HEALTH SERVICES

TITLE: TRACHEOSTOMY
A. Maintenance
B. Care
   1. Disposable Inner Cannula
   2. Non-Disposable Inner Cannula
   3. Single Lumen
C. Replacing Tracheostomy Ties
D. Suctioning
E. Capping and Decannulation

CATEGORY: RN – General
          LPN – General
          RPN – General

PURPOSE

- To maintain patent airway and prevent infection.

NURSING ALERT:

- Close observation of patient with new tracheostomy tube must be for 12 hours in an area where there is:
  o A nursing ratio of at least 1:3
  o Pulse oximetry
  o Cardiac monitoring
- Patient may be transferred to a step-down unit or general ward bed following initial monitoring period if appropriate.
- Notify Respiratory Therapist (RT) on admission of patient with tracheostomy. RT to ensure that the patient’s appropriate Tracheostomy Bedside Emergency Kit is immediately available (see Appendix A).
- Equipment to be readily available (and sent to tests) includes:
  o Functional Suction (See Appendix E for set-up)
  o Suction Catheters, no bigger than half diameter of tracheostomy tube
  o Oxygen if required
  o Tracheostomy Bedside Emergency Kit (see Appendix A)
  o Self-inflating resuscitator with mask

NOTE: In a home care setting, only ventilated clients require a self-inflating resuscitator.

- Oxygen by Trach/venture mask only delivers up to approximately 50% O2. If patient on oxygen delivery system over 50% contact Respiratory Therapy for instructions before patient goes to test off unit.
NURSING ALERT CONT:

- Send Tracheostomy bedside Emergency Kit and self-inflating resuscitator with mask with patient when going for tests off unit.
- It is important to identify difference between disposable inner cannula, non-disposable inner cannula and single lumen tracheostomy tube prior to initiating care. Refer to examples in Appendix B.
- Accidental tracheostomy decannulation within FIRST 72 HOURS after insertion requires immediate medical intervention. In this situation, call a Code Blue.
- Oxygen saturation monitoring may be required with a patient with a tracheostomy.
- In cases of tracheostomy tube obstruction or signs and symptoms of severe respiratory distress, call a Code Blue or if in a non-hospital setting, call 911.
- Use of two client identifiers is required before initiating any care or maintenance, as per RQHR Policy 0612. [http://rhdintranet/hsl/public/RQHRpolproman/612pol.pdf](http://rhdintranet/hsl/public/RQHRpolproman/612pol.pdf)
- First tracheostomy change is to be done by attending physician or their designate.
- For Primary Health Care (PHC) Home Care Nurses, it is encouraged to sign out the Network oxygen saturation monitor when performing tracheostomy care.

A. Maintenance

1. Assess respiratory status every shift and PRN including:
   - Airway patency
   - Respiratory Rate
   - Accessory Muscle Use
   - Oxygen Saturation
   - Oxygen requirements
   - Auscultation of lungs
   - Absence of cyanosis
   - Level of consciousness
   - Oral health assessment

2. Assess tracheostomy insertion site for:
   - Bleeding, drainage, infection, edema, redness
   - Pain

3. Assess tracheostomy secretions for:
   - Quantity
   - Consistency
   - Colour
   - Odour

4. Ensure tracheostomy has humidified air (to prevent drying of secretions and possible tube obstruction), using sterile water.
5. Provide oral care including:
   - Teeth brushing every shift
   - Swabbing oral cavity Q4h and prn

   NOTE: Ensure client education has been provided regarding importance of regular oral assessment and care.

6. Ensure oral mucosa is moist at all times.

   NOTE: A saliva substitute is available from pharmacy if required.

**NURSING ALERT:**

- Tracheostomy care is performed Q12 h and prn.
- Do not use powders or petroleum-based products near stoma.
- Only use pre-cut gauze dressings as fibers can be inhaled when gauze is cut.

**B. Care**

**PEDIATRIC NURSING ALERT:**

- If possible, complete tracheostomy care before a meal or feeding or 2 hours post feed.
- A second person is necessary for assistance.
- For pediatric patients, change tracheostomy ties twice a week or sooner if wet or soiled.

1. **Disposable Inner Cannula**

**EQUIPMENT**

1. Appropriate PPE
2. Sterile cotton tipped applicators or sterile gauze (2 x 2)
3. Normal saline
4. Sterile precut antimicrobial gauze dressing (SPD#310536)

   NOTE: Antimicrobial dressings are not recommended for long-term use. For non-hospital settings, use the pre-cut gauze in the sterile tracheostomy care set.

5. New disposable inner cannula of appropriate size
6. Sterile tracheostomy care set (SPD# 312101)

   NOTE: A well healed, mature stoma may not require a dressing.
PROCEDURE

1. Explain procedure to patient (and family as appropriate).

2. Assist patient to a comfortable position to ensure visibility of tracheostomy and surrounding skin.

   **NOTE:** Placing patient in a supine position with a roll under shoulders may assist in exposing tracheostomy stoma.

3. Complete hand hygiene.

4. Don PPE.

5. Assess need for suctioning (refer to Section D and Appendix E).

6. Assemble equipment at bedside.

7. Assess need for pre-oxygenation.

   **NOTE:** Pre-oxygenation may be required if patient has previously demonstrated desaturation, cyanosis or respiratory distress during suctioning or changing of inner cannula.

8. Keep tracheostomy covered with tracheostomy oxygen mask as much as possible if patient on oxygen.

9. Remove old dressing.

10. Stabilize flange on tracheostomy tube with non-dominant hand and carefully squeeze tabs on inner cannula with dominant hand.

11. Remove inner cannula carefully and discard.

12. Insert new sterile inner cannula into tracheostomy tube with dominant hand, while continuing to stabilizing flange with non dominant hand.

13. Ensure inner cannula has locked into place.

14. Inspect stoma and surrounding skin for inflammation, skin breakdown and/or purulent drainage.

15. Cleanse stoma, surrounding skin, and tracheostomy tube flange with normal saline using sterile cotton tipped applicators or sterile gauze squares.

16. Dry area well.

   **NOTE:** If ordered, may apply non-petroleum-based skin barrier to any excoriated areas below stoma.
17. Apply sterile precut antimicrobial gauze dressing, if indicated.

    NOTE: Assess q12h and prn, change dressing at least q12h and prn if saturated.

    NOTE: For non-hospital clients, this assessment is completed by whoever is performing the care and abnormals are to be reported to the Primary Health Care Respiratory Therapist and the Most Responsible Practitioner (MRP).

18. Assess respiratory system as described in Section A.

19. Document:
    - Type of procedure.
    - Amount, consistency, colour, and odour of any secretions on dressing.
    - Stoma and skin condition.
    - Complications and nursing action taken.
    - Tolerance of procedure.

2. Non-Disposable Inner Cannula

EQUIPMENT

1. PPE
2. Forceps
3. Disposable, sterile tracheostomy care set (SPD# 312101)
4. Hydrogen peroxide
5. Normal saline
6. Sterile gloves
7. Sterile precut antimicrobial gauze dressing (SPD# 310536)

    NOTE: Antimicrobial dressings are not recommended for long-term use. For non-hospital settings, use the pre-cut gauze in the sterile tracheostomy care set.

8. Temporary inner cannula

PROCEDURE

1. Explain procedure to patient (and family as appropriate).

2. Assist patient to a comfortable position to ensure visibility of tracheostomy and surrounding skin.

    NOTE: Placing patient in a supine position with a roll under shoulders may assist in exposing tracheostomy stoma.

3. Complete hand hygiene.

4. Don PPE.
5. Assess need for suctioning (refer to Section D and Appendix E).

6. Assemble equipment at bedside.

7. Prepare sterile field and open tracheostomy care kit.

8. Pour normal saline and hydrogen peroxide in separate containers.

9. Assess need for pre-oxygenation.

   **NOTE:** Pre-oxygenation may be required if patient has previously demonstrated desaturation, cyanosis or respiratory distress during suctioning or changing of inner cannula.

10. Keep tracheostomy covered with tracheostomy mask as much as possible if patient on oxygen.

11. Stabilize flange with non-dominant hand and with dominant hand, unlock tracheostomy tube inner cannula by turning it ¼ turn counter clockwise.

12. Remove inner cannula.

   **NOTE:** If patient is on ventilator, insert a temporary inner cannula. Pre-oxygenation may be required for the ventilated patient. Assistance may be required by Respiratory Therapist.

13. Place non-disposable inner cannula in hydrogen peroxide and allow to soak to remove secretions.


15. Complete hand hygiene.


17. Cleanse inner cannula with sterile tracheostomy care set and hydrogen peroxide.


   **NOTE:** If temporary inner cannula in, remove, clean and place in a sterile package for re-use.

19. Reinsert inner cannula gently into tracheostomy tube while stabilizing flange and lock into place by turning ¼ turn clockwise.

20. Remove old dressing.

21. Inspect stoma and surrounding skin for inflammation, skin breakdown and/or purulent drainage.
22. Cleanse stoma site, surrounding skin, and tracheostomy tube flange with normal saline using sterile cotton tipped applicators or sterile gauze squares.

23. Dry area well.

   **NOTE:** If ordered, may apply skin barrier to any excoriated areas below stoma.

24. Apply sterile precut antimicrobial gauze dressing if indicated.

   **NOTE:** Assess q12h and prn. Change dressing at least q12h and prn if saturated.

25. Assess respiratory status as described in Section A.

26. Document:
   - Amount, consistency, colour, and odour of any secretions on dressing.
   - Stoma and skin condition.
   - Complications and nursing action taken.
   - Tolerance of procedure.

3. *Single Lumen*

**EQUIPMENT**

1. PPE
2. Disposable sterile tracheostomy care set (SPD #312101)
3. Sterile NS
4. Sterile cotton tipped applicators or sterile square gauze
5. Sterile precut antimicrobial gauze dressing (SPD# 310536)

   **NOTE:** Antimicrobial dressings are not recommended for long-term use. For non-hospital clients, use the pre-cut gauze in the sterile tracheostomy care set.

**PROCEDURE**

1. Explain procedure to patient (and family as appropriate).

2. Assist patient to comfortable position to ensure visibility of tracheostomy and surrounding skin.

   **NOTE:** Placing patient in a supine position with a roll under the shoulders may assist in exposing tracheostomy stoma.

3. Complete hand hygiene.

4. Don PPE.

5. Assess need for suctioning (refer to Section D and Appendix E).
6. Assemble equipment at bedside.

7. Inspect stoma and surrounding skin for inflammation, skin breakdown, and/or purulent drainage.

8. Cleanse stoma site, surrounding skin, and tracheostomy tube flange with N/S using sterile cotton tipped applicators or sterile gauze squares.

9. Dry area well.

   **NOTE:** If ordered may apply non-petroleum-based skin barrier to any excoriated areas below stoma.

10. Apply sterile precut antimicrobial gauze dressing if indicated.

   **NOTE:** Assess q12h and prn. Change dressing at least q12h and prn if saturated.

11. Assess respiratory status as noted in Section A.

12. Document:
   - Amount, consistency, colour and odour of secretions.
   - Stoma and skin condition.
   - Complications and nursing actions taken.
   - Tolerance to procedure.

C. Replacing Tracheostomy Ties

**EQUIPMENT**

1. PPE
2. Velcro tie (SPD# 310900 for adult size) or twill tape (SPD# 310627)

**NURSING ALERT:**

- Requires two health care providers due to risk of accidental decannulation.
- Non-hospital adult clients requires one health care provider and one assistant (client, family member/alternate care provider).
- Ensure one health care provider stabilizes the flange at all times to prevent accidental decannulation.
- Change tracheostomy ties once a week and prn or when wet and soiled.
- For pediatric patients, change tracheostomy ties twice a week or sooner if wet or soiled.
PROCEDURE

1. Explain procedure to patient (and family as appropriate).
2. Assist patient to comfortable position to ensure visibility and mobility of neck.
3. Complete hand hygiene.
4. Don PPE.
5. Assess need for suctioning (refer to Section D and Appendix E).
7. Remove soiled tracheostomy ties and discard.
8. Apply Velcro ties as follows:
   8.1 One health care provider will stabilize tracheostomy flange at all times.
   8.2 Feed end of tie through slit on flange from underside.
   8.3 Secure Velcro.
   8.4 Feed rest of tie behind patient’s neck.
   8.5 Secure Velcro tie on second side of tracheostomy flange, though slit in side.
9. OR Apply twill tape ties as follows:
   9.1 Feed twill tape through slit in trach flange from underside.
   9.2 Pull tie through flange leaving the upper tape slightly shorter than the other.
   9.3 Wrap both tapes around neck.
   9.4 Feed the lower tape through the flange from underside.
   9.5 Ensure the ties lie flat against patient’s neck.
   9.6 Tie a square knot at the side of patient’s neck so he/she will not lie on knot. Trim excess tape 2-3 cm from knot.

NOTE: You should be able to place one finger between the tie and the skin to ensure that it is tight enough to prevent movement, but loose enough to prevent choking or jugular vein constriction.

For pediatrics, you should be able to insert the tip of your little finger under the tie.

NOTE: If using Twill Tape, rotate position of knot with each dressing change.
10. Assess respiratory system as noted in Section A.
11. Document
    • Amount, consistency, colour and odour of secretions.
    • Stoma and skin condition.
    • Complications and nursing actions taken.
    • Tolerance to procedure.
D. Suctioning

PURPOSE:

- Suctioning is performed to remove secretions from the trachea due to ineffective cough, to ensure airway patency, optimize oxygenation and collect lab specimens.

NURSING ALERT:

- Fenestrated tracheostomy tube must be suctioned through a non-fenestrated inner cannula.
- To determine appropriate suction catheter size – the suction catheter should not be any larger than ½ the internal diameter of the tracheostomy tube.
- Routine instillation of normal saline is NOT recommended.
- If adequate ventilation not achieved with suctioning, contact Respiratory Therapy.
- Suctioning should not be performed as a routine procedure.

EQUIPMENT

1. PPE
2. Continuous suction source set at:
   - 80-150 mmHg for adults
   - 80-120 mmHg for pediatrics
   - 80-100 mmHg for neonates
3. Sterile saline or sterile water
4. Catheter & glove set (sterile suction catheter, sterile gloves and sterile container) (8Fr SPD# 312027) (10Fr SPD# 312028) (14Fr SPD# 313089)
5. Functioning Suction (See Appendix E for guide to suction set up)

PROCEDURE

1. Assess need for suctioning.
   - Increased work of breathing or respiratory rate
   - Increased heart rate or cyanosis
   - Decreased SpO2
   - Coarse breath sounds, changes in air entry
   - Coughing and unable to clear secretions
   - Audible and/or visible secretions in airway

2. Keep tracheostomy covered with tracheostomy oxygen mask as much as possible if patient on oxygen.

3. Pre-oxygenate for 1 minute, if needed.

NOTE: Pre-oxygenation may be required if patient has previously demonstrated desaturation, cyanosis or respiratory distress during suctioning or changing of inner cannula.
4. Explain procedure to patient (and family as appropriate).

5. Complete hand hygiene.

6. Don PPE.

7. Place patient in a position that allows for suctioning, if time allows.
   
   **NOTE:** Semi-fowler’s or High-fowler’s positions are recommended and should be used when ever possible.

8. Assemble sterile equipment at bedside.

9. Pour normal saline or SW into the container.

10. Don sterile gloves.

11. Attach sterile catheter to suction tubing, maintaining sterility of dominant hand.

12. Turn on suction, occlude catheter and read gauge, to ensure suction does not exceed required suction pressure.

13. Aspirate sterile saline through catheter to lubricate.

14. Instruct patient to breathe deeply 3-4 times.

15. Support the tracheostomy with non-dominant hand.

16. Insert catheter into tracheostomy tube without applying suction, with dominant hand.
   
   **NOTE:** Adults: Insert suction catheter until resistance is met or coughing begins, to a maximum of 1-2 cm beyond end of tracheostomy tube.

   **Pediatrics:** Suction no more than 0.5 cm beyond the end of tracheostomy tube. Premasure and document this length on the care plan.

17. Apply continuous suction and gently rotate catheter while withdrawing.
   
   **NOTE:** Limit suction time to 5-10 seconds.

**NURSING ALERT:**

- Suctioning the patient with pressures greater than recommended may cause tracheal mucosal damage, hemorrhage, hypoxemia and/or atelectasis.
- Amount of suction applied should be only enough to clear secretions.
- Higher suction pressures do not necessarily clear secretions more effectively.
- Deep suctioning is never recommended.
18. Allow patient to rest and take 3-4 breaths before suctioning again unless clinically contraindicated. Ensure tracheostomy oxygen mask is covering stoma between passes.

   NOTE: You may need to oxygenate between suction passes.

19. Flush catheter with sterile saline or sterile water after each suction.

20. Suction until airway is clear of secretions.

   NOTE: No more than four (4) suction catheter passes should be done per suctioning episode.

   NOTE: In the non-hospital setting, if more than 4 suction attempts are required, further assessment and/or intervention may be required by MRP or Emergency Medical Services.

21. Assess respiratory status as described in Section A.

22. Replace suction canister when full.

23. Document
   - Frequency of suctioning.
   - Amount, colour, consistency, and odour (if any) of secretions.
   - Complications and action taken.
   - Patient’s response to the procedure (i.e. respirations, color, \( \text{O}_2 \) saturation following suctioning).

E. Capping and Decannulation

**NURSING ALERT:**

- Nurses DO NOT apply initial cap to tracheostomy.
- If cap removed for suctioning, may recap. Notify Respiratory Therapist to ensure they are aware of need to uncap tracheostomy.
- If patient is neurologically compromised, constant oxygen saturation monitoring should occur at time of tracheostomy capping. Length of monitoring is determined by attending physician.
- If patient shows any signs of Respiratory distress while cap is in situ, uncapping may be necessary. If the patient is uncapped, ensure Respiratory Therapy and Physician are aware.

**EQUIPMENT**

1. Sterile, non-adhesive, occlusive 2x2 dressing

   NOTE: Do NOT use petroleum-based products near stoma.
PROCEDURE

While capped:

1. Assess patient Q4h and PRN while tracheostomy capped. Include:
   - Breath sounds
   - Effort of Breathing
   - Vital Signs, including oxygen saturation
   - Color
   - Respiratory Rate
   - Accessory Muscle Use
   - Oxygen requirements
   - Level of consciousness

2. Ensure optimal patient positioning during capping.

   **NOTE:** Sitting or High-Fowler’s is recommended.

3. Document assessment findings.

Decannulation:

1. Ensure patient is NPO for 4 hours prior to decannulation, to prevent risk of aspiration.

2. Assist patient to ensure optimal positioning, sitting or high-fowler's.

3. Assist Respiratory Therapist as directed.

Post-Decannulation:

4. Apply non-adhesive, occlusive dressing after decannulation.

5. Instruct patient to cover dressing with one hand during coughing or speaking for first few days post decannulation.

6. Assess vital signs (heart rate, respiratory rate, oxygen saturation levels, blood pressure, colour and work of breathing) according to unit guidelines for vital sign monitoring or:
   - Every 15 minutes for the first hour.
   - Half hourly for the next 4 hours.
   - Every 4 hours for 24 hours.
   - Continuous pulse oximetry (SpO₂) during all periods of sleep (day and night) post decannulation for 24 hours.
   - Observe carefully for any signs of airway obstruction or increased respiratory effort during sleep periods.

7. Assess stoma site daily.
8. Change dressing PRN.

**NURSING ALERT:**

- If the patient does not tolerate decannulation, immediate intervention by Respiratory Therapist will be required. Call Code Blue if indicated.
- In the case of accidental decannulation, immediate intervention by Respiratory Therapist is required. Call Code Blue if indicated.
REFERENCES


Saskatoon Health Region (2013). Tracheostomy Care – Adult, Pediatric and Neonate. Policy and Procedure ID# 1184.


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Approved by:
Date: 20Feb19

Regina Qu’Appelle Health Region
Health Services
Nursing Procedure Committee

Approved: February 20, 2019
Appendix A

**Tracheostomy Emergency Bedside Kit In Hospital**

1 Spare Tracheostomy Tube (same size)**
1 Spare Tracheostomy Tube (one size smaller)
Tracheostomy Ties
14 Fr Suction Catheter
12 cc Syringe
Suture Cutters
Tweezers
Lubricating Jelly
Scissors

**Note: If the patient’s tube is cuffless, there should be a spare cuffless trach**

**NOTE:** On discharge, return Tracheostomy Emergency Bedside Kit to Respiratory Therapist.

**Tracheostomy Emergency Bedside Kit in the Patient’s Home**

1 Spare Tracheostomy Tube (same size)**
1 Spare Tracheostomy Tube (one size smaller)
Tracheostomy Ties
14 Fr Suction Catheter
12 cc Syringe
Tweezers
Lubricating Jelly
Scissors

**Note: If the patient’s trach tube is cuffless, there should be a spare cuffless trach**
Appendix B

Cuffed Tracheostomy

Uncuffed tracheostomy

Fennestrated Tracheostomy

Single Lumen Tracheostomy

Disposable Inner Cannula

Non Disposable Inner Cannula

Code: T.2
Author: L. Kolb, K. Hunt, D. Hextall, J. Lowey

Approved: February 20, 2019
OXYGENATION OF TRACHED PATIENT

Moisture collection reservoir (empty throughout your shift)

Water for humidity reservoir (fill with sterile H₂O only)

Attaching Nebulizer to Trach Mask

Connect nebulizer here
How to Attach Oxygen When Traveling with a Patient

These O₂ regulators are color coded depending on percentage O₂ – find the percentage of O₂ on top of the regulator. These regulators can only deliver max of 50% O₂. Therefore, any trached pt. getting more than 50% O₂ cannot go to portable tests.

Make sure this clear adapter is placed over the O₂ regulator, to prevent occlusion.

Code: T.2
Author: L. Kolb, K. Hunt, D. Hextall, J. Lowey
Suction Setup Instructions

Materials:
- Wall suction outlet
- 2 connecting tubing (patient & suction)
- 1 disposable liner
- 1 non-disposable canister
- Personal protective equipment as appropriate (safety glasses, gloves, mask, gown) for suctioning procedure
- Sterile equipment for suctioning (suction catheter, Yankauer, etc.)

1. Connect suction tubing from wall suction outlet to one side of yellow tee on non-disposable canister.
2. External disposable liner taut.
3. When inserting liner into canister, align liner's red tab with yellow tee on canister.
4. Push firmly on all sides until liner is firmly attached to canister.
5. Connect line tubing to the other side of yellow canister.
6. Attach patient connecting tubing to top port on liner.
7. Turn wall suction outlet to "RED", "FULL", "Continuous", or "Intermittent" position. Feel for suction and watch that the liner does not exceed the canister. If suctioning an adult/patient, set the pressure at 5-100 mmHg with suction tubing collapsed.
8. Once it's verified that suction is working, suction patient as appropriate per T2HR procedure.
9. When finished suctioning, turn wall suction outlet to "OFF" position. Ensure end of patient connecting tubing does not become contaminated.

Please remember your Personal Protective Equipment.