Tracheostomy Care & Management

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Revised: January 2015
Objectives

- Review of Evidenced-Based Guidelines in the Care & Maintenance
- Review Definition, Types of Tracheostomies & their uses
- Potential Complications
- Nursing Care Guidelines at NYGH:
  - Assessment,
  - Suctioning,
  - Dressing changes,
  - Inner cannula changes,
  - Other nursing considerations
  - Documentation in powerchart
- Emergency Scenarios
Definitions

- **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
Why does your patient have a tracheostomy?

- To maintain a patent airway when the ability to do this is temporarily or permanently compromised
- Bypass Obstructed airway
  - Tumor
  - Laryngeal edema
  - Foreign body obstruction
- Facilitate removal of secretions
- Permit long-term ventilation/prevent aspiration with prolonged coma
- Decrease work of breathing---severe COPD
Anatomy

**Conducting Passages**

Upper respiratory tract
- Nasal cavity
- Pharynx
- Larynx

Lower respiratory tract
- Trachea
- Primary bronchi
- Lungs

- airway
- esophagus
- vocal cords
- larynx
- tracheostomy tube
- hole (fenestration)
- hole (fenestration)
- to ventilator
- cuff

Making a World of Difference
Types

- Cuffed or Un-cuffed
- Fenestrated or Non-fenestrated
- Disposable or Non-disposable inner cannula
- NYGH uses ‘Shiley’ tubes with disposable inner cannulas
Parts of a Trach

- 1. Flange - secured with trach ties, stabilizes the trach
- 2. Outer Cannula - tube connected to flange
- 3. Inner Cannula - removable for cleaning
- 4. Obturator - a plastic guide with a smooth rounded tip that is used to guide the outer cannula during insertion
- 5. Cuff - Soft balloon around the end of the trach that can be inflated to allow for mechanical ventilation
Cuffed

**Purpose:**
- Increase or improve ventilation/oxygenation
- Prevent aspiration with feeding tubes, decreased gag reflex, gastro-esophageal reflux

**Identification:**
- DCT- disposable cannula
- DFEN- disposable cannula fenestrated
Cuff Complications

- Pressure from the cuff can cause damage to the trachea
- Necrosis
- Low pressure cuffs are used
- RT will inflate/deflate and monitor pressure
**Un-cuffed**

- Plastic or metal
- Allows air to flow freely around the tracheostomy tube through the larynx
- Reduces the risk of tracheal damage

**Identification:**
- DCFNS- disposable cannula cuffless
- DCFN- disposable cannula fenestrated cuffless
Fenestration

- Permits speech through the upper airway when the external opening is corked and the cuff is deflated
- Restores more of a normal airflow by allowing air to pass up and down the airway from the nose & mouth
- Allows secretions to be coughed out through mouth
Inner Cannula

- Allows maintenance of tube patency
- Changing or cleaning the inner cannula helps to clear secretions
- Can be non-disposable or disposable
- At NYGH disposable cannulas come in a box of 10 and will be changed Q8 hours & PRN
Caps and Plugs

- Occlude proximal end of trach tube to permit breathing through fenestration and upper airway

“CORKING”

- Disposable Decannulation Plug (DDCP) closes proximal end of DCFS, DCFN and DFEN

- Decannulation Plug (DCP) closes proximal end of FEN and CFN tubes
Tracheostomy Information

What should I know about my patient’s trach:

- What type is it?
- What number?
- Cuffed or cuff less—balloon inflated or deflated
- Fenestrated/non-fenestrated?
- Inner cannula disposable or reusable
- Corked? For how long? What is the goal?
- Is the Trach NYGH information sheet in the room and visible?
Tracheostomy Information Sheet

Patient Name_________________________________________
Date Tracheostomy Performed____________________________

Tracheostomy Tube:

Type: Shiley or Other________________________

Size: 4 6 8 10

Cuffed: Yes No

Fenestrated: Yes No

Inner Cannula:

Disposable Yes No

Fenestrated Yes No

During Trach Mask trials:

Inner cannula: Fenestrated non fenestrated

Cuff: Down Up

Tracheostomy Tube Changes:

<table>
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<tr>
<th>Date Due</th>
<th>Date Changed &amp; By: (initial)</th>
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Revised numonteiro CNE/2007
Potential Complications

Recognizing early S & S will allow early intervention & prevent negative outcomes

- Hemorrhage
- Pneumothorax
- Subcutaneous emphysema
- Dislodged tube
- Airway obstructions
- Infection
- Aspiration
- Tracheal damage

Obstruction

Clinical Presentation:
- Skin colour—pallour, cyanotic
- Increase respiratory rate, P, BP, Decreased O2 Sat
- Use of accessory muscles, flared nostrils, inability to lie flat
- Labored breathing
- Clammy appearance/cyanosis
- Decreased LOC or changes to behaviour (i.e.) Distress/anxiety/restlessness
Prevention is Key

- Trach patients are at high risk for airway obstructions, impaired ventilation, and infection as well as other complications
- Altered body image, requiring emotional/psychological support
- Skilled and timely nursing assessment and care can prevent these complications

Goals in care will include maintaining a patent airway as well as ventilation/oxygenation:
- Suctioning
- Humidity
- Trach care & maintenance
Nursing Assessment

- Beginning of each shift and prn
- Look and listen
- Vital signs & SpO2 – pulse oximetry
- Oxygen/Humidity
- Respiratory assessment = breath sounds
- Secretions- amount, color, consistency
- Cough, ability to clear own secretions
- Trach site
Equipment in Room

**emergency equipment**

Each Shift the nurse responsible for the pt must check and document that equipment is present and in working order.

- Functioning Suction & O2/Air for humidity
- Ambubag with trach adaptor/connector
- Trach set of same size and type—VISIBLE TO ALL
- Trach Info sheet with pt info.
- Obturator
- Box of disposable Inner Cannulas or trach tray for cleaning non-disposable
- Suction catheters
- Normal saline bottle
- Hydrogen peroxide (for non-disposable inner cannulas cleaning)
- Small ampules of normal saline for suctioning
- Mouth swabs
- Occlusive drsg—tegaderm
- Trach 4X4 sponges for dressing changes
Trach Care Guidelines

- Trach care to be entered in powerchart by nurse
- Q 8 hours (0600-1400-2200) & PRN
- Suction pt prior to trach care
- Assess skin around trach for redness, drainage, secretions, bleeding, maceration or excoriation and skin breakdown caused by flange pressure
- Clean around stoma & flange with Q-tips/ 2X2 moistened with NS
- Dry stoma area if needed and apply 4X4 gauze
- With newly established trach- are sutures still in place? Can they be removed?
- Trach ties secure?? Should be able to fit one finger under the tie
Changing/Cleaning Inner Cannula

NYGH uses Shiley trach tubes with disposable inner cannulas.

If a pt does have a trach from home or other institution, it is crucial to know if the inner cannula is disposable or reusable.

Non-disposable inner cannulas are cleaned with Normal Saline diluted hydrogen peroxide, rinsed off with N/S remove excess fluid before re-inserting.

Disposable inner cannulas are replaced with trach care Q8 hours & PRN( come in a box of 10).

Trach ties—are changed only when wet or soiled and 2 people should assist with this procedure—Leave one finger between ties and neck—Velcro hooks attach easily to tracheostomy tube flange.
Decision to Suction

Frequency of suction will vary and must be individually assessed & not done on a schedule

Factors to Consider:
- Is the pt able to cough &/or clear secretions?
- Increased work to breath?
- Changes to respiratory rate
- Amount and consistency of secretions
- Decreased O2 saturation
- Secretions are audible
- Pt request
- Other Respiratory S & S (i.e. SOB, cyanosis, restless, anxiety)
Complications with Suctioning

- Hypoxemia—dysrhythmia
- Atelectasis or lung collapse
- Mucosal trauma/damage---bleeding
- Broncho spasm
- Dysrhythmias
- Nosocomial pulmonary tract infection
- Sepsis
- Cardiac arrest
Procedure Considerations

- Suctioning removes secretions, & **also** O2

- Suction pressure **too high** (>120mmHg) can cause mucosa damage & bleeding

- Suction pressure **too low** may not clear secretions & be ineffective

- Suction mouth with a (yankauer) **not** the same suction catheter as trachea to avoid cross contamination

- **Do not** apply suction while inserting the catheter

- May be necessary to pre-oxygenate the patient prior to and after suctioning

- Use personal protective equipment (i.e. goggles, mask, face shield)
Suctioning

Insert catheter until you meet resistance &/or pt coughs forcibly then pull back slightly & start suctioning

Figure 1.

Carina
Suctioning

- Test suction pressure before instilling catheter 60-120 mm Hg
- Suction catheter: \( \leq \frac{1}{2} \) diameter of tube
- Prepare clean cup with NS to lubricate and clear secretions from suction catheter
- Dominant hand remains sterile with clean glove, and will be inserting the catheter, while the non-dominant gloved hand grasps the suction port
- Apply suction only on removal of catheter no during insertion
- Suction efficiently and quickly depending on secretion amount, consistency
- Do not exceed 3 attempts and allow 20 to 30 seconds between each, oxygenate pt between PRN
Inducing Cough

- If you suction and don’t obtain secretions you can instill normal saline (sterile ampule) to loosen secretions (induce cough reflex) for suctioning.

Note: this should not be done as a routine (may flush particles into resp system, increase infection, aspiration pneumonia).

- Secretions may build up within the inner cannula, and narrow the passage----pull out cannula and observe if copious secretions discard (if disposable) and place new one (if not disposable) clean and reapply.
Additional Nursing Considerations

Hygiene
- Good mouth care
- Brush teeth
- Yankeur suction
- Prevent pneumonia

Communication
- Alteration in communication
- Lip reading
- Communication board
- Corking for speech
Dysphagia

- May not be able to eat orally
- May have difficulty swallowing, require puree or thickened fluids
- May have N/G or G-tube
- Risk for aspiration

Infection Control

- Risk of pneumonia/respiratory infections increased
- Humidity applications
- Clean equipment
- Change suction catheters/tubes
- Clean trach
- Hand washing
- Cough etiquette
A good report must be presented at change of shifts and prior to breaks.

**Documentation should include:**

- A thorough resp. assessment **minimally Q4 hrs** regardless of shift, including:
  - trach care
  - changing of inner cannula
  - how pt is tolerating interventions
  - suctioning frequency
  - Detailed assessment of secretions, consistency, amount, colour
- Pts LOC
- Other systems potentially compromised: mobility, skin integrity, nutrition (N/G feed), communication
## Tracheostomy Assessment

### Type of Tracheostomy
- □ Cuffed
- □ Fenestrated
- □ Inner cannula - Disposable
- □ Inner cannula - Non-disposable
- □ Metal
- □ Non-fenestrated
- □ Speaking valve

### Tracheal Tube Size
- □ Talking tracheostomy tube
- □ Tracheostomy tube cork
- □ Uncuffed

### Tracheal Tube Cuff Pressure
- □ No dressing
- □ Other:
- □ Clean
- □ Drainage present
- □ Dry
- □ Intact
- □ Loose
- □ Moist

**Right click in Type of Tracheostomy box, choose Reference Text to view Tracheostomy Care Reminders**

### Tracheostomy Tube Status
- □ Cuff up
- □ Cuff down
- □ Inner cannula in place
- □ Patent
- □ Secure, sutures intact
- □ Secure, ties intact

### Stoma Site Description
- □ Skin intact
- □ Dry and clean
- □ Ecchymotic
- □ Edematous
- □ Excoriated
- □ Moist

### Tracheostomy Site Drainage Description
- □ Bloody
- □ Clear
- □ Foul smelling
- □ Purulent
- □ Secretions, copious
- □ Secretions, dried

### Cough
- □ None
- □ Able to clear secretions
- □ Unable to clear secretions
- □ Croupy
- □ Hacking
- □ Induced
- □ Loose

### Sputum Amount
- □ None
- □ Persistent
- □ Productive
- □ Spontaneous

### Sputum Consistency
- □ None
- □ Scant
- □ Small
- □ Moderate
- □ Large
- □ Copious

### Sputum Color
- □ Frothy
- □ Tenacious
- □ Thick
- □ Thin
- □ Clear
- □ Pink
- □ Red
- □ Light
- □ Blackened
- □ Blood-Tinged
- □ Brown
- □ Other
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<tr>
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<th>Frequency of Suctioning</th>
<th>RT Tracheostomy Tube Activities</th>
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<td>Normal saline installation</td>
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<td>Stoma site cleansed</td>
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<td>Suction, oropharynx</td>
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<th>Emergency Equipment</th>
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<tr>
<td>Tracheostomy Tube - Spare</td>
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<tr>
<td>Tracheostomy Tube Obturator</td>
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Scenario I

- Pt increasingly SOB, respirations 28, lips cyanotic, pt restless, unable to lie flat, O2 sat 89%, Trach type Fenestrated #6
- What do you do?
Interventions

- Reassure patient
- Suction pt quickly and efficiently monitor O2 Sat continuously— if no improvement
  - apply N/S 1cc & suction again
- Evaluate, anxiety, O2 Sat, colour of skin
- If pt has a Fenestrated trach tube
  - keep a non fenestrated inner cannula of the same size close at hand
  - Remove fenestrated inner cannula, Replace with non-fenestrated one and bag pt with 100% O2
- Call RT stat
Scenario II

☐ Pt is coughing vigorously and the trach de-cannulates and flies across the room...........

☐ what do you do?
Intervention

- Do not panic this will also help keep the pt calm
- do not leave the pt, call your colleagues, Call RT stat
- Assess your pt, are they in immediate distress?
- Do not attempt to re-site or change the tube without previous experience
- Cover the stoma with an occlusive drsg
- provide O2 by face mask
- Place O2 sat for continuous monitoring, keep assessing your pt
- Access the new Trach of the same size, provide to RT
- Assisted ventilation may be required with chin/lift jaw thrust until help arrives
- Have the Crash Cart outside the room
- if pt desaturates or starts going into distress ventilate with ambubag over mouth as any other pt---call code if necessary
References

- These guidelines were developed based on current research & are subject to updates & change
THANK YOU
QUESTIONS??