Institution Name: Al-Nahdha Hospital

Document Title: Tracheostomy Care Guideline

Approval Process

	Name	Title	Institution	Date	Signature
Written by	Dr. Hamdoon Al -Naamani,	Head of ENT	Al-Nahdha Hospital	July 2022	
Reviewed by	Dr. Mustafa Al- Hinai	Assistant Director of Medical & Paramedical	Al-Nahdha Hospital	July 2022	
Validated by	Quality Managmnet & Patient Safety Departmnet	QM&PS	Al-Nahdha Hospital	July 2022	
Approved by	Dr.Hamed Al-Harthi	Hospital Directore	Al-Nahdha Hospital	July 2022	

Hospital Director
AL-NAHDHA HOSPITAL - MINISTRY OF HEALTH - SULTANATE OF OMAN

Contents Table:

Acronyms:

SLT	Speech and Language Therapist
ICU	Intensive Care Unit
HDU	High Dependency Unit

1. Introduction

Tracheotomy is a common procedure in the critical care practice since long time. Moreover, it is becoming more common in the general wards of hospitals due to numerous reasons; including the pressures on intensive care beds, increasing the drive to de-escalate the care quickly and increasing the numbers of patients benefiting from temporary Tracheostomy. However, despite the rise in the need of this procedure, there is still a generalized deficiency in the necessary competencies and essential experience needed to satisfactorily manage these patients. The literature shows a limited consensus in Tracheostomy care guidelines that enable us to formulate uniform guidelines for our hospitals to improve the care. So, we conducted multiple workshops over the past years involving the nurses as well as reviewing the literature and finally integrated it with our experience and formulate these guidelines.

2. Scope

All the health care workers in Al-Nahdha Hospital

3. Purpose

This Guideline has been prepared to provide standardized Tracheostomy care guidelines for our hospital to improve the care.

4. Procedure

4.1 Referral and Indications of Tracheotomy:

4.1.1 Prolonged intubation.

4.1.2 Facilitation of ventilation support/ventilator weaning.

4.1.3 More efficient pulmonary hygiene (ie. managing secretions).

4.1.4 Upper airway obstruction; congenital or acquired, acute or chronic.

4.1.5 Inability to intubate.

4.1.6 Adjunct to major head and neck surgery/trauma management.

4.1.7 Airway protection (neurologic diseases, traumatic brain injury).

4.2 Pre-Operative Evaluation by the Tracheotomy Multi-Disciplinary Team

4.2.1 Physiotherapist (PL): to prevent secretion retention during the postoperative period and to teach caregivers chest physiotherapy and suctioning techniques.

4.2.2 Speech and language therapist (SLT): to do a baseline speech, language, voice and swallowing screen and to educate caregivers about the impact of Tracheotomy on communication, voicing and feeding.

4.2.3 Nurse: to ensure availability of equipment's needed, provide psychological support, show devices required and educate caregivers on Tracheotomy care.

4.2.4 Social worker for financial support if appropriate.

4.3 Post-Operative Management for 1st week

4.3.1 After a Tracheotomy is inserted, the patient is managed in either the Pediatric Intensive Care/Neonatal Unit for children or ICU /HDU for adults in the initial post-operative period.

4.3.2 Pediatric patients return from theatre with stay suture in situ, which should be taped to the chest and labeled left and right, which should remain in situ until the first tube change to facilitate the opening of the stoma during reinsertion of the Tracheotomy tube.

4.3.3 Nursing actions should focus on maintaining the correct positioning and patency of the new tube, stoma maintenance and monitoring the vital signs including pulse, blood pressure and respiratory rate.

4.3.4 For adult; deflate the cuff after first 24 hours every one hour for 5 mints, and then deflate it completely, inspect the inner cannula at least 6 hourly to ensure patency if double lumen is used and patient is not on ventilator.

4.3.5 The operating team will perform the first tube change, including the removal of the stay sutures if present and this is usually done 5-7 days after insertion of the Tracheotomy tube.

4.3.6 The tracheal stoma in the immediate post-operative period requires regular assessment and management including once daily dressing change following cleaning of the stoma area with 0.9% normal saline, or more frequently if required.

4.3.7 Professionals should also monitor the patient and rule out potential complication:

4.3.7.1 Check the tape tension is correct and able to support the Tracheotomy tube.

4.3.7.2 Observe any neck swelling and look for surgical emphysema.

4.3.7.3 Check for air entry through the tube by placing the finger above tube opening and feel for passage of air.

4.3.7.4 Inspect the chest for bilateral chest movement.

4.3.7.5 Auscultate the chest for equal air entry.

4.4 Monitor Any Other Possible Initial Complications:

4.4.1 **Accidental Decannulation:** defined as unintentional and unplanned tube removal,

which can be partial or complete.

4.4.1.1 Establish presence of spontaneous breathing when tube dislodgment is confirmed.

4.4.1.2 If the patient is still breathing increase/commence 100% O2.

4.4.1.3 Insert the tube and ensure it is correctly secured and does not become displaced. Attempts should take no longer than 30 seconds. If failed, stop and Reoxygenate with 100% O2 via stoma or patient airway.

4.4.1.4 Following a failed attempt to reinsert a Tracheotomy tube of the same size, a Tracheotomy tube one size smaller may be easier to insert.

4.4.1.5 After repeated attempts if the patient remains decannulated, consider the need for oral intubation.

4.4.2 **Hemorrhage**

4.4.2.1 May be primary or secondary. A large Hemorrhage may be fetal.

4.4.2.2 Secretions may initially be blood stained but will settle within a few hours, if it continues, operating team should be informed.

4.4.3 **Tube blockage:**

4.4.3.1 Acute dyspnea is commonly caused by partial blockage of tube by mucous blug.

4.4.3.2 Ask the patient to cough- adults.

4.4.3.3 Remove inner cannula if in situ.

4.4.3.4 Apply suctioning to remove the secretions.

4.4.3.5 Ventilate the patient and secure airway patency.

4.4.3.6 Prepare for change of tube or oral intubation.

4.4.3.7 Provide suctioning when necessary for the first 12-24 hours.

4.4.4 **Surgical Emphysema**

4.4.4.1 Air may leak around the tube into surrounding tissue.

4.4.4.2 Check tape tension to confirm that the tube is correctly secured and check if it appears tighter to cause the swelling.

4.4.4.3 Inform the concern team for possible removal of stiches or applying pressure bandage.

4.5 Feeding:

4.5.1 SLT will assess suitability to commence oral feeding after surgical procedure; following approval by medical team that patient is medically fit for oral trials.

4.5.2 An objective assessment of patient's swallowing via VFSS or blue dye test will be carried out if possible to rule out any trace or silent aspiration during feeding.

4.5.3 Procedure for feeding:

4.5.3.1 For patient with inflated cuffed Tracheotomy, ensure that patient can tolerate cuff deflation and deflate before feeding.

4.5.3.2 For all patients;

A. Suction prior to feeding orally or via Tracheotomy tube if appropriate.

B. Sit patient up with head slightly flexed or carry patient with adequate head support.

C. Ensure oxygen saturation and heart rate monitoring throughout.

D. If patient has been given a speaking valve, place on before feeding as subglottic pressure may help reduce the risk of aspiration.

4.6 Communication

4.6.1 Patients with a cuffed Tracheotomy will be unable to speak; loss of speech whilst the Tracheotomy is in place could possibly cause great distress to the patient, even if he/she has warning beforehand.

4.6.2 It can cause fear, because of inability to attract attention if needed or depression because of inability to communicate.

4.6.3 New patient with Ttrachestomy- use communication aids:

4.6.3.1 Refer to SLT for assessment and provision of communication aids.

4.6.3.2 Initial assessment will include assessing the patient's ability to see, hear, touch, write, understand or use facial expression such as smiling and blinking.

4.6.3.3 Communicate with the patient using the recommended method as determined by the SLT.

4.6.4 Patient with established Tracheotomies- the use of speaking valves if appropriate.

4.6.5 SLT will assess and determine suitability for using a speaking valve.

4.6.6 Criteria for suitability to trial speaking valve:

4.6.6.1 Able to tolerate cuff deflation.

4.6.6.2 No airway obstruction.

4.6.6.3 Stable medical/pulmonary status.

4.6.6.4 Ability to manage own secretions.

4.6.6.5 Procedure for all staff for commencement of speaking valve use:

A. For cuffed Tracheotomies; cuff should be deflated.

B. For fenestrated tubes; a fenestrated inner, uncuffed tube should be in situ.

C. Inform the patient about impending placement of speaking valve.

D. Occlude the Tracheotomy for 1-2 seconds. This helps to prepare patient for change in respiration when speaking valve is placed.

E. If he tolerates well, place speaking valve.

F. Monitor vitals

G. If patient is having difficulty in breathing or appear in distress, oxygen saturation drops or if patient requests, remove the valve.

H. Remove speaking valve when patient is asleep.

I. Cleaning of speaking valve

J. Should be cleaned with 500ml water to ¼ sterilizing tablet.

K. Do not use hot water, peroxide, bleach, vinegar, alcohol, brushes or Q-tips.

4.7 Management of the day-to-day needs of the patient with a Tracheostomy

4.7.1 There should be a detailed plan of care for all patients with a Tracheostomy.

4.7.2 The care plan should be reviewed on a daily basis and updated if there is any change.

4.7.3 The patient with a Tracheostomy needs diligent observation and assessment.

4.7.4 The nurse caring for the patient is responsible for this, seeking advice from other professionals as appropriate.

4.7.5 Patient assessment: at the start of each shift the Staff Nurse caring for the patient with a Tracheostomy should carry out a full assessment of the patient which should include:

4.7.5.1 Why does the patient have a Tracheostomy?

4.7.5.2 When was the Tracheostomy performed?

4.7.5.3 Type and size of Tracheostomy tube & availability of spare & Emergency equipment.

4.7.5.4 Cough effort

4.7.5.5 Ability to swallow,

4.7.5.6 Sputum characteristics (Color, Volume, Consistency, Odor)

4.7.5.7 Check inner cannula for any buildup of secretions.

4.7.5.8 Check Tracheostomy holder is secure and clean

4.7.5.9 Check stoma dressing is clean

4.7.5.10 This assessment should be documented on the care plan at the start of every shift.

4.8 Humidification:

4.8.1 All patients with Tracheostomy tubes require humidification of inspired gases in order to: To prevent drying of pulmonary secretions and to preserve muco-ciliary function.

4.8.2 The type of humidification selected for use is determined by the patient's status and needs.

4.8.3 The methodology used can be altered as the patient's condition changes.

4.8.4 Only one method of humidification should be used at one time i.e. do not combine methods.

4.8.5 Methods of Artificial Humidification

4.8.5.1 Heated Humidification

A. Patients with newly formed Tracheostomies.

B. Dehydrated patients.

C. Immobile patients

D. Patients with tenacious secretions.

4.8.5.2 Saline Nebulisation

A. Nebulized normal saline can be effective in helping loosen secretions and soothe irritable airways.

4.8.5.3 Heat Moisture Exchanger; Thermo vent or Swedish nose

A. Patients that are adequately hydrated.

B. Mobile patients.

C. Not suitable for patients with copious secretions.

4.9 Cuff management

4.9.1 The Tracheostomy cuff provides a seal to enable positive pressure ventilation and may also provide some protection against aspiration of secretions.

4.9.2 If the cuff is overinflated, this may cause ischemia of the tracheal.

4.9.3 The pressure within the cuff should be checked regularly with a hand held pressure manometer and should be maintained ideally below 20 – 25cm H_2O.

4.9.4 Document cuff pressure and inflating volume on a daily basis and following any intervention.

4.9.5 If the cuff pressure is at the maximum recommended and there is evidence of an

ineffective seal (usually gas escaping via the mouth, vocalising, or problems with achieving ventilation targets) then the Tracheostomy may have become displaced and may require changing.

4.10 Suctioning

4.10.1 Frequency of suctioning: it relies on an accurate respiratory assessment and should be carried out only when necessary and not on routine basis.

4.10.2 Checklist

4.10.2.1 Ensure feeding completed at least 1 hour prior to suctioning – for planned suctioning only.

4.10.2.2 Preoxygenate patient prior to suctioning procedure- if patient on oxygen.

4.10.2.3 Observe for patient's response, vital signs and oxygen saturation level during and after the procedure.

4.10.2.4 Wash hands.

4.10.2.5 Connect suction catheter to suction machine tubing within recommended pressure.

4.10.2.6 Place sterile glove on dominant hand.

4.10.2.7 For normal routine, gently insert the suction tubing until the estimated length of Trachestomy tube, and then apply suction.

4.10.2.8 For deep suctioning, when secretion is thick and profuse, gently insert suction until resistance is felt withdraw 0.5 cm, and then apply suction.

4.10.2.9 NO suction applied on insertion..

4.10.2.10 Apply suction onto the suction catheter only when withdrawing the tube slowly in rotating movement.

4.10.2.11 Duration must not exceed 10-15 seconds per suction

4.10.2.12 Rinse suction tubing with sterile water.

4.10.2.13 Assess the patient's tolerance after suctioning.

4.10.2.14 Procedure for suctioning:

A. Explain to the patient what you will be doing.

B. Ensure oxygenation prior to the procedure.

C. Assess the patient's cough reflex (if strong some patients require very little suction).

D. Aseptic technique should be used with hand washing before and after the procedure.

E. Gloves do not replace the need for thorough hand washing.

F. Apply sterile gloves, apron and eye protection.

G. Encourage the patient to cough up secretions.

H. Quick but smooth insertion of the appropriately sized suction catheter without applying the suction pressure.

I. When either the patient coughs or resistance is felt (indicates the level of the carina) the suction pressure should be applied continuously whilst withdrawing the catheter.

J. Rinse the suction tubing by dipping the end into a bottle of sterile water.

K. The disposable catheter part which has been inserted into the Tracheostomy should be discarded and not used again.

L. Oxygen should be re-applied following suction.

M. Suction should not be performed more than 3 times in quick succession.

N. This allows time for the patient to receive oxygen therapy before continuing.

O. Ensure correct disposal of suction catheter and gloves and prepare equipment for later use.

4.10.3 Potential complications of suctioning are:

4.10.3.1 Hypoxia.

4.10.3.2 Cardiac arrhythmias (usually a bradycardia due to vagal stimulation if the suction catheter irritates the carina of the trachea).

4.10.3.3 Trauma to the tracheal mucosa

4.10.4 The complications can be considerably reduced by: Pre/post oxygenation.

4.10.4.1 The use of an appropriate technique with an appropriately sized suction catheter.

4.10.4.2 Adequate suction pressure

4.10.4.3 Children: 80-100mmHg/10-15kPa

4.10.4.4 Adults: 100-120mmHg/15-20kPa.

4.11Stoma care

4.11.1 It aims to keep the area clean and dry, reducing the risk of skin irritation and infection.

4.11.2 The Tracheostomy stoma dressing should be reviewed each shifts, and should be changed at least every 24 hours.

4.11.3 Tracheostomy tube holders/tapes hold the tube in place as long as they are secure around the neck – one finger should slide comfortably between the neck and the

holders. Check the holder each shift and change if contaminated.

4.11.4 Changing a stoma dressing requires two members of staff, one to hold the Tracheostomy tube and the other to carry out the dressing change. This ensures that the tube is not dislodged.

4.11.5 Prepare necessary equipment

4.11.5.1 Sterile water.

4.11.5.2 Sterile cotton buds/gauze.

4.11.5.3 New dressing.

4.11.5.4 Suction devices- suction tubing and machine

4.11.5.5 Stand by emergency equipment as necessary- spare Tracheostomy tube/ties, resuscitation bag, oxygen source, Tracheostomy dilator.

4.11.6 Steps:

4.11.6.1 Wash hands

4.11.6.2 Ensure patient is held in place.

4.11.6.3 Remove old or soiled dressing if necessary; make sure one hand is holding on the Tracheostomy tube to prevent it from dislodging.

4.11.6.4 Examine the skin area, cleanse with sterile cotton buds dipped in sterile water.

4.11.6.5 Dry area around the stoma with dry cotton gauze.

4.11.6.6 Apply new dressing if required.

4.11.6.7 Suction Tracheostomy if needed.

4.11.7 Inform the concern team if the following signs of stoma infection are observed:

4.11.7.1 Excessive leakage of secretion.

4.11.7.2 Foul smell

4.11.7.3 Erythema around the stoma site

4.11.7.4 Erosion of stoma site.

4.12 Tracheostomy Tube Care

4.12.1 Inner Tube should be cleaned daily or more frequently if needed.

4.12.2 Wash and introduce after change under running water.

4.12.3 Dry thoroughly with H2O2 solution (diluted) for one hour.

4.12.4 After 1 hour, pour away the solution, air-dry it first before keeping it in a dry container.

4.12.5 Before next change, soak the Trachestomy tube again H2O2 solution for 1 hour, rinse

with sterile water before insertion.

4.13 Trachestomy tie change

4.13.1 To be changed when it gets soaked or dirty.

4.13.2 It is preferable to secure new ties before removing the old ties.

4.13.3 There is potential risk for Tracheostomy tube dislodgment when attending to tie changes, therefore a minimum of two people who are competent in Tracheostomy care are required to undertake Trechostomy tie changes.

4.13.4 If the ties become loose it is a priority to re-secure immediately.

4.13.5 Procedure for changing cotton ties.

4.13.6 Explain to the patient and their family that you are going to change the Tracheostomy ties

4.13.7 Hand Hygiene.

4.13.8 Prepare two equal lengths of ties long enough to go around the patient's neck.

4.13.9 Insert a clean tie on each side of the flange into the holes.

4.13.10 Then tie both sides together in a bow to secure.

4.13.11 Check the tension of the tie. Allow one finger to fit snugly between the skin and the ties.

4.13.12 Re-tie into in a double knot to secure.

4.13.13 Cut off excess length of ties leaving approximately 3cm.

4.13.14 Remove old ties and recheck tension of new ties.

4.13.15 Observe the patient's neck to ensure skin integrity.

4.14 Trachestomy tube changes:

4.14.1 Trachestomy tube should be changed electively, initially more frequently especially for single lumen tube.

4.14.1.1 First change after discharge from hospital, one month, at local hospital.

4.14.2 Frequency of changing can be decreased once the patient is free of pulmonary secretions and has a well-formed stoma.

4.14.2.1 Subsequent change every 2-3 month.

4.14.3 Changing should be done before feeding or 2-3 hours after feeding.

4.14.4 Prepare necessary equipment:

4.14.4.1 Trachestomy tube- correct size and one size smaller.

4.14.4.2 Tracheal dilator.

4.14.4.3 Sterilized Trachestomy tube with obturator.

4.14.4.4 Gauze 1 packet.

4.14.4.5 Sterile water for rinsing of tube.

4.14.4.6 Normal saline 20ml- for suctioning.

4.14.4.7 Aqua gel

4.14.4.8 Tracheostomy tie

4.14.4.9 Suction catheter and tubing.

4.14.4.10 Stand-by emergency equipment as necessary- spare Trachestomy tube, ties, and resuscitation bag and oxygen source.

4.14.4.11 Sterile gauze.

4.14.4.12 Sterile gloves.

4.14.5 Steps

4.14.5.1 Wash hands.

4.14.5.2 Inspect all tubes before use.

4.14.5.3 Insert obturator into new tube.

4.14.5.4 Place small amount of sterile water- soluble lubricant on end of new Trachestomy tub and place in clean tray until ready for use.

4.14.5.5 Have suction machine handy if needed.

4.14.5.6 Place the patient on his back with a small neck roll under his shoulders to hyperextend the neck.

4.14.5.7 Suction patient.

4.14.5.8 Slowly detach the tape, hold tube in place when tapes are not secured.

4.14.5.9 Remove old tube.

4.14.5.10 Insert new tube in smooth curving motion.

4.14.5.11 Remove the obturator while holding tube securely.

4.14.5.12 Attach tapes securely and allow one finger between the neck and tape.

4.14.5.13 Assess patient tolerance after the insertion by listening to air entry and assessing color of the patient.

4.14.5.14 Suction if necessary.

4.15 Oral and Personal Hygiene

4.15.1 Patients with Tracheostomies, especially those who are nil by mouth, require regular oral care due to the reduced evaporation of oral secretions, which accumulate in the mouth. This is due to the disruption of normal airflow during inhalation and exhalation.

4.15.2 Patients who are able to should be encouraged to maintain their own oral hygiene by using a toothbrush and using mouthwashes.

4.15.3 Incapacitated patients should have a daily assessment of their buccal mucous membranes to observe for bacterial, viral or fungal infections, skin tears or ulceration. Aspirated infective saliva can contribute to respiratory problems.

4.15.4 If the patient has a dry mouth then considers artificial saliva.

4.16 Decanulation

4.16.1 When a patient no longer needs their Tracheostomy, it can be removed.

4.16.2 The requirements to remove a Tracheostomy tube include No longer requiring respiratory support practically this means no CPAP or assistance for at least 24 hours with an FIO_2 of 40% or less and improving respiratory parameters.

4.16.3 Able to clear secretions without tracheal suction.

4.16.4 Able to cough secretions into the mouth or out of the Tracheostomy tube

4.16.5 Secretions should be reducing in volume.

4.16.6 Able to tolerate the cuff (if present) being deflated for 24 hours ideally.

4.16.7 A patent upper airway

4.16.7.1 Can be assessed by occluding the Tracheostomy tube with the cuff down.

4.16.7.2 The patient may be able to talk past the tube and vocalize

4.16.7.3 Surgical patients may require endoscopic assessment

4.16.8 Procedure of Decannulations

4.16.8.1 If no obstruction and the tube was for short period, may proceed with downsizing of tube, observe for 24hours.

4.16.8.2 Cap in the morning and keep occluded for a minimum of 24hours

4.16.8.3 If capping is tolerated, proceed with dicanulation the morning and observe the patient for 24hours.

4.16.8.4 Once the tube has been removed, the stoma should be covered by a clean dressing.

4.16.8.5 The stoma will usually heal within 1-2weeks, depending on its age, how it was formed, duration of TT insertion and patient factors such as undercurrent illness, infection and nutrition.

4.16.8.6 If capping trial is not successful, review the cause of failure including airway assessment.

4.16.8.7 Once the tube has been removed, the stoma should be covered by a clean dressing. The stoma will usually heal within 1-2 weeks, depending on its age, how it was formed and patient factors such as intercurrent illness, infection and nutrition.

5. Document History and Version Control

Document History and Version Control			
Version	**Description of Amendment**	**Author**	**Review Date**
01	Initial Release	Dr. Hamdoon Al Naamani,	July/ 2025
02			
03			
04			
05			
Written by	**Reviewed by**		**Approved by**
Dr. Hamdoon Al- Naamani	Assistant Director of Medical & Paramedical		Hospital Director

6. References:

Title of book/ journal/ articles/ Website	Author	Year of publication	Page
Airway incidents in critical care, the NPSA, medical training and capnography. Anaesthesia.	GOLDHILL DR, Cook TM, Waldmann CS.	2009	64: 354-7.
Patient safety incidents associated with airway devices in critical care: a review of reports to the UK National Patient Safety Agency. Anaesthesia.	THOMAS AN, McGrath BA.	2009	64: 358-65.
Tracheostomy management. Continuing Education in Anaesthesia, Critical Care and Pain.	Regan & Hunt.	2008	8 (1): 31-35
Anatomy and physiology of Tracheostomy. Resp Care	Epstein SK	2005	3: 476–82
Al. Percutaneous versus surgical tracheostomy: Randomised controlled studies with long term follow up. Crit Care Med	Silvester W, Goldsmith D, and Uchino S, et	2006	8: 2145–52
Percutaneous tracheostomy. Continuing Education in Anaesthesia, Critical Care and Pain	Eggbert S, Jerwood C,	2003	3: 139–42
Long term care of the patient with a tracheostomy.Resp Care	Lewarski JS	2005	4: 534–37
Tracheostomy management in the neurosciences: a systematic, multidisciplinary approach. Br J NeurosciNurs	HuntK, McGowan S.	2005	11: 122–25
Facilitating speech in a patient with a tracheostomy.Resp Care	Hess DR.	2005	4: 519–25
Prasad Difficulty with a flanged tracheostomy tube.Anaesthesia September	J. M. Barker and K.	2005	60; P 939
Kinking of a long tracheostomy tube can present as severe acute asthma Anaesthesia.		December 2002	57; 1238
Portex Instructions for use Carroll PF) Safe suction PRN Registered Nurse,	Czarnik RE, Stone KS, Everhart CC	1991	20,2,144-151
Tracheostomy care. The Royal Marsden Manual of Clinical & and Nursing Procedures 6th Edition. Blackwell Scientific Publications, London.	Doughery L. and Lister S.	2005	
Suctioning – Intermittent or continuous? Respiratory Care,	Fluck RR	1985	30,837- 838