TRACHEOSTOMY CARE

Los Angeles County College of Nursing and Allied Health
N233L - 3rd Semester
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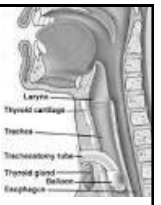
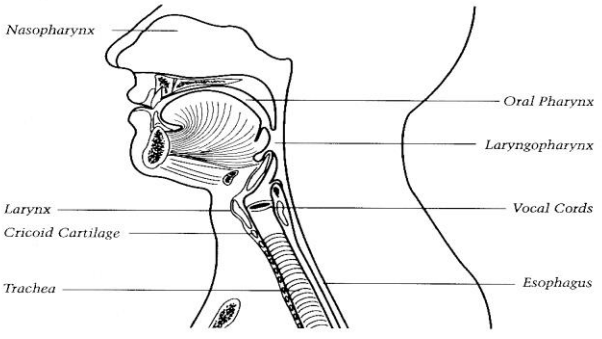
Skills Competency (at end of semester)

- **You must be able to verbally answer:**
  - Three interventions to perform on patient prior to trach care
    - 1. ID patient
    - 2. Respiratory Assessment
    - 3. Establish communication via hand signals
  - Five objects that must be in the room prior to trach care
    - 1. Obturator
    - 2. O2 wall/tank set up (with tubing)
    - 3. Ambubag
    - 4. Suction setup (including suction canister and tubing)
    - 5. O2 Sat machine (only if patient tends to desat on trach care)

Supportive Data



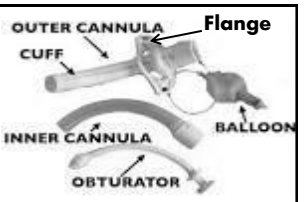
- Most common airways are oropharyngeal, nasopharyngeal, endotracheal, and tracheostomy
  - A Trach Tube is one type of artificial airway
- Inserted to maintain a patent airway for clients whose airways are or can become obstructed
- Tracheostomy is an opening (stoma) into trachea through neck, a tube is usually inserted through this stoma and an artificial airway is created
  - Done surgically or percutaneous (at bedside in an ICU)



Normal anatomy of the upper airway.

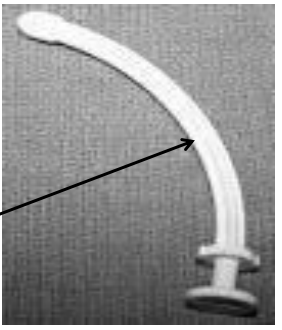
Nose plays an important role in upper airway. As air passes in the nostrils, large particles of dust & dirt are filtered. Mucous membranes further filter, warm or cool the air & humidify it. Air then travels thru the oral pharynx to the laryngopharynx. Here it passes thru the larynx where vocal cords are located. Larynx is located at the top of the trachea. When a person breathes in, the vocal cords open, allowing air to pass freely into the trachea. Keep in mind that when a person has a tracheostomy in place they no longer have the capability to filter foreign bodies, can't modify inspired air temperature or humidify it, lose sense of smell, & most importantly lose ability to speak. Swallowing ability also usually altered.

Parts of the Trach Tube



- Consist of 3 parts: outer cannula[a hollow piece of tubing: the inner tubing of a trach tube] with flange[neck plate], inner cannula, and an obturator[provides a smooth surface that guides the tracheostomy tube when it is being inserted]
  - Outer cannula is outer tube that holds the trachostomy open
  - A neck plate extends from the sides of outer tube and has holes to attach ties or velcro strap around neck.
  - Inner cannula fits inside outer cannula, has a lock to keep it from being coughed out and is removed for cleaning.

Obturator



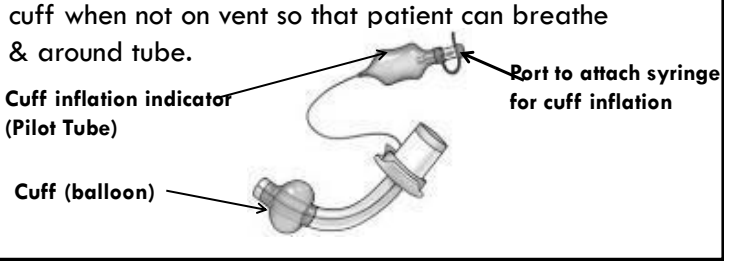
- Size is difficult to see but is in the center of the Obturator in white.
- It occludes the opening
- The inner cannula fits inside the outer cannula. It has a lock to keep it from being coughed out, and it is removed for cleaning. The **obturator** is used to insert a **tracheostomy** tube. It fits inside the tube to provide a smooth surface that guides the **tracheostomy** tube when it is being inserted.

Tracheostomy Tubes

- Tubes available in different sizes
- Tubes can be plastic, silicone, or metal
  - These tubes can be cuffed, uncuffed or fenestrated
    - See following slides…….

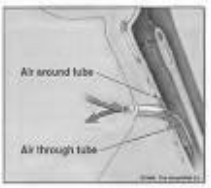
Cuffed Tracheostomy Tubes

- Tube surrounded by an inflatable cuff (balloon) that produces an airtight seal between tube and trachea
  - Seal prevents aspiration of oropharyngeal secretions and air leakage between tube and trachea
  - Used immediately after a tracheostomy and essential when on a ventilator.
    - Deflate cuff when not on vent so that patient can breathe through & around tube.



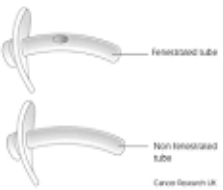
Uncuffed Tracheostomy Tube

- Uncuffed tubes do not have a balloon and allow for air flow around the tracheostomy tube
- Primarily used in non-ventilated pts that have no problem swallowing and no danger of aspirating
- Allows air to pass into upper trachea and larynx so pt can cough/speak normally



Fenestrated Tube

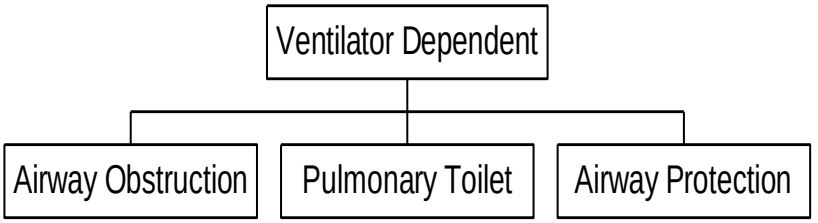
- Have one or more openings to the outer cannula above the cuff
  - Allows air to pass through to the vocal cords, thus allowing the patient to communicate



Cuffed Fenestrated Tube

Uncuffed Fenestrated Tube

Reasons for Tracheostomy



Four main indications for tracheostomies (can also be a combo of these).

- 1st is ventilator dependence
- 2nd is airway obstruction caused when the upper airway is blocked i.e., edema of glottis, carcinomas, anaphylaxis, congenital abnormalities, & trauma.
- 3rd is pulmonary toilet which is when a pt. is requiring frequent suctioning & cannot keep up with own secretions for whatever chronic reason including a host of Pulm. Diseases, spinal cord injuries, neuromuscular diseases (don't have the strength or reserve to cough).
- 4th is airway protection which basically covers the percentage of pt.s that have obstructive sleep apnea, chronic aspirations, or possibly inhalation burn victims.

Assess the Following a Minimum of Every 4 Hours

- VS
- Resp pattern & BS
- Chest expansion
- Use of accessory muscles (retractions, nasal flaring)
- Secretions
- Cough
- Skin and nail bed color
- Pressure Ulcers
- Suture site for new trach
- Trach s/s infection
- Cuff leak
- Pulsating trach
- Need for suctioning minimum of q 4hrs, prn and after nebulizer tx
- O2 sat
- Need to change disposable inner cannula minimum of q 8hrs

Tracheostomy Tube Care

- Clean site q 8hrs or more frequently if soiled
- Clean non-disposable inner cannula q 8hrs with 1:1 H2O2/NS mixture and rinse with NS or with solution as ordered. Hold plate to stabilize trach tube while removing & replacing inner cannula
- Change disposable inner cannula with same size cannula when soiled or at least every 72 hrs
- Change trach ties/Velcro holder q 24hrs or more frequently if soiled. If new trach, see MD orders

Safety

- Ensure the following equipment is at bedside at all times:
  - Complete suction set-up
  - Manual resuscitation bag
  - Obturator in plastic bag and taped to bed
  - Extra trach tube (same size) with obturator
  - Extra inner cannula of same size (disposable inner cannula only)
- Provide extra safety for pts with AMS or Peds
- Ensure humidified 02 administration as ordered
- Ensure 02 humidifier does not run dry

Equipment to Clean the Trach

- Medline Tracheostomy Clean and Care Tray

- Contents of Trach Care Pack: Tray (with 3 sections), Vinyl Gloves, Drape, 2 Pipe Cleaners, 2 Gauze, 5 Cotton Tip Swabs, Trach Dressing, Brush, Twill Tape, 2 H202 bottles (packs), & Saline.

Steps to Clean Trach

1. Tell pt what you will be doing, then wash hands
2. Open Pack, pull out sterile drape and apply to pt's chest
3. Apply sterile gloves
4. Put supplies on sterile drape
5. Pour cleaning solutions/supplies. About 50mL of H202 and 50mL of NS to large section of tray. Then equal amount of rest of NS to both smaller sections of tray
6. Soak cotton tipped applicator sticks in H202 Soln
7. Cleanse tracheostomy (see Berman pg 1276-1278). Clean by using applicator stick to clean skin beneath trach. Repeat as needed to remove secretions.
8. Change inner cannula every 24 hours. Submerge cannula in H202/NS soln.

Steps to Clean Trach (cont'd)

9. Scrub inner cannula with brush provided then discard brush (repeat as needed to remove thick secretions)
10. Rinse inner cannula with 1st section of NS. Check inside of cannula to make certain it is clean
11. Rinse a second time in the second section of NS tray.
12. Reinsert inner cannula and lock in place
13. Place dry clean 4x4s underneath trach tube flanges (plate)
14. Change trach ties if soiled, supporting the outer cannula at all times (may need a second person to assist)
15. Make sure to check sizing of trach ties to assure that one finger can be placed under the ties. Also examine neck for sores and erythema.
16. Discard all contaminated supplies in appropriate container
17. Wash hands

Complications of Trach

- **Bleeding** - 1st complications. Small amount of bleeding (pink or red streaked mucous) often occurs with trachs. Possible causes:

1. Irritation to the tissue around the stoma
2. Insufficient humidity to the airway
3. Deep or vigorous suctioning
4. Trauma or manipulation of the trach
5. Excessive coughing

- ** AT NO TIME SHOULD YOU EVER SEE MOD. OR LG. AMOUNT OF BRIGHT RED BLOOD FROM THE TRACH!*** CALL M.D. IMMEDIATELY!
- **Infection** - Patients with trachs are at high risk for resp. infections, since their bodies natural defenses are bypassed. Symptoms of this could be:

1. Thicker sputum, yellow or greenish sputum, or even blood-tinged possibly depending upon the organism, large amt.'s of sputum
2. Redness, rash or inflamed stoma site with discomfort
3. Foul odor, high temp, congested B/S, increase RR & effort, listlessness

- You should always notify your M.D. with any new symptom. The #1 best defense against infection is good hand-washing & proper universal precautions.

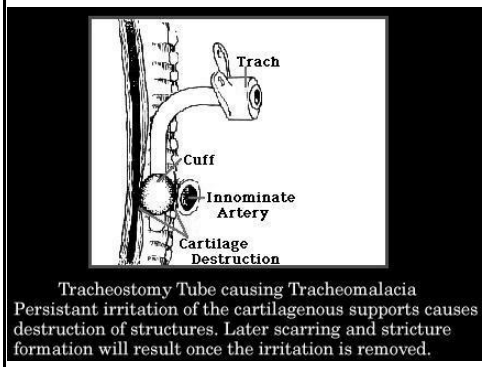
Complications of Trach (cont'd)

- **Obstruction** - Mucous plugs are the most common cause of resp. distress for pt.'s with trachs. Whether partially obstructed or completely obstructed here are some of the symptoms…
- If you encounter a trach that you suspect may be partially or completely obstructed, the tube may have become blocked with dried secretions or blood. Attempt to suction & ventilate with ambu bag. If unable to clear or pass a catheter, it's possible the trach could be dislodged. Call Resp Dept stat or code blue.
- This brings us directly to … CPR with a trach. If the trach is lost, it is recommended that you place the face mask of the ambu bag over the stoma & attempt ventilation that way or block off the stoma site with your fingers & attempt regular ventilation with ambu mask over mouth & nose until Resp Dept or anesthesia arrives & evaluates if emergency back-up can be placed.

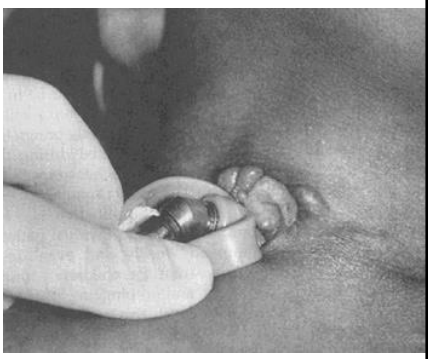
Other Complications

- **Tracheoinnominate Fistula**- (rare) An erosion of the tube into the Lg. Artery that runs in front of the trachea. Possible hemorrhage- could lead to death.
- **Tracheoesophageal Fistula**- An abnormal connection between the trachea & the esophagus resulting from erosion of the back wall of the trach.
- **Stenosis**- Scar tissue at the site of the trach from excessive trach cuff pressures.
- **Pressure Necrosis**- Patients with long term trachs can develop pressure sores of the skin & tissue around the site. (Very important to inspect site daily.)

Other Complications (cont'd)

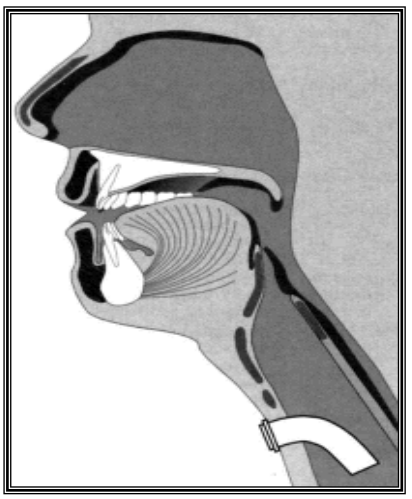


Tracheomalacia

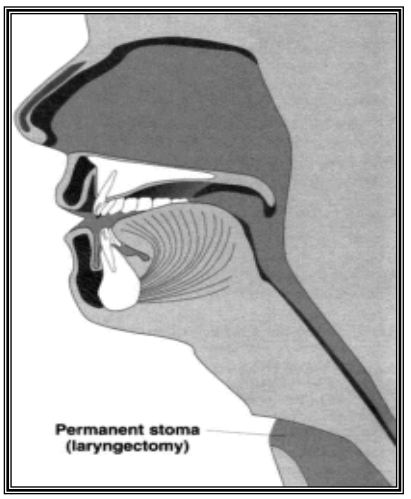


Granuloma: is a growth of inflammatory tissue which is caused by irritation of the airway by the tube.

Temporary Tracheostomy



Permanent Tracheostomy*



*If you ever encounter one of these pt.s it is wise to find out exactly what type of surgical procedure was done. If the pt. has no upper airway, and a code was called, the pt. would need to be intubated thru their stoma site & then once stable changed over to a comparable trach tube.

Common Trachs Used are Shiley

- All Shiley boxes have size and product designation
- See next slide for abbreviations on product box you may see

Shiley Product Abbreviations

FEN-fenestrated low pressure cuffed

LPC-low pressure cuffed

CFS-cuffless

CFN-cuffless fenestrated

LGT-laryngectomy

DCT-disp.cannula low pressure cuffed

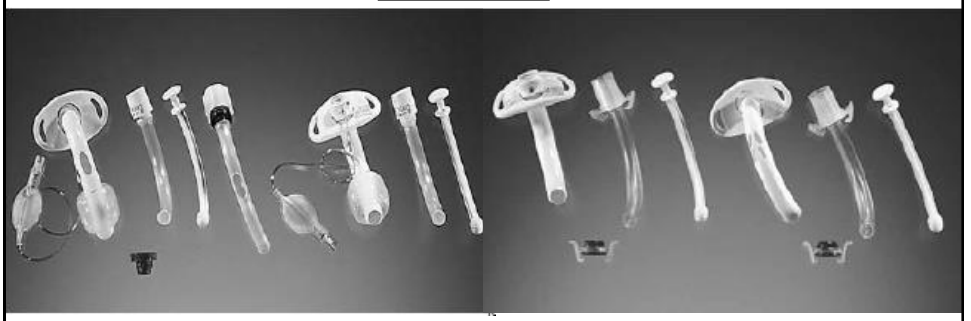
DFEN-disp. cannula fenestrated low pressure cuffed

DCFS-disp. cannula cuffless

DCFN-disp. cannula cuffless fen.

SCT-single cannula cuffed

TRACH TUBES



PEDIATRIC TRACH TUBES

NURSING DIAGNOSIS

- Ineffective airway clearance
- Risk for suffocation
- Impaired skin integrity
- Impaired verbal communication
- Anxiety
- Risk for infection
- Impaired gas exchange
- Ineffective breathing pattern
- Risk for trauma
- Knowledge deficit
- Deficient fluid volume
- High risk for injury

DOCUMENTATION

- Date and time of procedure
- Note size and type of trach
- Describe client's tolerance of procedure
- Record amount and consistency of secretions -thick (tenacious), watery (thin), scant (small amt), copious (large amt), frothy (with bubbles), color- clear, white, yellow, green, gray, brown, bloody, and any odor
- Note condition of client's skin and trach stoma

Thank You – Good Luck on Skills Comps!!!!