Respiratory Distress: Summary

- Characterized by signs of increased work of breathing such as stridor, wheeze, tachypnea and retractions or an abnormal pattern of respirations
    - -Attempt to improve minute ventilation in response to hypoxemia or hypercarbia
    - -Disordered control of ventilation
        - -Opioid overdose or head injury => respiratory depression
        - -Metabolic acidosis, salicylate overdose, hyperammonemia => respiratory stimulation
- -Initial assessment is rapid: quickly determine if patient needs emergent interventions
    - -Rule out life-threatening conditions
    - -Collect brief history initially and more detailed history once child is stabilized
        - -Trauma
        - -Change in voice
        - -Onset and duration of symptoms
        - -Associated symptoms
        - -Exposures
        - -Previous episodes of respiratory distress
        - -Underlying medical conditions
    - -Physical exam
        - -General observation
            - -Mental status, position of comfort, nasal flaring, chest wall movement, abnormal sounds appreciated without auscultation, cyanosis, respiratory rate and pattern
        - -Auscultation
            - -Wheezes, crackles, pleural rub, prolonged expiration, decreased breath sounds, transmitted upper airway sounds

<u>Life Threatening Conditions</u>

- -Complete or severe upper airway obstruction
- -Respiratory failure
- -Tension pneumothorax
- -Pulmonary embolism
- -Cardiac tamponade

Upper Airway Obstruction:

-Croup

-Symptoms: barking cough, stridor and retractions

-Treatment:

-Oxygen

-NPO

-Oral dexamethasone (if mild symtpoms)

-IM/IV dexamethasone (if moderate to severe symptoms)

-Nebulized racemic epinephrine with observation for at least 2 hours after treatment

-Anaphylaxis

-Symptoms: stridor or wheezing, hives or facial swelling, dizziness, vomiting or diarrhea

-Treatment:

-IM/IV epinephrine

-Albuterol (if bronchospasm is present)

- Treat hypotension

-Diphenhydramine and H_2 blocker

-Give methylprednisolone

-Retrophyaryngeal abscess

-Local pain, sore throat, difficulty swallowing

-Stridor and respiratory distress

-More common in infants and toddlers

-Peritonsillar abscess

-Local pain, difficulty swallowing and hoarse voice

-More common in older children and adolescents

Lower Airway Obstruction

- Assisted ventilation should be at a slow rate with adequate expiratory time

-Decreases risk of air trapping and complications with high airway pressure:

-Pneumothorax

-Gastric distension, regurgitation and aspiration

Non-cardiogenic Pulmonary Edema: Acute Respiratory Distress Syndrome

- ARDS Definition

-Acute onset

-PaO_2/FiO_2 <300 (regardless of PEEP)

-Bilateral infiltrates on CXR

-No evidence for a cardiogenic cause of pulmonary edema

-Correction of hypoxemia is the most important respiratory parameter to be addressed

Cardiogenic Pulmonary Edema

-Causes include congestive heart failure, acute myocardial dysfunction, cardiac depressant drugs (tricyclic anti-depressants, verapamil)

-Consider expert consultation

-Diuretics may be helpful to reduce pre-load

Disordered Control of Breathing

-May be related to elevation of intracranial pressure or depressed level of consciousness due to CNS infection, seizures, metabolic disorders, poisoning or drug overdose

Respiratory Distress Key References

Ralston, M.et. al. *Pediatric Advanced Life Support Provider Manual.* 2006. American Heart Association.

Weiner, D. Emergent evaluation of acute respiratory distress in children. May 2010. *UpToDate.*