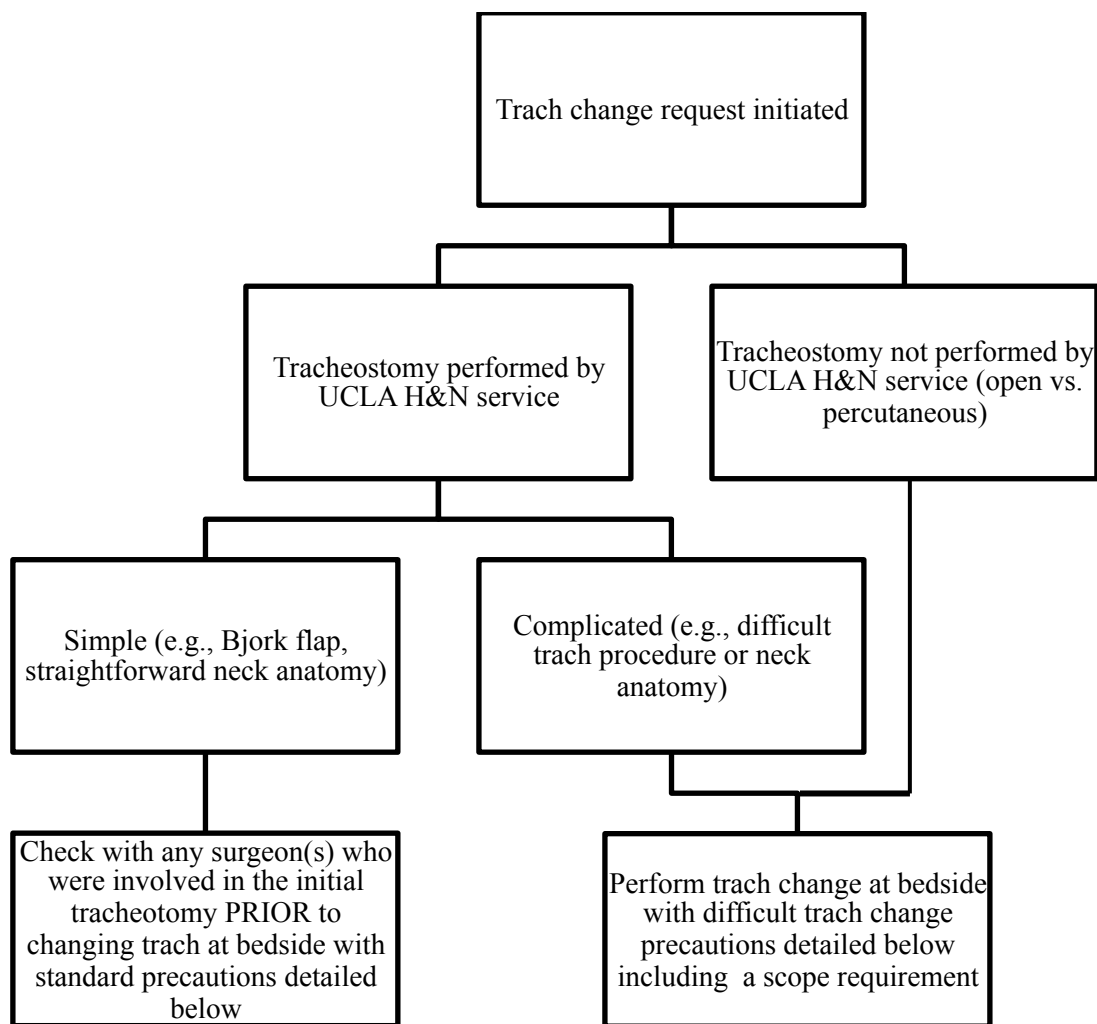


UCLA Head and Neck Surgery Tracheostomy Tube Change Protocol A QI/Patient Safety initiative

Modified from Tabaei et al., 2007



Universal pointers (applies to all trach changes):

- Always ask the following prior to attempting any trach change:
 - Why is a trach change needed? What are the indications?
 - When was the tracheostomy performed?
 - How old is the current trach tube?
 - What type of tracheostomy is present currently? (E.g. fenestrated, extra long, etc.)
 - Who did the initial tracheostomy?
 - What type of trach tube was placed initially?
 - What was the indication for tracheostomy when it was performed? (e.g., refer to operative reports if possible)?
 - What are the current indications for a tracheostomy?
 - Is it safe to perform a tracheostomy change now?
 - What is the current FiO₂?
 - Is the patient septic and/or on pressors?

- Is the neck anatomy concerning? (Obese, erythema, infection, bleeding, secretions)
 - If the patient is on a ventilator, ask for RT and possibly primary team to assess pulmonary reserve by observing the patient's cardiopulmonary status on CPAP and/or pressure support mode only to determine how long the patient can tolerate being off mechanical ventilation. If minimal reserve, then trach change not done or, if absolutely indicated, only in the OR setting with anesthesia service also present.
 - Can the patient be intubated orally if tracheostomy exchange is difficult?
- A trach (done by our service and cleared by our service attending) can be changed as early as POD3 if deemed safe.
 - If applicable, leave trach tie in place and snug with ability to insert 1-2 fingers between tie and neck
 - Pediatric patients: stay sutures with labels visible remain intact
- Caution in pts with poor reserve (FiO₂ > 40%, PEEP > 5, pressor requirement) – trach change may not benefit these pts (see above)
- Notify the following team members prior to any trach tube change (it is critical to have sign-out and proper transfer of care):
 - Primary team clinicians or intensivist responsible for unit
 - RN covering the patient when preparing to perform trach tube change
 - Respiratory therapist
 - H&N surgery chief resident
 - H&N surgery attending on call, if necessary
 - ***H&N R2: Mandatory** that the chief resident or senior resident assist all H&N R2s with tracheostomy tube changes.
- Avoid trach changes in the evening, overnight, weekends, holidays, or when additional help is not readily available.
 - early trach change does not mean discharge from ICU/Hospital early. All standard precautions MUST be taken as usual.
- Consider if anesthesia is needed at bedside and/or procedure should be performed in the operating room.

Standard precautions:

- These precautions should be taken for ALL trach tube changes:
 - Ensure adequate lighting available at bedside
 - Suction (Yankauer, 14Fr and 10Fr suction catheters) and 4x4s available at bedside
 - Proper patient positioning (i.e., flatten bed, neck extension, include shoulder roll if possible)
 - Preoxygenate patients to SpO₂ 100%, including patients on room air (increase FiO₂ for trach collar) and ventilated patients (increase FiO₂ to 100% on ventilator)
 - Intended trach tube size and additional tube one size smaller, plus small ETT sizes (at least 5.5, 6.0, or even pediatric tubes) in case cannot get trach tube in, or distal stenosis and need to bypass with smaller tube
 - Do not leave ETT as the only airway. After airway secured, must take patient to OR and assess airway (e.g., why trach tube unable to be placed) and place a definitive trach tube in the OR and perform stomaplasty as needed.

Difficult trach precautions:

- When is a difficult trach change anticipated?
 - Consulted to assist with first percutaneous tracheostomy tube change (or any trach change not performed by H&N surgery service)
 - Known difficult anatomy from open tracheostomy (includes those performed by H&N surgery service)
 - Kyphoscoliosis or cervical spine precautions limiting neck range of motion

- Obesity/thick neck
- Head and neck masses
- Poor nutritional status (i.e., poor stomal healing, increased risk of false passage)
- Difficult oral intubation anticipated and patient has suprastomal obstruction.
- Or any time there are any questions or qualms, assume that it is a difficult airway!
- The difficult trach precautions includes standard precautions (noted above), as well as:
 - Mandatory shoulder roll to extend neck, when able to tolerate
 - Bag mask, laryngoscope, and endotracheal tubes (various sizes, as noted above) at patient bedside and are in crash cart
 - Should have crash cart nearby or know exactly where it is when doing any airway manipulation
 - Flexible laryngoscope – to evaluate airway prior to change and for possible Seldinger technique
 - Curved Kelly clamp – may use to spread collapsed stoma open
 - Scalpel
 - Consider another H&N team member at bedside for assistance
 - Always consider trach change in OR if anticipated difficulty

Standard technique:

1. Prepare trach tube of intended size
 - Obturator in lumen
 - Inner cannula available
 - Lubricate distal trach tube
2. Suction oral cavity
3. Suction through trach tube to ensure dry
4. Deflate cuff, if applicable
5. Disconnect circuit, if applicable
6. Remove trach tube along natural curvature of stoma
7. Wipe stoma with 4x4 (remove crust and mucus)
8. Insert new trach tube into stoma
9. Remove obturator without dislodging trach
10. Insert inner cannula
11. Reconnect circuit, if applicable
12. Inflate cuff, if applicable
13. Check for end tidal CO₂ if patient on ventilator, or scope patient through new trach tube if have any issues
14. Once confirmed, apply trach tie

What to do if airway not secured (i.e., end tidal CO₂ not confirmed) after standard technique:

1. If no scope available, insert trach tube one size smaller or ETT. Initial direction of trach placement should be perpendicular to neck and not curving too early.
2. If available, may use curved Kelly or Army-Navy retractors to spread open stoma and attempt insertion of trach tube under direct visualization
 - An cricoid hook, if available, may be used to retract airway superficially
3. Insert scope through trach tube and quickly assess airway to check for tracheal lumen; if no lumen seen see slash revision trach below (#9)
4. Remove trach tube and insert scope (with new trach tube prepared for Seldinger technique* already in place), and use flexible endoscope to find the airway then proceed with trach placement using Seldinger technique over the endoscope.
5. Insert trach tube one size smaller and/or ETT with Seldinger technique

6. Ask for help and call code if no success
7. Bag mask/ventilate from oral cavity
8. If patient can be intubated from above, then attempt orotracheal intubation
9. If patient crashing, then:
 - Perform a cricothyroidotomy if anatomy is favorable and intubate with ETT
 - Consider if slash revision trach is more favorable and save a life
 - Midline vertical incision from suprasternal notch to inferior thyroid notch
 - Use curved Kelly or Army-Navy retractors to spread open stoma
 - If all else fails, make new lower tracheotomy

Seldinger technique*

1. Thread trach tube or ETT over flexible laryngoscope (in place of obturator)
2. Lubricate distal end of trach tube
3. Insert scope into stoma and locate airway
4. Once carina visible, advance trach tube distally into stoma
5. Once trach tube lodged in stoma while carina in view, may withdraw scope
6. Connect circuit or bag ventilate patient
7. Listen to breath sounds bilaterally
8. Once SpO₂ increases and patient's cardiopulmonary status is stable, re-scope through trach tube one more time to confirm trach tube in trachea
9. Secure trach tube in fashion indicated above

Documentation and transfer of care:

1. Dictated or written procedure note in chart.
2. Informed consent discussion dictated or written as part of the procedure note.
3. Sign-out must be given to nurse and primary physicians taking care of the patient both before and after procedure completed. Also document the sign-out as part of the procedure note.

References:

Mitchell RB, Hussey HM, et al. Clinical consensus statement: tracheostomy care. *Otolaryngology-Head & Neck Surgery*. 2013 Jan;148(1): 6-20.

Tabaee A, Lando T, et al. Practice patterns, safety, and rationale for tracheostomy tube changes: a survey of otolaryngology training programs. *Laryngoscope*. 2007 Apr;117(4): 573-6.