

# Tracheostomy Support Procedures-

## Appendix 1: Suctioning

Suctioning of the tracheostomy tube is necessary to remove mucus, maintain a patent airway, and avoid tracheostomy tube blockages. The frequency of suctioning varies and is based on individual participant assessment.

Indications for suctioning include:

- audible or visual signs of secretions in the tube
- signs of respiratory distress
- suspicion of a blocked or partially blocked tube
- inability by the participant to clear the tube by coughing out the secretions.
- vomiting
- desaturation on pulse oximetry
- changes in ventilation pressures (in ventilated participant)
- request by the participant for suction.

### Safety Considerations

- Tracheal damage may be caused by suctioning. This can be minimised by using the appropriately sized suction catheter, appropriate suction pressures and only suctioning within the tracheostomy tube.
- The depth of insertion of the suction catheter needs to be determined prior to suctioning. Using a spare tracheostomy tube of the same type and size, and a suction catheter, insert the suction catheter to measure the distance from the length of the tracheostomy tube 15mm connector to the end of the tracheostomy tube. Ensure the tip of the suction catheter remains within the tracheostomy tube.
- Record the required suction depth on the tape measure placed at the bedside and in the participant health records. Attach the tape measure to the cot/bedside/suction machine for future use.
- Use pre-measured suction catheters (where available) to ensure accurate suction depth.
- The pressure setting for tracheal suctioning is 80-120mmHg (10-16kpa). To avoid tracheal damage the suction pressure setting should not exceed 120mmHg/16kpa.
- It is recommended that the episode of suctioning (including passing the catheter and suctioning the tracheostomy tube) is completed within 5-10 seconds.

### Equipment

- Suction apparatus (wall attachment or portable unit)
- Suction canister
- Tubing
- Suction catheter
- Sterile water

**Table 1: recommended suction catheter sizes**

Tracheostomy tube size (in mm)	3.0mm	3.5mm	4.0mm	4.5mm	5.0mm	6.0mm	7.0 mm and >
Recommended suction catheter size (Fr)	7	8	8	10	10	10 -12	12

**Preparation**

- Ensure Tracheostomy Kit is present
- Appropriate size suction catheters (with graduations if available)
- Tape measure with depth required for tracheostomy tube suctioning.
- Appropriate suction pressure: correct suction pressure for use on a tracheostomy tube is **80-120mmHg maximum when occluded**. The Medigas suction gauges used on the wards are measured in kPa. **The equivalent of 80- 120mmHg is 10-16kPa.**

**Procedure**

- Explain to the participant and their family that you are going to suction the tracheostomy tube.
- Apply eye protection.
- Perform hand hygiene, apply non-sterile gloves.
- Remove HME, mask or circuit.
- Peel open suction catheter end and attach to suction tubing, check, and adjust suction pressure gauge to between 80 – 120 mmHg.
- Utilizing a non-touch technique gently introduce the suction catheter tip into the tracheostomy tube to the pre-measured depth.
- Apply finger to suction catheter hole & gently rotate the catheter while withdrawing. **Each suction should not be any longer than 5-10 seconds.**
- Assess the participant’s respiratory rate, skin colour and/or oximetry reading to ensure the participant has not been compromised during the procedure.
- Repeat the suction as indicated by the participant’s individual condition.
- Look at the secretions in the suction tubing - they should normally be clear or white and move easily through the tubing. Document changes from normal colour and consistency and notify the [Position Title] if the secretions are abnormal colour or consistency.
- Rinse the suction catheter with **sterile water** decanted into a container (not directly from bottle).
- Replace suction catheter into the packaging.
- Dispose of waste, remove gloves, and perform hand hygiene.

**Note:**

- Suction catheters are to be routinely replaced every 24 hours or at any time if contaminated or blocked by secretions.
- Suction water and the container are to be replaced every 24 hours.
- **Routine use of 0.9% sodium chloride is not recommended** as there is little clinical evidence to support this. However, in situations where this may be of benefit e.g., thick secretions and/or to stimulate a cough, 0.5ml of 0.9% sodium chloride can be instilled into the tracheostomy tube immediately prior to the suction procedure.

**Special safety considerations**

Some participants may require assisted ventilation before and after suctioning. If the correct size suction catheter does not pass easily into the tracheostomy tube, suspect a blocked or partially blocked tube and prepare for immediate tracheostomy tube change.

**Management of Abnormal Secretions**

Changes in secretions e.g., blood stained or yellow and green secretions, may indicate

infection or trauma of the airway. Notify the Registered Nurse for review, who may request sending a sputum specimen for culture and sensitivity and consider commencement of antibiotics. Persistent blood-stained secretions from the tracheostomy tube need to be investigated to determine the cause.

# Tracheostomy Support Procedures - Appendix 2: Tracheostomy Tie Changes

## Safety Considerations

- If tie changes are required before the first tube change, it is imperative that the procedure is undertaken with a **minimum of two people** - at least the Registered Nurse and support worker - and the appropriate equipment is available at the bedside.
- Tracheostomy tie changes are to be performed **daily** in conjunction with stoma care, or as required if they become wet or soiled, to maintain skin integrity.
- It is preferable to secure new ties before removing the old ties.
- During the tracheostomy tie change, **if the old ties are removed prior to securing the new ties, one person is to maintain the airway by securing the tracheostomy tube in place and not removing the hand until the new tracheostomy ties are secured.** The other person inserts the new ties into the flange and secures around the participant's neck.
- **If the ties become loose, it is a priority to re-secure immediately.**
- **All children 6 years and under** are to have cotton ties only to secure the tracheostomy tube.
- **Children 6 years and over** who are considered at risk of undoing Velcro ties should have cotton ties.

## Equipment

- Tracheostomy kit
- Two equal lengths of cotton ties (approximately 40cm) or
- Velcro ties (for participants older than 6 years).

## Procedure for changing cotton ties

- Explain to the participant and their family that you are going to change the tracheostomy ties.
- Apply eye protection.
- Perform hand hygiene, apply non-sterile gloves.
- Prepare two equal lengths of ties long enough to go around the participant's neck.
- Position the participant. An infant or child may lie down with the neck gently extended by a small, rolled towel placed under the child's shoulders. An older child or adult may like to sit up in a bed or chair.
- Insert a clean tie into the holes on each side of the flange.
- On each side tie a single loop approximately 0.5cm from the flange on the tracheostomy tube.
- Then tie both sides together in a bow to secure.
- Check the tension of the ties.
- Allow one finger to fit snugly between the skin and the ties.
- Re-tie into a double (reef) knot to secure.
- Cut off excess length of ties leaving approximately 3cm.
- Using scissors remove old ties and recheck tension of new ties.
- Dispose of waste, remove gloves, and perform hand hygiene.
- Observe around the participant's neck to check skin integrity.

**NB:** The old ties must remain in situ until the clean ties are secured. **In the event existing ties are removed prior to securing the tube with clean ties it is recommended a second**

person is present to hold the tracheostomy tube, ensuring it remains in place until the ties are secured.

#### Procedure for changing Velcro ties

- Changing Velcro ties is a **two-person** procedure.
- Check the Velcro on the tracheostomy ties prior to each use to ensure adhesiveness. If not adherent discard and replace.
- Apply eye protection.
- Perform hand hygiene, apply non-sterile gloves.
- One person holds the tracheostomy tube securely in place.
- The second person removes the existing Velcro ties and then inserts the clean Velcro ties through one side of the flange, passing the tie around the back of the patient's neck and inserting the Velcro tie through the other side of the flange.
- Adjust the ties to allow one finger to fit snugly between the skin and the ties.
- Check to ensure the Velcro is securely fastened.
- Dispose of waste, remove gloves, and perform hand hygiene.
- Observe the patient's neck to check skin integrity.
- Wash Velcro ties daily in warm, soapy water, rinse and allow to dry completely before re-using.

# Tracheostomy Support Procedures - Appendix 3: Stoma

## Safety Considerations

- Care of the stoma must be commenced in the immediate post-operative period and be ongoing.
- Inspect the stoma area at least daily to ensure the skin is clean and dry, to maintain skin integrity and avoid breakdown.
- Daily cleaning of the stoma is recommended using 0.9% sterile saline solution.
- After daily cleaning, ensure dressing is inserted at stoma site.

## Equipment

- Tracheostomy kit
- Fenestrated gauze dressing
- 0.9% sodium chloride
- Cotton wool applicator sticks.

## Preparation

- Apply eye protection.
- Perform hand hygiene, apply non-sterile gloves.
- Collect and prepare all equipment for procedure on a clean surface area.

## Procedure

- Clearly explain the procedure to the participant and their family.
- Perform hand hygiene.
- Use a standard aseptic technique using non-touch technique
- Position the participant. Infants and young children may lay on their back with a small, rolled towel under the shoulders. An older child or adult may prefer to sit up in a bed or chair.
- Perform hand hygiene and apply non-sterile gloves.
- Remove fenestrated dressing from around stoma.
- Inspect the stoma area around the tracheostomy tube.
- Perform hand hygiene and apply non-sterile gloves.
- Clean stoma with cotton wool applicator sticks moistened with 0.9% sodium chloride. Use each cotton wool applicator stick **once only** taking it from one side of the stoma opening to the other and then discard in waste.
- Continue cleaning stoma area as above with a new cotton wool applicator stick each time until the skin area is free of secretions, crusting and discharge.
- Allow skin to air dry or use a dry cotton wool applicator stick to dry.
- Insert the fenestrated gauze under the flanges (wings) of the tracheostomy tube to prevent chafing of the skin.
- Dispose of waste, remove gloves, and perform hand hygiene.
- **Avoid** using any powders or creams on the skin around the stoma unless prescribed by a health practitioner as powders or creams could cause further irritation.

## Special considerations

- If signs of redness or excessive exudate are present, consider using a non-adhesive hydro cellular foam dressing e.g., Allevyn.
- If visible signs of infection are present - discuss with the Registered Nurse and consider obtaining a swab specimen for culture and sensitivity.
- If there are any signs of granulation tissue, liaise with the Registered Nurse for appropriate management.

- The care of the stoma includes routine (minimum - daily) observation of the site and accurate documentation of the findings, including the presence of any of the following:
  - Redness
  - Swelling
  - Evidence of granulation tissue
  - Exudate
  - Increased discomfort or pain at the site
  - Offensive odour.

Refer to the Registered Nurse for advice on the frequency and type of dressing required.

# Tracheostomy Support Procedures - Appendix 4: One-way Speaking Valves

One-way speaking valves are a small plastic device with a silicone one-way valve that sit on the end of the tracheostomy tube.

The one-way valve opens on inspiration, allowing air to enter the tracheostomy tube, and closes on exhalation, directing air up through the trachea, larynx and nose and mouth as in normal breathing and normal speech.

Various types of one-way speaking valves are available.

## **Benefits of using a one-way speaking valve include:**

- Enhancing normal flow of air through the airway/nose and mouth
- Restoration of physiological PEEP
- Louder and clearer voice
- Improved ability to taste and smell food
- Improved secretion management
- Improved protection of the airways during swallowing and feeding
- Improves development of speech and babbling in infants/toddlers.

## **Contraindications for one-way speaking valve assessment:**

- Severe airway obstruction
- Vocal cord paralysis - adducted position
- Severe neurological deficit
- Tracheostomy tube with inflated cuff (any kind)
- Foam-filled cuff (even if deflated)
- Severe risk for aspiration
- Less than 7 days post-operative tracheostomy tube insertion.

## **Before using the one-way speaking valve ensure the participant is:**

- Medically stable
- Greater than 7 days post tracheostomy insertion
- Awake, alert, and responsive
- Able to tolerate cuff deflation
- Doesn't have a foam cuffed tracheostomy tube in situ
- Has adequate patency of upper airway
- Does not have excessive tracheal secretions
- Able to manage their oral secretions.

## **Contraindications to one-way speaking valve use:**

- If you determine there is **no or inadequate airway patency** this is a contraindication to speaking valve use
- If the participant has prolonged excessive coughing and obvious discomfort with increased respiratory effort and air trapping - remove the valve immediately and reassess for adequate airway patency before a repeat trial
- If airway patency is adequate, then aim to reassess the participant at regular intervals to place the one-way speaking valve gradually increasing the time and frequency of use.
- one-way speaking valve may be contraindicated depending on type of cuffed tube e.g., foam cuff



## Bedside assessment of airway patency and use of one-way speaking valve

### Preparation

- Apply eye protection.
- Perform hand hygiene, apply non-sterile gloves.
- Collect and prepare all equipment for procedure on a clean surface area.

### Procedure

- Explain procedure to the participant and their family.
- Suction the tracheostomy tube before the valve is attached and then as required.
- A cuffed tube must be fully deflated before attaching the speaking valve.
- Gently occlude tracheostomy tube with a gloved finger and observe for exhaled air from nose and mouth or vocalization.
- If finger occlusion is tolerated place the speaking valve on the end of the tracheostomy tube and observe for oral/nasal exhalation.
- If the one-way speaking valve is tolerated on the initial trial aim for a goal of 5 to 10 minutes.
- A management plan to gradually increase the length of time which the valve is used will be provided for the participant.
- Once the participant has adjusted to wearing the one-way speaking valve, they should be able to wear it for long periods including at all awake periods, particularly during rehabilitative therapy sessions and when eating.

### If the participant fails to tolerate the one-way speaking valve:

- Remove the valve if there are any signs or symptoms of distress or changes in respiratory effort.
- As it can be more difficult for the participant to exhale with the valve in place, the participant may initially fail a trial of one-way speaking valve due to anxiety or discomfort. The participant may need to slowly build up to longer periods of one-way speaking valve use with placement repeated on subsequent days.
- Some participants have difficulty adjusting to changes to their airways. Participants may initially experience increased coughing due to restoration of a closed respiratory system, which re-establishes subglottic pressure and normalizes exhaled airflow in the oral/nasal chambers.
- In infants and young children, consider using a device to secure the one-way speaking valve to the child's ties - to prevent accidental loss of the one-way speaking valve.
- Some speaking valves are suitable for use in combination with oxygen therapy and during ventilation.

### Safety precautions when using one-way speaking valves:

- If the participant has severe airway obstruction the speaking valve should not be used.
- In cuffed tracheostomy tubes - ensure cuff is completely deflated.
- The participant should always be supervised when wearing the speaking valve.
- The one-way speaking valve should not be worn when the participant is sleeping.
- One-way speaking valves do not humidify the air - therefore may be unsuitable for participant with copious thick secretions.
- If the one-way speaking valve is not functioning properly (i.e., sticking, noisy or vibrates) or the participant shows signs of respiratory distress/discomfort, then remove the valve immediately and replace.
- Do not use in combination with a HME (heat moisture exchanger)
- Ensure the one-way speaking valve is clean and not damaged in any way before each use.
- Discard and replace immediately if any signs of wear/tear or damage are noted.
- Remove valve before aerosol/nebulizer medication is administered.

**Care and cleaning of the valve:**

- The one-way speaking valve should be cleaned at least daily after use by washing in warm mild soapy water, then rinsed thoroughly and allowed to air dry completely before reuse.
- Once dry and when not in use, it should be stored in an appropriate storage container.
- Dispose of waste, remove gloves, and perform hand hygiene.

**To avoid damage to the valve:**

- **do not** wash in hot water.
- **do not** use a brush on the valve.
- **do not** use alcohol, peroxide, or bleach to clean the valve.

# Tracheostomy Support Procedures - Appendix 5: Documentation

Ensure all written documentation related to the management of a participant with a tracheostomy is in accordance with Australian Quality Care's *Information Management Policy and Procedure*.

Record the reason and type of the interventions performed relating to tracheostomy care and appropriate outcomes in the participant's records.

These include:

- Suctioning (amount, colour, and consistency of secretions)
- Tracheostomy care performed including tie changes and stoma dressings
- Stoma condition (at least daily review and ongoing documentation of any changes e.g., signs of infection)
- When a tracheostomy tube change (routine or emergency) is performed document the date and time of the tracheostomy insertion, name of person who inserted the tube, size and type of tube inserted (including inner and outer diameter, tube length and suction depth), lot number, expiry date of the tracheostomy tube, patient condition throughout and following the tube change and any difficulties experienced during or after the tracheostomy tube change.

## Document Control

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