TRACHEOSTOMY EMERGENCIES

Adult | **Pediatric**

Definitions

- **DOPE Pneumonic**: **D**isplaced, **O**bstructed, **P**neumothorax, and **E**quipment failure.
- **Tracheotomy**: Incision made below the cricoid cartilage through the 2nd-4th tracheal rings.
- **Tracheostomy**: The opening or stoma made by this incision.
- **Tracheostomy Tube**: Artificial airway inserted into the trachea through the tracheostomy.
- **Laryngectomy**: The removal of the larynx and separation of the airway from the mouth, nose, and esophagus.

Purpose

The majority of adults and children with tracheostomies are dependent on the tube as their primary airway. Cardio-respiratory arrest most commonly results from tracheostomy obstructions. Obstruction may be due to thick secretions, mucous plug, blood clot, foreign body, or kinking or dislodgement of the tube. Early warning signs of obstruction include tachypnea, tachycardia, and desaturation. Cyanosis, bradycardia, and apnea are late signs. **DO NOT** wait for these to develop before intervening.

BLS

Position of comfort
Open and position the airway
Evaluate RR
Apply O_2 to both the face and tracheostomy
Titrate SpO_2 to $\geq$ 94%
Airway Adjuncts: OPA/NPA as needed to control the airway
Ventilate via BVM either mouth or tracheostomy tube
Reassess often
Oral pharyngeal suctioning as needed
Suction around the tracheostomy opening as needed (do not enter the stoma)
Avoid hyperventilation

ALS

Cardiac Monitor, Continuous Waveform $EtCO_2$, Suction, Vascular Access

ALS (*cont*)

Severe Respiratory Distress or Respiratory Arrest

- Assess the patient using the DOPE pneumonic
- Remove speaking valve if present
- Remove T-tube if on humidified oxygen
- If the patient is on a ventilator remove from the ventilator and provide manual ventilation with a BVM to tracheostomy tube
- Provide suction (see below)

<u>If unable to ventilate or pass a suction catheter</u>

- If the caregiver is available, have them remove and replace the tracheostomy tube
- If the caregiver is not available, deflate the tracheostomy tube cuff (if present) and remove the tube
- Ventilate via a BVM to face with airway adjuncts while blocking the stoma with a finger
- If unable to ventilate via BVM to face, attempt ventilation via stoma with pediatric BVM mask
- If unable to ventilate via BVM to stoma, attempt oral intubation using a bougie (see Airway Management procedure)
- If unable to orally intubate after 2 attempts, attempt to intubate the Stoma (see procedure bellow)

Tracheostomy Suctioning

Indications

- Audible or visual signs of secretions in the tube
- Signs of respiratory distress
- Suspicious or blocked or partially blocked tube
- Inability to clear the tube with coughing
- Request by patient

Procedure

- Select appropriately sized suction catheter (8-16 French)
- Set suction to low pressure
- (100-120 mm/Hg)

- Select appropriate suction catheter
- (8-10 French)
- Set suction to low pressure
- (50-100 mm/Hg)

- Ventilate with 100% O_2
- Flush catheter with saline to lubricate tip and establish patency
- Insert the suction catheter into the stoma or tracheostomy tube with the suction off, no more than 3-6 cm
- Do not force suction catheter
- Apply suction by occluding the thumb hole while slowly withdrawing the catheter in a twisting motion for no longer than 10 seconds for adult patients and 5 seconds for pediatric patients
- Suctioning can stimulate a cough reflex; allow the patient to cough. Be prepared to suction or catch secretions from the tracheal opening
- May repeat after 1 minute or as needed

Tracheostomy Intubation

Adult – Age 15 and older

Indication

Unable to ventilate the patient with BVM to mouth, tracheostomy tube, or tracheostomy

Procedure

- Prepare and position the patient
- Select the largest ET tube that will fit through the stoma without force (should be the same size as the tracheostomy tube). Check the cuff for leaks
- Oxygenate with 100% O_2 using a BVM to face or stoma
- Do not use a stylet
- Suction if necessary
- Pass the ET tube and inflate the cuff (Note: Be mindful of the depth of ET Tube placement. Passing the ET tube too deep can result in mainstem bronchus placement. The pharynx has been bypassed, so the tube will protrude from the neck several inches.)
- Hold the tube in place
- Check the neck for subcutaneous emphysema indicating false passage
- Verify placement by ALL of the following:
  1. Rise and fall of the chest
  2. Bilateral breath sounds
  3. Negative epigastric sounds
  4. Condensation in the tube
  5. Continuous waveform $EtCO_2$
- Secure the tube with tape and note depth

Consider

- Always talk to family/caregivers as they have specific knowledge and skills.
- It is important to realize that some patients have had a laryngectomy - typically cancer patients. These airways begin at the stoma. There is no connection between the patient's oropharynx and airway. Most patients, however, maintain continuity between their oropharynx and trachea. These patients usually received a tracheostomy due to prolonged respiratory failure.
- Use patient's equipment if available and functioning properly.
- Some patients will have uncuffed tracheostomy tubes. Air will leak around these tubes and are not sufficient for manual ventilation. If you hear air escaping from the patient's mouth and/or around the tube during ventilations and the patient is not improving, suspect an uncuffed tube. Remove the tube and ventilate via BVM to face while covering the stoma.
- Continuous Waveform $EtCO_2$ provides information about ventilation status. $EtCO_2$ can be attached to both BVM mask or tracheostomy tube.
- Nasal Waveform $EtCO_2$ should be used if the patient is not being manually ventilated.
- Mucous frequently obstructs a stoma or tracheostomy tube. Patients may require repeated suctioning.
- Remember that patients with stomas/tracheostomy tubes are subject to the same illnesses as anyone else.

Direction

- Early Base Hospital Physician Contact for difficult airway