Basic EMT
- Advanced EMT
- Paramedic
- Med Control
**RESPIRATORY EMERGENCIES**

**WHEEZING**

- ASSESS AND MANAGE AIRWAY
- MAINTAIN O2 SATS >95%
- EVALUATE PATIENT CONDITION
- OBTAIN MEDICAL HISTORY
  - SEVERITY OF UNDERLYING DISEASE?
  - EVER SEEN PHYSICIAN OR HOSPITALIZED FOR THIS?
  - HAS THE PATIENT EVER BEEN INTUBATED?
  - MEDICATION COMPLIANCE?
  - DNR STATUS?
- MONITOR VITAL SIGNS
- REASSURE PATIENT
- IF LUNG SOUNDS REVEAL WHEEZES:
  - ASSIST PATIENT WITH PRESCRIBED METERED-DOSE-INHALER IF AVAILABLE
  - IF ALLERGIC REACTION / ANAPHYLAXIS SUSPECTED – SEE ALLERGIC REACTION / ANAPHYLAXIS PROTOCOL
- TRANSPORT

**FOR SUSPECTED ASTHMA / BRONCHITIS:**
- ADMINISTER DUONEB - IPATROPIUM BROMIDE (ATROVENT) ALBUTEROL SULFATE (PROVENTIL) . – 1.5 ML IN NEBULIZER CAN REPEAT X2
- FOR SUSPECTED BRONCHIOLITIS (CHILDREN < 2 YEARS OLD) ADMINISTER EPINEPHRINE 1:1000 0.5 MG/KG (MAX 5MG OR 5 ML) IN NEBULIZER / AEROSAL.

**CONSIDER METHYLprednisolone (Solu-Medrol)**
- PEDIATRIC DOSE: 2 MG/KG IV PUSH (MAX 125 MG)
- CONSIDER MAGNESIUM SULFATE – 25 -50 MG/KG (2 G MAX) IV OVER 10 MINUTES
- IF PATIENT CONDITION CONTINUES TO DETERIORATE: ADMINISTER EPINEPHRINE 1:1000 0.01 MG/KG (MAX 0.3 MG) IM
- INTUBATE AS INDICATED – SEE PROCEDURAL SEDATION PROTOCOL.
ASSESS AND MANAGE AIRWAY
MAINTAIN O2 SATS >95%
EVALUATE PATIENT CONDITION
OBTAIN MEDICAL HISTORY
  o SEVERITY OF UNDERLYING DISEASE?
  o EVER SEEN PHYSICIAN OR HOSPITALIZED FOR THIS?
  o HAS THE PATIENT EVER BEEN INTUBATED?
  o MEDICATION COMPLIANCE?
  o DNR STATUS?
MONITOR VITAL SIGNS
REASSURE PATIENT
CONSIDER CPAP FOR ADULT PATIENTS
TRANSPORT

IV NS (RUN TO MAINTAIN PERFUSION)
OBTAIN AND TRANSMIT 12 LEAD ECG
MONITOR ECG
ADMINISTER NITROGLYCERIN SL– 0.4 – 0.8 MG IF BP ABOVE 100 MMHG. MAY REPEAT TWICE IF BP REMAINS GREATER THAN 100 MMHG

INTUBATE AS INDICATED – SEE PROCEDURAL SEDATION PROTOCOL.