### UPPER AIRWAY DISEASES

<table>
<thead>
<tr>
<th>Group</th>
<th>Acute bacterial infection</th>
<th>Foreign body aspiration</th>
<th>Asthma</th>
<th>Bronchiolitis</th>
<th>Pneumonia</th>
<th>Foreign body obstruction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-&gt; swelling of the Epiglottis</td>
<td>Partial or complete blockage</td>
<td>Acute bronchospasm, excessive mucus production + inflammation of the bronchioles</td>
<td>Viral infection that results in inflammation + constriction of the bronchioles</td>
<td>Common disease caused by virus or bacteria that infects the lower airway + the lungs.</td>
<td>It may partially or completely obstruct airflow into affected lung.</td>
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<td>Most common in children 3-7 years</td>
<td>Most common in children 1-4 years</td>
<td>s/s: - of resp. distress or failure depending on severity: - appears anxious - wheezing w/ prolonged expiration phase</td>
<td>s/s: - of resp. distress or failure depending on severity: - appears anxious - unilateral diminished breath sounds</td>
<td>Usually during winter months in children &lt; 2 years</td>
<td>Occasionally a child will aspirate a small object into the lower airway.</td>
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<td>s/s: - of resp. distress or failure depending on severity: - appears agitated, sick - stridor</td>
<td>Objects are usually: - food (candy, nuts, ...) - small objects (coins,...)</td>
<td>- inspiratory stridor - muffled or hoarse voice - drooling - pain in throat - interventions other than O2 + transport may precipitate COMPLETE obstruction</td>
<td>- tachycardia - tachypnea - agitation - a silent chest means danger</td>
<td>Is difficult to distinguish from asthma, however Albuterol will NOT improve bronchiolitis but it will also NOT harm the pt.</td>
<td>Objects are usually: - food (candy, nuts, ...) - small objects</td>
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<td>s/s:</td>
<td>- muffled voice - drooling - difficulty + pain swallowing - sore throat - sitting fully upright - high fever</td>
<td>If no interventions: - signs of mild resp. distress or failure depending severity: - appears anxious, but not toxic</td>
<td>Usually hx of choking.</td>
<td>Typically in children with hx of asthma. Find out if child has: - prescribed a MDI - and if so, has he taken any puffs?</td>
<td>Usually a Hx of lower resp. infectious symptoms.</td>
<td>s/s: - of resp. distress or failure depending on severity: - appears anxious - unilateral diminished breath sounds</td>
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<td>Usually no previous Hx, but a rapid onset of symptoms (6-8 hours).</td>
<td>Partial: - signs of severe respiratory failure or arrest: - appears: - anxious, but not toxic - agitated or lethargic - no or minimal movement - if NO interventions, respiratory arrest ensures, followed by cardiopulmonary arrest.</td>
<td>Complete: - sings of severe respiratory failure or arrest: - appears: - anxious, but not toxic - agitated or lethargic - no or minimal movement - if NO interventions, respiratory arrest ensures, followed by cardiopulmonary arrest.</td>
<td>Complete: - severe + prolonged asthma attack Characterized by a ‘quiet chest’, indicating profound bronchospasm + minimal air movement. Usually unresponsive to conventional asthma treatment</td>
<td>Many children will experience respiratory failure secondary to: - severe hypoxia - acidosis - physical exhaustion</td>
<td>Complete: - appearance of severe respiratory failure or arrest: - appears: - anxious, but not toxic - agitated or lethargic - no or minimal movement - if NO interventions, respiratory arrest ensures, followed by cardiopulmonary arrest.</td>
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<td>Can quickly progress to respiratory arrest.</td>
<td>- chest pain - of resp. distress or failure depending severity: - appears anxious, but not toxic</td>
<td>- chest pain</td>
<td>- chest pain - fever</td>
<td>Usually no previous Hx, but a rapid onset of symptoms (6-8 hours).</td>
<td>Complete: - appearance of severe respiratory failure or arrest: - appears: - anxious, but not toxic - agitated or lethargic - no or minimal movement - if NO interventions, respiratory arrest ensures, followed by cardiopulmonary arrest.</td>
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<td>Can cause a life-threatening upper airway obstruction!!!</td>
<td>Acute bronchospasm, excessive mucus production + inflammation of the bronchioles</td>
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<td>Complete: - appearance of severe respiratory failure or arrest: - appears: - anxious, but not toxic - agitated or lethargic - no or minimal movement - if NO interventions, respiratory arrest ensures, followed by cardiopulmonary arrest.</td>
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### LOWER AIRWAY DISEASES

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<th>Group</th>
<th>Treatment:</th>
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<tbody>
<tr>
<td>Viral infection</td>
<td>- ABCs - O2 / NRB or blow-by - ECG</td>
<td>- ABCs - O2 / NRB or blow-by - BVM ventilations</td>
<td>- ABCs - O2 / NRB or blow-by - BVM ventilations for resp. failure/arrest</td>
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</tr>
<tr>
<td>Most common in children 6 months-4 years</td>
<td>- Position of comfort - Pharmacological interventions</td>
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<td>- Consider IV or IO - ECG</td>
</tr>
<tr>
<td>s/s: - of resp. distress or failure depending on severity: - appears sick - stridor - barking (seal or dog like) or brassy cough - hoarseness - fever (W-)</td>
<td>- Defer IV unless transport time is prolonged - ECG</td>
<td>- DO NOT AGITATE the infant/child (no IVs, BP,...)</td>
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<td>- Defer IV unless transport time is prolonged - ECG</td>
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<td>Rarely progress to respiratory failure.</td>
<td>- Do NOT AGITATE the infant/child (no IVs, BP,...)</td>
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<td>Usually appear following a recent cold or other upper respiratory infection.</td>
<td>- Position of comfort - Pharmacological interventions</td>
<td>- DO NOT AGITATE the infant/child (no IVs, BP,...)</td>
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<td>- Defer IV unless transport time is prolonged - ECG</td>
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<td>Another form is spasmodic group: - occurs mostly at night - usually without prior upper respiratory infection.</td>
<td>- Position of comfort - Pharmacological interventions</td>
<td>- DO NOT AGITATE the infant/child (no IVs, BP,...)</td>
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<td>- Defer IV unless transport time is prolonged - ECG</td>
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**Note:**
- **ABCs** refer to Airway, Breathing, Circulation.
- **O2** refers to Oxygen.
- **NRB** refers to Non-rebreather.
- **BVM** refers to Bag Valve Mask.
- **ECG** refers to Electrocardiogram.
- **IV** refers to Intravenous.
- **BP** refers to Blood Pressure.
## PEDIATRIC ASSESSMENT TRIANGLES

### Causes of Respiratory Crisis:
- asthma
- bronchiolitis
- croup
- epiglottitis
- foreign body aspiration
- laryngeal edema as part of anaphylaxis
- smoke inhalation
- fractured larynx due to trauma
- birth defects
- SIDS

### Conscious child:
- observe as much as possible without touching
- minimize handling the child
- keep close to parent in position of comfort
- O₂
- DO NOT attempt IV
- obtain history
- perform limited physical exam- as tolerated
- do NOT examine or instrument the oral cavity
- admin drugs following protocols

### Unconscious child:
- open airway
- suction
- ventilate with O₂ immediately
- watch for chest movement w/bagging

### Neurological Crisis:
- Seizures – causes:
  - febrile convulsions
  - CNS infections:
    - Meningitis (stiff neck, fever,…)
    - Encephalitis
    - Brain abscess
  - Toxic ingestion
  - Withdrawal from:
    - narcotics, cocaine,…
    - metabolic
    - trauma (fall, burns, near-drowning, abuse,…)   
- epilepsy
- brain tumor
- stroke
- Coma
- Reye Syndrome

### Metabolic Crisis:
- Dehydration
- Hypoglycemia
- Hyperglycemia

### Signs of shock:
- Tachycardia
- Poor CRT
- Mental Status changes

### Signs of shock:
- Tachycardia
- Hypotension
- Mental Status changes

### Treatment of Respiratory Crisis:
- Ensure airway is open
- Asses breathing adequacy
- Control bleeding if present
- Admin 100% O₂
- Position by elevating legs
- Keep pt warm
- Provide immediate transport
- Give IV – NS: 20 mL/kg bolus to maintain radial (or brachial in infant) pulses
- Monitor vital signs
- ECG
- If unresponsive, perform intubation

### Treatment of Neurological Crisis:
- Treat the patient’s condition.

### Treatment of Metabolic Crisis:
- Treat the patient’s condition.

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- Normal LOCl, progressing to anxiety
- Tachycardia
- Tachypnea
- Dysspnea:
  - retractions
  - accessory muscle
  - nasal Flaring
  - expiratory grunting
  - head bobbing
- Abnormal sounds:
  - stridor
  - wheezing
  - cough
  - rales, rhonchi, crackles
  - absent breath sounds (silent chest is an ominous sign)
- Preferred position. Upright (tripod) except in:
  - infants
  - unconscious child

It treatment is delayed, most children will quickly deteriorate to respiratory failure!!!!

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<th>Indicators</th>
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<td>- LOC</td>
<td>Normal LOCl, progressing to anxiety</td>
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  - retractions
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  - nasal Flaring
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  - head bobbing |
| - Abnormal sounds: | Abnormal sounds:
  - stridor
  - wheezing
  - cough
  - rales, rhonchi, crackles
  - absent breath sounds (silent chest is an ominous sign) |

| End state of any of the causes of respiratory distress: | - LOC followed by Bradypnea |
| - Tachypnea followed by Bradypnea | |
| - Marked retractions | |
| - Poor muscle tone | |
| - Marked Tachycardia followed by Bradycardia | |
| - Central cyanosis | |
| - Initial anxiety+irritability => later lethargy+ coma | |

Failure of respiratory drive:
- apnea due to drug overdose
- head trauma

Without aggressive management, it will quickly result in resp. arrest followed by cardiopulmonary arrest!!!!!