Clinical Procedure Manual
Chapter 4

Subject: Tracheostomy Care: Outer Cannula Tube Change
Approved by: Director of Clinical Management
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PURPOSE

• To provide guidelines for outer cannula tracheostomy tube change in the home
• To prevent infection
• To prevent tissue adhesions to the tracheostomy tube
• To promote self-care in the home

RELATED PROCEDURES

• Suctioning
• Tracheostomy Care: Inner Cannula Change and Non-Disposable Cannula Care

GENERAL INFORMATION

This is a sterile procedure for patients on ventilators because they are at high risk for pulmonary infections. For these patients, reuse of cleaned outer cannulas is not routinely recommended.

A clean technique is permissible for most patients not on a ventilator. Follow the manufacturer’s recommendations for cleaning and reusing outer cannulas. Many can be boiled, air-dried, and stored in a plastic bag, if they are metal. Plastic or silicone tracheostomy tubes should not be boiled over direct heat, but can be cleaned in water that has been boiled.

Outer cannula tube changes are usually done on a monthly basis according to the physician’s order regarding the frequency of change and the type and size of tracheostomy tube. It is recommended that two persons assist with the outer cannula changes.

Never force insertion of the tracheostomy tube. If insertion of the tube cannot be achieved, attempt to place a tube that is one-size smaller. If a smaller tube is not available, seal the patient’s stoma, and assist the patient’s ventilation with a self-inflating resuscitation bag until assistance arrives. Some patients may require that this procedure be performed in the doctor’s office or in the emergency room.

EQUIPMENT - Cuffed Tracheostomy Tube Change

1. Tracheostomy tube
2. Tracheostomy set (ordered by the patient/caregiver in accordance with the DME vendor’s recommendations; it is recommended that extra tracheostomy tubes be kept on hand [styles vary according to patient need])
   a. Tracheostomy tube
   b. Obturator
c. Inner cannula

d. Tracheostomy ties or tape

3. Sterile tracheostomy sponge and pad

4. Sterile 4- x 4-inch gauze pads

5. Water-soluble lubricant

6. 10-ml syringe

7. Goggles and/or mask, as needed

8. Sterile gloves and an impermeable plastic trash bag (see Infection Control)

PROCEDURE - Cuffed Tracheostomy Tube Change

1. Explain the procedure to the patient/caregiver. Trained caregivers may serve as assistants in this procedure.

2. Wash hands don gloves.

3. Assemble the equipment at a convenient work area.

4. Perform cardiopulmonary assessment to include the following: vital signs, lung sounds, and heart sounds; check for edema.

5. Perform home ventilator assessment if patient is on a ventilator.

6. Suction the patient’s airway before the procedure. Then, suction above the tracheostomy cuff before deflating it.

7. Position the patient for the procedure in a sitting position or with the head of the bed raised. (Assess the position that is more comfortable for the patient. The patient may be placed in a supine position, with a towel between his or her shoulder blades; however, many patients tolerate this particular procedure best when they are sitting in an upright position. Consult with the physician regarding positioning of the patient.)

8. Prepare the tracheostomy tube, using an assistant’s help and in as sterile manner as possible. Avoid touching the cannula. Hold the cannula at the connector by the neck plate.

   a. Test the cuff for leaks; always test the cuff and inflation system for leakage before inserting the tube by inflating the cuff and observing it for leaks; the cuff of the tube may also be submerged in a sterile cup of sterile water to check for bubbles.

   b. Remove the inner cannula, and insert the obturator into the outer cannula.

   c. Put ties and tape onto the neck plate of the new tracheostomy tube. If using the Dale trach tube, velcro in place.

   d. Apply a thin film of water-soluble lubricant to the outer cannula and cuff and to the protruding portion of the obturator to facilitate insertion.

   e. Place the prepared tracheostomy tube in the original sterile container tray, keeping the tube’s ties away from the cannula until it is needed for insertion.

9. Inspect the stoma site for redness and swelling or for signs of bleeding.

10. Clean the stoma according to the physician’s orders. Soap and water work well. Avoid using hydrogen peroxide or Betadine because they may enhance skin breakdown.

11. Instruct an assistant to remove the ties and tape from the old tracheostomy tube neck plate; then turn down or turn off the ventilator alarms.

12. Hyperoxygenate the patient for a minimum of 30 seconds before extubation with an FIO2 level of 100%.

13. Deflate the old cuff by evacuating air from the Luer valve of the inflation line, using a 5- to 10-ml syringe.

14. Instruct an assistant to disconnect the patient from the ventilator. Place the end of the ventilator tubing on sterile 4- x 4-inch gauze pads; protect the tubing from contamination.

15. Quickly remove the old tracheostomy tube (grasp the neck plate and remove the tube in a downward and outward motion). Suction the airway if necessary.

16. Immediately insert the lubricated tube into the patient’s tracheostomy using an upward and then downward curved motion that follows the anatomic position of the patient’s neck. Consider asking the patient to look
up at the ceiling and to swallow to ease insertion of the tracheostomy tube.
17. Remove the obturator.
18. Insert the inner cannula, and secure with the trach ties.
19. Instruct an assistant to immediately reconnect the patient to the ventilator. Turn the ventilator alarms back on.
20. Inflate the cuff at 1 ml/mm tube size. Usually 4 to 7 cc of air is used to inflate the cuff.
21. Follow the manufacturer’s recommendations to assess cuff pressure. Cuff pressure should not exceed 18 mm/Hg or 22 cm H2O pressure. Evaluate the patient’s comfort level.
22. Apply a new sponge and pad to the stoma. Suction the airway as needed.
23. Assess cardiopulmonary status. Ask the patient to nod head if he or she is getting enough air and feels all right. Administer a few breaths of 100% oxygen from the ventilator if needed. Return the FIO₂ level to the prescribed setting.
24. Instruct the caregiver that if the tracheostomy tube accidentally comes out and the caregiver cannot reinsert it, he or she must make a tight seal over the patient’s stoma and ventilate the patient with a self-inflating resuscitation bag via a face mask until assistance arrives.
25. Provide patient comfort measures.
26. Clean and replace the equipment. Discard disposable items according to Standard Precautions.
27. Remove gloves and wash hands.

NURSING CONSIDERATIONS

Obtain physician order for tracheostomy change parameters.

This procedure may need to be individualized according to specific patient needs; use essentially the same procedure for uncuffed tracheostomy tube changes.

Clean technique is permissible for most patients who are not on a ventilator. In this case it is permissible to reuse a clean outer cannula that is not cuffed.

Many patients tolerate this procedure best sitting up in a chair with side arms for support. Instruct the patient to look up at the ceiling and to swallow while the tracheostomy tube is being inserted. This accomplishes the following:

1. It positions the neck to facilitate tracheostomy tube insertion
2. It gives the patient a “job” to do during the procedure, which therefore may be distracting and lessen patient anxiety

See the procedures for Inner Cannula Change and Nondisposable Cannula Care.

DOCUMENTATION GUIDELINES

Document the following on the visit report.

- The procedure and patient toleration
- Size and lot number of tracheostomy tube inserted
- Volume and pressure millimeters of air used to inflate the cuff
• Cardiopulmonary status before and after the procedure
• Ventilator settings (make sure to include high- and low-pressure patient readings before and after the procedure)
• Any patient/caregiver instructions and response to teaching
• Physician notification, if applicable
• Standard Precautions
• Other pertinent findings

Update the plan of care.

EQUIPMENT - FOME-Cuff Tracheostomy Tube Change*

1. FOME-Cuff tracheostomy tube kit and spare
2. Sterile tracheostomy sponge and pad dressing
3. Water-soluble lubricant
4. Sterile Cuff Maintenance Device (CMD); 60-ml syringe attached to three-way stopcock
5. AutoControl connector (sideport adaptor) included in the FOME-Cuff tracheostomy kit
6. Sterile gloves and an impermeable plastic trash bag (see Infection Control)

PROCEDURE - FOME-Cuff Tracheostomy Tube Change*

1. Explain the procedure to the patient/caregiver. Trained caregivers may serve as assistants in this procedure.
2. Wash hands don gloves.
3. Assemble the equipment at a convenient work area.
4. Perform cardiopulmonary assessment to include the following: vital signs, lung sounds, and heart sounds; check for edema.
5. Perform home ventilator assessment if patient is on a ventilator.
6. Suction the patient’s airway before the procedure. Then, suction above the tracheostomy cuff before deflating it.
7. Position the patient for the procedure in a sitting position or with the head of the bed raised. (Assess the position that is more comfortable for the patient. The patient may be placed in a supine position, with a towel between his or her shoulder blades; however, many patients tolerate this particular procedure best when they are sitting in an upright position. Consult with the physician regarding positioning of the patient.)
8. Hyperoxygenate the patient before and after the procedure; suction as needed, and return the FIO₂ level to the prescribed setting.
9. Prepare the tube using an assistant’s help in as sterile a manner as possible. Avoid touching the cannula. Hold the cannula by the connector at the neck plate, and do the following:
   a. Insert the CMD with the three-way stopcock into a red-wing pilot port and evacuate all the air from the FOME-Cuff
   b. Firmly pinch the red-wing pilot port with your fingers, and remove the pilot port from the syringe while maintaining the collapsed state of the cuff; never clamp or place excessive traction on the pilot port tubing
   c. Plug the red-wing pilot port with the attached red stopper; this procedure ensures the smallest possible cuff diameter for ease of tube insertion and for maximum patient comfort
   d. Insert the obturator
   e. Put ties and tape onto the neck plate of a new tracheostomy tube
   f. Apply a thin film of water-soluble lubricant to the outer surface of the tracheostomy tube, cuff, and
protruding portion of the obturator to facilitate insertion

g. Place the tube in the original sterile container tray, keeping ties away from the cannula until it ready for use

10. Instruct an assistant to remove the ties and tape from the old tracheostomy tube neck plate.
11. Inspect the stoma site for redness and swelling or for signs of bleeding.
12. Clean the stoma according to the physician’s orders. Soap and water work well. Avoid using hydrogen peroxide or Betadine because they may enhance skin breakdown.
13. Instruct the assistant to use the CMD to evacuate all the air from the old cuff. Repeat steps 9a through 9c to evacuate all the air from the old cuff. Collapse of the red-wing pilot port indicates complete evacuation of the cuff volume.
14. Instruct the assistant to disconnect the patient from the ventilator. Place the end of the ventilator tubing on sterile 4- x 4-inch gauze pads; protect the tubing from contamination.
15. Quickly remove the old tracheostomy tube (grasp the neck plate and remove the tube in a downward and outward motion).
16. **Immediately** insert the lubricated FOME-Cuff tracheostomy tube into the patient’s tracheostomy in an upward and then downward curved motion that follows the anatomic position of the patient’s throat. Consider asking the patient to look up at the ceiling and to swallow to ease insertion of the tracheostomy tube.
17. Remove the obturator.
18. Instruct the assistant to reconnect the patient to the ventilator. Turn the ventilator alarms back on.
19. Disconnect the red stopper from the red pilot port to allow the cuff to passively inflate, gently and naturally sealing the patient’s trachea.
20. Ensure the integrity and fit of the newly intubated FOME-Cuff by evacuating all the air from the cuff with the CMD in the following manner:
   a. Pull the syringe plunger to evacuate all the air from the cuff (note the dimple on the red pilot port that indicates complete and proper evacuation of the cuff)
   b. While maintaining a forceful pull on the plunger, turn the stopcock selector to isolate the syringe (the dimple created on the red-wing pilot port tells you that the integrity of the cuff has been maintained)
   c. Measure the residual cuff volume to ensure proper tracheostomy tube size (when at least 6-ml residual volume can be evacuated from the cuff, you are assured of a safe resting-cuff-to-tracheal-wall pressure and that the tube size is appropriate for the patient)
   d. Remove the CDM from the red pilot port, and allow the cuff to passively inflate
21. Attach the Sideport AutoControl connector to the self-inflating resuscitation bag for maintaining a positive seal during manual resuscitation.
22. Instruct the caregiver to totally evacuate the cuff at least every 8 hours as described in steps 9a through 9c.
23. Provide patient comfort measures.
24. Clean and replace the equipment. Discard disposable items according to **Standard Precautions**.
25. Remove gloves and wash hands

**NURSING CONSIDERATIONS**

Never plug the pilot port or add air to the FOME-Cuff while it is in the patient.

Many patients tolerate this procedure best sitting up in a chair with side arms for support. Instruct the patient to look up at the ceiling and to swallow while the tracheostomy tube is being inserted. Then, do the following:
1. Position the neck to facilitate tracheostomy tube insertion
2. During this procedure, give the patient a “job” to do, which therefore may be distracting and lessen patient anxiety
Review the manufacturer’s guidelines for FOME-Cuff insertion and maintenance.

**DOCUMENTATION GUIDELINES**

See the procedure for *Cuffed Tracheostomy Tube Change.*
Fig. 4-27  The Bivona FOME-Cuf. (Courtesy Bivona, Inc., Gary, Ind.)