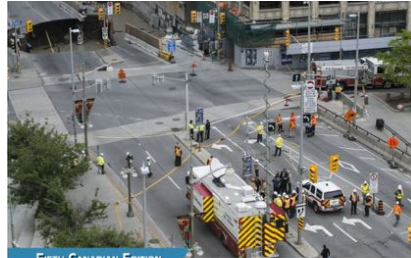


Emergency Medical Responder: A Skills Approach

Fifth Canadian Edition



FIFTH CANADIAN EDITION

EMERGENCY MEDICAL RESPONDER

A SKILLS APPROACH

MEETS PARAMEDIC ASSOCIATION OF CANADA'S
NATIONAL OCCUPATIONAL COMPETENCY PROFILE



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Chapter 7

The Airway and Ventilation

Objectives (1 of 2)

- Label the major structures of the respiratory system
- Describe and demonstrate the head-tilt/chin-lift and jaw-thrust maneuvers
- Explain oropharyngeal and nasopharyngeal airway adjuncts
- State the importance of having a suction unit ready for immediate use
- List the seven signs of inadequate breathing
- Describe and demonstrate how to ventilate a patient



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Objectives (2 of 2)

- Describe the use of oxygen cylinders and delivery equipment
- Describe the special considerations for administering oxygen to patients with chronic obstructive pulmonary disease (COPD)
- Explain how to clear a foreign body airway obstruction (FBAO)
- Discuss how a mechanism of injury might affect the method used to open an airway
- Explain why basic life support ventilation and airway protective skills are second in priority only to pulse checks and cardiac compression

Major Components of the Respiratory System (1 of 2)

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

Major Components of the Respiratory System (2 of 2)

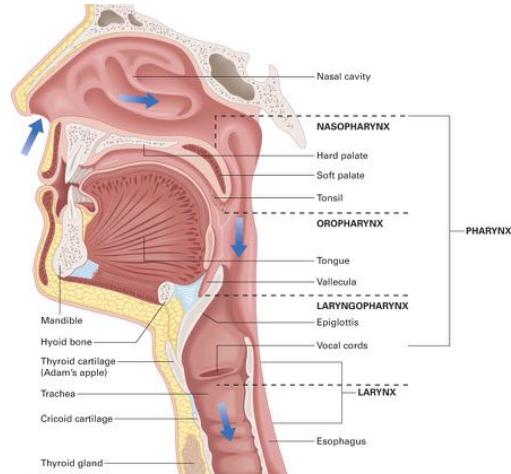


Figure 7-1 Anatomy of the upper airway.

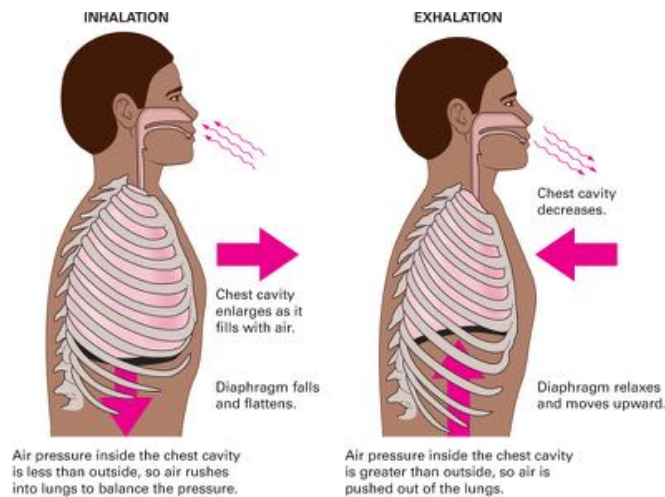


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How Respiration Works



Air pressure inside the chest cavity is less than outside, so air rushes into lungs to balance the pressure.

Air pressure inside the chest cavity is greater than outside, so air is pushed out of the lungs.

Figure 7-2 How respiration works.

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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

Differences in Adult and Child Airway (1 of 2)

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

Differences in Adult and Child Airway (2 of 2)

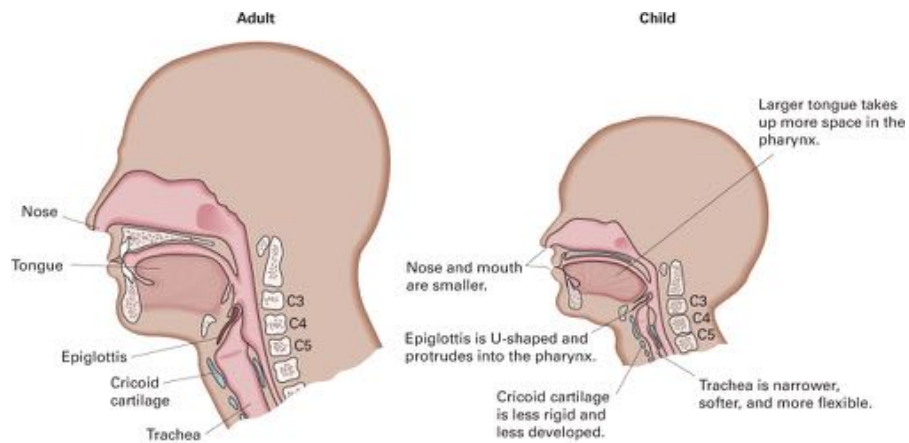


Figure 7-3 Comparison of the airways of an adult and an infant or child.

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Sounds Indicating Obstruction

- Snoring
- Crowing
- Gurgling
- Stridor



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Clearing the Airway

- Recovery position
- Finger sweeps
- Suctioning

Opening the Airway - Head-Tilt Chin-Lift

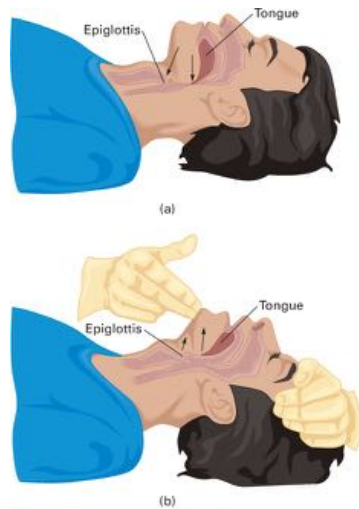


Figure 7-4a Head-tilt/chin-lift manoeuvre on an adult.

Opening the Airway – Jaw Thrust

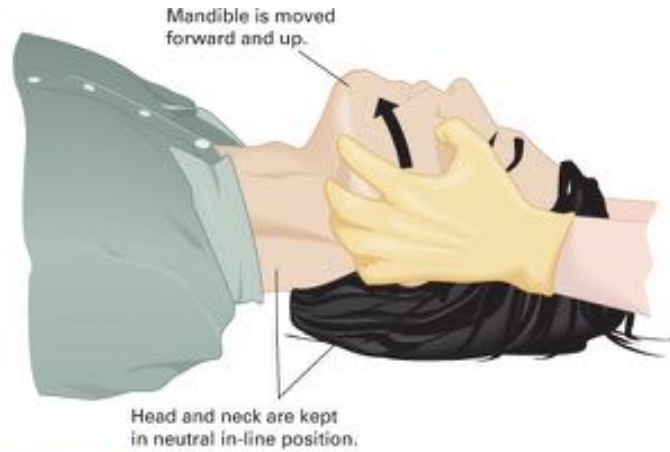


Figure 7-5 Jaw-thrust manoeuvre.

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Two Types of Airways

- Oropharyngeal Airway
- Nasopharyngeal Airway



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Using an Airway Adjunct

- 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

Using an Airway Adjunct - OPA



Figure 7-7a Measure the oropharyngeal airway to ensure the correct size.

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Figure 7-7b Insert it with the tip pointing toward the roof of the mouth.

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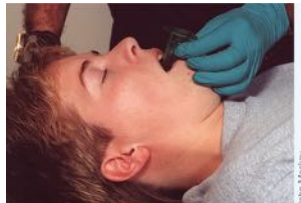


Figure 7-7c Gently rotate the airway until it reaches its proper position.

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Figure 7-7d Continue inserting until the flange rests on the patient's teeth.

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Using an Airway Adjunct - NPA (1 of 2)



Figure 7-10a Measure the nasopharyngeal airway to ensure the correct size.

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Figure 7-10b Lubricate it with a water-soluble lubricant.

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Using an Airway Adjunct - NPA (2 of 2)



Figure 7-10c Insert the airway adjunct.

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Assessing Breathing in an Unresponsive Patient

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

Signs of Inadequate Breathing

Breathing rate:
fewer than 8 in adults
fewer than 10 in children
fewer than 20 in infants

Inadequate chest wall motion

Cyanosis

Mental status changes

Increased effort to breathe

Gasping and
grunting

Slow heart rate
accompanied
by slow
breathing rate



Figure 7-15 Signs of inadequate breathing.

Artificial Ventilation

- Mouth-to-Mask
- Mouth-to-Barrier Device
- Mouth-to-Mouth
- Mouth-to-Stoma
- Bag-Valve-Mask

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

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 1 breath every 3–5 seconds)
Adult	10–12 breaths per minute at 1 second each (approximately 1 breath every 5–6 seconds)

Conditions That May Require Oxygen Therapy

- Major injury
- Heart or breathing problems
- Shock
- Any condition that prevents efficient oxygen flow throughout body

Signs and Symptoms That Indicate Oxygen Therapy Needed

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

Oxygen Delivery Equipment - Nasal Cannula

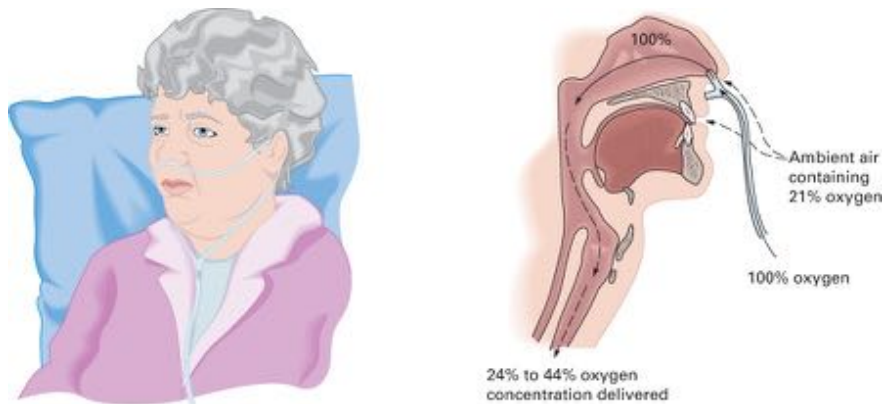


Figure 7-28 Nasal cannula applied to a patient.

Oxygen Delivery Equipment – Non-Rebreather Mask

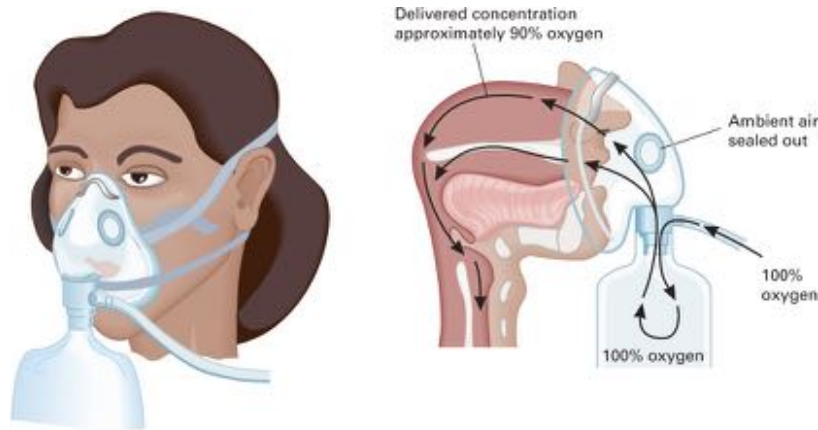


Figure 7-30 A non-rebreather mask applied to a patient.

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Foreign Body Airway Obstruction (FBAO)

- Partial
- Complete

Special Considerations

- Pregnant patient
- Obese patient
- Infant or child up to 1 year



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