

# Prehospital Pediatric Care Course

## Lesson 4 Respiratory Emergencies

### Providing Oxygen to Children

**Every child** with a respiratory emergency or significant trauma **should receive high concentration oxygen in the prehospital setting.**

The child's condition will dictate to the EMTs what delivery device to use:

Bag-Valve-Mask (BVM)

Non-rebreather face mask

Blow-by via oxygen tubing

Respiratory problems are described by the severity of the child's condition:

Respiratory Distress

Respiratory Failure

Respiratory Arrest

### Respiratory Distress

A child who is able to maintain adequate oxygenation by

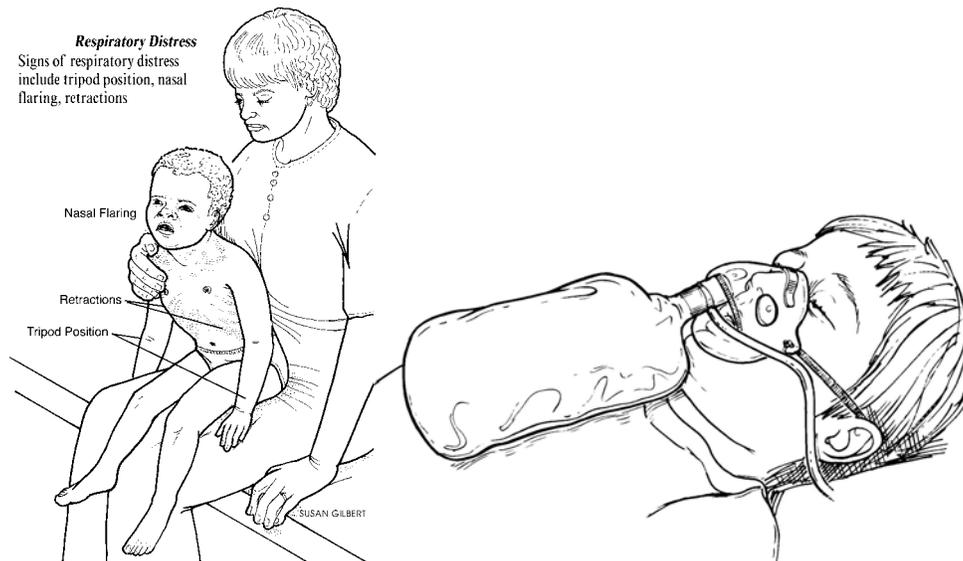
- using extra effort to move air
- increasing the breathing rate

is in respiratory distress. The degree of distress can be mild, moderate or severe, and is often accompanied by increased heart rate (tachycardia).

## Treatment of Respiratory Distress

- Keep the child in a position of comfort.
- Avoid agitating the child.
- Provide humidified high concentration oxygen by non-rebreather facemask.  
If not tolerated, provide blow by oxygen.

Oxygen should always be humidified as soon as possible.



## Respiratory Failure

A child who, despite extra effort and increased breathing rate, is unable to maintain adequate oxygenation or who has poor oxygenation is in respiratory failure.

Increased respiratory rate and effort, as well as tachycardia will decline as respiratory failure worsens.

## Respiratory Failure Treatment Sitting Child

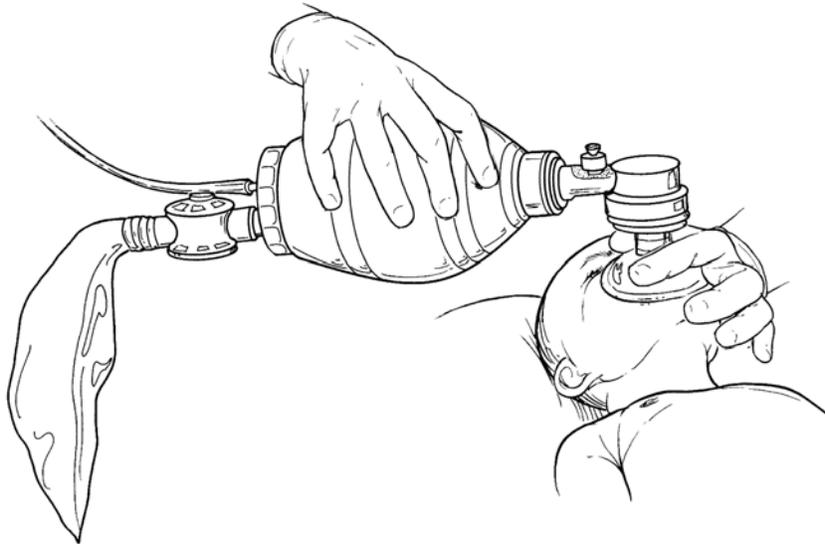
A child who is able to sit up should be assisted into the position most comfortable for breathing.

- Give high concentration oxygen by non-rebreather facemask.
- Monitor child for response to oxygen or worsening respiratory failure.
- Transport as soon as possible.

## Respiratory Failure Treatment Child Unable to Sit

If the child is unable to sit up, EMTs should:

- Open the airway using head tilt - chin lift or modified jaw thrust.
- Clear the mouth and gently suction visible vomit or secretions.
- Nasopharyngeal airway, if needed.
- Provide high concentration oxygen by non-rebreather facemask.
- If there is no improvement with positioning, airway opening, suction and oxygen:
- Ventilate the child at a rate of 20/min. using a bag-valve-mask, reservoir and high concentration oxygen.
- Initiate transport.



## **Nasopharyngeal Airway**

A child with respiratory failure who is unable to sit and whose airway cannot be kept clear by positioning and suctioning may require a nasopharyngeal airway.

Contraindicated by

- agitation;
- facial or head trauma.

Children of school age and younger have prominent and delicate adenoidal tissue in their airways.

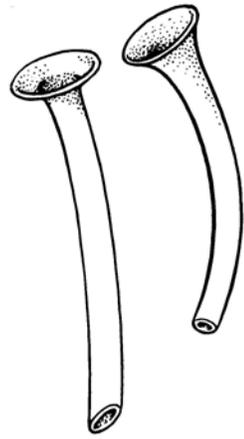
These tissues can be torn, causing bleeding into the airway and airway obstruction.

If any resistance is met during insertion, stop.

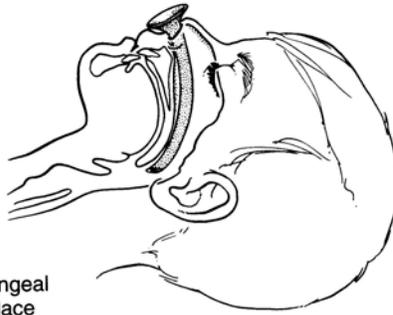
### **Never force a nasopharyngeal airway**

Select the correct size:

- Length - tip of the nose to the earlobe.
- Diameter - about that of the pinky finger.
- Lubricate with water-soluble jelly and insert gently with bevel facing the nasal septum.



Nasopharyngeal  
airways



Nasopharyngeal  
airway in place

## **Respiratory Failure Scenario**

A child who makes no or slight breathing effort is in respiratory arrest.

Respiratory arrest is accompanied by severe bradycardia or cardiac arrest.

You are called to a local carnival for a “sick child”. On arrival, you find a six-year-old boy sitting upright on a crate, leaning forward on his arms. His head is tilted upward, and while there are concerned adults around him, he does not appear to be talking with them. Instead, he seems to be focused on his breathing. You can see, even from several yards away, that he is using his neck muscles to breathe. His face appears pale.

**Using the rapid first impression, what assessment can you make?**

Assess his appearance:

- Mental state
- Muscle tone and body position
- Skin

Continue RFI assessment:

- Breathing
  - Effort
  
- Circulation

**Is his condition urgent or non-urgent?**

**What is the severity of the respiratory emergency?**

**What are your first actions?**

One EMT should position him/herself at the child's eye level, speak calmly and introduce the responders.

The child's condition is urgent, and therefore, transportation should be initiated quickly, however, it is essential to avoid agitating this child. Take a moment to explain whom you are and what you intend to do before you touch him.

A second EMT should speak with the adults to gather information about what happened to the patient.

The adults in the group are teachers and parents who are escorting a first grade class on an outing. The patient's parents are not among them. One of the adults tells you that "he seemed fine" until about 20 minutes ago, when he told her that he couldn't breathe.

You have introduced yourself to the child, and explained that you are there to help. He nods in acknowledgement and tells you "I can't breathe."

You hear no stridor or gurgling noises.

**What does this indicate about the child?****What is your next action?**

Explain to the child what you are going to do and then do it:

Provide high concentration oxygen by non-rebreather mask, without delay.

Prepare for transport.

You have moved the child with an adult to your transport vehicle and are preparing to leave for the hospital.

**What actions should you now take?**

The initial assessment reveals the following:

Airway - The child can speak in short sentences only. He allows you to raise his shirt. You see that he is using his abdominal muscles to move air. You do not hear gurgling or stridor.

**What do these findings suggest?**

**Treatment?**

**What's next?**

**Breathing Assessment:**

Both sides of the chest are rising equally and deeply, with extra effort noted on expiration.

With a stethoscope, you hear whistling sounds over the lungs when the patient breathes out. But the tracheal sounds are normal.

There are 16 breaths in 30 seconds.

The skin is pale, but some slight pink tones are now in his face.

**What do these findings suggest?**

**Treatment?**

**What's next?**

## **Circulation Assessment:**

On comparison, central and peripheral pulses are strong, the skin of both the trunk and extremities is warm and pale.

Capillary refill is less than 2 seconds.

You count 60 beats in 30 seconds when you assess the pulse rate.

**What do these findings suggest?**

**Treatment?**

**What's next?**

## **Disability Assessment:**

The child tells you his name, that he was on a class trip to the carnival and the correct day of the week.

Using AVPU, what is his level of responsiveness?

**What does this finding indicate?**

**Treatment?**

**CUPS?**

**What's next?**

Using the SAMPLE format, you find the following

- S Signs and symptoms of respiratory distress
- A Allergies: Child says only to girls
- M Medications Child doesn't know
- P Past Medical Problems Unknown
- L Last food was a bag lunch from home
- E Events He went on a "scary" spinning ride and rode a pony before he got sick.

# Common Respiratory Problems

Upper Airway Problems include:

Foreign Body Obstruction

Croup

Epiglottitis

Assess and treat the child according to the severity of the child's condition using the RFI and initial assessment.

## Foreign Body Obstruction

Follow AHA guidelines for complete or partial obstruction.

If the obstruction was cleared prior to the arrival of EMTs, the child needs transport for evaluation because:

- Irritated tissues may later swell.
- Piece of foreign body may still be present.

## Croup

- Viral cause
- Fever present but low (up to 102° )
- Seal bark cough
- Stridor
- Gradual onset of symptoms
- Symptoms worsen at night
- Most common in children 2-4 years old

## Special Concerns - Croup

Assess and treat according to the severity of the child's condition.

- Humidified oxygen by non-rebreather facemask or blow by, if mask causes agitation.
- Keep child with parent, in a comfortable, upright position when possible.
- Do not place any instrument or oral airway in the mouth.

## **Epiglottitis**

- Bacterial cause
- High fever (102° to 104°)
- Rapid onset of symptoms
- Drooling
- Tripod position
- Most common in children 4-6 years old

### **Special Concerns - Epiglottitis**

Assess and treat according to the severity of the child's condition.

- Humidified oxygen by non-rebreather facemask or blow by, if mask causes agitation.
- Keep child with parent, in a comfortable, upright position when possible.
- Do not place any instrument or oral airway in the mouth.

## **Common Respiratory Illnesses**

Lower Airway Problems include:

Asthma  
Bronchiolitis  
Pneumonia

Assess and treat the child according to the severity of the child's condition using the RFI and initial assessment.

### **Asthma**

- Causes vary, but often associated with allergy, stress, and strenuous exercise.
- Lower airways narrow due to spasm.
- Mucous in airways becomes thickened and causes of lower airway obstruction
- When present, wheezes are pronounced with expiration.
- Wheezes may be absent.
- Children of all ages affected.

## **Special Concerns-Asthma**

- Humidify oxygen.
- Prevent agitation.
- Bring prescribed medications to hospital.
- Follow regional protocol for albuterol administration.

## **Bronchiolitis**

- Viral cause
- Wheezes
- More common in winter months
- Affects children under 18 months old

## **Apparent Life Threatening Event**

- Occurs with infants.
- Breathing stops for 20 seconds or more.
- Baby turns blue at the time.
- On arrival, EMT's find a normal appearing baby.