

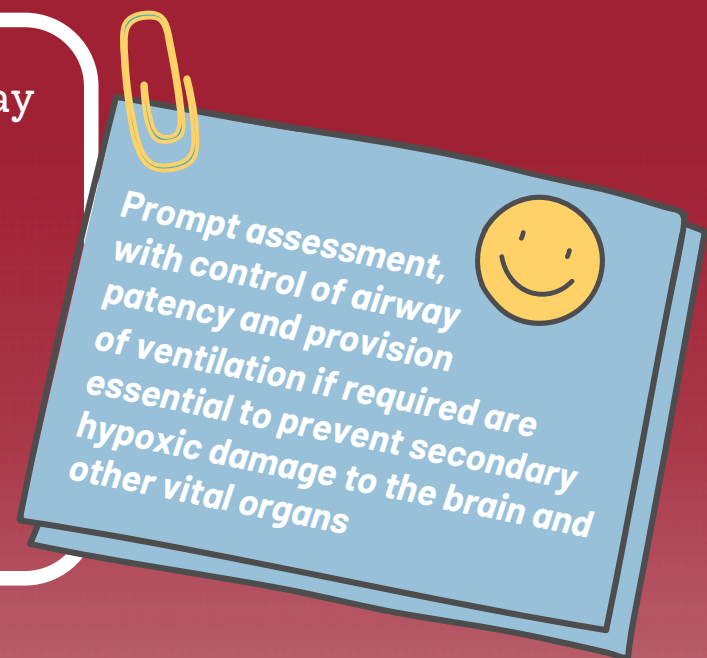


MUMIN'S AIRWAY MANAGEMENT

“ Patients requiring resuscitation often have an obstructed airway

Typical causes of airway obstruction

- Unconscious patient
(posterior displacement of tongue & relaxation of airway muscles)
- Inhaled foreign body
- Trauma to the airway
- Anaphylactic reaction



1. Recognition of Airway Obstruction

LOOK

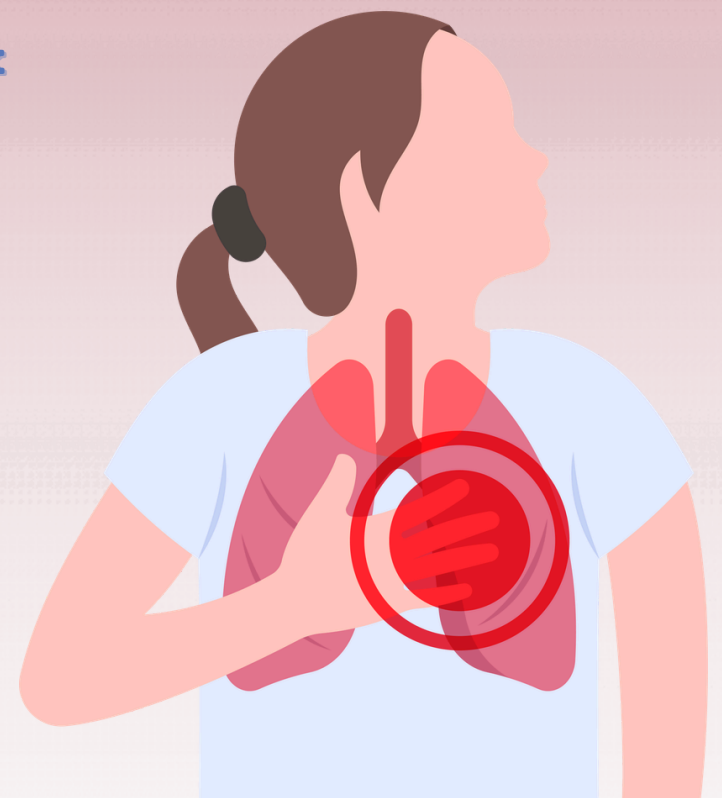
for chest and abdominal movements

LISTEN & FEEL

for airflow at the mouth and nose

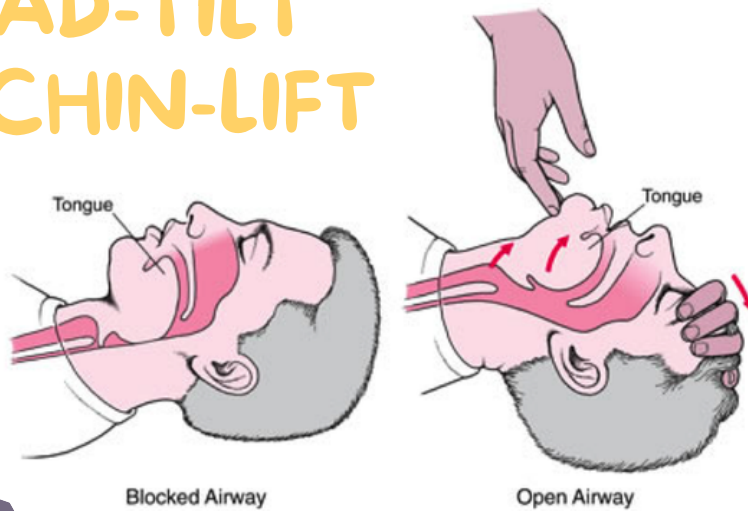
Signs of airway obstruction

- **Inability to spontaneously swallow and speak**
- **Noisy breathing (inspiratory stridor, expiratory wheeze, gurgling)**
However, complete airway obstruction is silent!
- **Use of accessory muscles of respiration**
- **Increased work of breathing (intercostal or subcostal recessions, tracheal tug, see-saw breathing)**
- **Anxiety**

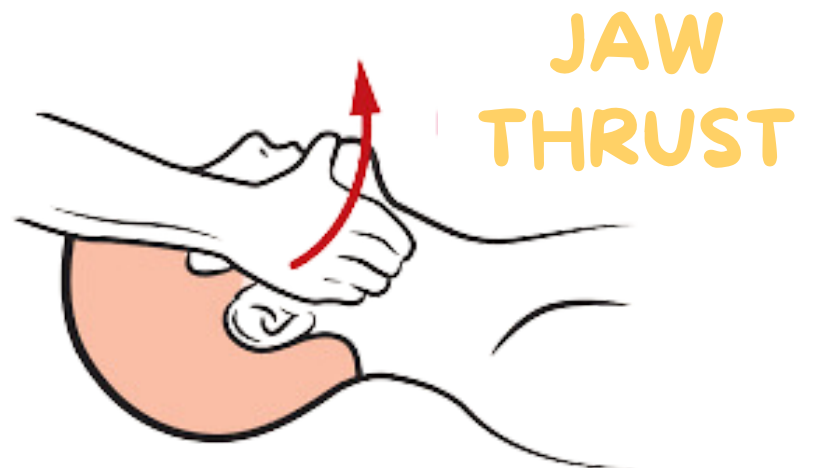


2. Basic Techniques for Opening the Airway

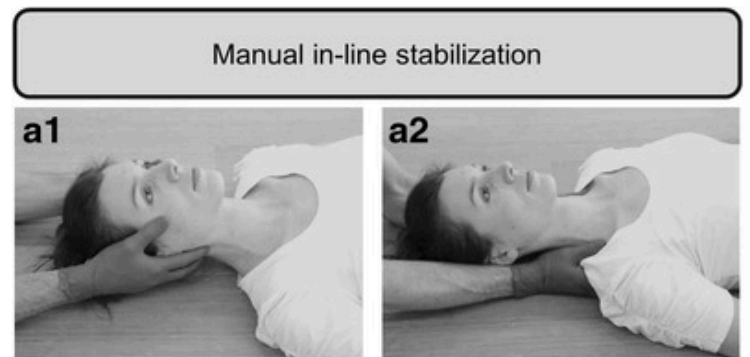
HEAD-TILT and CHIN-LIFT



- Manoeuvre for bringing the mandible forward
- Index and other fingers placed behind the angle of mandible to apply upwards and forward pressure to lift the mandible
- Thumbs push down on the chin to slightly open the mouth



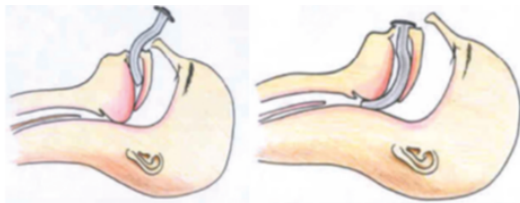
- *In suspected cervical spine injury, use jaw thrust in combination with **manual in-line stabilisation (MILS)** of the head and neck by an assistant.*
- *Head-tilt chin-lift is not performed due to the risk of cervical spine instability!*
- *MILS is replaced by a cervical collar, lateral blocks / sand bags, and head and chin straps once the airway is secure*



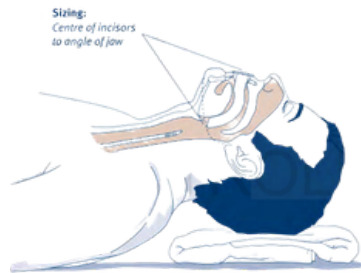
3. Simple Airway Adjuncts

Devices used to help with creating and maintaining a **patent upper airway**, in conjunction with the basic airway maneuvers, particularly when resuscitation is prolonged. Designed to **overcome soft palate obstruction and backward tongue displacement** in an unconscious patient.

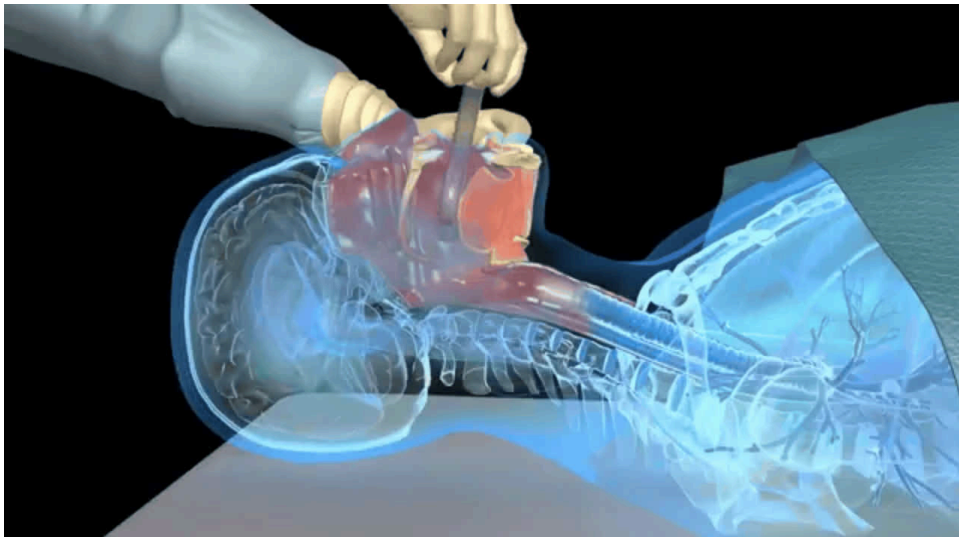
OROPHARYNGEAL AIRWAY (GUEDEL AIRWAY)



Placement of Oropharyngeal Airway



Sizing:
Centre of incisors
to angle of jaw



<https://www.youtube.com/watch?v=caxUdNwjt34>

Indications

Use only in comatose / deeply obtunded patients without gag reflex

Sizing

Properly sized oral airways reach from central maxillary incisors to angle of jaw

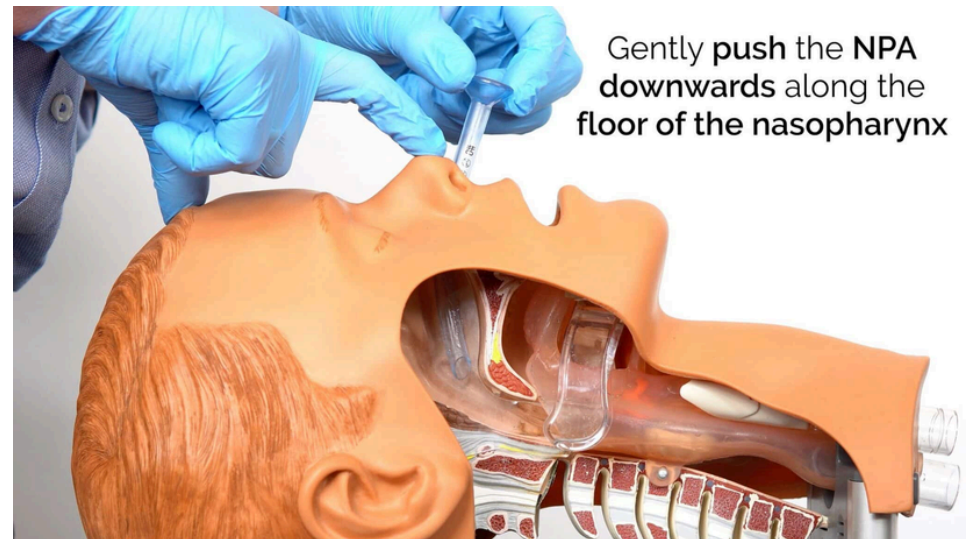
Insertion

Insert the oral airway in the "upside-down" position (concave portion cephalad) and rotate 180° after passing the tongue, advance the airway until it lies within the pharynx

NASOPHARYNGEAL AIRWAY



Placement of Nasopharyngeal Airway



Gently **push the NPA downwards** along the floor of the nasopharynx

Indications

Semi-conscious patients with intact gag reflex, trismus, or maxillofacial injuries

Sizing

Sizes 6-7mm are suitable for adults

Insertion

After lubrication, insert the nasal airway bevel-end first vertically along the floor of the nose

4. Ventilation

Artificial ventilation is started as soon as possible in any patient in whom spontaneous ventilation is inadequate or absent.

BAG-VALVE MASK



Contain a self-inflating bag coupled with a facemask and a non-rebreathing valve
The self-inflating bag can also be connected to SADs or ETT

- Can be used with room air or supplemental oxygen
- Adequate oxygenation and ventilation with BVM requires upper airway patency and a good facemask seal

Indications

- Emergency ventilation for apnea, respiratory failure, or impending respiratory arrest
- Pre- or interim ventilation and oxygenation during efforts to achieve and maintain definitive artificial airways (eg. endotracheal intubation)

Complications

- Gastric inflation → regurgitation & aspiration

Techniques

- Mask-sealing technique: "C" to clamp the mask, "E" to lift the mandible
- Two-person approach is preferred



2 Hand (E-C Clamp Technique)

1 Hand (E-C Clamp Technique)

Bag-valve ventilation rate:

Spontaneously breathing patient

Cardiac arrest patient

Patient with advanced airway (e.g. ETT)

Follow rate of breathing

30 chest compressions to 2 ventilations (30:2)

One breath every 6s without interruptions in chest compressions (10 breaths/min)

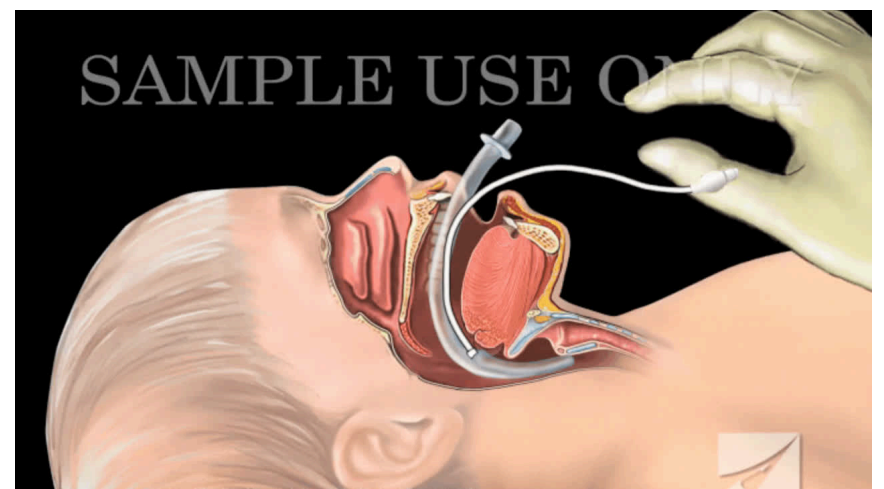
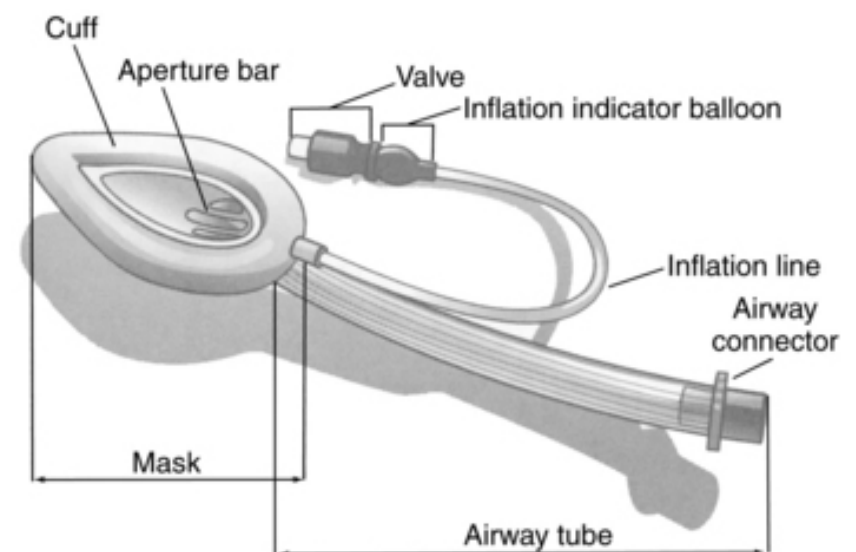
5. Advanced Airway Devices: Supraglottic Airway Devices

- Devices placed in the oropharynx for oxygenation and ventilation for short periods of time (not used for prolonged ventilation)
- Placed in apnoeic, unconscious patients (no gag reflex)
- Often a bridge to endotracheal intubation or a rescue device after unsuccessful intubation. Easier to insert than a tracheal tube, and unlike tracheal intubation, they can generally be positioned without interrupting chest compressions
- In comparison with bag-mask ventilation, SADs may enable more effective ventilation and reduce the risk of gastric inflation



LARYNGEAL MASK AIRWAY (LMA)

Consists of a wide-bore tube with an elliptical inflated cuff designed to seal around the laryngeal opening

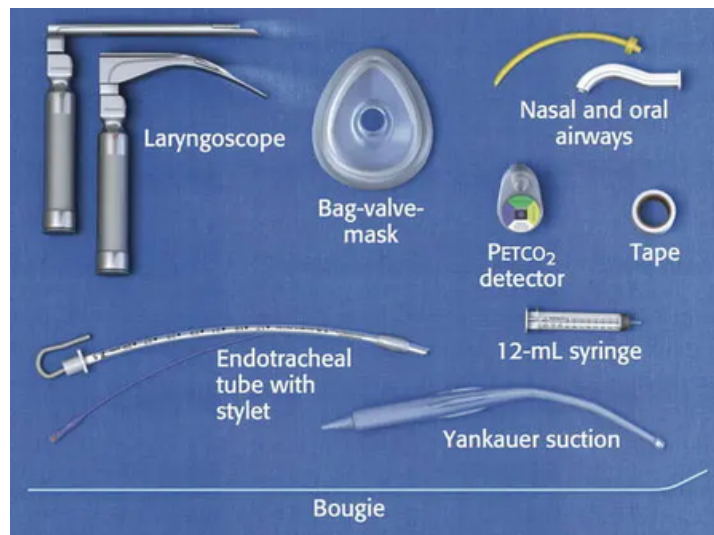


<https://www.youtube.com/watch?v=9AVZTHgse6U>

6. Tracheal Intubation



Equipment



Insertion



<https://www.youtube.com/watch?v=V8Vlw0fk4X0>

Rapid sequence intubation (RSI)

- The sequential administration of an induction agent and neuromuscular blocking agent to facilitate endotracheal intubation
- Fastest and most effective means of controlling the emergency airway

- **Creates a direct conduit to the trachea, allowing airway patency, aiding oxygenation and ventilation, and preventing aspiration**
- **Should be used only when trained personnel are available to carry out the procedure**
- **The intubation attempt will require interruption of chest compressions $\Rightarrow$ no more than 5 seconds**

Indications

- Respiratory failure
- Apnoea
- Reduced level of consciousness (GCS ≤ 8)
- Impending airway compromise

Contraindications

Severe airway trauma or obstruction that does not permit the safe placement of an endotracheal tube (ETT)

Confirm ETT placement with multiple methods

- Clinical: chest rise, chest and epigastric auscultation, tube condensation
- Carbon dioxide detectors: capnometers, capnographs
- Oesophageal detection device

Complications

- ETT misplacement (e.g. oesophageal intubation)
- ETT dislodgement
- Oxygen desaturation, hypotension, cardiac arrest
- Pneumothorax
- Injury to oropharynx or hypopharynx
- Gastric / visceral perforation



References

1. Tintinalli's Emergency Medicine, A Comprehensive Study Guide, 9th Ed.
2. https://lms.resus.org.uk/modules/m65-non-technical-skills/resources/chapter_7.pdf
3. Advanced Life Support Training Manual 2022
https://www.moh.gov.my/moh/resources/Polisi/Advance_Life_Support_Training_Manual_PDF_2022.pdf
4. <https://litfl.com/airway-management-in-major-trauma/>
5. <https://litfl.com/airway-and-cervical-spine-injury/>
6. <https://www.ncbi.nlm.nih.gov/books/NBK470403/>
7. <https://litfl.com/rapid-sequence-intubation-rsi/>
8. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9647646/#:>

