TREATMENT:

A. Treat per Universal Patient Care protocol.
B. Treat patient's clinical impression as follows:

Upper Airway

1. *Croup & Epiglottitis* –
   (A) Transport in position of comfort, Airway Management protocol as needed.
   (B) If stridor persists at rest, consider **Epinephrine 1:1,000 3 ml via Nebulizer.**
2. *Anaphylaxis* – Treat per Anaphylaxis and Allergic Reaction protocol.
3. *Foreign Body* – Obstructed airway procedures.
   a. BLS airway clearing: Heimlick for conscious, move to CPR for unconscious.
   b. Remove object using direct laryngoscopy if complete obstruction ALS only.
4. *Complete Obstruction* – If you cannot effectively BVM ventilate the patient and the patient is deteriorating, consider Cricothyrotomy.

Pulmonary Edema/ CHF

1. Sit patient upright.
2. *Consider CPAP* (e.g. unable to speak more than 1 - 2 words, low O2 saturation (< 90%), respiratory rate > 40)
3. If BP > 90 mmHg systolic:
   (A) **Nitroglycerine 0.4 mg SL**, may repeat x 3 q 3 - 5 min.
4. If BP < 90 mmHg systolic, treat possible cardiogenic shock drip per Shock protocol. **Norepinephrine 4-16 mcg/min IV/IO**

COPD

1. **DuoNeb® via Nebulizer.**
2. Repeat with **DuoNeb®** x 2 or **Albuterol 2.5 mg via Nebulizer** q 10 min. Discontinue if Pt develops chest pain or increased tachycardia.
3. *Consider CPAP* with ongoing nebulization.
4. If Pt deteriorates or continuous nebulizer treatment is needed *contact OLMC for advice.*

Asthma

1. **DuoNeb® via Nebulizer** max of 3 doses in a hour.
2. Repeat with **DuoNeb®** x 2 or **Albuterol 2.5 mg via Nebulizer**.
3. Consider continuous **Albuterol 2.5 mg** for worsening symptoms to max of 10 mg.
4. If patient is deteriorating, consider **Epinephrine 1:1,000 0.5 mg IM**; may repeat q 5 - 10 min up to 3 doses.

   Following at least 1 dose of 1:1000 IM Epinephrine, if signs of diminished perfusion or shock symptoms persist, consider:
   1:100,000 (0.1 mg in 10 ml) Epinephrine 1 ml IV/IO *over 1 min* and reassess blood pressure until ≥90 systolic. Repeat prn q 1 min.

5. Consider **Magnesium Sulfate 1 - 2 grams slow IV** *in 10 ml Normal Saline*. (*Caution in the hypotensive patient*)
6. If continuous nebulizer treatment is needed during transport (which may be necessary in some pediatric patients) consider OLMC for advice.
7. For patients less than 70 kg consider starting IM doses of Epinephrine at 0.3 mg.
8. The most ideal injection site for IM epinephrine is the lateral thigh.

PEDIATRIC PATIENTS:

Upper Airway

1. *In patients 6 months to 6 years of age* with audible stridor at rest, give **3 ml Epinephrine 1:1,000 via Nebulizer**. *Contact OLMC for additional dosing.*
2. Treat anaphylaxis and foreign body obstruction per adult guidelines.
3. The usual cause of respiratory arrest in children with croup, epiglottitis or laryngeal edema is exhaustion, not complete obstruction. If the child with suspected upper airway compromise deteriorates, you may still be able to ventilate with a BVM. Only attempt intubation if you cannot effectively ventilate with BVM.
4. If complete obstruction is present and you cannot effectively BVM ventilate the patient and the patient is deteriorating, consider needle Cricothyrotomy.

Respiratory Distress

1. **Duoneb** ≤ 1 year of age: Nebulized dosage of 0.03 ml/kg to a max dose of 1 ml

Asthma

1. Give **DuoNeb** and **Albuterol** per adult guidelines.
2. **Duoneb** ≤ 1 year of age: Nebulized dosage of 0.03 ml/kg to a max dose of 1 ml.
3. If patient is deteriorating give **1:1,000 Epinephrine 0.01 mg/kg IM** q 15 min (max single dose 0.3 mg) up to 3 doses.
    (A) Following at least one dose of 1:1,000 Epinephrine, if signs of diminished perfusion or shock symptoms persist, consider:
        1. **1:100,000 (0.1 mg in 10 ml) Epinephrine 1 ml IV/IO** *over 1 min* and reassess age appropriate Bp (see Handtevy). Repeat prn q 1 min.
4. Consider **Mag Sulfate 50 mg/kg IV/IO in 100cc over 10 min**. (contra indicated for hypotensive)
5. Consider intubation after other treatments have been unsuccessful.
6. If patient has Moderate to Severe asthma based on Severity Assessment Guide and is not improving with treatment *contact OLMC*.

Respiratory Distress – 10.160

NOTES & PRECAUTIONS:

A. In addition to specific interventions for respiratory distress, aggressive airway management, including early intubation, is appropriate for the patient who does not respond to treatment or is rapidly deteriorating.
B. The best indicator for the cause of respiratory distress is past history. If a person has had COPD or CHF in the past, it is likely the person has the same condition again.
C. In cases of tachypnea it is essential to consider all causes such as pulmonary embolus, hypoxia, cardiac causes, infection and trauma. Hyperventilation may be a response to an underlying medical problem and should only be considered after these other causes have been excluded. Do not treat hyperventilation by rebreathing CO2. Reassurance and oxygen via mask are appropriate.
D. To make 1:100,000 Epinephrine for IV/IO- remove 9 ml of Epinephrine 1:10,000 and refill Epinephrine syringe with 9 ml of normal saline to make 1:100,000 (0.1 mg in 10 ml).

KEY CONSIDERATIONS:

Speed of onset, recent illness/infection, fever, chills or productive cough, medications and allergies, distended neck veins, peripheral edema, lung sounds, medical history.

ASTHMA SEVERITY ASSESSMENT GUIDE			
	MILD	**MODERATE**	**SEVERE**
Short of breath	Walking	Talking	At rest
Able to speak	In sentences	In phrases	In words
Heart rate	< 100	100 - 120	> 120
Respiratory rate	Elevated	Elevated	> 30
Lung sounds	End expiratory wheezes	Full expiratory wheezes	Wheezes both phases or absent
Accessory muscle use	Not usually	Common	Usually
Alertness	Possibly agitated	Usually agitated	Usually agitated
ETCO2	20 - 30	30 - 40	>50