



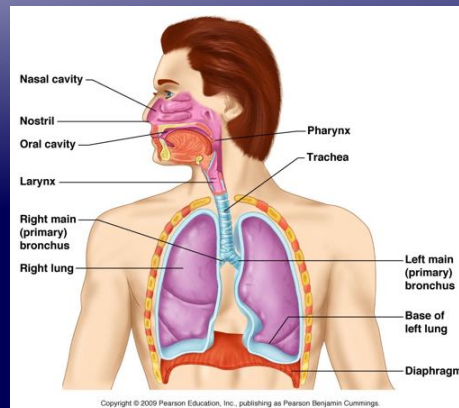
Emergency Medical Responder

# AIRWAY & VENTILATION



## Major Components of the Respiratory System

- Nose
- Mouth
- Pharynx (throat)
- Epiglottis
- Trachea (windpipe)
- Bronchi
- Lungs
- Diaphragm





Before preparing to open the airway and ventilate, consider the differences between airways of an adult and a child.

- Nose and mouth
- Tongue
- Epiglottis
- Cricoid cartilage
- Trachea

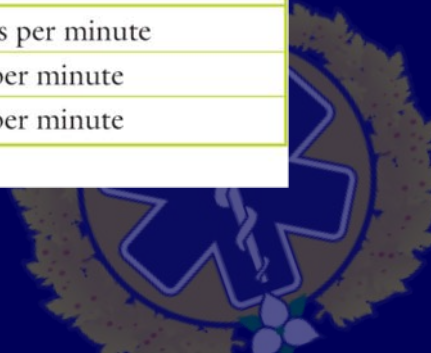


## Normal Respiratory Rates

**TABLE 7-1**  
NORMAL BREATHING RATES

Patient	Breathing Rate
Infant	up to 60 breaths per minute
Child	20–40 breaths per minute
Adult	12–20 breaths per minute

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- Respiration sounds that may indicate an airway obstruction:
  - Snoring
  - Crowing
  - Gurgling
  - Stridor
  
- Clearing the airway can be done by
  - 1) Recovery position
  - 2) Finger sweeps
  - 3) Suctioning



## Types of Airways

### Two Types of Airways

- 1) Oropharyngeal Airway
- 2) Nasopharyngeal Airway
- 3) Advanced Airways





When using an airway adjunct, remember:


- It must be clean and free of obstructions
- It must be of the proper size
- Patients with airway adjuncts can still aspirate
- Patient's mental status and gag reflex will indicate appropriateness of adjunct
- Continually and carefully monitor the patient's mental status



### Assessing Breathing on an Unresponsive Patient

Place your ear close to the patient's mouth and nose for up to ten seconds and


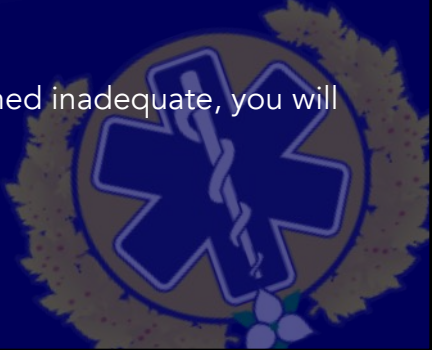
- 1) **Look** for chest rise and fall
- 2) **Listen** for air sounds
- 3) **Feel** for air from the patient's nose and mouth



### Signs of Inadequate Breathing


Rate	Chest wall motion
Cyanosis.	Mental Status
Effort	Gasping or Grunting
Slow Heart Rate	

If a patient's breathing is deemed inadequate, you will have to provide ventilation.



### Indications of Adequate Ventilation

- Adequate respiration rate
- Consistent and sufficient air force
- Decrease in patient's heart rate or return to normal
- Patient's colour improves





## Artificial Ventilation

Artificial ventilation may be administered by

- Mouth to mask
- Mouth to barrier device
- Mouth to mouth
- Mouth to stoma
- Bag valve mask



## Ventilation Rates

**TABLE 7-2**  
ARTIFICIAL VENTILATION RATES

Patient	Ventilation Rate
Newborn	40–60 breaths per minute at 1 second each
Infant/child	12–20 breaths per minute at 1 second each (approximately one breath every 3–5 seconds)
Adult	10–12 breaths per minute at 1 second each (approximately one breath every 5–6 seconds)

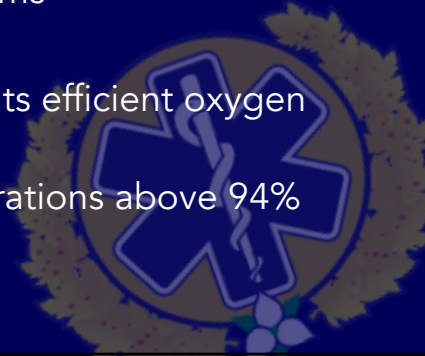
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## Oxygen Therapy

### Conditions that May Require Oxygen Therapy

- 1) Major injury
- 2) Heart or breathing problems
- 3) Shock
- 4) Any condition that prevents efficient oxygen flow throughout body
- 5) Maintaining Oxygen Saturations above 94%




### Signs and Symptoms that May Indicate Need for Oxygen Therapy

- Poor skin colour
- Unresponsiveness
- Cool, clammy skin
- Difficulty breathing
- Blood loss
- Chest Pain
- Trauma





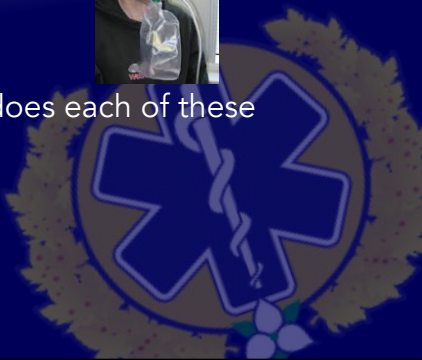





## Oxygen Delivery Equipment




- Nasal Cannula
- Non-rebreather mask

What percentage of oxygen does each of these deliver?







## Oxygen Tanks and Equipment

- Tank Sizes
  - D, E, M
- Regulator
- Safe Changing of the Tank











## Mild Obstructions

- The patient **can**
  - Breathe
  - Speak
  - Cough
  - May be clutching the throat





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## Severe Obstruction



- The patient **cannot**
  - Breathe effectively
  - Speak effectively
  - Cough effectively
  - May clutch the throat






## Intervention for the responsive choking patient

- Treating a **mild obstruction**:
  - Encourage the patient to cough
- Treatment of a **severe obstruction**:
  - Perform **5** back blows
  - Perform **5** abdominal thrusts
  - Continue until the object becomes dislodged or patient becomes unresponsive
  - Have someone activate EMS

## Interventions for the unresponsive patient

- Ensure EMS is activated
- **Perform CPR**
  - Just remember to check inside the mouth prior to ventilations to ensure the object didn't come out.



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## Special considerations

- **Pregnancy/Large-Obese Patient**
  - 5 back blows followed by 5 chest thrusts
- **Patient in a Wheelchair**
  - Position wheelchair up against wall, initiate breaks
- **Self Assistance**
  - Activate EMS
  - Attempt abdominal thrusts
  - Find a chair, use it to make thrusts stronger

