

<p>Status: Guideline: offers direction and guidance on good practice, need not necessarily be strictly adhered to.</p>	<p>Policy No: TRG 03 Version No: 0 Date Approved: 01/03/2011 Review Date: 01/03/2013</p>
<p>Title: Guidelines for Suctioning via a Tracheostomy Tube</p>	
<p>Written by: Clinical Practice Project Group</p>	
<p>Approved by: National Risk Management Committee Joe Wolfe and Associates</p>	
<p>Cross Reference: ICG01; ICG02; ICG05; TRG04, BPH02</p>	

1.0 Purpose

The purpose of this guideline is to ensure all Cheshire Ireland service users with tracheostomy tubes in situ will have suctioning carried out without adverse event.

2.0 Scope

This guideline refers to all Cheshire service users who require suctioning via tracheostomy tubes and guidelines may need to be adapted for individual service users with the approval of Cheshire Ireland.

3.0 Responsibility

- It is the responsibility of all care/support and nursing staff who are involved in the suctioning of Cheshire service users to have the necessary knowledge and practical skills to carry out the procedure safely.
- It is the responsibility of service managers to ensure care/support staff who are involved in the suctioning of service users to have successfully completed Cheshire Ireland approved Tracheostomy Care training, and have clinical supervision and support provided by the community health team of Tracheostomy Nurse Specialist /Community Physiotherapist.
- It is the responsibility of service managers to ensure staff are familiar with the guideline.
- It is the responsibility of the nurse to verify competence of the care/support staff and to monitor compliance.

4.0 Definitions

Tracheostomy: A tracheostomy is the creation of an opening into the trachea through the neck. A tracheostomy tube is then inserted to help facilitate breathing and the removal of secretions (O'Toole, 1992).

Tracheostomy Tube: A tracheostomy tube is curved to accommodate the anatomy of the trachea. Tracheostomy tubes are available in different designs. Some have both an outer and an inner tube. The outer tube maintains the patency of the airway while the inner tube, which fits snugly inside the outer tube, can be removed for cleaning, without disturbing the stoma site (Dougherty & Lister, 2004). Tubes are now manufactured from plastic and some have an inflatable cuff that holds the tube in place. This prevents the flow of air around the outside of the cannula, allowing for more effective ventilation, and prevents the aspiration of fluids into the trachea (O'Toole, 1992).

Suctioning: Suctioning is defined as the mechanical aspiration of pulmonary secretions from a person with an artificial airway in position (AARC, 1993). Tracheostomy suctioning is performed to maintain a clear airway and optimise respiratory functions (Dougherty & Lister, 2004).

Dyspnoea: Dyspnoea may be defined as difficult or labored breathing; shortness of breath.

Cyanosis refers to the bluish coloration of the skin due to the presence of deoxygenated haemoglobin in the blood vessels near the skin.

Important: Suction pressure below 120mmHg is maintained in adults.

Suctioning should last no longer than 10 seconds at a time.

Appropriate sized, single-use, multi-eyed catheters are used.

5.0 Guidelines

Equipment

- Gloves – sterile/non-sterile (this should be a clean procedure).
- Eye protection (may be necessary if the service user has at the time a known or suspected pathogen, Ref: Guidelines for the use of Personal Protective Clothing for Staff (ICG01), Guidelines for the Control, Prevention and Management of MRSA (ICG05)).
- Portable Suction machine.
- Suction catheters.
- Suction tubing (Yankeur Tubing).
- Cooled boiled water.
- Manual Resuscitation Bag (Ambu). This is only appropriate if staff have been trained in its use.
- Clinical waste bag.

Guidelines

- All Cheshire service users will be supported to manage their own suctioning. However, in circumstances where this is not possible or the service user chooses not to, Cheshire Ireland will provide support in line with a person centred approach.
- In relation to suctioning, staff will respect the rights of Cheshire service users to be treated with sensitivity and respect as individuals, and to have wishes and opinions in relation to suctioning considered fairly (Cheshire Ireland National Consumer Committee, 2004).
- Assemble all the necessary equipment.
- Explain the procedure to the service user and secure privacy.
- Wash and dry hands thoroughly (Ref: Guidelines for Hand Hygiene, ICG02).
- Turn on the suction machine and check the suction pressure (Appendix 7.1).
- Select correct size suction catheters (Appendix 7.2).
- Open the suction control end of a suction catheter but leave it in its packet. Attach the end to the suction tubing, ensuring a good fit so that suction pressure is not lost.
- Place the tubing and suction catheter (still in its packet) in a convenient position ready for use.
- Open a new glove and place it on your dominant hand. A non-sterile glove will suffice on your non-dominant hand (Ref: Guidelines for the use of Personal Protective Clothing for Staff (ICG01)).
- With your non-dominant hand, remove any humidifying / oxygen apparatus from the tracheostomy tube.
- With the same hand, pick up the suction tubing and carefully pull the suction catheter out of its packet.
- As the suction catheter emerges, take hold of it in your sterile gloved hand, approximately half way down the catheter. Do not allow the catheter to touch anything.
- Insert the suction catheter into the tracheostomy tube **with no suction applied** until resistance is met. Before applying suction, withdraw the suction catheter 1-3 centimeters to avoid invagination of tracheal tissue into the catheter tip.
- Apply suction by blocking the suction-control machine with the thumb of your non-dominant hand.
- Continue to apply suction and gradually withdraw the catheter, rolling it between your fingers and thumb as you do so.
- The whole procedure of insertion and withdrawal of the suction catheter should take no longer than 30 seconds. Suction itself should take less than 15 seconds.

- Remove the catheter from the tracheostomy and wrap it around the fingers of your sterile gloved hand. Remove the glove, turning it inside out with the catheter contained within it.
- Disconnect the catheter from the suction tubing and discard it in clinical waste.
- Repeat as necessary using a new catheter and sterile glove each time.
- Where repeat suctioning is required, the person should be allowed rest for several minutes to regain adequate oxygenate levels. Suction passes should be limited to 2-3 (Appendix 7.4).
- If signs of intolerance occur the procedure should be discontinued immediately and the service user observed (see note below*).
- When the procedure is complete any humidification/oxygen apparatus should be replaced.
- Ensure the service user is comfortable and breathing has returned to its usual rate.

***Important Note**

- If signs of intolerance occur such as cyanosis of the lips and mucous membranes, increased restlessness, excessive wheeze, presence of bleeding or evidence of physical trauma, the procedure should be discontinued immediately and the service user observed.
- If the service user's breathing does not return to normal following discontinuation, follow guidelines as per individualised care plan to relieve obstruction. This guidance is available in the service user's Best Possible Health Tracheostomy care plan.
- If the symptoms do not improve, treat as a medical emergency and Dial 999. A staff member should stay with the service user until help arrives and follow the guidelines regarding managing a blockage in a tracheostomy tube. (Ref: Guidelines for the management of a person with a blocked tracheostomy tube, TRG04)

Equipment/Environment post procedure

- Clean the suction tubing by suctioning sterile water through it until all traces of sputum have gone. The tubing should be replaced every 24 hours.
- Attach a suction catheter and leave it in its packet for next use.
- Replace the cap on the bottle of sterile water.

- If the suction machine has a reusable bottle then it should be emptied at least every 24 hours. Again this should be at the end of the night shift. The contents should be disposed of down the toilet ensuring the operator is fully protected from splash back. The container is washed in warm soapy water, rinsed and dried and returned to the suction machine quickly. If it has a disposable sealed container, this does not need to be emptied but sealed and discarded in clinical waste when full, or when the service user no longer requires suctioning.
- Wash and dry hands thoroughly.
- Document tolerance of suctioning procedure. Report any abnormalities in tracheal secretions (i.e. secretions which are unusual for the service user) to a senior member of staff.

7.0 Appendices

7.1 Suctioning Pressure: Safe suctioning pressure should not exceed 150mmHg (Luce et al 1993; Carroll, 1994). To check suction pressure, turn on suction apparatus, clamp/kink suction tubing to facilitate maximal pressure build up in the system. Adjust suction dial as necessary to achieve suction pressure of 150mmHg then release.

7.2 Catheter Size: Suction catheter size is very important when deciding which catheter to select. To avoid excessive negative pressure, the external diameter of the selected catheter should not exceed the internal diameter of the tracheostomy tube. As a guide the diameter of the suction catheter should be half the tracheostomy tube size (Griggs, 1998; Hough, 2001)

A useful formula to calculate suction catheter required is as follows (Odell et al, 1993) :

$$\frac{\text{Size of Tracheostomy Tube (mm)} \times 3}{2} = \text{Suction catheter size to be used}$$

For example: $\frac{\text{Tracheostomy Tube 8.0mm} \times 3}{2} = \text{Size 12 Suction Catheter}$

7.3 Duration of Suctioning: The longer the duration of suctioning, the more mucosal damage and hypoxia occurs (Boggs, 1993; Odell et al, 1993), therefore suctioning should be performed quickly, and negative pressure applied for as short a time as possible.

7.4 Number of Suction Passes: No more than three suction passes should be made during any suctioning episode (Glass and Grap, 1995), as the number of suction passes are thought to contribute to the occurrence of complications (Wood, 1998). Check the person's SPO2 before and after suction to gauge effect.

8.0 References

- American Association of Respiratory Care (1993). AARC clinical practice guidelines: endotracheal suctioning of mechanically ventilated adults and children with artificial airways. *Respiratory Care*. 38 (4) pp. 500-504.
- Boggs, R.L. (1993) Airway Management. In Boggs R.L., Woodbridge-King, M. (eds) *AACN Procedure manual for Critical Care*. 3rd ed. Philadelphia: W.B. Saunders Company.
- Carroll, P. (1994) Safe Suctioning. *Registered Nurse*. 57 (5) pp. 32-36
- Dougherty, L. & Lister, S. (Eds.) (2004) *The Royal Marsden Hospital Manual of Clinical Nursing Procedures*, 6th Ed. Blackwell Pub, Oxford.
- Glass, C. & Grap, M. (1995) Ten tips for safe suctioning. *American Journal of Nursing*. 5(5), pp 51-53.
- Griggs, A. (1998) Tracheostomy: suctioning and humidification. *Nurs Stand*, 13 (2), 49-56.
- Hough, A. (2001) *Physiotherapy in Respiratory Care. An Evidence based Approach to respiratory and cardiac management*, 3rd ed. Nelson Thornes, Cheltenham.
- Luce, J.M., Pierson, D.J., Tyler, M.L. (1993) *Intensive Respiratory Care*. 2nd Ed. Philadelphia: W.B. Saunders Company.
- Odell, A., Alder, A., Bayne, R. (1993) Endotracheal suction for adult non-head injured patients. A review of literature. *Intensive Critical care Nursing*, 9, pp. 274-278.
- O'Toole, M (ed) (1992) *Miller-Kean Encyclopaedia and Dictionary of Medical, Nursing and Allied Health*, 5th edn. W.B. Saunders, Philadelphia.
- Wood, C.J. (1998) Endotracheal suctioning; a literature review. *Intensive and Critical Care Nursing*. 70 (3) pp 106-108.
- Caring for the Patient with a Tracheostomy* © NHS Quality Improvement Scotland 2007 ISBN 1-84404-453-X.