

# Pediatric Respiratory Distress/Bronchospasm

For asthma exacerbations, epiglottitis 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.)

Breathing adequate?

No

**Respiratory Arrest/  
Respiratory Failure**

Yes

<b>E</b>	Apply Oxygen to maintain goal SpO <sub>2</sub> ≥ 92%
	Airway support
	Cardiac monitor
<b>P</b>	Consider, EtCO <sub>2</sub> monitoring
	Consider, Establish IV/IO

Other systemic symptoms  
**Anaphylaxis**

Wheezing

<b>P</b>	Consider, CPAP
	If greater than 1 year old <b>Albuterol or Albuterol MDI with spacer or Levalbuterol</b> Use length-based tape; refer to dosing guide
	Decrease LOC or unresponsive to Albuterol/ Levalbuterol, <b>Epinephrine 1:1,000 IM</b> Use length-based tape; refer to dosing guide

Stridor

<b>P</b>	<b>Epinephrine 1:1,000 nebulized</b> Use length-based tape; refer to dosing guide
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Barking cough without stridor

<b>P</b>	<b>Normal Saline nebulized</b> Use length-based tape; refer to dosing guide
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For suspected inhalation injury  
**Inhalation Injury**

**Notify receiving facility.  
Consider Base Hospital  
for medical direction**



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## Sudden loss of waveform

- ET tube disconnected, dislodged, kinked or obstructed
- Loss of circulatory function



## Decreasing EtCO<sub>2</sub>

- ET tube cuff leak
- ET tube in hypopharynx
- Partial obstruction



## CPR Assessment

- Attempt to maintain minimum of 10mmHg



## Sudden increase in EtCO<sub>2</sub>

- Return of spontaneous circulation (ROSC)

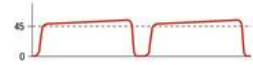


## Bronchospasm ("Shark-fin" appearance)

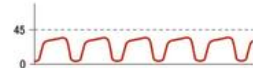
- Asthma
- COPD



## Hypoventilation

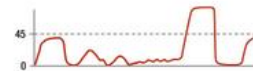


## Hyperventilation



## Decreased EtCO<sub>2</sub>

- Apnea
- Sedation



## Factors Affecting EtCO<sub>2</sub>

### Causes of Elevated EtCO<sub>2</sub>

### Causes of Decreased EtCO<sub>2</sub>

#### METABOLISM

- Pain
- Hyperthermia
- Shivering

#### METABOLISM

- Hypothermia
- Metabolic acidosis

#### RESPIRATORY SYSTEM

- Respiratory insufficiency
- Respiratory depression
- COPD
- Analgesia/ sedation

#### RESPIRATORY SYSTEM

- Alveolar hyperventilation
- Bronchospasm
- Mucus plugging

#### CIRCULATORY SYSTEM

- Increased cardiac output

#### CIRCULATORY SYSTEM

- Hypotension
- Sudden hypovolemia
- Cardiac arrest
- Pulmonary emboli

#### MEDICATIONS

- Bicarbonate administration

## 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.

