

## Emergency First Responder

### Airway & Ventilation



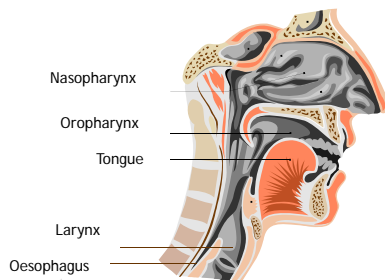
## Objectives

By the end of this session you should be able to:

- Clear an airway and demonstrate safe use of oxygen equipment and provide oxygen to a simulated patient using a range of oxygen administration devices



## The Airway

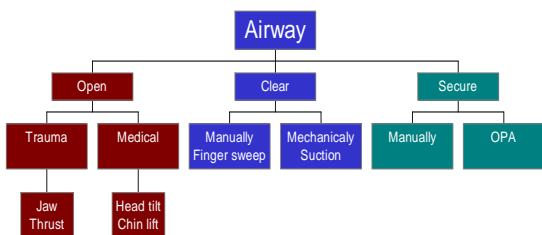


## Airway

- An open airway must be maintained throughout all care procedures
- If a patient cannot breathe death is inevitable



## Airway Management



## Head-tilt Chin-lift

*"The method of choice for opening the airway in uninjured patients."*





## Head-tilt Chin-lift



Rescuer places palm on casualty's forehead



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## Head-tilt Chin-lift



Rescuer places fingers on chin (bony part of chin)



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## Head-tilt Chin-lift



Rescuer performs head-tilt /chin-lift manoeuvre



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## Jaw Thrust

*"The safest approach to opening the airway in the patient with suspected spinal injury."*



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## Jaw Thrust



- Stabilise head with palms of hands
- Position fingers under the angles of the jaw
- Gentle lift the jaw forwards



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## The Oropharyngeal Airway

- Assists in maintaining the airway
  - Controls tongue, teeth and lips
- Use on all patients who are unconscious and have no gag reflex
- Do not continue if patient begins to gag
- Even with airway in place, you must continue to maintain the airway manually
- Take great care when inserting not to push tongue back into throat



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## Oropharyngeal Airways (OPA)



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## Oropharyngeal Airway Insertion

- Standard Precautions
- Select
- Measure
- Open the airway
- Insert
  - Position so its tip is pointing toward the roof of mouth
  - Insert along roof of mouth
- Rotate when resistance is felt, turn 180°
  - Slide back until level with lips
- Open the airway



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## Airway Sizing

- To size an OPA
- Measure from the corner of the mouth to the angle of the jaw



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## Suction

- Sometimes a casualty will need suction, before, during and after a procedure
- It is most common in arrest patients and patients with facial injuries



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## Suction

- A patient needs to be suctioned immediately when a gurgling sound is heard during breathing or ventilation
- Purpose to remove blood, other liquids and food particles from the airway
- Suction should not be delayed to immobilise a patient



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## Types of Suction Devices



Portable Electric Suction



Hand-operated Suction



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## Applying Suction

- Standard precautions
- Hyperventilate first when possible
- Measure catheter from corner of the mouth to the angle of the jaw
- Insert carefully
- Suction only on the way out
- Suction for a max of 5 to 10 seconds
  - 5 seconds for unstable patients
  - 10 seconds for stable patients
- After suction, hyperventilate



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## Suction Precautions

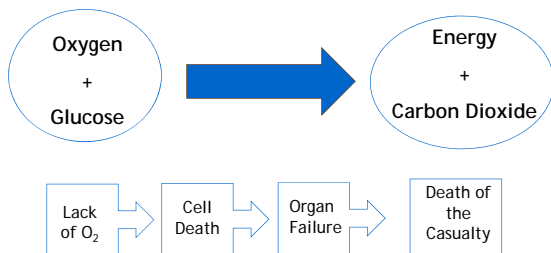
- Do not use in an explosive environment
- Beware of head injuries as brain tissue may be forced into back of throat, suction around and do not touch
- A tip touching the pharynx may cause further vomiting
- Stimulation of the vagal nerve may slow the heart & breathing



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## Role of Oxygen



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## Why Administer Oxygen?

- Oxygen administration is often the most important beneficial treatment that a First Responder can provide
- Atmospheric air contains 21% Oxygen, which is enough to support a healthy person
- For an ill or injured person giving oxygen is an attempt to ensure that his blood is maximally saturated with oxygen



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## Oxygen Therapy Indications

- In general, oxygen should be administered to all casualties with a significant injury or illness



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## Oxygen Therapy Indications

- Specific examples
  - Cyanosis
  - Asthma
  - Circulation stoppage
  - Head and spinal injuries
  - Chest Injuries
  - Shock - blood loss
  - Carbon monoxide poisoning

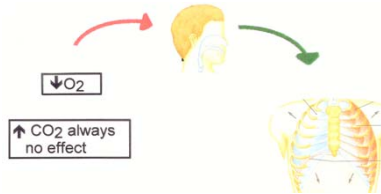


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## Oxygen Hazards - Medical

- Risk of respiratory arrest in a COAD patient



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## Oxygen Hazards - Non-Medical

- Oxygen supports combustion
  - No smoking
  - Do not use near naked flame
  - Will saturate clothing and blankets allowing easy combustion
  - Do not use near cutting equipment
- Never use oil or grease
- Never roll, drag or drop cylinders
- Oxygen is stored under high pressure



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## Oxygen Administration

- Always check cylinder contents
- Use only correct gauges and regulators
- Use only medical grade oxygen
- Before use, give one quarter turn to clear out dust. Do not stand over cylinder when doing this
- When opening cylinder, open fully then half turn back, to stop others from forcing



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## Oxygen Administration

- Ensure a clear airway
- Breathing rate of at least 10 breaths
- Explanation to the casualty
- Decide on the percentage
- Monitor closely
- Note oxygen use on ACR/PCR



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## Oxygen Cylinders

- Cylinders identified with black body with a white collar
- Main types of cylinders:
  - "CD" size, containing 425 litres
  - "D" size, containing 340 litres
  - "F" size, containing 1360 litres



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## Oxygen Delivery Devices

Nasal Cannula	24 - 44%	1 - 6 LPM
Venturi mask	24 - 60%	2 - 15 LPM
Non Rebreather mask	100%	8 -15 LPM
Pocket mask	50%	10 LPM



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## Nasal Delivery Device

- Provides concentration 24% to 44% O<sub>2</sub>
- For patients with medical emergencies
- Some patients feel suffocated by masks, may tolerate cannula
- Place tubing over ears, then secure under chin



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## Venturi Delivery Device

- Provides 24% to 60% O<sub>2</sub>
- O<sub>2</sub> delivered by jet, pulls in atmospheric air to mix with O<sub>2</sub>
- Flushes out CO<sub>2</sub> from mask
- Comes in 3 parts, mask, barrel, tubing
- Suitable for COAD patients



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## Venturi Barrels

- Blue 24% @ 2 Lpm
- White 28% @ 4 Lpm
- Yellow 35% @ 8 Lpm
- Red 40% @ 10 Lpm
- Green 60% @ 15 Lpm

Note: This is a sample of one manufacturer's Venturi Barrels. Manufacturers' colours and flow rates may differ. Please refer to manufacturers' guidelines before use.



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## Non Rebreather Mask

- Delivers 100% oxygen
- Inflate reservoir bag first
- Maintain flow rate so that reservoir bag does not deflate by more than 1/3 on patient's deepest inspiration
- 8 LPM minimum, avoid build up of CO<sub>2</sub>
- For the trauma casualty



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## Pocket Mask

- Place over patient's nose & mouth
- One way valve to ventilate
- Can attach O<sub>2</sub>
- Flow rate 10 lpm, 50% O<sub>2</sub> delivered via mouth to mouth
- Easy to use



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## B.V.M.

- Consists of bag, valve and mask
- One way valve to patient
- Can connect to oxygen
- Flow rate 10 Lpm, 98% oxygen delivered to patient



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## Oxygen Delivery devices

Nasal Delivery Device	Some COAD Won't tolerate mask
Venturi Delivery Device	Medical COAD
Non-Rebreather Delivery Device	Trauma Chest pain
Pocket Face Mask	Respiratory & Cardiac Arrest Inadequate Breathing Supplemental oxygen delivery

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## SUMMARY

- Methods to Open the Airway
- OPA
- Suction
- Role of Oxygen
- Indications for use of Oxygen
- How to administer Oxygen
  - Nasal Cannula
  - Venturi Mask
  - Non Rebreather Mask
  - Pocket Mask
  - B.V.M.

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