This document was updated in February 2015 following a national review of the care received by patients who underwent tracheostomy (NCEPOD, 2014 *On the Right Trach*, National Confidential Enquiry into patient outcomes and death, London).

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QUICK ACCESS PULL OUTS

Preparation and Equipment
Tracheostomy Suction
Complications
Changing a tracheostomy tube
Weaning from a tracheostomy tube
Decannulation
Resuscitation
INDICATIONS FOR A TRACHEOSTOMY

Definition

"The surgical creation of a stoma or opening into the trachea through the neck for the purpose of facilitating the passage of air into the lungs or to remove secretions from the trachea".

(Blackwell 1994)\(^{(1)}\)

Indications for a Tracheostomy

- To bypass upper airway obstruction – tumours, swelling, foreign body, congenital.
- Protect / minimise aspiration risk in absence of laryngeal reflexes.
- Aid removal of bronchial secretions.
- Facilitate weaning from positive pressure ventilation.\(^{(2)}\)
- Head and neck injury / if oral or nasal intubation impossible.

Pre Procedure Preparation

Where able and appropriate prepare patient

All staff will receive training in accordance with the National Tracheostomy Safety Project and core competencies achieved. Forrest ward will be the admitting ward of choice for all appropriate neck breathers. Excluding CVE and severely head injured patients

- Explanation / advise both patient and family.
- Written Patient Information available via TSDFT intranet.
- Consent should be taken prior to procedure
- Equipment used, i.e. let tubes be handled.\(^{(Fig. 1)}\)
- Explanation of humidification and suction.
- Anticipated duration of tracheostomy tube.
- Meet MDT to discuss issues / fears.

Patient Assessment

- Type, size and site of tracheostomy tube – should be appropriate for the size and anatomy of the individual patient, e.g., adjustable flange tubes, or with patients with large or short necks
- Respiratory rate, pattern and skin colour
- Oxygen saturation
- Auscultate chest – abnormal breath sounds?
- Amount and consistency of secretions
- Increased coughing – may indicate need for suction (e.g. irritation, over-humidification)
- Pain, discomfort or anxiety (this will reduce likelihood of getting a good cough)

Principles of Care

Maintain an airway via the tracheostomy:

To ensure good humidification and suction is given the first post operative night, the patient is nursed in a bed close to the nurses' station for close monitoring.
TYPES AND COMPONENTS OF TRACHEOSTOMY TUBES

Cuffed Tube

Used initially
- to prevent the aspiration of blood and serous fluid from the wound

Cuff pressure between 15 mmHg to 22 mmHg. Check with a cuff manometer
- if no contraindications proceed to uncuffed tube (usually 4 days post trache)

Uncuffed Tube

Used when
- patient not being ventilated
- coping with own secretions
- no swallowing problems
- not listed for further surgery
- medically well (MDT decision)

Fenestrated

Used when
- patient in process of decannulation (see Weaning from tracheostomy tube section)

Non-fenestrated inner tube should always be inserted before suctioning

The tracheostomy tube can inhibit swallowing.

If the cuff is inflated the patient is not safe to eat or drink

Once cuff deflation is tolerated Speech & Language Therapist will assess.
(See Assessment of Communication & Swallowing section)

- Single cannula (i.e. outer tube only)
  - e.g. some Portex tubes, Mallinkrodt
  - usually the first tube to be sited
  - usually un-fenestrated
• **Double cannula (i.e. inner and outer tube)** (Fig. 2)
  - first tube used in Head & Neck cancer patients
  - e.g. Shiley, (Tracoe twist)
  - can be fenestrated or un-fenestrated

• **Uncuffed tubes**
  - not usually the first tube to be placed
  - may be useful in weaning

• **Obturator (inserter)**
  - used when the tube is inserted only

• **Flange**
  - may be fixed or flexible
  - see diagram in Appendix

• **Fenestration** (Fig. 3)
  - an opening in the posterior wall of the trache. Allows for airflow up into the larynx when the cuff is deflated. May be a single hole or multiple holes.
  - Shiley fenestrated inner tubes have a green hub

• **Cuff** (Fig. 2)
  - situated on the outer tube. The tube will therefore always have a pilot balloon

• **Sizes**
  - vary from company to company
  - when changing or downsizing note the outer diameter (measured in mm), e.g. Portex 8 I.D. 8.00mm, O.D. 11.0mm
  - the measurements for outer and inner diameter can be found printed on the flange

**Attachments**

• **speaking valves** (Fig. 5)
  - e.g. Rusch, Passy-Muir, Shiley Phonate, Portex Orator
  - these are one way valves which should only be used when the cuff is deflated or on cuffless tubes

• **Caps/spiggets** (Fig. 4)
  - used to completely occlude the tube
  - cuff must be FULLY DEFLATED

• **Humidifiers** (Fig. 6)
  - e.g. Swedish nose, trachphone
PREPARATION AND EQUIPMENT

Prior to Receiving Patient

PREPARE PREPARE PREPARE

- Prepare environment.
- Emergency/essential bedside equipment.
- Equipment for tube cleaning and dressing change.
- Communication aids, i.e. call bell, pen and paper.
- Contact bleep number for MDT.
- ICU need a rapidly-available airway trolley/fibreoptic laryngoscopy
- Capnography must be available at each bed space in ICU/critical care for ventilated patients.
- Appropriate positioning of the tube should be made using airway endoscopy.

<table>
<thead>
<tr>
<th>Equipment Required at Bedside</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 2 tracheostomy tubes cuffed</td>
</tr>
<tr>
<td>- 1 same size</td>
</tr>
<tr>
<td>- 1 one size smaller</td>
</tr>
<tr>
<td>- 10ml syringe for cuff</td>
</tr>
<tr>
<td>- 1 pair tracheal dilators (Fig. 9)</td>
</tr>
<tr>
<td>- Ambubag (or similar) with catheter mount</td>
</tr>
<tr>
<td>- Oxygen supply</td>
</tr>
<tr>
<td>- Cuff manometer (Fig. 14)</td>
</tr>
<tr>
<td>- Pulse oximeter</td>
</tr>
<tr>
<td>- Humidification</td>
</tr>
<tr>
<td>- Suction equipment that is working</td>
</tr>
<tr>
<td>- Suction catheters</td>
</tr>
<tr>
<td>- Disposable gloves (clean and sterile) (non latex)</td>
</tr>
<tr>
<td>- Aprons and eye protection</td>
</tr>
<tr>
<td>- Sodium Chloride 0.9%</td>
</tr>
<tr>
<td>- Syringes</td>
</tr>
<tr>
<td>- Good light source</td>
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<tr>
<td>- Scissors/neck tapes</td>
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</tbody>
</table>

Equipment should be checked at beginning of each shift
CARE OF THE TRACHEOSTOMY AND STOMA

There will be at least daily reviews by key members of the MDT, e.g., physio, SLT, outreach nurses and dietitians.

Stoma Care

- The stoma and skin should be inspected and assessed at least twice a day paying particular attention to the skin over bony prominences. Any changes to care to be documented in care plan.
- Explain procedure, ensure patient's comfort and privacy.
- Prepare dressing trolley.
- Universal precautions (wash hands, gloves, apron and eye protection).
- Clean the skin and around the tube at least twice a day, with warmed Sodium Chloride 0.9% and sterile gauze swabs (do not use cotton wool as fragments could be inhaled).
- Clean around tube with Sodium Chloride 0.9% and sterile gauze (do not use cotton wool as fragments could be inhaled).
- Dry thoroughly and apply barrier cream if necessary.
- Clear away and wash hands.
- During skin care, minimize the force applied to the skin. Avoid massaging over bony prominences and hyperemic areas as massage may destroy the underlying tissue and damage blood vessels.
- Minimize skin exposure to moisture by teaching the patient to wipe away secretions from skin using tissues/gauze swabs.

A dressing should only be applied if clinically indicated.

Patients should be encouraged to wipe away secretions as they occur.
Why Stoma Care?

- Neck incision/stoma needs to be kept clean as at increased risk of infection from tracheal secretions.
- Change dressing at least daily – may require changing more frequently.

Securing a Tracheostomy Tube

- Tracheostomy tubes must be secured at all times to prevent dislodgement (use tapes or other aids, i.e. foam covered velcro)
  - Tracheostomy may be sutured in.
- Should be able to insert and slide little finger between tapes and neck.
- Tapes usually changed along with dressing, if appropriate.

Changing Tapes Clean Procedure

- Two-nurse procedure to maintain safety.
- Universal precautions.
- Prepare old and new tapes.
- Assistant secures tube to stop dislodgement.
- Flex neck if able (neck smallest if head flexed toward chest) secure tapes or velcro.
- If using tapes tie in reef knot each side of neck (to reduce pressure over vertebral column).
- Check tension using finger.
Cleaning Inner Tubes

- Equipment required:
  - 2 small bowls
  - sterile saline (Sodium Chloride 0.9%)
  - mouth care sponges (NOT cotton wool or bottle brush) – Tracoe Tube cleaning swab
  - gauze squares
- Reassure patient and sit up 45-70º if able.
- Universal precautions – prepare equipment.

Hold neck flange and remove inner tube (turn anti-clockwise to unlock).

Clean soiled tube with sponge and sterile saline (if sponge not available, use long-handled cotton buds covered with gauze).

Dry and replace clean inner tube (twist clockwise until clicks) – never leave double cannula with only outer tube.

RESPIRATORY MANAGEMENT OF TRACHEOSTOMY

HUMIDIFICATION

As upper airway is bypassed, humidification must be provided. Cold, dry air affects cilia and secretions (see Humidification, below). (3, 4)

Methods for Humidification

- Fisher Paykel.
- Humidified oxygen (e.g. aquapack). (5) (Fig. 8)
- Saline nebulisers.
- Heat moisture exchange, e.g. Swedish Nose, Trachphone.
- Buchanan bib. (Fig. 7)

Ensure patient well hydrated!

Be aware – speaking valves may reduce effectiveness of humidification. Buchanan bib used at TSDFT

Monitor for water build-up in O₂ tubing.

The Head and Neck Unit recommends that tracheostomy patients must have humidification via a warmed oxygen humidifier (i.e. Fisher Paykel) for a minimum of 72 hours.

IN SUMMARY

KEEP HYDRATED
KEEP HUMIDIFIED
USE OF SALINE NEBULISERS
Humidification

The effects of tracheostomy on humidification include bypassing the normal filtering system of the nose, with reduced mucociliary transport and reduced airway pressure.

Cold, dry air affects cilia and secretions:

**Lack of humidity**

- Atelectasis
- Increased risk of infection
- Obstruction – crusting/thick secretions so risk of blocked tube.\(^{(6)}\)
- Inflammation of trachea

**Too much humidity**

- Excessive moisture in bronchi
- Risk of burn if temperature high in humidifier
- Infection
- Increase of secretions

If using wet humidification, any heat moisture exchange (HME) must be removed as it can get saturated with water and block the airway.

**RESPIRATORY MANAGEMENT OF TRACHEOSTOMIES**

**TRACHEOSTOMY SUCTIONING**

**Tracheostomy Suctioning**

Indications:

- To remove excess secretions which the patient is unable to clear independently or sudden dyspnoea.\(^{(4,7)}\)

**Complications of Suctioning**

- Hypoxaemia
- Tracheobronchial trauma
- Bronchial obstruction
- Atelectasis
- Cardiac arrhythmias
- Bronchial contamination
- Vomiting
- Laryngeal spasm
- Paroxysmal coughing
- Apnoea

\(^{(8,9)}\)
TECHNIQUE FOR TRACHEOSTOMY SUCTION

1. Explain procedure to patient.
2. Hyper-oxygenate the patient for approx. three minutes prior to suction. In COPD patients this should be no more than 20% above baseline (9a).
3. Collect required equipment:
   - Catheters (Fig. 10)
   - Suction machine (vacuum 100-200mmHg, or 20-25kPa)
   - Eye protectors
   - Gloves (latex and clear disposable)
   - Oxygen
   - Sodium Chloride 0.9% (to rinse suction tubing)
4. Put on latex gloves and change inner cannula as directed.
5. With catheter in package, attach adapter to suction vacuum connector tube.
6. Put clear disposable glove on dominant hand. Using that hand, remove catheter from package and ensure it touches NOTHING else but the inside of the tracheostomy (10, 7).
7. Insert catheter gently into tracheostomy tube. Do NOT suction on the way down.
8. Pass the catheter down the tube until gentle resistance is felt, then withdraw catheter 0.5 cm.
9. Apply suction now, keeping it moving out gently at all times. NO 'TWIDDLING' OR 'TWIRLING' OF CATHETER, NO 'ON/OFF' TECHNIQUE WITH VACUUM.
10. Suction should not exceed 15 seconds.
11. Dispose of catheter and glove between each suction, i.e. each time you suction a patient, you require a fresh clear disposable glove and catheter.
12. Re-apply the patient's oxygen supply immediately.
Allow the patient sufficient time to recover between each suction, particularly if oxygen saturation is low, or the patient coughs several times during the procedure.

**Size of Suction Catheter Compared to Tracheostomy Tube**

DIVIDE THE TRACHEOSTOMY TUBE SIZE BY TWO

MULTIPLY THE RESULT BY THREE TO GET CATHETER SIZE

e.g. trache tube size 8:

\[
\begin{align*}
8 \text{ divided by } 2 & = 4 \\
4 \times 3 & = 12
\end{align*}
\]

THEREFORE USE A SIZE 12 CATHETER FOR A SIZE 8 TRACHEOSTOMY TUBE

**Equipment needed at the bedside for suctioning**

- A functional suction unit (wall source or portable)
- 2 sterile suction catheters 10-14 FG (not foley).
- Disposable gloves – latex and non-latex
- Sodium Chloride 0.9% ampoules
- Oxygen therapy – wall flow meter – trache mask
- Bottle of water for cleaning suction tubing (normal saline)
- For mouth, Yankauer suction catheter (use with caution – especially if any skin grafts in mouth) (Fig.11)
- Protective eye wear
- Sats monitor

**Things to Remember**

Suction Pressures:

- 20 TO 25 kPa
- 100 – 200 mmHg \(^{(11)}\)

Suction Time:

- 10–15 seconds \(^{(12)}\)

If patient has fenestrated tube in situ, the non fenestrated inner cannula must be inserted prior to suction.
ASSESSMENT OF COMMUNICATION & SWALLOWING

COMMUNICATION

Early referral to S&LT with specific competencies are recommended.

Communication difficulties for people with tracheostomies

- Often no voice in the early stages after insertion
- Very frightening and isolating
- Can lead to withdrawal from social contact due to the amount of effort required by patient
- Breakdown in communication may be stressful for you, the patient, their family/friends and the doctors
- Change of body image

Strategies to help communication

- Invest time in making a quiet and unrushed environment
- Mouthing – often unintelligible
- Consistent yes/no – head nod/shake, thumbs up/down, blink systems
- Pen & paper if able to hold a pen and physically write
- Communication boards – picture / alphabet
- Lightwriter – modified typewriter and speech synthesis
- Electrolarynx, e.g. Servox
- ETRAN frame – uses eye pointing
- Speaking valve

ASSESSMENT OF COMMUNICATION & SWALLOWING

SWALLOWING

All tracheostomy patients who have underlying conditions that pre-dispose them to dysphagia (e.g., brain injury, neurological conditions) should be referred directly to S&LT for swallow assessment.

For other patients with a tracheostomy who exhibit signs of difficulty swallowing, the Tracheostomy Blue Water Test should be carried out. This is to be used by doctors and trained nursing staff to identify if a patient with a tracheostomy is safe to commence oral intake, or if they require full S&LT assessment.

General warning signs of swallowing problems

- Evidence of aspiration (can be overt or silent)
  - food / fluids in secretions on suctioning
  - coughing or choking on food/drink/saliva
- Not managing own secretions – frothy oral secretions / drooling
- Frequency and depth of suctioning required (weak cough reflex)
- Poor chest status – right lower lobe
- Abnormal voice – voice loss, breathy, gurgly, wet-hoarse
- Spiking temperature
**SLT referral criteria**

- Written medical referral
- Patient able to participate, be fully alert for 20 minutes, maintain upright posture
- Maintain oxygen saturations either on air, on nasal specs, trache mask or ventilator
- Nurse and/or physiotherapist to be present to suction as required

**Pre-assessment requirements**

- The patient must
  - be able to sit upright
  - have good head support
  - have medical clearance for cuff deflation and be able to tolerate cuff deflation for 20 minutes

The tracheostomy tube anchors the trachea to the skin which restricts laryngeal elevation. Relaxation of the upper oesophageal sphincter phase of the swallow which is worse when a cuff is present. This can cause aspiration.

The tracheostomy tube anchors the larynx limiting laryngeal elevation and making swallowing difficult. Additional difficulties occur when a cuff is present – leading to aspiration.

Airway protection can be comprised.
SPEECH & LANGUAGE THERAPY DEPARTMENT

CUFF DEFLATION CHART

Linked to Clinical Document Library: - Cuff Deflation Chart
TRACHEOSTOMY MANAGEMENT – S&LT

Ability to tolerate cuff deflation
- Instruct patient to swallow oral secretions
- PT/nurse to suction via mouth, trache and any pooling around trache
  - on cough, sense of taste and smell, saliva production, need for suctioning
- Deflate cuff. Note:
  - amount of air in cuff
  - reaction to cuff deflation, need for suctioning, patient may gag due to amount of air or excess saliva, may cough a lot
  - spontaneous swallows

Cuff deflated
Is there -
- No cough
- No decrease in saturation
- No change in HR/BP
- No copious drooling

Ability to exhale supraglottically
- Occlude tube with finger on exhalation
- Feel for breath on hand or ask patient to blow on your hand

Laryngeal integrity
- Check voice quality, using finger occlusion or speaking valve
- Assess ability to cough, clear throat
- Assess ‘dry’ swallow

These signs may indicate that the patient isn’t coping and you may need to reinflate the cuff:
- cough++
- decrease on O₂ saturation
- change in HR/BP
- copious drooling
If so reinflate and try for partial cuff deflation/desensitisation techniques / different time of the day

Oral intake assessment
- Prepare few drops of blue (food) dye in water/ crushed ice/ice cream
- As patient swallows, occlude trache
- Feel for timing, laryngeal elevation and note number of clearing swallows etc.

If patient cannot shift air supraglottically
Consider
- respiratory effort; does WOB change?
- blockage by secretions
- size of trache tube
- patency of fenestration
May need to consider:
- ENT referral for cord palsy or stenosis or granulation
- downsizing tube and/or fenestration

If you suspect aspiration yet test is negative, suction again after a few minutes as there may be residue in the pharynx
- Beware of false negatives
COMPLICATIONS

Action plan for escalation policy in order to summon senior staff in the event of a difficult airway event.

A. LIFE THREATENING

1. BLOCKED TRACHEOSTOMY

- Summon help
- Deflate cuff, if present
- If necessary, ventilate via mouth/nose with bag and facemask
- Assess - breathing - colour - respiratory rate - chest movement - pulse - O₂ sats - airflow through tube
- If necessary, ventilate with rebreath bag via tube
- Nebulise and suction
- If double cannula, change inner tube
- Have equipment ready to change tracheostomy tube
- Change tube, do not wait and see

2. DISPLACED TUBE

- Summon help
- If tube out completely, keep stoma open with tracheal dilators
- Replace with new tube if able (same size or one size smaller)
WHY PROBLEMS OCCUR

Blockage of the tube

Tube blockage is rare with adequate suction, humidification and regular changing of inner and outer tubes to prevent obstruction by secretions.

Displacement of the tube

The tube can be displaced into the pre-tracheal tissue, occurring as a result of loosely-tied neck tapes. The patient will have severe breathing difficulties and the tube must be changed immediately with skilled re-insertion of a new tube. The use of a nasogastric tube or suction catheter may facilitate re-insertion of a new tube.\(^{16,12}\)

B. COMPLICATIONS DUE TO CUFF PRESSURE

- **Cuff pressure too high**
  - tracheal wall weakening
  - tracheal necrosis/stenosis

- **Cuff pressure too low**
  - unable to achieve optimal ventilation
  - increase risk of aspiration

**Checking cuff pressure**

It is possible to over inflate a cuff. Check the pressure regularly using a cuff manometer \(^{(Fig. 14)}\). This should be done at each shift change and documented.

Aim for the lowest possible pressure to create a sealed airway, (i.e. no air leak to mouth/nose).
C. TRACHEOBRONCHIAL TRAUMA

This includes:

- ulceration
- haemorrhage
- erosion
- fibrinous deposit of mucoid membrane
- oedema
- fistula

- due to:
  
  - passage of catheter
  - negative suction pressure
  - ill-fitting tube
  - prolonged over-inflated cuff

- prevented by:

  - minimising the number of times catheters are passed
  - gentle technique
  - use of the lowest effective suction pressure
  - correctly fitting tube
  - accurate cuff management

(A tracheosophageal fistula may require surgical repair)
D. OTHER COMPLICATIONS

- **Surgical emphysema**
  Can be caused by suturing the tube too tightly which directs air into the tissues instead of leaking around the tube. Sutures may need to be released.

- **Haemorrhage**
  If this occurs summon help. See 'Carotid Artery Rupture' guidelines. ([Ref: 0329](#))

- **Aspiration and Swallowing Problems**
  See 'Assessment of Communication & Swallowing' Section

- **Pressure sores caused by tube flange**
  This can occur if the neck is oedematous. Use of a swivel flange tube and tracheostomy dressing between the flange and skin may help to prevent this.

- **Bronchial Contamination**
  May occur due to non sterile technique and/or the destruction of ciliated epithelium which will suppress mucociliary clearance, predisposing the patient to further infection.

- **Cardiac Arrhythmias**
  This may occur secondary to hypoxaemia or following the trauma of the procedure.

- **Hypoxaemia**
  Suction has been shown to increase $O_2$ demand by an average of 27%.([17](#)) All patients requiring suction should have $O_2$ sats monitored during the procedure.

- **Bronchial Obstruction**

- **Atelectasis**
  Collapsing down of alveoli in the lung.

**CHANGING A TRACHEOSTOMY TUBE**

**Tracheostomy tube**

Following tracheostomy it takes around 4 days for a tract to form. The first tube change is performed by a doctor, subsequent changes can be performed by an experienced nurse.([12](#))

When changing a tracheostomy tube, factors that increase the risk of obstruction or loss or airway should be considered, e.g., in the high BMI patient

Tubes with no inner cannula may need to be changed daily and tubes with an inner cannula can remain in situ for 4 weeks changing the inner tube as often as necessary.([13](#))

All unplanned tube changes should be reported locally as critical incidents.
2 nurses are present

Two nurses are *always* required to change a tracheostomy tube

Appropriate equipment prepared

Equipment must be inspected for any defects. If using a cuffed tube, inflate and observe for leaks

Wash hands and wear protective clothing

Universal precautions must be followed

Prepare patient with information

Check emergency equipment, e.g. tracheal dilators, suction

Check patient's O2 sats

Ask patient to cough to expectorate any secretions. Perform suction, if required

If cuffed tube, fully deflate cuff, suctioning any secretions retained above the cuff

Wear gloves and maintain a clean technique.

Remove old tube

Clean and inspect stoma

Insert new tube following curve of trachea

Remove introducer immediately and insert inner cannula

Allow patient time to recover. May cough. If signs of distress consider O2 therapy.

Check airflow to ensure tube is within trachea

Tapes should allow one finger to slide under them to ensure they are firm but not tight. Tracheostomy tapes are changed at least daily and 2 nurses are required (see page 7 Care of the Tracheostomy and Stoma).

Secure with tapes or velcro fastenings

Inflate cuff if appropriate and check pressure. Check O2 sats. Ensure patient is comfortable.
EQUIPMENT FOR CHANGING A TRACHEOSTOMY TUBE

- Dressing pack.
- Correct size tracheostomy tube and tube holder or tapes.
  (There should be a tracheostomy tube one size smaller within easy reach)
- 10 ml syringe if tracheostomy tube is cuffed.
- A clean tube or sachet of a water soluble gel e.g. Aquagel.
- Saline (Sodium Chloride 0.9% sachet).
- Tracheostomy dressing if appropriate.
- Sterile or clean pair of gloves and protective eyewear.
- Tracheal dilators and suction within easy reach.
- The exchange device (guide wire for Blue Line Ultra, Bougie for all other tubes) if appropriate. (Figs. 12 & 13)
- Cuff manometer.
  (Pressure between 15 mmHg – 22mmHg)

PATIENT TRANSFER

Transfer from I.C.U. to outlying ward.

A portable box of equipment will be available to accompany the patient at time of any transfer.

Complete transfer sheet

Unplanned and night time critical care discharge is not recommended.

Ensure accepting ward is fully prepared to receive the patient (see p6 [equipment required at bedside])
TRANSFER/DISCHARGE SHEET FOR ALL PATIENTS WITH TRACHEOSTOMY TUBES

Linked to Clinical Document Library - Transfer Discharge Sheet
WEANING FROM A TRACHEOSTOMY TUBE

Requirements for deflation of tracheostomy cuff

- Multi-disciplinary agreement and authorisation
- Able to cough
- No signs of lower respiratory tract infection
- No compromising cardiovascular instability
- Acceptable level of oxygen (less than fio2 – 0.35) 35%

OVERVIEW OF PROCESS:
Once requirements for deflation of tracheostomy cuff are met, follow this process:

1. Deflate cuff
2. Fenestrated tube
3. Speaking valve
4. Cap off tracheostomy tube
5. Decannulation

Criteria for decannulation (13a)

- Able to obey commands (in the non‐neurologically compromised patient)
- Adequate cough and ability to clear secretions effectively and independently
- Cardiovascularly stable
- No new lung infiltrates on x-ray
- Tolerates cuff deflation for 24 hours
- Tolerates speaking valve 12 hours or more (usually during daytime) or decannulation cap for up to four hours (if air flow is present on finger occlusion). In patients following Head and Neck surgery, the decannulation cap may be left for longer periods at the discretion of the surgeon
- MDT agreement for decannulation
### STEP-BY-STEP PROCESS

#### Deflate cuff
- Get patient sat as upright as possible
- Get patient to cough or suction prior to deflation
- Be ready to suction as soon as cuff deflated
- Monitor oxygen saturation
- Observe for signs of fatigue
- Assess spontaneous swallow
- Assess ability to manage oral secretions

#### Change to Fenestrated Tube
- Change inner tube to suction every time
- Monitor for signs of aspiration
- Monitor oxygen saturation
- Lightly occlude the trache tube with either your finger or the patient's and ask patient to say 'aaah'

#### Requirements met for deflation of tracheostomy cuff
- Desaturates
- Fatigue
- Cardiovascular instability
- Fails to protect airway, e.g. audible pharyngeal “gurgle”
- No swallow
- Constant oral drooling

#### Fenestrated tube
- Desaturates
- Increased work of breathing
- Fails to protect airway
- Coughing increasing

#### Replace unfenestrated tube – reassess next day.
**Speaking Valve**

- DO NOT PUT THE SPEAKING VALVE ON WITH CUFF UP
- If voice is clear and patient is comfortable with finger occlusion can move to using a speaking valve
- Agree with MDT suitable length of time for wearing valve, so as not to exhaust patient.

**Once patient is tolerating fenestrated tube and meets requirements, progress to trial of speaking valve**

- Desaturates
- Increased work of breathing
- Stridor
- Voice is “gurgly” and wet

**Speaking valve**

**Remove valve – try again later**
DECANNULATION CHART

Linked to Clinical Document Library - Cuff Deflation Chart
Capping off tracheostomy tube

- Cuff must be fully deflated
- Monitor for signs of respiratory distress
- Monitor for signs of fatigue
- Use the cap on the fenestrated inner tube or the button on the outer tube

Once patient tolerates speaking valve, progress to capping off of tracheostomy tube

Speaking valve

**Cap off tracheostomy tube for 24-hour period**

Remove cap if:
- Increased work of breathing
- Unable to swallow secretions
- Oxygen desaturation

Persevere if:
- No increase in work of breathing but not clearing secretions into mouth

Consider minitracheostomy
DECANNULATION

Once patient can tolerate capping off, progress to decannulation

Cap off tracheostomy tube (pt has been capped off for 24 hours)

- Stridor
- Increased work of breathing
- Unable to expectorate
Re-cannulate – try again later
DECANNULATION

Overview of Process:
Requirements met for decannulation/removal of tracheostomy tube
- Remove secretions via the trachea
- Remove trachea
- Appropriate dressing to be applied
- Monitor patient

STEP-BY-STEP PROCESS:
Requirements met, criteria for decannulation
- MDT decision
- Nursing staff/healthcare professional must be confident and competent to perform the procedure.
- Patient fully informed about procedure and consents.
- Outreach personnel may be informed (ext 5555 or bleep #6 490)
- Patient in central position in ward, if possible
- Call bell within easy reach
- Nursing staff to regularly monitor patient
- Attach O₂ saturation monitor to patient

Remove secretions via the trachea
- Universal precautions see page 6.
- Ensure patient upright
- Remove secretions from oro-pharynx and tracheostomy tube
- Fully deflate any cuff
Apply dressing

- Appropriate dressing may be applied
- Dry dressing, if appropriate
- Frequently review dressing
- Observe stoma for signs of infection

Monitor patient

- Signs of respiratory distress (as above)
- Encourage deep breathing and coughing
- Reassure patient
- For speech, swallow and cough, patient to apply digital pressure to stoma.
  If unable to digitally occlude stoma, apply appropriate dressing, e.g., P3Tracheseal dressing
- Keep emergency tracheostomy kit at patient's bedside for 24 hours

Any patient where extubation is carried out without a trial of decannulation, the reason must be clearly documented in the notes.
RESUSCITATION

- Cessation of breathing observed
- Check if tube is cuffed/uncuffed

**UNCUFFED**
- If competent, change to a cuffed ET/Tracheostomy tube.

Manual ventilation with 100% O₂ is possible but most air will be forced up through upper airway

- If NOT competent, prepare a new cuffed tracheostomy/ET tube for insertion using a clean technique whilst still continuing to attempt ventilation.

**CUFFED**
- Check external pilot balloon that cuff is inflated.
- If cuff is deflated – inflate it with a 10ml syringe.
- Manually ventilate patient using a catheter mount and re-breathe bag (Mapleson C Circuit) (Oxygen flow rate at 15 litres – full flow) (A filter must be in place for non-disposable equipment).

- Do not force air into patient
- It may be difficult to hand ventilate a patient with plugs of mucus

FOR ASSISTANCE BLEEP OUTREACH TEAM - #6490
If RESISTANCE felt, check:-

- The valve is not fully closed on the re-breathe system
- The tube is not occluded
- If the valve is closed – adjust
- If tube occlusion is suspected suction the patient using the suction technique
- Remove inner cannula (if present)
- Proceed to inflate lungs with re-breathe or self-inflating bag (valve mask)
- Check and assess circulation. If not present, commence external chest compressions
  o → Refer to main Resuscitation policy. (Ref. 0350)

If RESISTANCE STILL felt, check:-

- is the tube occluded?
- does the patient have 'stiff lungs'?

**Do not force air/O₂ into trache, however you must ensure the patient is being ventilated**

**RESUSCITATION OF THE PATIENT WITH A TRACHEOSTOMY TUBE**

Mouth to mouth resuscitation is usually inappropriate. Nose and mouth should be occluded to prevent air escaping via the upper airways.

Always have a cuffed tube to hand.

Change to a cuffed tube if not already insitu.

A self inflating bag, e.g. ambu with or without connector (catheter mount) fits onto all Shiley and Portex tubes.

External chest compressions should be performed as per policy, as for any other patient.

Ventilators should produce a chest rise similar to normal breathing for that particular patient.
Evidence based: Yes

References:


   Butterworths

   Humidification for ventilated patients. Intensive critical care nursing 8:2-9

4. Mapp C S (1988) "Trache care – are you aware of the dangers?"
   Nursing 88, 18(7), 35-42


   Journal of Nursing 8(8),500-504

   Preventing hospital acquired infection. Clinical guidelines. A supplement to Hospital
   Acquired Infection, Surveillance, Policies and Practice.

   useful or necessary? Heart Lung 14(5):505-6

    do no harm) Journal of Advanced Nursing 29(4) 928-934

9a AARC American Association of Respiratory Care (1993) Clinical Practice Guidelines:
   Endotracheal suctioning of mechanically-ventilated adults and children with artificial airways.
   Respiratory Care. 38(4): 500-504

    Hospital epidemiology and infection control. Williams and Wilkins. USA.

11. Crow S, Carroll P (1985) "Changing the suction catheter each time you enter a
    tracheostomy. Necessity or waste?" Nursing 5(3) 44-45


    Class 11a rule 7. 93/42

    Determinants of tracheostomy decannulation: an international survey. Critical care 12:
    R26.

    Nursing 29: 1064-6


USEFUL REFERENCES

Ackerman M H (1993) The use of bolus normal saline instillations in artificial airways is it useful or necessary? Heart Lung (14(5): 505-6
Crow S, Carroll P (1985) "Changing the suction catheter each time you enter a tracheostomy. Necessity or waste?" Nursing 5(3) 44-45
Mapp C S (1998) "Trache care – are you aware of the dangers?" Nursing 88, 18(7), 35-42
Weber D, Rutala W (1996) Nosocomial infections associated with respiratory therapy. Hospital epidemiology and infection control, Williams and Wilkins USA
ILLUSTRATIONS

Fig 1: TRACHEOSTOMY KIT

Fig. 2 TRACHEOSTOMY TUBE WITH AN INNER CANNULA
**Fig 3:** FENESTRATED TRACHEOSTOMY TUBE, DEFLATED AND INFLATED

**Fig 4:** TRACHEOSTOMY TUBE WITH CAP

**Fig 5:** TRACHEOSTOMY TUBE WITH SPEAKING VALVE
Fig 6: HUMIDIFIER

Fig 7: BUCHANAN BIB

Fig 8 TRACHEOSTOMY MASK
Fig. 9: TRACHEAL DILATORS

Fig. 10: SUCTION CATHETER

Fig. 11: YANKAUER SUCKER
Fig. 12: EXCHANGE DEVICE

Fig. 13: BOUGIE

Fig. 14: CUFF MANOMETER
Protocols & Guidelines – Document Control

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Ref: 0280  Title: Patients with a Tracheostomy Tube

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Equality Impact: The guidance contained in this document is intended to be inclusive for all patients within the clinical group specified, regardless of age, disability, gender, gender identity, sexual orientation, race and ethnicity & religion or belief.

Evidence based: Yes

References: See pages 34 and 36

Produced following audit: No

Audited: No

Approval Route: See ratification

Date Approved: 16 May 2017

Approved By: Care and Clinical Policies Group

Chief Nurse

Medical Director

Links or overlaps with other policies:

G0329 Carotid artery rupture
G0350 Resuscitation
G0768 Tracheostomy Care

All TSDFT Trust strategies, policies and procedure documents.

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The Mental Capacity Act 2005

The Mental Capacity Act provides a statutory framework for people who lack capacity to make decisions for themselves, or who have capacity and want to make preparations for a time when they lack capacity in the future. It sets out who can take decisions, in which situations, and how they should go about this. It covers a wide range of decision making from health and welfare decisions to finance and property decisions.

Enshrined in the Mental Capacity Act is the principle that people must be assumed to have capacity unless it is established that they do not. This is an important aspect of law that all health and social care practitioners must implement when proposing to undertake any act in connection with care and treatment that requires consent. In circumstances where there is an element of doubt about a person's ability to make a decision due to 'an impairment of or disturbance in the functioning of the mind or brain' the practitioner must implement the Mental Capacity Act.

The legal framework provided by the Mental Capacity Act 2005 is supported by a Code of Practice, which provides guidance and information about how the Act works in practice. The Code of Practice has statutory force which means that health and social care practitioners have a legal duty to have regard to it when working with or caring for adults who may lack capacity to make decisions for themselves.

"The Act is intended to assist and support people who may lack capacity and to discourage anyone who is involved in caring for someone who lacks capacity from being overly restrictive or controlling. It aims to balance an individual's right to make decisions for themselves with their right to be protected from harm if they lack the capacity to make decisions to protect themselves". (3)

All Trust workers can access the Code of Practice, Mental Capacity Act 2005 Policy, Mental Capacity Act 2005 Practice Guidance, information booklets and all assessment, checklists and Independent Mental Capacity Advocate referral forms on iCare

http://icare/Operations/mental_capacity_act/Pages/default.aspx

Infection Control

All staff will have access to Infection Control Policies and comply with the standards within them in the work place. All staff will attend Infection Control Training annually as part of their mandatory training programme.
Quality Impact Assessment (QIA)

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Does this document require a service redesign, or substantial amendments to an existing process? ☐

*If you answer yes to this question, please complete a full Quality Impact Assessment.*

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*If you answer yes to any of these strands, please complete a full Quality Impact Assessment.*

If applicable, what action has been taken to mitigate any concerns?

Who have you consulted with in the creation of this document?

*Note - It may not be sufficient to just speak to other health & social care professionals.*

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