

## Adult Tracheostomy Management

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### Policy/Purpose

This policy will be followed to ensure a safe and consistent approach in the care of patients with a tracheostomy tube.

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## Scope

This guideline is intended for use by medical, nursing/midwifery and allied health staff working with patients who have a tracheostomy on adult wards.

## Associated documents

- ICU Tracheostomy referral form
- Physiotherapy Department Guidelines for Treatment
- Speech-Language Therapy Department Guidelines for Tracheostomy Management
- Christchurch Hospital Referral Form C24009D
- Tracheostomy Tube manufacturer's instructions

## Patient Education prior to Insertion

Whenever possible patients and their family should receive verbal and written information prior to the tracheostomy insertion. Education and explanation of cares should be given post insertion and reinforced regularly.

Where patients no longer require 'specialling' they should be located in an area they can be heard and frequently observed.

## Post insertion bedside equipment requirements

Cuffed tubes are used for IPPV (Intermittent Positive Pressure Ventilation) and to reduce aspiration of saliva, blood, vomit or occasionally food/ fluids.

Non-cuffed tubes maintain an airway, allow access for tracheal suctioning, and sometimes allow speech but provide no protection against aspiration and are of limited value during ventilation.

When there is no risk of aspiration a fenestrated tube with a fenestrated inner (or no inner) and the cuff down can improve voice production by allowing more air through the vocal cords.

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From left top to bottom right:  
Tracheostomy brush for cleaning inner  
Introducer to reinsert a dislodged tube  
Spare Portex® Inner cannula  
Portex® cuffed tracheostomy tube  
Shiley® cuffed tracheostomy tube  
Portex® Minitrac tube  
Tracheostomy tube collar  
Tracheostomy mask

The Tracheostomy sticker put in the patient's notes after insertion includes the following information:

- Tube Size: Inner Diameter (ID)
- Cuffed/ Cuffless
- Fenestrated/ Unfenestrated

A non-fenestrated (plain) tracheostomy tube comes with an introducer and two unfenestrated (plain) inner cannulas. A fenestrated tracheostomy tube comes with a fenestrated and plain inner cannula. A fenestrated inner should only be used to improve voice on patients who have no risk of aspiration and should be changed to a plain inner when not talking (at night) to reduce the

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formation of granulation tissue in the trachea and if tracheal suction is required.

### **Bedside Equipment**

Equipment should include:

- An Emergency Tracheostomy Kit supplied by ORL/Tracheostomy CNS.

Containing:

- Same sized tracheostomy cuffed tube.
- Smaller size tracheostomy cuffed tube.
- Extra inner cannulas.

[Bedside card](#)

[Emergency Tracheostomy Management flowchart](#)

- Tracheostomy brush to clean inner tube
- Oral and tracheal wall or portable suction.
- Box of appropriate size suction catheters
- Some larger sized catheters in case of thick sputum.
- Personal Protective Equipment (PPE)
- Heated Humidifier with tracheostomy mask (from Emergency Equipment Cupboard)
- Tracheostomy HME Vent (if patient mobile and sputum is not problematic).
- Normal Saline 5mL vials (1mL increments instilled into tracheostomy tube and suctioned, if sputum 'plugs' occlude tracheostomy).
- Pulse oximeter available to assess need for supplementary oxygen via humidifier.
- 10mL syringe for deflating cuff if necessary.
- Cuff pressure manometer (Loan from ORL CNS in Christchurch Hospital)
- Tissues and mirror.
- Oral hygiene equipment
- Communication resources and nurse call bell.

### **Tube Sizes**

ID size 6 = 8 FG Catheter

ID size 7 = 10 FG Catheter

ID size 7.5 = 10 FG Catheter

ID size 8 = 12 FG Catheter

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ID size 8.5 = 12 FG Catheter

ID size 9 = 14 FG Catheter

## Cuff Management

### Cuff Inflation

The Tracheostomy cuff will be inflated with air to the correct pressure (between 20 and 25cm H<sub>2</sub>O) confirmed with a cuff pressure manometer.

The cuff pressure should be maintained within this green range on the gauge and checked at the beginning of each shift. Due to a small amount of air lost when inserting the gauge into the pilot balloon valve, the cuff may need additional air to achieve a pressure of 20-25cm H<sub>2</sub>O again. Wards 28, 11, ORL Outpatients, Burwood Spinal Unit and ICU have pressure manometers that can be used for measurement. The manometer should only touch the pilot balloon; it is wiped with detergent and water following use and is stored in a clean area.

Oral hygiene is especially important while the cuff is inflated.

### Trial cuff deflation

The multi-disciplinary team, in consultation with the clinician in charge of the patient, will give permission for trials of cuff deflation.

The Medical team, Speech-Language Therapist and/or Tracheostomy Nurse Specialist will assess the patient and deflate the cuff initially. The Physiotherapist can be contacted for assistance with this procedure. Explanation is given to the patient including the probable change in airflow and expectoration by mouth again.

Before cuff deflation, suction orally and via the tracheostomy tube if necessary. Suction via tracheostomy tube again during cuff deflation. (See Suctioning Guidelines). Reassess need for suction ¼ hourly for the first hour after cuff deflation.

Nursing staff should observe the patient taking note of:

- Increased amount, consistency and colour of bronchial secretions
- Frequent coughing or need for increased suctioning
- Increasing adventitious sounds or decreasing air movement on chest auscultation
- Increased work of breathing
- Decreasing oxygen saturation's

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- Above normal temperature

These may be signs of aspiration and indicate the need to re-inflate the cuff. Suction from the carina via the tracheostomy and document the reason for and time of cuff re-inflation.

A mandatory review by the person who initially deflated the cuff is completed within four hours to ensure the patient is tolerating cuff deflation.

If the patient passes the initial test for tolerance of cuff deflation then long-term cuff deflation may be trailed and the above observations for aspiration will continue.

ORL/ICU/Registrar will be consulted if there are concerns about the patient's ability to protect the airway following cuff deflation.

## Complication notification requirements

Report signs of the following to ORL CNS, Registrar or ICU Outreach

- Haemorrhage (minor or major)
- Surgical emphysema
- Blockage of the tube
- Pressure ulcers caused by tube flange
- Over granulation at site
- Aspiration and swallowing problems
- Displacement of the tube

Contacts

ORL/Tracheostomy CNS pager 8984

Registrar or ICU outreach can be contacted via telephonist

## Acute Tracheostomy Tube Emergencies

[Emergency Tracheostomy Management flowchart](#)

## Large Life Threatening Haemorrhage

- Summon assistance to call the cardiac arrest team.
- Inflate tracheostomy cuff with 10mL of air.
- Suction as necessary.
- Intubation with an endotracheal tube may be required

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## Resuscitation via a Tracheostomy Tube

Mask to mouth resuscitation is usually not appropriate unless the tube is a Minitrac or the tube is blocked (see above). Low profile connectors and silver tracheostomy tubes will need to be changed so the Ambu-bag will connect directly onto the usual 15mm connector. With a non-cuffed tube the nose and mouth may need to be occluded to prevent air escaping via the upper airways. A fenestrated inner should be replaced with a non-fenestrated inner.

**A cuffed tube is ideal. Consider changing to a cuffed tube if one is not already in situ. Resuscitation will otherwise be routine, as for an intubated, non-tracheostomised patient.**

## Inner Cannula Cleaning

[Lippincott procedure on Canulla Cleaning](#)

## Suctioning

[Lippincott procedure on Suctioning](#)

## Site Cleaning and Securing Tube

[Lippincott procedure on Site Cleaning and Securing the tube](#)

## Cuff inflation and deflation

[Lippincott procedure on Cuff inflation and deflation](#)

## Tie change

[Lippincott procedure Tie Change](#)

## Routine Changing of Tube for Adults

### Scope

Only to be performed/under supervision by ORL/Tracheostomy CNS

- Ensure ORL/ICU medical staff are aware change is taking place and are available should problems arise therefore procedure should be carried out during 'normal' working hours.
- The Tracheostomy tube is usually changed PRN post procedure then 4-6 weekly

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- Patients who have a permanent Tracheostomy may be in the position to be educated by ORL staff to change their own tube, therefore ORL nurses can assess the risks involved and use their professional judgement regarding medical staff availability and the need for 2 staff to change tubes.

### **Equipment**

- Appropriate sized Tracheostomy tube and introducer.
- Water based gel.
- 10mL syringe and cuff pressure manometer (for cuffed tube).
- Tracheostomy ties or collar.
- Suction equipment set up with catheter attached plus more in reach.
- Gauze squares moistened with Normal Saline.
- Light to examine site.
- PPE
- Unopened size smaller tube if unable to reinsert above tube.
- Unopened Tracheostomy dilators to hold tracheostomy site open and aid reinsertion if above methods fail
- Guide wire if potential for occlusion (In Ward 11 and ICU).

### **Procedure**

- Take a patient history since the last tracheostomy change.
- Both staff put on disposable aprons, full-face visors and apply Sterigel to hands.
- Check size of tracheostomy tube required. This is usually the size the patient is currently using unless CNS/medical staff indicates otherwise – size (ID) is indicated on the tracheostomy flange, or pilot balloon.
- Position adult patient in semi-fowler if possible but with the option to lie flat with neck hyper extended.
- Open tracheostomy tube set to be used and place all equipment within reach of both staff on clean surface.
- Don non sterile gloves.
- If you are using a cuffed tracheostomy tube, inflate the cuff with 7mL of air to check patency then deflate fully.
- Insert introducer into tracheotomy tube and familiarise yourself with its removal then put gel around the insertion end.
- Observe the patient throughout the procedure to ensure their general condition is not affected, pulse oximetry can assist.

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- If the patient is oxygen dependent or their cardiovascular status is unstable, it may be necessary to give the patient some extra oxygen (usually 20% above baseline) 30 seconds prior and for a short while after suctioning.

**Please Note:** This may need titration in patients who have Type II Respiratory Failure.

- Co-ordinate the procedure with assistant so each is aware of their role.
- If the tube is cuffed, clear oral secretions then suction patient via tracheostomy while other staff member deflates cuff, dispose of catheter and attach another one for use as necessary.
- Hold the tube at the flange while other staff member removes the collar and cleans the neck.
- Remove tracheostomy tube and if stoma is well formed (more than a week old), the other staff member can clean stoma site with gauze moistened in saline. Dry stoma site with gauze taking note of granulation tissue, signs of tissue breakdown, infection or any alteration in what is 'normal' for the patient. .
- Insert the tracheostomy tube in a smooth downward movement and remove the introducer. Continue to hold tube in place.
- If there are problems with insertion reposition patient and/or ask them to swallow and try again. If unsuccessful, contact ORL/ ICU medical staff urgently whilst trying a smaller tube.
- If there are concerns about tube placement contact ORL/ ICU.
- Inflate a cuffed tube cuff with air to 20cm H<sub>2</sub>O using the cuff pressure manometer and suction via tracheostomy.
- Attach the Velcro collar/ ties firmly; to allow minimal movement. Check that the patient is comfortable with one finger only fitting under the collar or tie. Knot ties at flange with reef knot
- Insert the inner if present (clean site if not done as above, apply silver nitrate to any granulation and apply key-hole dressing, if required).
- Do any patient self-care teaching, ensuring they are aware of whom to contact if there are problems and make sure they have adequate equipment for care over the ensuing weeks.
- Dispose of personal protective equipment and social hand wash.
- Document observations and actions in the notes.  
If using a Portex tube, place sticker from packaging in notes.

## Care of the patient with Mini-Tracheostomy Tube

The Portex Mini-Trach is a single cannula of 4mm ID and is for suctioning purposes only

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- Use size 10 suction catheters
- Assess the need for suctioning QIH PRN
- Care of site same as standard tube
- Keep port closed between suction

## Removing the Tracheostomy Tube

The decision to remove the tracheostomy tube is the responsibility of Multi-disciplinary team in consultation with the medical team.

The patient should be on less than 30% inspired oxygen before consideration of tracheostomy tube removal.

Down-sizing to an uncuffed smaller tube may be appropriate 24-48 hours prior to planned decannulation.

The tracheostomy tube can be removed if the patient:

- Has managed to swallow and clear their secretions for 24 hours following cuff deflation.
- Has an adequate cough.
- Can breathe comfortably with the tracheostomy tube occluded (only occlude with the cuff fully deflated).

An occlusive dressing over the tracheostomy site will help it to close. This will usually need reinforcing with a transparent occlusive dressing when there is an air leak. If air leaks are more frequent than four times a day then gauze, skin prep and micropore/mefix may reduce skin irritation. If possible patients should be instructed to hold the dressing when talking and coughing to reduce air leaks. Dressings should be done daily/PRN until there is no air leak and the site is closed. This can take 24 hours to a week. Contact ORL/Tracheostomy Nurse Specialist to review wound if required.

After removal voice quality should gradually improve. A routine appointment with ORL OPD 6 weeks post decannulation will be sent out. If there are on-going voice problems, increased work of breathing or stridor before that appointment contact the ORL team.

## Measurement or evaluation

Individual ORL/Tracheostomy CNS Patient review

Tracheostomy audits undertaken by the ORL/Tracheostomy CNS - refererals and follow ups

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