Pediatric Respiratory Distress/Bronchospasm

For asthma exacerbations, epiglottis and any bronchospasms/wheezing not from pulmonary edema

### History
- Asthma
- COPD – chronic bronchitis, emphysema
- Home treatment (e.g., oxygen or nebulizer)
- Medications (e.g., Theophylline, steroids, inhalers)
- Frequency of inhaler use

### Signs and Symptoms
- Shortness of breath
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing or rhonchi/diminished breath sounds
- Use of accessory muscles
- Cough
- Tachycardia

### Differential
- Asthma
- Anaphylaxis
- Foreign body aspiration
- Partial airway obstruction (i.e. epiglottitis)
- Croup
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pneumothorax
- Cardiac (MI or CHF)
- Pericardial tamponade
- Hyperventilation
- Inhaled toxin (e.g., carbon monoxide, etc.)

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### Treatment Protocol PR03
- Effective November 2018
- Effective April 2024

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**Breathing adequate?**

- Yes
- No

**Respiratory Arrest/Respiratory Failure**

- Apply Oxygen to maintain goal SpO$_2 \geq 92$
- Airway support
- Cardiac monitor
- Consider, ETCO$_2$ monitoring
- Consider, Establish IV/IO

**Other systemic symptoms**

- Anaphylaxis

**Wheezing**

- Consider, CPAP
- If greater than 1 year old
  - Albuterol or Albuterol MDI with spacer or Levalbuterol
  - Use length-based tape; refer to dosing guide
- Decrease LOC or unresponsive to Albuterol/Levalbuterol, Epinephrine 1:1,000 IM
  - Use length-based tape; refer to dosing guide
- For suspected inhalation injury
  - Inhalation Injury
  - Notify receiving facility.
  - Consider Base Hospital for medical direction

**Stridor**

- Epinephrine 1:1,000 nebulized
  - Use length-based tape; refer to dosing guide

**Barking cough without stridor**

- Normal Saline nebulized
  - Use length-based tape; refer to dosing guide
**Factors Affecting EtCO₂**

### Causes of Elevated EtCO₂
- **METABOLISM**
  - Pain
  - Hyperthermia
  - Shivering
- **RESPIRATORY SYSTEM**
  - Respiratory insufficiency
  - Respiratory depression
  - COPD
  - Analgesia/sedation
- **CIRCULATORY SYSTEM**
  - Increased cardiac output
- **MEDICATIONS**
  - Bicarbonate administration

### Causes of Decreased EtCO₂
- **METABOLISM**
  - Hypothermia
  - Metabolic acidosis
- **RESPIRATORY SYSTEM**
  - Alveolar hyperventilation
  - Bronchospasm
  - Mucus plugging
- **CIRCULATORY SYSTEM**
  - Hypotension
  - Sudden hypovolemia
  - Cardiac arrest
  - Pulmonary emboli

**Pearls**
- A silent chest in respiratory distress is a pre-respiratory arrest sign.
- Diffuse wheezing in patients < 1 year, it is almost always bronchiolitis, not asthma. For these patients, suctioning and supplemental oxygen are appropriate treatments.
- Pulse oximetry monitoring is required for all respiratory patients.