Tracheostomy Change & Decannulation Guideline

Department of Surgery
Hospital Tuanku Ja'afar Seremban

I. Purpose

- To reduce in-hospital complications:
  - **Infection**
  - **Pneumonia**
- To shorten hospital stays.
- To reduce hospital costs.
- To promote early physiological recovery.
- To alleviate the social and economic burden on patients and their families.

II. Objective

To safely change and weaning off the tracheostomy tube while ensuring that the patient maintains adequate airway patency and ventilation.

III. Patient Selection Criteria

Criteria	
Clinical Stability	• No acute illness, lung infection, or sepsis. • Weaned from ventilator for >48 hours. • Stable heart rate and blood pressure. • No Type I or II respiratory failure.

Airway Patency	• Adequate airflow through the upper airway.
	  ◦ Confirm by:
	  ▪ **Cuff Deflation Test:** Evaluate for respiratory distress with the cuff deflated.
	  ▪ **Endoscopy (if needed):** Assess for laryngeal or tracheal obstruction.

Respiratory Function	• Tolerating spontaneous breathing for at least 24–48 hours. • No frequent suctioning required (≤1–2 times per shift).
Oxygenation	• Stable on room air or minimal oxygen (e.g., ≤2 L/min). • No hypercapnia or hypoxia on arterial blood gas (ABG).
Secretion Management	• Effective coughing to clear secretions. • Secretion volume is decreased and manageable.
Swallowing Safety	• Swallowing function confirmed by clinical evaluation or a modified barium swallow study if necessary. • No significant aspiration risk.
Mental Status and Cooperation	• Alert and able to communicate discomfort or distress.

IV. Step-by-Step Change of Tracheostomy Tube Process

1. When to change a tracheostomy tube?

- First tracheostomy tube change, preferably after 3 days post- operatively (when the tract is well-formed).
- Start regular changing of the tracheostomy tube. One (1) week post- operatively, followed by every fortnight (2 weeks) for non-ventilated patients for single lumen tubes.
- Change more frequently (weekly or twice per week), if copious and thick secretions.
- For double-lumen tubes, the manufacturer recommends a change every 29 days; however, it can be delayed by up to 90 days for socio- economic considerations.
- Change the tube immediately when blocked.

2. Preparation for change tracheostomy tube

- **Instruments** required:
  - suction instruments
  - tracheal dilator

- a clean tracheostomy tube of the same size and 1 size smaller
- string to tie the tracheostomy tube
- scissors
- gloves
- gauze for keyhole dressing
- water-based lubricant gel
- apron
- special dressing for skin protection (optional)

- **Illumination** required:
  - headlight, or
  - bedside lamp, or
  - torch light

- **Assistant** must be present at all time.

- All wards should have an emergency tracheostomy nursing box readily available, comprising the above-mentioned items.

3. How to change a tracheostomy tube?

- Prepare the apparatus needed; similar sized and one-size-smaller tracheostomy tubes, a suction machine with a catheter, a tracheal dilator, gel and a dressing set.
- Wear a headlight; if not available, an assistant can help with a good bedside lamp or torchlight.
- Protect oneself with an apron and mask.
- The preferred position is supine with the neck hyperextended (with a rolled-up towel inserted beneath the shoulders).
- Hyper-oxygenate the patient if the patient is on a mechanical ventilator.
- Do tracheal suction for any secretions.
- Deflate the tracheostomy tube cuff fully.
- Untie and remove the existing tracheostomy tube.
- Insert the new tracheostomy tube with the help of a tracheal dilator if the tract is not well-formed.
- Railroad changing of the tracheostomy tube is advisable in difficult tracts, especially for the first tracheostomy tube change.
- Hold the new tube firmly, check the patency and promptly secure the tracheostomy tube with a ribbon tie.
- For paediatric patients, additional steps include:
    - pull apart the lateral stay sutures (if present)
    - gentle suctioning

IV. Step-by-Step Decannulation (Weaning Off) Process

1. Pre-Decannulation Assessment

- Review patient history, including the reason for tracheostomy and the current clinical status.
- Conduct **capping** or **downsizing trials** to assess tolerance.
- Perform airway patency testing, such as cuff deflation trials.
- Conduct blood gas analysis if required to evaluate ventilation.

2. Preparation for Decannulation

- Prepare emergency equipment:
  - Suction device.
  - Oxygen supply.
  - Bag-valve-mask (BVM).
  - Smaller-size tracheostomy tube for reinsertion, if needed.
- Educate the patient on the procedure and set expectations.

3. Decannulation Procedure

Step 1: Cuff Deflation (if applicable)

- Fully deflate the cuff and assess the patient's tolerance.
- Monitor for signs of respiratory distress or aspiration.

Step 2: Trial with Cap or Speaking Valve

- Cap the tracheostomy tube to ensure the patient can comfortably breathe through the upper airway.
- **Duration:** Begin with short trials, gradually increasing to several hours or a full day as tolerated.

Step 3: Tube Removal

- Clean the stoma thoroughly.
- Apply an occlusive dressing (e.g., sterile gauze and tape) and change daily.

V. Post-Decannulation Care

Monitoring	• Observe the patient for 24–48 hours for signs of respiratory distress, desaturation, or difficulty managing secretions. • Monitor oxygen saturation and respiratory rate.
Wound Care	• Keep the stoma clean and covered with a dry, sterile dressing. • The stoma typically closes spontaneously within days to weeks.

Rehabilitation	• Encourage **deep breathing exercises** and **coughing** to promote airway clearance. • Initiate speech and swallowing therapy, if indicated.
Emergency Preparedness	• Train caregivers to identify signs of airway obstruction or distress. • Ensure immediate access to emergency equipment.

VI. Criteria for Re-Decannulation

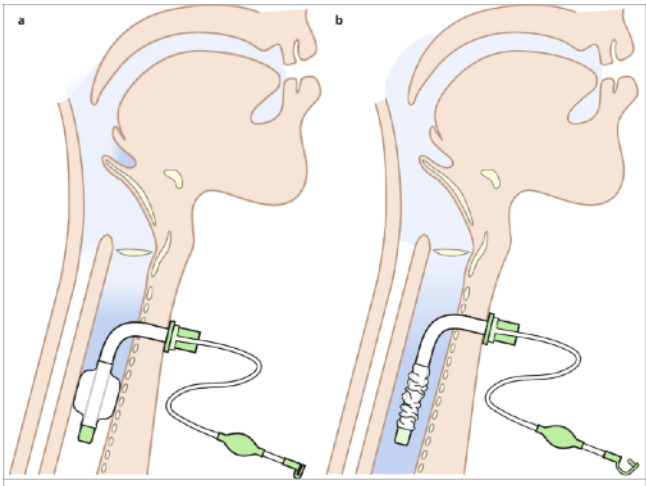
If decannulation fails due to respiratory distress, aspiration, or secretion retention, re-evaluate:

- Airway patency and respiratory status.
- Secretion management and swallowing function.
- Appropriate timing for reattempting decannulation.

Appendix 1:

Downsizing and Decannulation of Tracheostomy Guideline

	**1. Post-Tracheostomy Procedure:** • Insert size 8.0/7.5 cuffed tracheostomy tube (inflated cuff) for patients requiring ventilatory support.



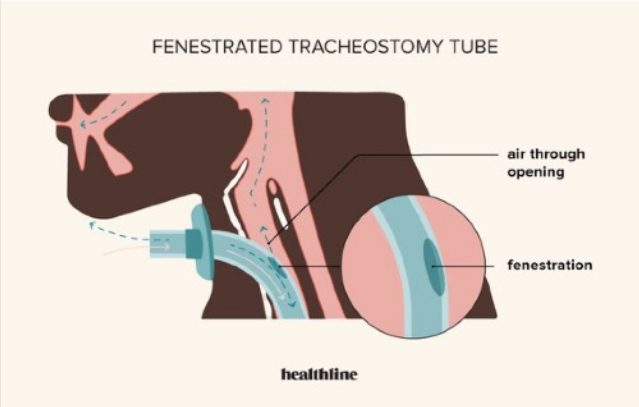
2. Step Down from Ventilator:

- Once the patient is off mechanical ventilation for at least 24 hours, deflate the cuff to assess tolerance for upper airway breathing.
- Monitor for signs of respiratory distress and ensure adequate clearance of secretions.

3. Day 7 onwards: Tube Downsizing to Size 7.0 (Cuffed or Uncuffed):

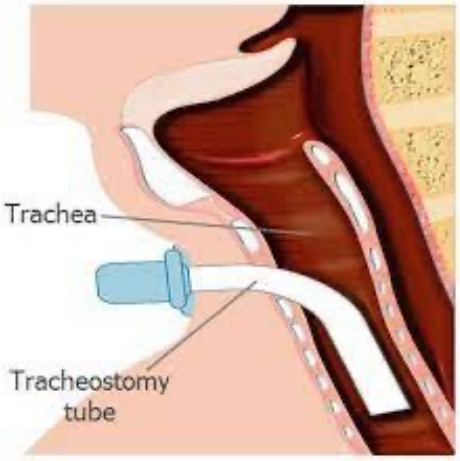
- If the patient remains stable (non-ventilated) and can manage secretions:
  - Change to a size 7.0 tracheostomy tube to promote comfort and facilitate progression.
  - Perform the change in a controlled environment with resuscitation equipment on standby.

- Start regular changing of the tracheostomy tube. One (1) week post-operatively, followed by every fortnight (2 weeks) for non-ventilated patients for single lumen tubes.
- Change more frequently (weekly or twice per week), if copious and thick secretions.
- For double-lumen tubes, the manufacturer recommends a change every 29 days; however, it can be delayed by up to 90 days for socio-economic considerations.



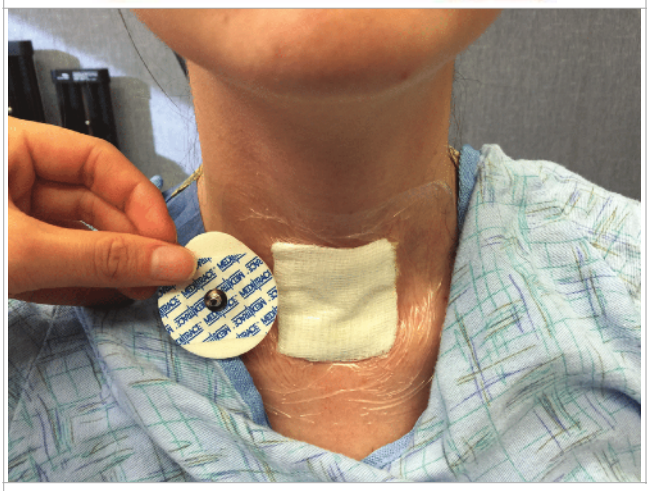
4. Transition to Fenestrated Tube (Size 7.0 or 6.5):

- If secretions are minimal and the patient can tolerate cuff deflation:
  - Replace with a fenestrated tracheostomy tube (size 7.0/6.5) to assess airflow through the upper airway.
  - Begin capping trials or allow the patient to vocalize and breathe through the natural airway.



5. Spigoting the Tracheostomy (After 24–48 Hours with Fenestrated Tube):

- Place a tracheostomy spigot to completely occlude the tube and assess the patient's ability to breathe through the upper airway independently.
- Monitor for at least 24 hours for any signs of distress, desaturation, or secretion buildup.



6. Decannulation (Off the Tracheostomy):

- If the patient tolerates spigoting for 24 hours without complications:
  - Proceed with decannulation by removing the tracheostomy tube.
  - Cover the stoma with sterile gauze and monitor closely for airway patency and spontaneous stoma closure.

Key Notes:

- Ensure frequent monitoring at every stage, especially after tube changes, capping, and spigoting.
- Have emergency airway equipment ready at all times.
- Gradual progression ensures safety and allows the patient's upper airway to adjust to increased demand.

Appendix 2:

Types of Tracheostomy Tube

- Cuffed tracheostomy tube

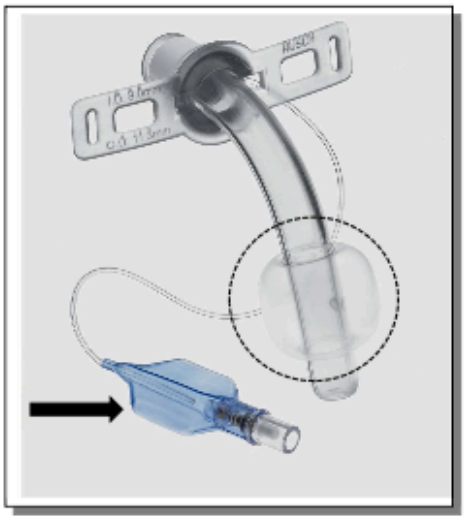


Figure 2: Cuffed tracheostomy tube

Note the balloon cuff (dotted circle) with attached pilot balloon (arrow).

- Uncuffed tracheostomy tube

Figure 3: Uncuffed tracheostomy tube

Note the absence of balloon cuff and pilot balloon.

- Double-cannula (double-lumen) tracheostomy tube

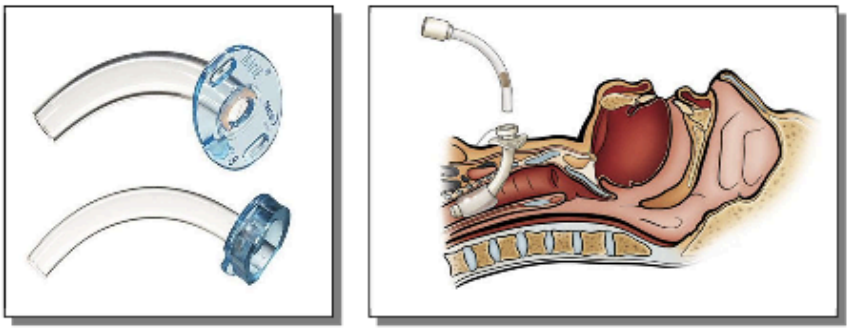


Figure 4: Double-cannula (double-lumen) tracheostomy tube

Note that the inner tubing can be removed for cleaning purpose without removing the outer tubing, allowing easier tracheostomy care.

- Fenestrated tracheostomy tube

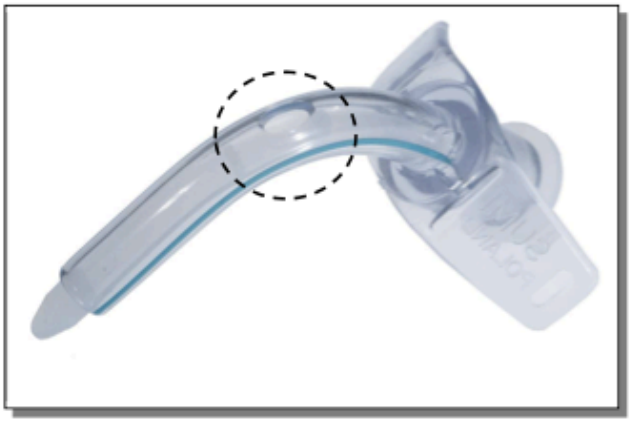
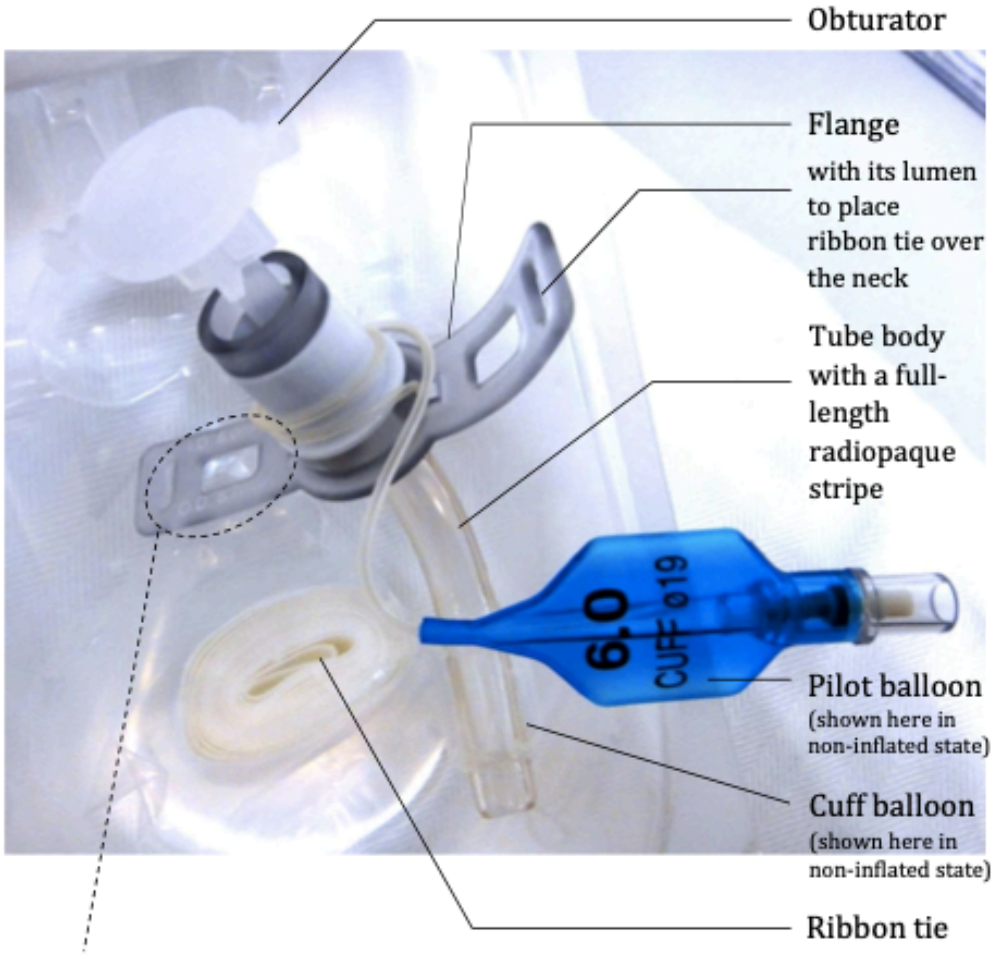


Figure 5: Fenestrated tracheostomy tube

Note that the fenestration on the tubing (dotted circle), to allow respiration via patient's own upper airway.

Parts of a Cuffed Tracheostomy Tube



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3. Farrell MS, Gillin TM, Emberger JS, Getchell J, Caplan RJ, Cipolle MD, Bradley KM. Improving tracheostomy decannulation rate in trauma patients. Critical care explorations. 2019 Jul 1;1(7):e0022.