

# Artificial Airways

## Endotracheal Intubation

To maintain a patent airway ET intubation may be needed

### Intubation procedure:

- Obtained consent (unless emergent intubation is needed)
- Educated the patient about the what to expect and what they will not be able to speak when intubated
- Place removable mitts on hands if indicated
- Ensure there is BVM attached to O<sub>2</sub> and suctioning is at bedside
- Assemble and double check equipment to be used
- Pre-medicate as ordered and depending on LOC
- Place patient supine with head extended and neck flexed "sniffing"
- Pre-oxygenate the patient via BVM & 100% O<sub>2</sub>
- Ensure each intubation attempt is limited to < 30 sec
- After intubation inflate cuff and confirm placement with end-tidal CO<sub>2</sub>
- Obtain CXR to confirm tube location and mark tube @ mouth
- Obtain ABGs 15-30 mins after intubation

## Nursing Management

### Maintaining Tube Placement

- If tube is dislodged, it can enter the esophagus or the right bronchus
- Observe chest for symmetric movement
- Auscultate for bilateral chest sounds

### If ET tube is not positioned properly

- Stay w/ patient
- Ventilate w/ BVM + 100% O<sub>2</sub>
- Call a rapid response for help repositioning

### Maintaining Cuff Inflation

- The cuff seals the ET tube within the trachea and prevents ventilated air from escaping
- Cuff pressure should be maintained as 20-25 cm H<sub>2</sub>O
- Document cuff pressure frequently and notify the HCP immediately if you suspect a leak

### Monitoring O<sub>2</sub> + Ventilation

- Assess oxygenation frequently via ABGs, pulse ox, mental status, and lung sounds
- PETCO<sub>2</sub> can also be used to assess oxygenation

### Maintaining Tube Patency

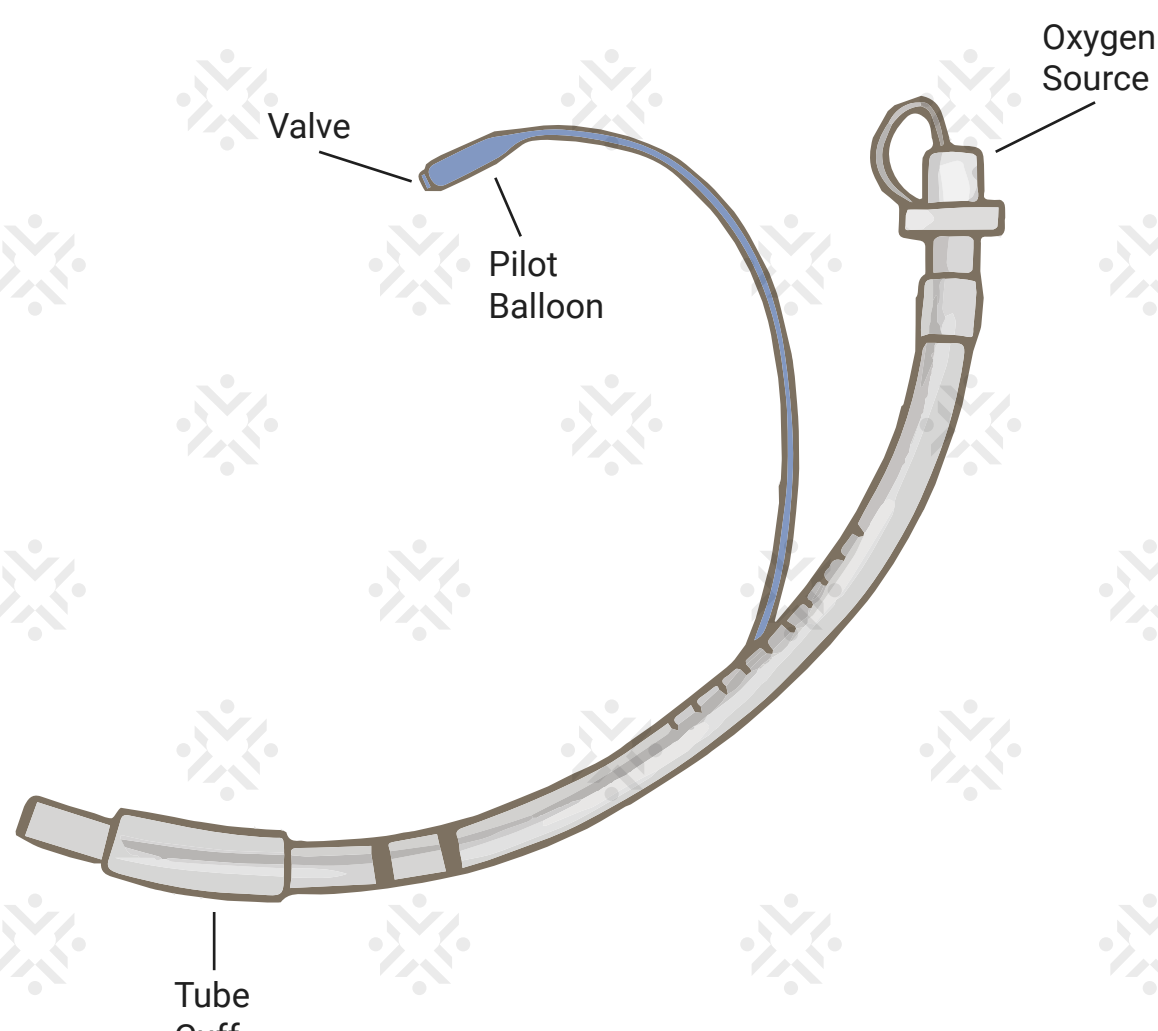
- Avoid over-suctioning a vented patient. You will know suctioning is indicated if :
  - You can visualize secretions in the ET tube
  - There is sudden onset of distress
  - You suspect aspiration has occurred
  - There is an unexplained increase in respirations
  - SpO<sub>2</sub> decreases suddenly

### Oral Care and Maintaining Skin Integrity

- Because the patient's mouth is open most of the time, oral care is imperative to prevent mucosal drying and infection
- Use oral swabs with hydrogen peroxide every 2-4 hrs and chlorhexidine solution twice daily
- Pressure from the mouthpiece and bite block can cause skin breakdown. Assess the face, lips, tongue, and nares frequently
- Reposition ET tape frequently. Always have two staff members present in case of dislodgement

### Maintaining Comfort and Communication

- Evaluate pain levels frequently and administer pain medication and anxiolytics as ordered



# Mechanical Ventilation

Mechanical Ventilation is when air is moved in and out of the lungs of the lungs manually. It's not a permanent solution to respiratory distress/failure, but is a means of support

### Indication

- Apnea or altered airway
- Acute respiratory failure
- Severe hypoxia
- Respiratory muscle fatigue

### Negative pressure ventilation

- Causes the chest wall to be pulled outward, reducing intrathoracic pressure. This makes inspiration much easier and is relatively non-invasive compared to positive pressure ventilation

### Positive pressure ventilation

- The main method of mechanical ventilation used with acute patients

### Volume ventilation

- Predetermined tidal volume (V<sub>r</sub>) is delivered

### Pressure ventilation

- Peak inspiratory pressure is predetermined

## Settings of positive pressure ventilation

- Respiratory Rate	- 6-20 breaths per minute
- Tidal Volume (V <sub>r</sub> )	- Volume of gas delivered each breath
- O <sub>2</sub> Concentration (FiO <sub>2</sub> )	- 6-10 mL/kg
	- 21% - 100% is delivered to maintain PaO <sub>2</sub> > 60 mmHg and SpO <sub>2</sub> > 90%