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SHSS6067

Sports Trauma Management Airway Management and Ventilation

*Trawsnewid Addysg; Trawsnewid Bywydau
Transforming Education; Transforming Lives*



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Airway Management

- An obstructed airway can quickly lead to
 - Hypoxia
 - Hypercarbia
 - Deterioration
 - The airway is considered at risk in any patient with a GCS < 8 or < P on AVPU

Upper airway obstructions

- Above the larynx
- Risk of aspiration
 - Foreign matter enter lungs
- Cause obstruction
 - Laryngospasm
 - Bronchospasm
 - Infection
 - Pneumonitis
 - Ventilation - perfusion mismatch

Upper airway obstructions

- Commonly aspirated matter
 - Blood, vomit, gastric contents, dislodged teeth
- Also consider
 - Tongue, gumshields, chewing gum
- Typically characterised by gargle or snoring

Larynx obstruction

- Foreign matter passes through the upper airway to larynx
- Risk of choking
 - Not obvious in unconscious player
- Laryngospasm
 - Vocal cords close, occluding airway
- Direct laryngeal trauma
 - Fracture
 - Watch for subcutaneous emphysema

Lower airway obstruction

- Typically liquid matter
 - Blood, vomit, gastric contents
- Foreign matter
 - Dislodged teeth
- Leads to bronchospasm, infection, pneumonitis, significant ventilation-perfusion mismatch
- Collapse of distal lung
- Listen for Wheeze

Airway Assessment

- LOOK
 - Open mouth & inspect airway (foreign matter)
 - Chest & abdo rising together
 - See-saw respiration
 - Chest rises but abdo sucked in is a sign of airway occlusion

Airway Assessment

LISTEN

- Breadth sounds
- Gurgle = fluid
- Snoring = upper airway obstruction
- Wheeze = lower airway obstruction

Airway Assessment

FEEL

- Expired air from nose and mouth

ASSESS

- Check for 10seconds

COMBINE with pulse check (carotid)



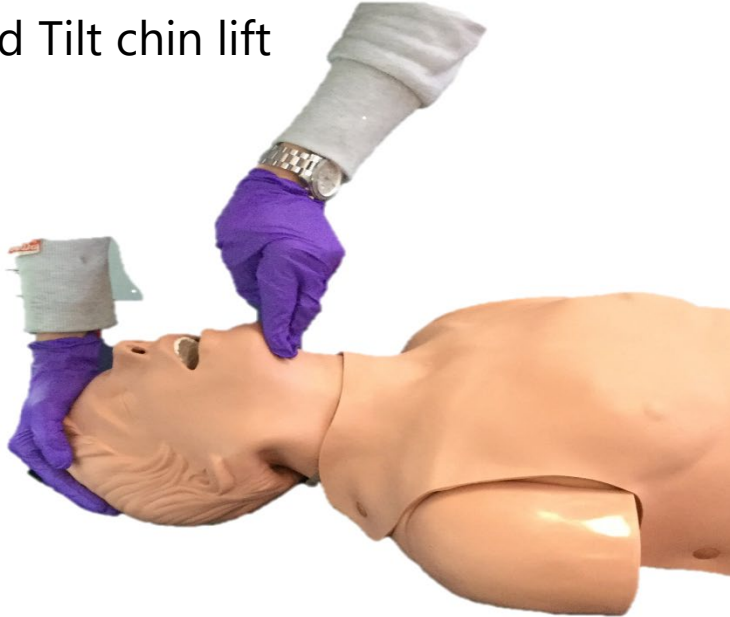
Simple Airway Manoeuvres

- Head Tilt chin lift
- Jaw thrust
 - Both techniques lift the tongue forward
- Suction
 - Under direct visualisation
 - Pen torch placed to side of mouth
 - Prevent oropharynx trauma, vagal stimulation & protect suction against trismus



Simple Airway Manoeuvres

- Head Tilt chin lift



Jaw thrust



Simple Airway Manoeuvres



- Suction Under Direct Visualisation Using pen torch

Simple Airway Adjuncts

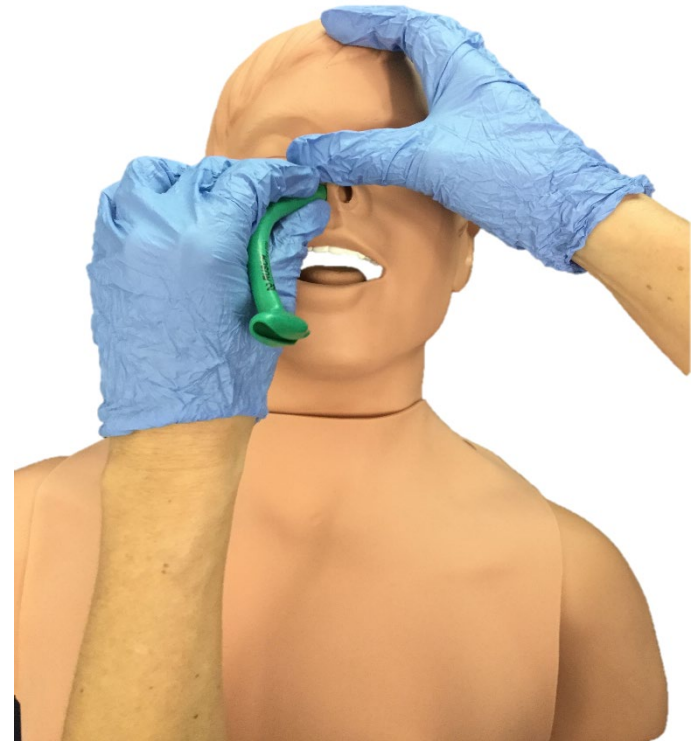
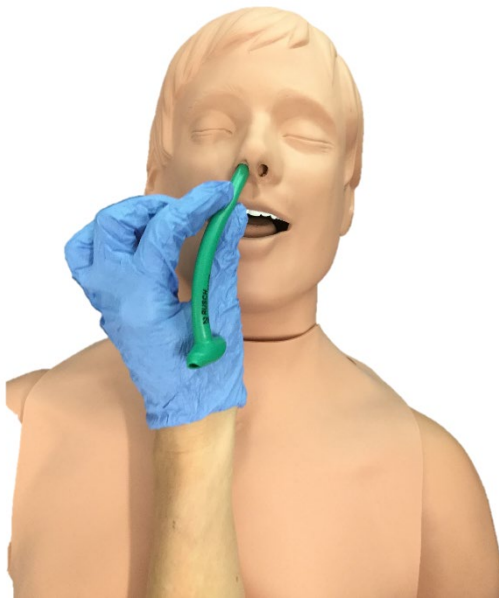
1. Nasopharyngeal airway
2. Oropharyngeal airway

Nasopharyngeal Airway

- Creates a patent passage behind the tongue
- Size to nostril
- Large flange (safety pin) prevents aspiration
- Lubricate & check viable nostril ®
- Insert perpendicular to face and gently rotate
- May cause epistaxis

Nasopharyngeal Airway

- PRACTICAL APPLICATION



Nasopharyngeal Airway

- PRACTICAL APPLICATION

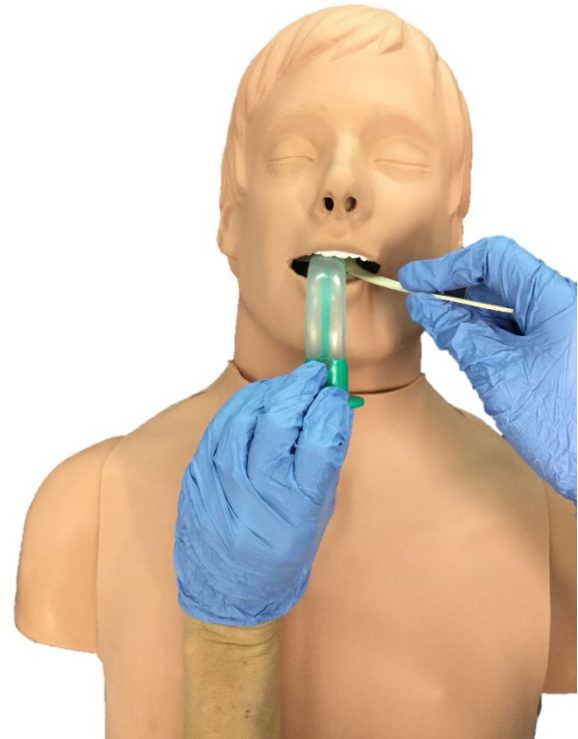
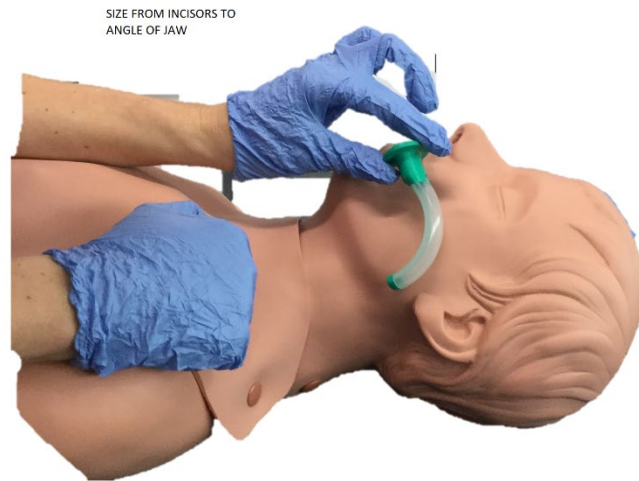


Oropharyngeal Airway

- Lifts tongue forward creating patent airway
- Size from incisors to angle of mandible
- Use if jaw thrust is tolerated
- Insert under direct visualisation with tongue depressor

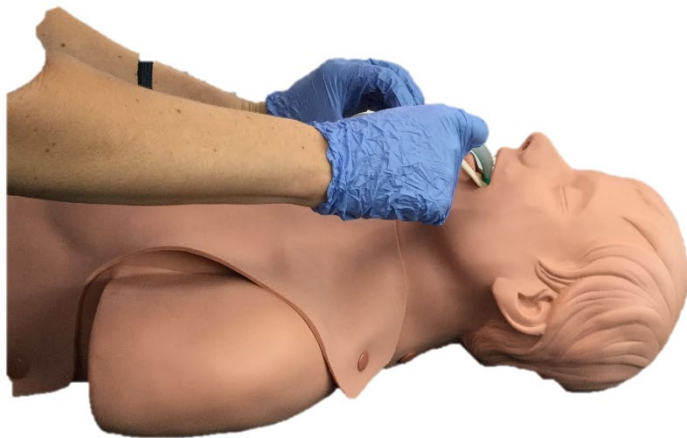
Oropharyngeal Airway

PRACTICAL APPLICATION



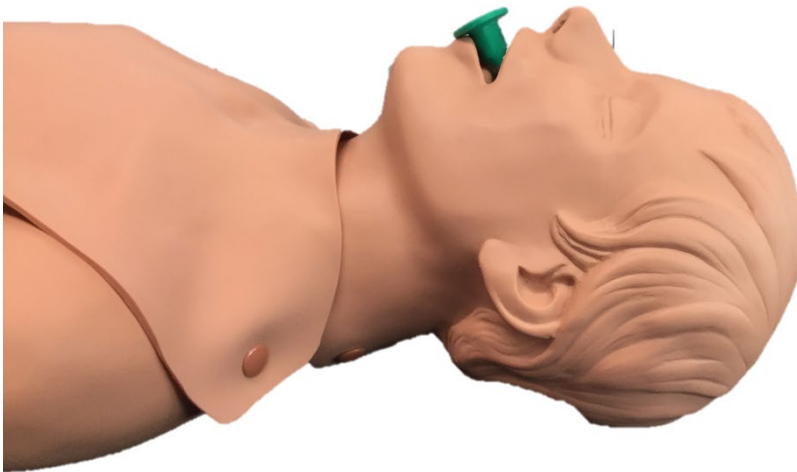
Oropharyngeal Airway

PRACTICAL APPLICATION



Oropharyngeal Airway

PRACTICAL APPLICATION



Simple Airway Adjuncts

- **NPA v OPA**

- OPA
 - Patient must be deeply unconscious
 - Hence use jaw thrust as guide
 - If not, then increased risk of vomiting
- NPA
 - Better tolerance
 - Not as successful at opening airway
- If not tolerating jaw thrust, use NPA

Ventilation Techniques

1. Pocket Mask

- 16% Oxygen in expired air
- Port for oxygen supplementation
- Can create a good seal
- 2 hands in C shape

2. Bag-Valve-Mask

- Compatible with pocket mask
- Two person technique
- Allows approximately 85% oxygen supplementation

Avoid person to person contact, thus reduce risk of cross-contamination

Cause gastric inflation

Prolonged use poses significant risk of vomiting & aspiration

Practical

FACE MASK



Practical

BAG VALVE MASK



Practical

2 PERSON BAG VALVE MASK



Advanced Airway Techniques

A. Supraglottic

1. Laryngeal mask airway
2. I-Gel

B. Endotracheal Intubation

Laryngeal Mask Airway

- Cuff sits over tracheal inlet
- Provides some protection re: aspiration
- Reduces gastric insufflation
- Airway not fully protected
 - Not absolute
- Simple & easy to insert

I-Gel

- Gel cuff sits over tracheal inlet
- Some protection against aspiration
- Reduces gastric insufflation
- Reduced likelihood of cuff tear
- Suction port

I-Gel

- PRACTICAL



I-Gel

- PRACTICAL



I-Gel

- PRACTICAL



Endotracheal Intubation

- Gold standard
- Avoids gastric insufflation
- Protects the airway from soiling
- Allows high ventilation pressures
- Needs experienced practitioner

Surgical Airways

- Hypoxia will lead to cardiac arrest
- Rapid & decisive intervention required
 1. Needle cricothyroidotomy
 2. Surgical cricothyroidotomy

Needle Cricothyroidotomy

- Insert cannula through cricothyroid membrane into trachea
- 45° caudally
- High intermittent oxygen
 - 3 way tap or cut piping
 - Deliver O₂ 1 sec in every 5
- Does not ventilate
- Temporising measure 20-30minutes

Surgical Cricothyroidotomy

- Surgical incision through cricothyroid membrane into trachea
- Insert a small endotracheal tube (mini trach II kit)
- Ventilation & oxygenation
- Larger incision linked to greater risk of complications

Complications

- Needle Cric
- Inadequate O2
- Hypoxia & cardiac arrest
- Aspiration (blood)
- Oesophageal laceration
- Haematoma
- Through & through
- Subsequent subcutaneous emphysema
- Perforate thyroid
- Surgical Cric
- Aspiration (blood)
- Stenosis
- Haemorrhage
- Laceration (oesophagus or trachea)
- Mediastinal emphysema
- Vocal cord paralysis
- Hoarseness

Summary

- Recognise airway occlusion
- Listen, Look, Feel, Assess, Pulse check
- Head Tilt, chin lift
- Jaw thrust
- Suction
- NPA/ OPA
- LMA/ IGEL
- Endotracheal intubation
- Needle or Surgical Cricothyroidotomy