

TRACHEOSTOMY RESOURCE & SELF DIRECTED LEARNING PACKAGE

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INDEX

History of Tracheostomy	3
Anatomy & Function of the Respiratory System	4
Indications for Tracheostomy	6
Tracheostomy Techniques	7
Types of Tracheostomy Tubes	10
Nursing Care of the Tracheostomy Patient	16
Dealing with Emergencies	25
Activities/Questions	28
References	34
Recommended Readings	35
Evaluation	36

HISTORY OF TRACHEOSTOMY

The tracheostomy- a medical procedure in which a tube is inserted through an incision in the windpipe to create an airway-has been performed by physicians for over 5,000 years. When done properly, it can save lives; yet the medical community did not readily accept the tracheostomy.

The tracheostomy began as an emergency procedure, used to create an open airway for someone struggling for air. For most of its history, the tracheostomy was performed only as a last resort & mortality rates were very high. Only in the past century has the tracheostomy evolved into a safe & routine medical procedure.

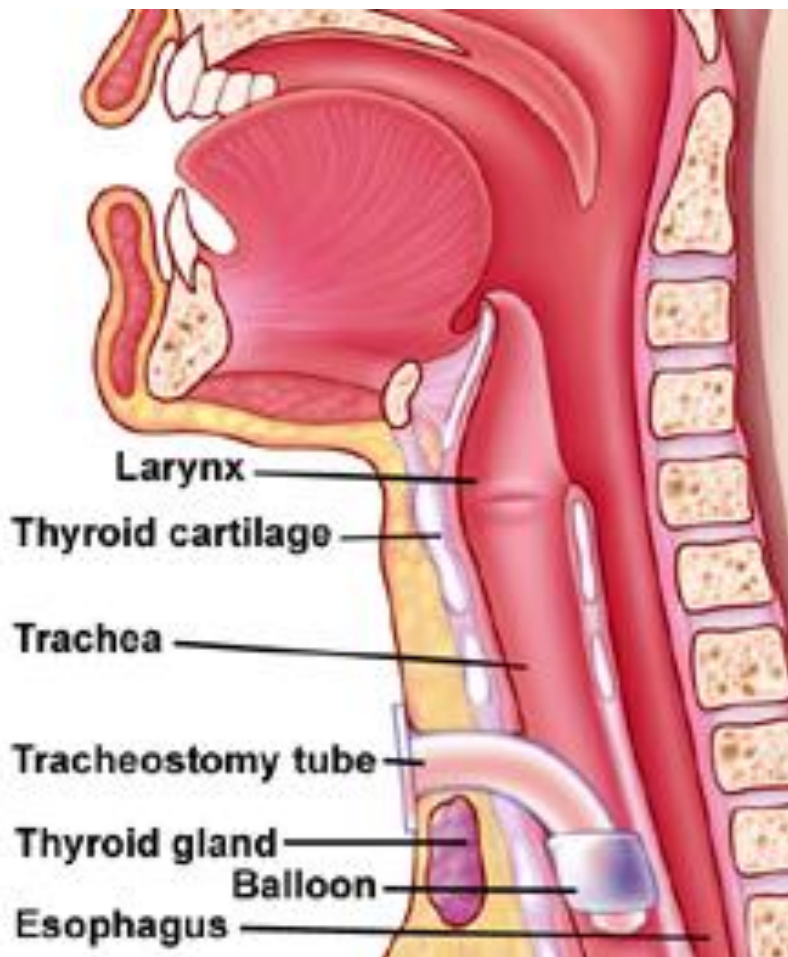
One famous American whose life could have been saved by a tracheostomy was President George Washington. At the end of the 18th century, however, the procedure was still considered too risky. In December of 1799, Washington lay in his bed at Mount Vernon, Virginia, suffering from a septic throat & struggling for air. The youngest of his three doctors, Elisha C. Dick, recommended that a tracheostomy be performed to create an unobstructed airway. The other two physicians vetoed him; they preferred more traditional methods like bleeding. Washington died that night.

In the twentieth century, Chevalier Q. Jackson's (1865-1958) work greatly decreased the dangers associated with the tracheostomy & other developments in medicine reduced the need for the procedure. The development of an antiserum in 1893 decreased the occurrence of diphtheria, which caused a swelling of the throat. After 1913 it was no longer considered a serious threat. Sulfonamides also aided in the treatment of upper respiratory infections. Tracheostomies did regain popularity in the twentieth century as a treatment for respiratory obstruction caused by poliomyelitis, but this was eliminated by Jonas Salk's polio vaccine.



ANATOMY & FUNCTION OF THE UPPER RESPIRATORY TRACT

The major passages & structures of the upper respiratory tract include the nose or nostrils, nasal cavity, mouth, throat (pharynx) & voice box (larynx).



When we breathe in through our nose or mouth, the air is “filtered” through natural lines of defence that protect against illness & irritation of the respiratory tract. Nasal hairs (vibrissae) at the opening of the nostrils trap large particles of dust that may otherwise be inhaled. The entire respiratory system is lined with a mucous membrane that secretes mucous. The mucous traps smaller particles, such as pollen or smoke. Hair like structures called cilia line the mucous membrane & move the particles trapped in the mucous out of the nose.

Inhaled air is moistened, warmed & cleansed by the nasal epithelium (the tissue that lines the nasal cavity), which covers the turbinate bones (conchae) in the nasal cavity. The nasal epithelium has increased blood flow that helps to warm the inhaled air, but also facilitates nosebleeds in some people.

The pharynx is a muscular, funnel shaped tube about 5 inches long that connects the nasal & oral cavities to the larynx. The pharynx houses the tonsils & adenoids, which are lymphatic tissues that guard against infection by releasing white blood cells.

The larynx forms the entrance to the lower respiratory system. With the help of the epiglottis (a leaf shaped flap), the larynx prevents food or liquid from entering the lower respiratory tract while swallowing. The vocal cords, two pairs of strong connective tissue bands that are stretched across the larynx, vibrate to produce sounds while talking & singing.

INDICATIONS FOR TRACHEOSTOMY

To bypass possible or actual mechanical obstructions, including:

- Tumours
- Congenital abnormalities
- Inflammation
- Trauma – accidental or surgical
- Foreign bodies
- Vocal cord paralysis

To aid prolonged & assisted ventilation due to:

- Coma
- Neuromuscular diseases
- Chronic obstructive pulmonary disease (COPD)
- Multiple injuries/trauma.

TRACHEOSTOMY TECHNIQUES

There are two techniques used for the formation of a tracheostomy, percutaneous & surgical.

PERCUTANEOUS

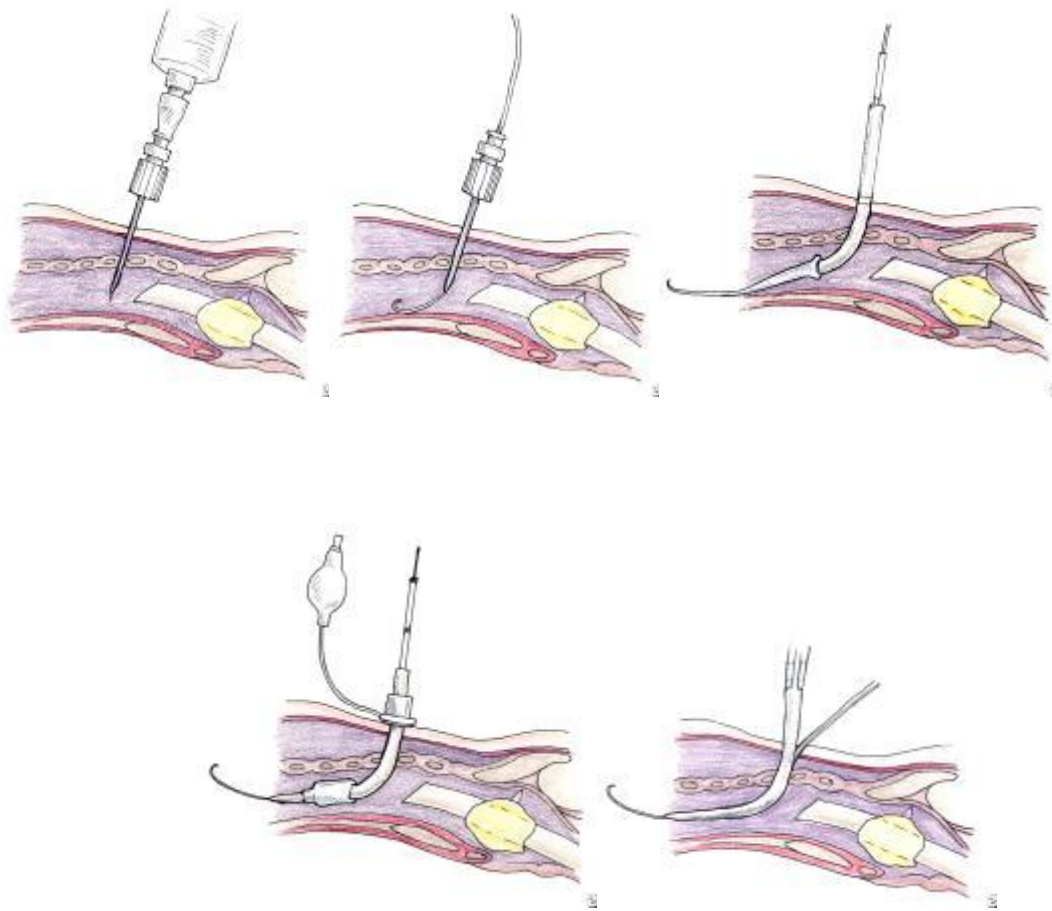
Percutaneous tracheostomy is a minimally invasive alternative to conventional tracheostomy & was first described by Toye & Weinstein in 1969.

Percutaneous tracheostomy can be performed by an anaesthetist at the bedside in a controlled environment, such as I.C.U, with the assistance of nursing staff, without the need to transfer the critically patient to the operating theatre.

Technique

The neck is extended. The thyroid cartilage, cricoid cartilage & 1st 3 tracheal rings are palpated. Cuff of existing tracheal tube is deflated & tube withdrawn under direct laryngoscopy until cuff seen in larynx, and then reinflated, allowing unimpeded passage of guide wire & dilators into the trachea. Bronchoscope may be positioned in endotracheal tube to observe point of entry. A horizontal incision is made at site & blunt dissection carried out with forceps. A needle & cannula is now introduced into midline, either between the 1st & 2nd or 2nd & 3rd tracheal rings until position of needle tip is confirmed by the aspiration of air.

A J-tipped flexible guidewire is threaded through the cannula into the trachea; the stoma is then dilated, using a series of curved tapered dilators starting with the smallest dilator. Trachea is dilated gradually, up to 2 sizes above dilator that fits tracheostomy tube. Now the tracheostomy tube is slid over the snugly fitted dilator. Then dilator, guidewire & guiding catheter are removed leaving the tracheostomy tube in place. Correct placement is verified by auscultation of the chest.



Complications of percutaneous tracheostomy

Complications of this technique are uncommon but may include:

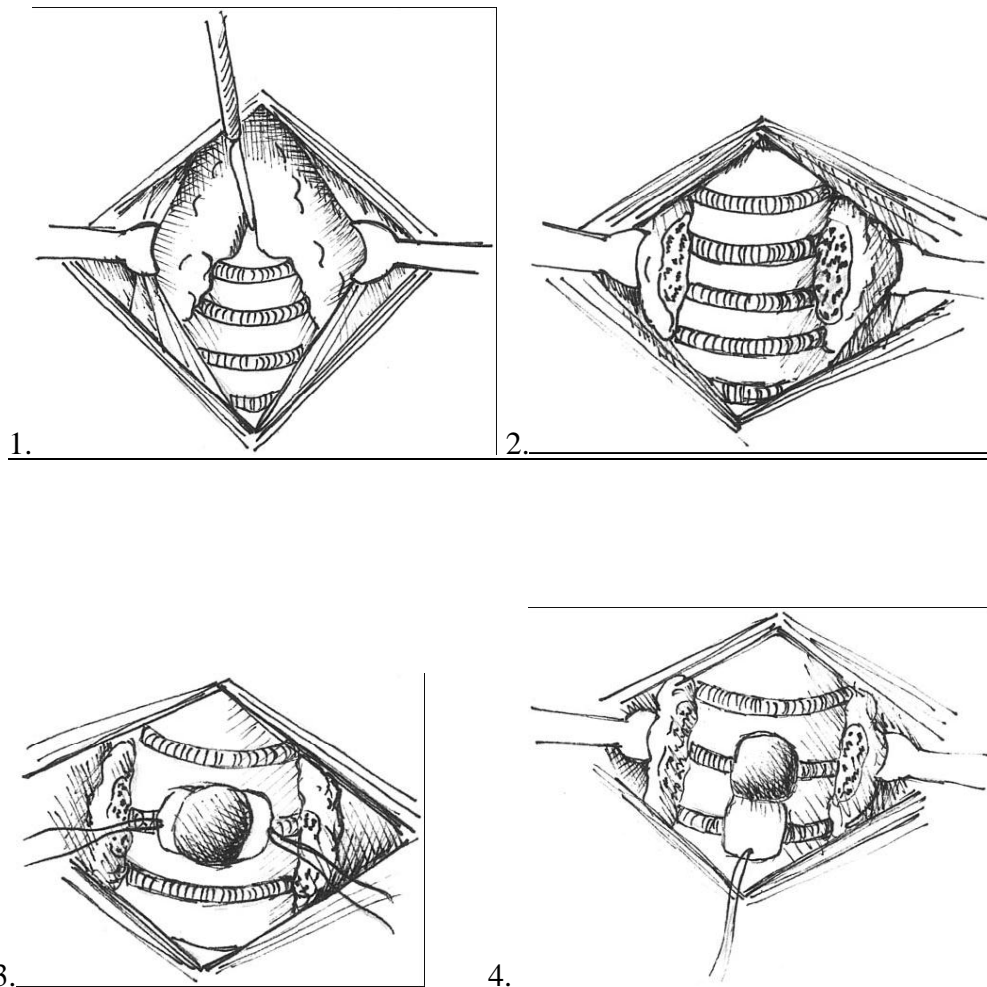
- False passage of tracheostomy tube.
- Pneumothorax.
- Delayed bleeding.
- Puncture of the posterior tracheal wall.
- Premature extubation during the procedure & loss of airway.

SURGICAL

The surgical tracheostomy is usually performed in the operating room, under general anaesthetic, as an elective procedure for either long-term ventilation or for airway protection prior to oral, facial or head & neck surgery.

Technique

With the patient positioned with the neck hyper extended, the skin area is prepared & an incision is made below the cricoid cartilage. The trachea is located with blunt dissection, bleeding is controlled as necessary, & an incision (one of many types) is made through the 2nd, 3rd or 4th tracheal cartilage. A cuffed tracheostomy tube is inserted through the anterior wall of the trachea as the endotracheal tube is slid above the ostomy site. The tracheostomy tube is gently positioned & ventilation is confirmed through the tube. The tube is then secured & the skin incision loosely sutured or left open.



Complications of Surgical Tracheostomy

- Bleeding from the operative site.
- Subcutaneous emphysema, mediastinal emphysema & pneumothorax.
- Aspiration of blood in the airway.
- Cardiac arrest secondary to hypoxia, acidosis or sudden electrolyte shifts.

Advantages of Percutaneous Tracheostomy over Surgical Tracheostomy

- It is a relatively simple technique suitable for trained staff in the critical care setting.
- It does not require an operating theatre & the procedure is usually performed under local anaesthetic, sedation & neuromuscular blockade as appropriate.
- Forms a stoma between tracheal rings, resulting in reduced blood loss as there is usually no disruption of blood vessels. The tube is fitted snugly in the stoma thereby minimising any tendency to bleeding after the procedure.
- Infection rates range from 0 to 3.3%, whereas, those for open tracheostomy have been reported as high as 36%
- Stenosis rates range from 0 to 9%. The reported incidence of late complications resulting from open tracheostomy such as tracheal stenosis, tracheomalacia, fistula & scarring varies widely.
- Small & neat stoma of dilatational tracheostomy generally results in a more cosmetic scar.

TYPES OF TRACHEOSTOMY TUBES

- Cuffed
- Uncuffed
- Fenestrated
- Adjustable Flange (Long Shank)
- Suctionaid

CUFFED TRACHEOSTOMY TUBE

This is a standard tracheostomy tube used for managing the airway on the majority of patients. It is a double lumen consisting of the outer tube and flange which is secured to the patient and an inner tube (inner cannula) that is removable for cleaning.

Indications for cuffed tubes include:

- To prevent aspiration of blood or serous fluid immediately post-operatively.
- To seal the trachea during mechanical ventilation.
- To prevent aspiration due to laryngeal incompetence.

Features:

- Flexible Flange
- Double lumen
- Inner Cannula
- Inflatable Cuff



An inflated cuff permits ventilation by providing a seal in the trachea. All airflow will be via the tracheostomy tube, bypassing the upper airway. Care must be taken not to over inflate the cuff. High volume, low-pressure cuffs (Portex) will minimise trauma to the trachea.

Patients with impaired swallowing are at high risk of aspiration. A tracheostomy tube with an inflated cuff reduces the likelihood of any aspirate entering the lungs. However, inflated cuffs may impair swallowing because the cuff may press against the oesophagus. The cuff also reduces laryngeal elevation & anchors the larynx during swallowing.

Patients can be extremely sensitive to changes in cuff pressure. A little coughing is not unusual during procedure. Take care to explain the procedure to the patient & inflate/deflate the cuff slowly.

TO INFLATE CUFF

- Connect the manometer to the air inlet port.
- Using the bulb, inflate the cuff to between 22 - 32 cm H₂O. This ensures the cuff is in close contact with the tracheal wall.

OR

In the event of an emergency:

- Using a syringe filled with air, connect to the air inlet port and inject air.
- Connect manometer and check the pressure is at the correct level when able.

Maintain cuff pressure, check every shift or when a leak is suspected and observe for signs of air leak.

TO DEFLATE CUFF

The cuff must be deflated for 10 minutes per shift to prevent tracheal damage.

The procedure for deflating the cuff requires 2 nurses.

The first nurse, using a syringe, is to slowly aspirate air from the air inlet port on the tracheostomy tube. The second nurse, using a Y-suction catheter suctions the tracheostomy tube, to prevent aspiration of any secretions that may have pooled above the cuff.

Once deflated, expiratory noises and voice may be heard as air passes up around the tube. Reassure the patient that these are normal & will settle.

Reinflate the cuff to correct pressure.

To release air immediately, press the red button until the lowest possible cuff pressure is reached.



It is important that the cuff pressure is maintained at 22-32 cmH₂O

UNCUFFED TRACHEOSTOMY TUBE

An uncuffed tube may be used when ventilation is no longer required or the patient is no longer at risk of aspiration. This tube is likely to be used when the patient requires a tracheostomy tube for ongoing airway management.

Features:

- Flexible Flange
- Double Lumen
- Inner Cannula
- Long-Term use
- Suitable for Community
- No Cuff



FENESTRATED TRACHEOSTOMY TUBE

A fenestrated tube allows air to flow through the tube as well as around the tube to the larynx & oropharynx. This may be used as an aid to weaning or vocalisation. All Portex fenestrated tubes come with a fenestrated inner cannula (RED) & a non-fenestrated (CLEAR). Care must be taken to remove the RED inner cannula & replace with the CLEAR inner cannula prior to suctioning to prevent the suction catheter becoming caught in the fenestrations, otherwise the fenestrated inner cannula is to be left in place at all times.



Features:

- Flexible flange
- Double Lumen
- Holes in the trache tube (fenestrations)
- Holes in the RED inner cannula (fenestrations)
- Long-Term use
- Suitable for Community
- No Cuff

Speaking valves may be used safely with a fenestrated tube.

ADJUSTABLE FLANGE TRACHEOSTOMY TUBES

...or Extra Horizontal Length, Long Shank

These tubes are designed for the patient with a “bull neck”. The patient’s neck is generally shorter and thicker and doesn’t allow for the regular length tracheostomy tube to maintain an adequate airway. The adjustable flange & extra length on the horizontal axis allows airway accessibility in the anatomically large patient. The tube also features a radiopaque line to facilitate confirmation of proper placement.

These tubes **DO NOT** normally have an inner cannula...therefore extra care must be taken to prevent the formation of mucous plugs, which can be potentially life threatening. Occasionally some of these long shank tubes may have an inner cannula, it is therefore important to assess the type of tube in place.

Patients should be adequately humidified to minimise encrustation of the tracheostomy tube lumen & prevent mucosal damage. The patency of the lumen **MUST** be assured by regular suctioning.

Features:

- Extra length in the tube
- Adjustable Flange
- Single Lumen
- Inflatable Cuff
- No Inner Cannula
- Not suitable for Community



SUCTIONAID TRACHEOSTOMY TUBE

Above cuff suctioning

This type of tracheostomy tube is suitable for the patient with copious secretions, has a poor cough reflex, a poor swallowing function or is a high risk of aspiration. This tube consists of a double lumen with removable inner cannula and an inflatable cuff. This tube is unique in that suctioning may occur above the cuff. That is, a small tube extends from the area above the inflated cuff located in the trachea to the exterior site of the tube; it is here that suction tubing may be connected and suction applied to remove secretions collected above the cuff. Suctioning may still occur via the tracheostomy tube following the suctioning procedure as outlined below.

Features:

- Flexible Flange
- Double lumen
- Inner Cannula
- Inflatable Cuff
- Suction tube that rests above the cuff



NURSING CARE OF TRACHEOSTOMY PATIENT

NURSING CARE OF THE TRACHEOSTOMY PATIENT

- Shift Responsibilities
- Humidification
- Inner Cannula Care
- Suctioning
- Suctioning Procedure
- Stoma Care
- Speaking Valves
- Tube Changes
- Decannulation

SHIFT RESPONSIBILITIES

At the commencement of every shift, the nurse responsible for the care of a patient with a tracheostomy tube must ensure they have the skills and equipment necessary to safely care for the patient. This includes:

Skills

- Adequate knowledge of tracheostomy
- Understanding of patient condition
- Ability to check cuff pressure
- Ability to assess and act upon airway complication
- Ability to safely and effectively suction
- Ability to provide patient education

Bedside Equipment

- PPE
- Y-Suction catheters (size 12 or 14 for adults)
- Yankeur sucker
- Suction canister (with liner in place), tubing & high wall suction
- Water for cleaning suction tubing (non-sterile)
- Spare Inner Cannula
- Airtight container (for spare inner cannula)
- 1 x spare tracheostomy tube of the same size & type as insitu
- 1 x spare tracheostomy tube 1 size smaller (but same type) as insitu
- Cuff manometer (if cuffed tube insitu)
- Tracheal dilators
- 10ml syringe (non-Luer lock)
- Nebuliser Therapy – incl. tracheostomy mask, bowl & tubing & N/Saline for nebuliser
- Warmed humidifier if available and appropriate for patient
- Sofwick or allevyn dressings
- Tracheostomy ties or tape
- HME
- Yellow contaminated waste bag

Shift Responsibilities

Every shift must:

- Initially, administer normal saline nebuliser, suction, replace inner cannula and check tracheostomy size and cuff status
- Assess the patient's airway, care, management and interventions required
- Deflate, inflate and/or check cuff pressure
- Deliver adequate humidification – nebulise 2nd hourly AND utilise AIRVO or HME
- Suction using correct procedure where necessary
- Change inner cannula 2nd hourly or as necessary
- Attend stoma care as necessary
- Ensure tracheostomy secured in correct position
- Provide patient education
- Document all care and interventions
- Change tapes/ties as necessary

IT IS THE RESPONSIBILITY OF THE NURSE LOOKING AFTER THE TRACHEOSTOMISED PATIENT TO ENSURE BEDSIDE EQUIPMENT IS STOCKED & READILY AVAILABLE AT THE BEGINNING OF EACH SHIFT

HUMIDIFICATION

The nasopharynx provides a natural humidification mechanism during respiration. This is bypassed when a tracheostomy is in place, therefore secretions may become tenacious & difficult to expectorate or suction.

It is essential to replace this humidification to prevent the formation of potentially life threatening mucous plugs.

Nebulising

Regular normal saline nebulisers are recommended to reduce the tenacity of secretions. Normal saline nebulisers do not need to be ordered on medication chart, they may be initiated by nursing staff. They should be given at 2 – 4 hourly intervals (maximum of 4 hours). This can be increased to hourly or continuous nebulisers should the patient have tenacious or copious secretions or is having difficulty clearing secretions.



Use the specialised nebulising mask to administer normal saline nebulisers. This rests in front of the tracheostomy tube and may be secured by placing the elastic fixator around the back of the patient's neck.

Be sure to remove HME device, cap or speaking valve before applying nebuliser.

Nebuliser mask and bowl should be washed with soapy water after each use. Change weekly.

Heat Moisture Exchange (HME)

Thermovents (Swedish noses) assist humidification by trapping the patient's own exhaled water vapour in the coils at each end; this then humidifies the air as the patient inhales. (There is no need to moisten the coils as this happens naturally.) It is essential that a thermovent be worn AT ALL TIMES.

Thermovents have a port for oxygen connection to ensure patient receives both humidification and oxygenation.

The HME needs to be changed if it becomes soaked or filled with sputum, otherwise the work of breathing may escalate & the patient may actually deteriorate.



Thermovent (Swedish nose)

The importance of humidification cannot be overemphasised!

AIRVO - HUMIDIFIER

The AIRVO has an integrated flow generator and oxygen delivery system for safe, effective delivery of warm, moistened and oxygenated humidification to the patient. The rate of oxygen and temperature of the air is regulated by the device. Sterile water is connected to the AIRVO and saturates the air delivered to the patient.

The AIRVO is suitable for patients:

- who require greater delivery of oxygen
- have thick or copious secretions
- that have a newly formed tracheostomy
- who require frequent suctioning

The AIRVO connects directly to the tracheostomy tube and must be secured to the patient or their clothing to prevent the AIRVO tubing pulling on the tracheostomy tube. Disposable attachments are to be changed weekly.

Difficulties with the AIRVO is that the air is heated as well as humidified. Patients may find the heat uncomfortable and not tolerate humidification via the AIRVO.



Use of the AIRVO does not replace the need for normal saline nebulisers.

INNER CANNULA CARE

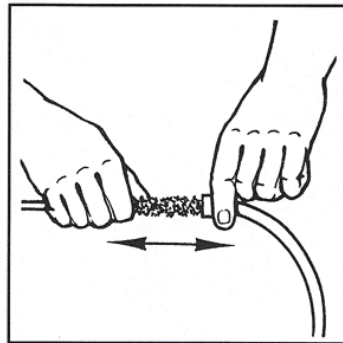
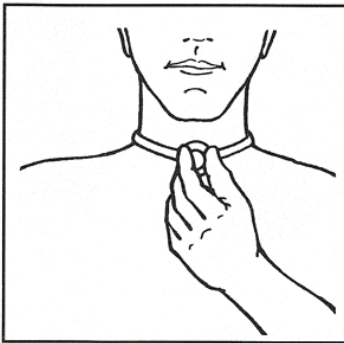
Secretions can collect & dry out on the inner cannula lumen of the tracheostomy tube. Use of a tube with an inner cannula means the inner cannula can be removed & replaced to prevent tube occlusion. The ability to change the inner cannula in the event of tube blockage can avoid the trauma of a complete tube change.

The inner cannula should be checked at the beginning of each shift & at least every 2 hours...or immediately if the patient is showing signs of respiratory distress.

A spare inner cannula of the same size & type should be kept in an airtight container at the bedside at all times.

Cleaning of inner cannula:

- Wash/Gel hands & apply gloves.
- Remove the inner cannula by gently pulling the 'ring pull' secure tube with other hand.
- Replace with inner cannula from airtight container at bedside.
- Clean inner cannula with warm tap water & pipe cleaners.
- Shake excess water from inner cannula & place in airtight container at bedside.



SUCTIONING

At best, suctioning is an uncomfortable procedure & is usually frightening for the patient. It should only be done if clinically indicated, that is, if the patient is unable to clear secretions and to maintain a patent airway. Patients should always be encouraged to expectorate their secretions where possible.

It is essential to remember several things when suctioning:

- A tracheostomy is an open surgical wound & universal precautions must be observed.
- A clear explanation of the procedure & reassurance will help to decrease patient anxiety.
- Partial occlusion of the airway by the suction catheter, combined with aspiration of air from the lung while using an open suction system, can result in severe hypoxia, cardiac arrhythmia & even cardiac arrest.
- Suctioning procedures must NEVER exceed 10 seconds, even if no visible signs of distress are observed.
- Suction pressure is important. If it is too low, secretions may not be cleared; if it is too high it may damage the mucosal walls by adherence. It is recommended that the suction pressure be set as 14-16 kPa.
- The upper airway is lined with delicate tissue & care must be taken to avoid damage to these tissues. For this reason, the suction catheter should not extend beyond the length of the tracheostomy tube.
- Suction is ONLY applied during catheter withdrawal in order to decrease the volume of air removed from the lungs & decreases the hypoxic effect & trauma to the airway.
- The O.D. of the suction catheter should be ½ the I.D. of the tracheostomy tube to avoid obstruction of the airflow around the catheter during the procedure. When a closed system is used the atmosphere will be oxygen enriched or will be supplied by the ventilator.

CORRECT SUCTION CATHETER TO TUBE SIZE

TRACHEOSTOMY TUBE SIZES	I.D. INNER CANNULA	SUCTION CATHETER SIZE	O.D. SUCTION CATHETER
3.0 PED (I.D.3mm)	N/A	FG - 6	2mm
4.0 PED (I.D. 4mm)	N/A	FG - 8	2.6mm
5.0 PED (I.D. 5mm)	N/A	FG - 8	2.6mm
6.0 (I.D. 6mm)	5.0mm	FG - 10	3.3mm
7.0 (I.D. 7mm)	5.5mm	FG - 10	3.3mm
8.0 (I.D. 8mm)	6.5mm	FG - 12	4mm
9.0 (I.D. 9mm)	7.5mm	FG - 14	4.5mm
10.0 (I.D.10mm)	8.5mm	FG - 14	4.5mm

KEY: I.D. – Inner diameter
 O.D. – Outer diameter
 FG – French gauge

SUCTIONING PROCEDURE

- Explain the procedure to the patient.
- Wash hands & put on gloves.
- Using a non-touch technique, connect the suction catheter to the suction tubing.
- Remove HME.
- Instruct patient to take several breaths.
- Without applying suction, gently insert the suction catheter into the tube. Instruct patient to cough. Apply suction and gently withdraw the suction catheter in a smooth continuous motion.
- If resistance is felt, withdraw the catheter slightly before applying suction.
- Repeat as necessary, allowing the patient to take deep breaths between suctioning.
- Supplemental oxygen and humidification may also be required between suctioning to minimise the risk of hypoxia.
- Remove the catheter & dispose of it in the contaminated waste bag. Clean suction tubing by placing the tip into water clearing the tubing of secretions.
- Reapply HME.

Record and Report

- The colour, consistency & quantity of secretions.
- The frequency of suctioning required.
- Condition of the stoma.
- The patient's tolerance of the procedure.

ENSURE WALL SUCTION IS ALWAYS IN WORKING ORDER

STOMA CARE

- Stoma Care is NOT to be attended for the first 24hours.
- Always use Normal Saline soaked sterile gauze rather than cotton wool, to clean the stoma, to prevent the aspiration of lint.
- Check the skin integrity around the stoma.
- Ensure the stoma is free of crusts.
- While changing the tracheostomy ties, 1 nurse is to hold the tube in place to prevent dislodgement, while the other nurse removes & replaces the ties.
- Generally speaking, dressings are not needed under a tracheostomy tube. However, if secretions are excessive or the stoma site is becoming macerated, sof-wick or allevyn are suitable to use.

NOTE: if the tracheostomy tube is sutured into place, the integrity of the sutures needs to be checked daily.

SPEAKING VALVES (ORATORS)

Speaking valves may be used to help the patient achieve voice once the acute stage of their illness has passed.



They are a one-way valve, which opens on inspiration & allows air to enter the lungs. On expiration the valve closes, forcing expired air upwards around the tracheostomy tube & through the vocal cords to create sound. The air must pass up the trachea and around the tracheostomy tube and out of the mouth or nose. It is therefore very important to ensure that either the tracheostomy tube has the **cuff deflated or an uncuffed tube is insitu**. In some cases, it may be possible to change to a smaller size uncuffed tube to allow greater airflow around the tube. A fenestrated tube will allow air to pass up through the fenestrations as well as around the tube.

Each Portex speaking valve comes with an oxygen-ported cap, to which supplemental oxygen therapy may be connected.

Each valve also comes with a cosmetic cap to either conceal the valve mechanism or to divert the airflow to the side & minimise the possibility of clothing occluding the valve.

Additional humidification may be required as in line humidifiers cannot be used with this device.

When the speaking valve is not in use they should always be replaced by a HME thermovent to provide humidification.

Cleaning of Speaking Valve

- Speaking valves must be cleaned daily.
- Flip open the cap & soak the valve in mild detergent solution for up to 15 minutes.
- Agitate the valve in the solution to loosen any secretions.
- After soaking, rinse the valve with water.
- Allow to dry naturally.

REMOVE THE PORTEX ORATOR DURING NEBULISER THERAPY AS SOME MEDICATIONS MAY CAUSE THE ONE-WAY VALVE TO STICK.

SPEAKING VALVES ARE TO BE REMOVED WHEN PATIENT IS SLEEPING IN CASE OF BLOCKAGE

TUBE CHANGES

- Routine tube changes are NOT attended for the first 7 days, when a tract has usually formed.
- **Tube changes are to be attended by experienced clinicians only.**
- Routinely, tube changes are attended monthly, unless otherwise indicated.

DECANNULATION

- The treating team in consultation with the Speech Pathologist will determine the decannulation procedure.
- Once decannulated the stoma must be dressed with an airtight dressing.
- A 10 x 10cm adaptic is folded into quarters & then placed over the stoma. Cover this with post-op op-site and seal with hypafix to ensure adherence and an airtight seal.
- Encourage the patient to apply light pressure over the stoma site when speaking or coughing. This will encourage air & sputum up to the mouth, rather than through the stoma, therefore reducing the time required for the stoma to close.
- Dressing is changed once per day or as needed. This will be dependent on the patients' secretions and should be replaced when soaked.
- Dressing to remain in place until NO air leak is present via the stoma.

DISCHARGING WITH TRACHEOSTOMY

- Tracheostomy tube in place must not have a cuff. Patient MUST progress to a non-cuffed or fenestrated tube to be suitable for discharge from hospital.
- A referral must be made to the E.N.T. Clinical Nurse Consultant.
- The patient must have a nebuliser at home.
- Community Nurse Referral is recommended.
- Tracheostomised patients must be assessed as to determine their suction requirements for discharge.
- Each patient & their carer must be competent with their tracheostomy care.

Prior to discharge each patient will be supplied with:

- 2 spare tubes of the same size & type as the tube insitu.
- 2 x spare corresponding inner cannulas.
- 2 x Portex orators (speaking valves.)
- Pipe cleaners.
- 5 x Velcro neckties.
- Thermovents.
- Tracheostomy nebuliser mask.
- Contact details for the ENT CNC.
- A personalised information package re-tracheostomy care.
- Clinic appointments for follow up with the ENT CNC.

DEALING WITH EMERGENCIES

ACUTE DYSPONEA

Is most commonly caused by a partial or complete blockage of the tracheostomy tube by retained secretions.

To Unblock the tube –

1. Ask the Patient to Cough

A strong cough might be all that is needed to expel secretions. Following this, clean and replace inner cannula.

2. Remove the Inner Cannula

Removing the inner cannula will automatically remove any secretions blocking the tube. The outer tube remains patent, allowing the patient to breathe freely.

Clean & replace the inner cannula.

3. Suction

If coughing or changing the inner cannula didn't work, the secretions may be lower in the patient's airway. Suctioning may remove these. Clean and replace inner cannula.

4. Escalate

Failure to clear a blocked tracheostomy tube may result in respiratory arrest.

Escalate care, seek assistance and activating RRT. Reassure and stay with patient. Administer oxygen via face or tracheostomy tube. Monitor saturations and respiratory rate.

If skilled to do so and where possible, remove tracheostomy tube and insert a new tracheostomy tube or prepare for insertion.

5. Maintenance

Following resolution of blockage, ensure security and correct positioning of tracheostomy tube, monitor patency, saturations and respiratory rate. Reassure patient. Review humidification measures. Document.

TUBE DISPLACEMENT

If the tracheostomy tube falls out **DON'T PANIC!**

Once the tracheostomy tube has been in place for about 7 days, the tract has been well formed & will not close immediately.

1. Call for Assistance

Attain assistance from others. Activate RRT as necessary.

2. Reassure the Patient

Stay with the patient at all times. Reassure them that assistance is coming and you are maintaining their airway. Ask them to breathe normally. Administer oxygen via face or stoma. Monitor saturations and respiratory rate.

3. Maintain the Airway

Tracheal dilators may be used to maintain the stoma opening if necessary whilst waiting for RRT. Prepare for insertion of tracheostomy.

If skilled to do so and where possible, reinsert the tracheostomy or insert a new tracheostomy tube.

4. Maintenance

Following replacement, secure tracheostomy tube, ensure correct position, monitor patency, saturations and respiratory rate. Reassure patient. Document.

RESUSITATION VIA A TRACHEOSTOMY TUBE

IN THE EVENT OF AN ARREST, TREAT TRACHEOSTOMY PATIENTS AS ANY OTHER

...PLUS...

1. Expose the Patients' Neck

Remove any clothing, bedding or anything else covering the tracheostomy tube.

DO NOT remove the tracheostomy tube

2. Inflate the Tracheostomy Tube Cuff

Use 10ml syringe to inflate tracheostomy cuff if not already inflated. No need to check pressure with manometer in this situation, check blue cuff for inflation using digital pressure.

3. Ensure Tracheostomy Tube Patency

To check inner cannula: Wearing a non-sterile glove, remove inner cannula. If clean, reinsert & lock into place. Replace if necessary.

4. Ventilate

Attach the ambu-bag directly to the tracheostomy tube and ventilate per BLS Guidelines.

13. Suctioning should: (choose 1)

- a) Be carried out on all patients
- b) Form part of the routine care
- c) Only be performed on those patients where it is clinically indicated
- d) Be carried out 2nd hourly

14. When is it NOT suitable to apply a speaking valve to a tracheostomy tube?

15. Why is it necessary to remove a speaking valve when giving nebuliser therapy or when patient is sleeping?

16. Explain the procedure for stoma care.

17. Why are routine tube changes not attended for the first 7 days after insertion?

18. What type of dressing should be applied to stoma after decannulation?

19. What steps would you take if the patient's tracheostomy tube was occluded?

20. What steps do you take if a patient arrests with a tracheostomy tube?

**** Once completed, please return to Vicki Graham (ENT.CNC. ENT clinic South Block, Royal Newcastle Centre) or Division of Surgery Education team. Your Resource Package will be returned to you.***

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FURTHER READINGS

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EVALUATION

Please take the time to enable the pursuit of improvement.

The division of surgery, education department are mindful of the different approaches to learning that we all have. Please complete this evaluation form honestly and return (anonymously if desired) or contact can be made through email or phone to express any ideas.

1. What is your nursing educational background?

Hospital certificate Diploma Bachelors other

2. Please circle the appropriate age group for you

16-20 21-29 30-36 37-44 45-54 55-60 61-65

3. Was the information in this package useful to you? If yes, how?

4. Did you find the style of writing of this self-directed learning package easy to read/appropriate for you. If not, why? Give suggestions.

5. Do you think this education will make an impact on your clinical abilities?

6. Has completion of this package improved your clinical knowledge & understanding of tracheostomy? Why?

7. What else would you have liked included into this package to fulfil your learning?

8. Comments: