

Respiratory failure in children

- **Why are they susceptible?**
 - **Haven't yet acquired immunity** to the infections adults are immune to
 - **Upper and lower airways are more narrow** and thus more easily obstructed by swelling or secretions
 - **Chest wall is more compliant** and this reduces the efficiency of breathing if there is increased effort
 - **In infants, end-expiratory volume is similar to closing volume** and so they have small airway closure
 - **There are fewer alveoli**
 - **The respiratory muscles are inefficient:** fatigued rapidly
 - **Pulmonary vasculature is muscular:** pulmonary hypoxic vasoconstriction occurs more readily. This can lead to duct reopening and R→L shunting
 - **Foetal hemoglobin is present up to 4th-6th month of life;** dissociation curve shifted to the left: less oxygen is delivered to the tissues because of fHb's higher affinity for oxygen

Presentation

- **Frequently, the only sign in infants is decreased feeding**
- **Stridor = upper airway obstruction**
- **Wheeze = lower airway obstruction**
- **Grunt = pneumonia**

The child with stridor

- **Most common causes:**
 - **Croup: viral laryngotracheitis;** barking cough, coryza, fever, hoarseness.
 - **Croup: spasmodic;** sudden onset, recurrent, with a history of atopy
- **Less common causes:**
 - **Laryngeal foreign body;** suddenness of onset
 - **Epiglottitis;** drooling, with muffled voice
 - **Trauma:** neck swelling, bruising
 - **Retropharyngeal abscess:** drooling, septic appearance
 - **Airway burns:** soot in the mouth
 - **Diphtheria:** travel to endemic area while unimmunized
- **Gurgling is a bad sign. The child is either too drowsy or too tired to clear the secretions with cough.**

Loud harsh stridor is usually croup.
Quiet stridor is usually epiglottitis.