

**POLICY FOR THE CARE OF ADULT PATIENTS WITH A
TRACHEOSTOMY**

Approved by: **Trust Executive Committee**

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Information for: **All staff involved with caring for tracheotomised patients**

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**Burton Hospitals NHS Foundation Trust
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POLICY FOR THE CARE OF ADULT PATIENTS WITH A TRACHEOSTOMY

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BURTON HOSPITALS NHS FOUNDATION TRUST

POLICY FOR THE CARE OF ADULT PATIENTS WITH A TRACHEOSTOMY

1.0 BACKGROUND

- 1.1 Care for a patient with a tracheostomy may be required by Trust staff in any inpatient setting. Additional knowledge, skills and equipment are an integral part of this care package. Historically patients with tracheostomies were cared for within a Critical Care environment or specialty wards such as ENT and Respiratory within the Trust. However the changing population and advances in medicine now mean that there are increasing numbers of patients who require tracheostomy insertion.
- 1.2 The target population for this policy includes all Trust health care staff who may come into contact with a tracheostomized patient.

2.0 AIM

- 2.1 The aim of this policy document is to:
- Explain the correct and safe methods for caring for a patient with an artificial airway (tracheostomy). The principles of care provided can also be applied to patients who have undergone a previous laryngectomy (also known as neck breathers)
 - Inform staff of the current tracheostomies used within the Trust and any alternative tracheostomies that they may come across
 - Determine the standardized equipment required for this patient group
 - Inform staff of emergency procedures when a patient has a tracheostomy
 - Discuss the role of additional health care professionals in patient care.
- 2.2 Nursing staff are duty bound to seek additional help and support in addition to this information if they are unfamiliar with looking after this patient group.

3.0 INTRODUCTION

- 3.1 A tracheostomy is an opening in the front of the trachea that can be temporary or permanent and can be formed by surgical or percutaneous methods. Within the Trust the adult patient can require the insertion of a tracheostomy for a variety of clinical reasons.
Typical Indications for the formation of a tracheostomy include:

- To maintain a patent airway
- To facilitate long term ventilation or allow weaning from positive pressure ventilation in patients with respiratory failure

- To secure and clear the airway in patients with upper airway obstruction
- To facilitate the removal of bronchial secretions
- To reduce the risk of aspiration when the cuff is inflated
- To maintain a patent airway following head & neck injuries or surgical intervention. This includes patients who require a laryngectomy and may not have a tracheostomy tube but who are neck breathers (Royal Marsden 2011).

4.0 EXCLUSION CRITERIA:

4.1 This guideline is not intended to be applied to the following patient groups:

- Pediatric patients (16 years and under) and neonates. Normal physiological parameters are different in these patient groups.

5.0 TRACHEOSTOMY HAZARDS

5.1 Problems associated with tracheostomies are commonplace and patient safety incidents associated with their use have increased. Over 1,700 incidents were reported to the National Patient Safety Agency (NPSA) between January 2005 and December 2008 - these included 32 deaths (NPSA, 2008). According to NCEPOD 2014 23% of tracheostomized patients had complications whilst on critical care, 31% on wards.

Patients with tracheostomies are at risk of the following:

- Tracheostomy occlusion
- Airway loss or damage
- Blockage or displacement
- Bleeding from the stoma site
- Pneumothorax
- Surgical emphysema

All tracheostomy related incidents should be reported as per Trust Incident reporting procedures.

6.0 RESPONSIBILITIES AND ACCOUNTABILITY

6.1 Nursing staff caring for tracheostomized patients must seek advice from Critical Care Outreach, the Clinical Site Practitioners (CSP) or the Respiratory Nurse Specialist (RNS) if they are unfamiliar with any aspect of patient care.

7.0 TRAINING

- 7.1 Critical Care nursing staff, including Critical Care Outreach are required to complete an initial competency on induction and a further developmental competency on the care of the patient with a tracheostomy. Ward staff wherever possible will receive support and teaching by the Critical Care Outreach / Acute Pain Team, CSPs and RNSs when caring for a patient with a tracheostomy on the ward.

8.0 ESSENTIAL OR NON-ESSENTIAL TRACHEOSTOMIES

Tracheostomies can be categorized into either an 'essential' or a 'non essential' type.

- 8.1 **An Essential Tracheostomy** may be formed following surgery to remove carcinoma of the naso-oral pharynx or larynx. Surgery of this type is known as a laryngectomy (removal of the larynx) and may result in the need for a permanent tracheostomy for the patient to breathe through.

This surgery will not take place at the Trust, however this patient group may subsequently have future admissions to wards within the Trust. The patient with an 'essential tracheostomy' must be identified on admission immediately as the patient's only means of respiration is through the tracheostomy site. Obstruction of the 'essential tracheostomy' will have life threatening consequences and is managed differently to a patient with a 'non-essential' tracheostomy.

- 8.2 **A Non-essential Tracheostomy** will be formed when patients require short or long term respiratory support or when they cannot maintain a patent airway without help.

9.0 TYPES OF TRACHEOSTOMY

- 9.0 **Non – fenestrated cuffed tracheostomy tube**, double lumen tube; these are 'non-essential tubes (see appendix 1).

Fenestrated cuffed tracheostomy tube, double lumen tube; these are 'non-essential' tubes (see appendix 2).

Adjustable Flange tracheostomy tube, these are 'non-essential' tubes (see appendix 3)

Laryngectomy tube - these are 'essential' tracheostomy tubes (see appendix 4).

Mini-Tracheostomy - narrow bore tracheostomy tube inserted through the cricothyroid membrane or placed within an original stoma site. Used mainly within the Trust for patients with sputum retention post tracheostomy decannulation as a means for suction or cough stimulation (see appendix 5).

- 9.1 All non-essential new tracheostomies should have subglottic suction.

10.0 INNER CANNULA'S

- 10.1** All patients with 'non essential' tracheostomy should have an outer tube and removable inner tube (cannula) to prevent airway obstruction caused by blocking of the tracheostomy tube (NPSA, 2008) (see appendix 2) .
- 10.2** 'Essential' tracheostomies, do not have an inner cannula. This is because the site has an established stoma which allows the tracheostomy to be safely removed and replaced for cleaning.
- 10.3** Inner tubes must be removed, inspected and cleaned to prevent narrowing or ultimately blockage of the tube. This should be done at least once per nursing shift (8-12 h) but this may be required more frequently and should be based on individual patient need. The frequency of cleaning should be increased particularly when there is evidence of tenacious or copious secretions or bleeding etc. When inner tubes are cleaned this must be recorded on the patient Tracheostomy Intervention Chart to provide evidence of care given (The Intensive Care Society, 2008). Spare inner cannula's must be stored in an airtight container with the patients name on it.

11.0 HUMIDIFICATION

- 11.1** Patients with a tracheostomy in-situ are vulnerable to secretion retention as formation of a tracheostomy bypasses the normal upper airway mechanisms for humidification, filtration and warming of inspired gases. This results in increased viscosity of mucus, which depresses ciliary function and therefore muco-ciliary transport. This in turn can lead to increased risk of infection, impaired secretion removal and micro atelectasis (small airway closure). Failure to provide adequate humidification can lead to obstruction of the major airways and the tracheostomy tube. All patients must be referred immediately to either Critical Care Outreach Team, the CSPs or the RNSs to assess their humidification needs. If required humidification must be a heated wire humidification system (see appendix 6). This equipment is set up by either the Critical Care Outreach Team, the CSPs or the RNSs and then subsequently managed by ward nursing staff with the support of the Critical Care Outreach Team, the CSPs or the RNSs

12.0 SUCTIONING

- 12.1** Suctioning can cause distress, is uncomfortable and is associated with airway changes, hypoxia and cardiovascular instability and should therefore only be performed when indicated and not at fixed intervals. Frequency should be determined on an individual basis and suctioning should aim to clear airway secretions when the patient is not able to, ensuring airway patency and patient safety at all times. Nurses should only performed deep suctioning if they have received training from Critical Care Outreach Team, the CSPs or the RNSs and are confident to do so.
- 12.2** Within the critical care setting, a closed-circuit suction system is used This closed system has the catheter sealed in a protective plastic sleeve, which is connected permanently into a standard ventilator circuit, thus preventing the catheter becoming contaminated (see appendix 7). This also reduces the number of times the patient is disconnected from the ventilator, avoiding further hypoxia and cross infection.

- 12.3. Inability to pass the catheter is a “red flag” that may indicate incorrect position of the tracheostomy tube in the airway and needs prompt review by an experienced professional.

13.0 INFECTION CONTROL CONSIDERATIONS

- 13.1 The presence of a tracheostomy tube, secretions and stoma site in an already debilitated/immuno-compromised patient all increase the risk of infection. It is therefore important that infection and prevention control procedures are followed in accordance with the Trust’s infection control policy.

PPE –personal protective equipment

- **Hand washing** is essential both before and after all procedures
- **Gloves** must be worn and contaminated gloves changed between procedures. **Sterile gloves should be worn for suctioning patients on the wards.** Non sterile gloves can be used in the Critical Care environment if the patient has closed circuit suctioning. Non sterile gloves are to be used for clean procedures i.e. changing the inner cannula of the tracheostomy tube or changing tracheostomy dressing or tapes
- **Aprons** should be worn at all times and changed between procedures
- **Eye protection** should be considered where there is any risk a patient may cough secretions towards the carer.

Tracheostomy stomas need to be kept clean and dry. This is usually achieved by applying a specific absorbent dressing around the tube which will also reduce the chance of direct pressure from the wings of the tube itself. The stoma should be inspected at least once per day. If infection is suspected, then the stoma must be swabbed . ENT/ TVN should be contacted for advice.

14.0 CUFF PRESSURE CHECKS

- 14.1 Occasionally patients may step-down to the wards with the balloon on the tracheostomy inflated. The balloon is at the distal part of the tracheostomy tube that is inflated following insertion to provide a seal to enable positive pressure ventilation and provide some protection against aspiration of secretions. The external pilot balloon indicates when the cuff is inflated or deflated. The pressure of the cuff may cause damage to the tracheal mucosa reducing perfusion, which may lead to cartilage or arterial erosion, stenosis and necrosis. To protect the delicate mucosa in the trachea the cuff pressure should be kept at a minimum.
- 14.2 The Care Outreach Team, the CSPs or the RNSs are responsible for the routine checking of cuff pressures on patients on the wards. Critical Care staff are responsible for checking cuff pressures on their patients once a shift or more frequently if there is a problem with the cuff or a leak.
- 14.3 Cuff pressure should not exceed 25 cmH₂O/18 mmHg as this will occlude blood flow to the tracheal tissues. However, cuff pressure should be inflated to the minimum level to ensure there is a seal and to avoid aspiration. Routine cuff deflation, unless part of the weaning process, is not advocated as it increases the risk of aspiration and hypoxia (The Intensive Care Society, 2008).

15.0 DECANNULATION

- 15.1** Non- Essential tracheostomy tubes should only be removed under the direction of the Critical Care Consultant in collaboration with members of the multi-professional team caring for the patient; this may include the ENT team, physiotherapists and Critical Care Outreach. Decannulation should not be performed until the patient can tolerate cuff deflation for a specific period agreed by the multi-professional team and the patient is able to expectorate independently of tracheal suction.
- 15.2** Decannulation should only be performed by a competent practitioner who has received training and been assessed as competent in advanced skills to support the patient's airway if difficulties occur (The Intensive care Society, 2008).
- 15.3** Suggested criteria for decannulation:
- Patient able to obey commands
 - Patient has 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 for 12 hours or more (usually during the daytime)
 - Glasgow Coma Scale (GCS) greater than 8 – able to independently protect their airway
 - Receiving less than 40% oxygen
- 15.4** Prior to decannulation, tracheostomized patients under the direct care of Critical Care/Critical Care Outreach should **NEVER** have the end of the tracheostomy tube occluded to assess the patients ability to breath around the tracheostomy tube.

There may be occasions where ENT patients have different tracheostomy tubes from the Critical Care patient group. The ENT team may advocate occluding the tube as part of the 'weaning' process from the tracheostomy. This is an independent decision by the ENT team and they therefore take sole responsibility for this action.

16.0 DYSPHAGIA

A tracheostomy in situ will almost certainly have an impact on the patients ability to swallow. Therefore patients who are discharged to the ward and are able to eat and drink will have undergone a swallowing assessment in Critical Care.

- 16.1** Whilst on the ward, if the patient shows signs of coughing or desaturating following diet or fluids this should alert staff to the possibilities that the patient is now at risk of aspiration. The patient should remain nil by mouth until the patient has been reassessed by the patients medical team.
- 16.2** If a patient is discharge to the ward nil by mouth, they will be receiving their

nutritional needs by either a NG or PEG feed. It is highly unlikely that these patient are safe to eat and drink until their tracheostomy is removed and they have had assessment of their swallowing reflexes by a qualified Speech and Language Therapist.

16.3 Following decannulation of the tracheostomy tube, it is recommended to wait 24hrs before introducing an oral intake and performing an oral intake assessment, which should be performed by a Speech and Language Therapist (Marsden 2011).

16.4 Actions to consider prior to introducing oral intake:-

Prior to a swallow assessment the following points should be considered for decannulated patients:

- Has the patient had stable respiratory and cardiovascular status for 24 hours?
- Is O2 and SpO2 stable with FiO2 no more than 35%?
- Can patient remain alert for 30 minutes and has a stable Glasgow Coma Scale (>13)?
- Can patient sit upright?
- Can patient manage own secretions when sat up?
- Can you observe larynx moving up when patient swallows saliva?
- Has the patient got a strong cough?

17.0 COMMUNICATION

17.1 Communication serves to meet many patient needs including “social interaction, information giving, reassurance, discussion of feelings, advice and counselling” (St.George’s Healthcare, 2007).

There are many factors which affect someone’s ability to communicate effectively with a tracheostomy in situ, including:

Factors	Possible Causes
Mechanical/physiological	<ul style="list-style-type: none"> • Inflated tracheostomy cuff • Stenosis • Vocal cord paralysis • Inadequate air volume
Difficulties as a result of patient’s condition, including neurological deficits	<ul style="list-style-type: none"> • Dysphasia • Dysarthria • Dyspraxia • Cognitive difficulties affecting interaction e.g head injury, dementia

Environmental/medical/ psychological	<ul style="list-style-type: none"> • Disorientation/confusion • Depression • Levels of alertness • Anxiety • Decreased motivation to communicate
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Lip reading may be challenging. Non-verbal communication may be facilitated and should be encouraged by a range of aids from pen and paper through to digital communication boards and tablet device applications. It is also essential that patient know how to use the nurse call bell and that it is placed within easy reach. SLT may need to be involved for advice on management of specific communication impairments such as dysphonia, dysarthria etc.

- 17.2** Cuff deflation - Deflation of the cuff of the tracheostomy tube will allow air to pass into the upper airway on expiration. Phonation will be achieved as air is directed into the larynx, however the strength of the voice will be weaker as some air will pass out of the open tracheostomy. Downsizing to a smaller tracheostomy tube will allow increased passage of air between tube and the tracheal walls on exhalation (The Royal Marsden 2011).
- 17.3** Fenestrated Tracheostomy Tube - Use of a fenestrated tracheostomy tube & Inner tube allows air to pass into the upper airway on expiration, thus producing a voice. Fenestrated inner cannulas commonly have different a different color on the tip of the tube (see appendix 2).
- 17.4** One Way Speaking Valve - The use of a speaking valve is dependent on the patient's ability to tolerate cuff deflation and fenestration. The one way valve mechanism allows air to be entrained via the tube opening on inhalation but not exhaled through this route. Airflow is then redirected, either through the fenestration or back down the tube tip & up into the larynx on exhalation permitting vocalization (The Royal Marsden 2011).

A speaking valve must only be applied to an uncuffed, (or deflated cuff) tracheostomy that is fenestrated and has a fenestrated inner cannula in situ. Tracheostomy occlusion will occur if attempted with alternative tracheostomies.

Information regarding the type of tracheostomy tube that the patient has in situ should be displayed on bed head sign and discussed in patient handovers.

Caution must also be used with speaking valves in patients who continue to produce secretions particularly if copious in nature. These patients are at risk of blocking the speaking valve/fenestration and therefore occluding their tracheostomy tube. If any doubt with this patient group please confer with either Critical Care Outreach, the ward respiratory physiotherapy or the RNS.

- 17.5** There should be low threshold for Speech and Language Therapy involvement. Referred to SLT should be considered if :-

- The patient is attempting to communicate but is ineffective in any form i.e. speaking, writing, gesture
- The patient is suspected or known to have dysphasia, dysarthria or dyspraxia
- The patient does not have a reliable Yes/No response
- The patient is using voice but it sounds wet, hoarse, quiet etc.

18.0 TRANSFERRING A PATIENT WITH A TRACHEOSTOMY

18.1 Transfers within the Trust - Patients with tracheostomies must be accompanied by a qualified member of staff who is confident and competent to do so. The patient's oxygen therapy must be maintained at all times during transfer. Transferring with portable suction must also be considered if the patient is requiring regular suctioning. Please confer with Critical Care Outreach if assistance is required.

Please refer to Trust Transfer Policy on the hospital intranet.

18.2 Step-Down Critical Care Transfers. Transfers take place during daytime hours. On most occasions both the ward staff and Critical Care Outreach, the CSPs or the RNSs receive advanced warning of these discharges, which enables the appropriate staffing and equipment to be put in-place. Humidification equipment and a 'tracheostomy box' is provided by Critical Care Outreach, the CSPs or the RNSs. . The 'tracheostomy box' should be kept by the patients bedside as it contains emergency equipment and additional equipment for tracheostomy care. Handover by Critical Care staff should include the type of tracheostomy tube that the patient has in-situ, when it was inserted and suction/secretion specifics.

19.0 AIRWAY EMERGENCIES/RESPIRATORY or CARDIAC ARREST

In the event of an airway emergency, respiratory or cardiac arrest it is essential to get help as soon as possible. CALL THE CARDIAC ARREST TEAM on 2222. Do not hesitate in using the emergency procedure.

19.1 Essential Tracheostomies - (this includes patients who have had a laryngectomy and may just have a stoma see appendix 9). Any artificial ventilation should be directed at the tracheostomy or stoma site. Additional expert Critical Care or ENT help should be sort immediately.

19.2 Non-Essential Tracheostomies - In the event of a blocked tube/accidental decannulation, the tracheostomy site should be covered with an occlusive dressing and ventilation provided with a bag-valve-mask via the patient's mouth. If there is any doubt as to whether the tracheostomy tube is patent, removing it and directing supportive ventilation as above with a bag-valve-mask is the safest option (attempting ventilation through a displaced tracheostomy tube may cause surgical emphysema of the neck and exacerbate airway difficulties).

- 19.3** Emergency equipment - the 'tracheostomy box' contains a spare tracheostomy the same size as the patients current tube and also a tracheostomy tube one size smaller. Occlusive dressings for accidental decannulation can also be found in the box. Additional equipment for respiratory emergencies can be found in the 'red airway box' that is kept on all cardiac arrest trolleys within the Trust.
- 19.4** Emergency tracheostomy and laryngectomy management flowcharts should be attached to tracheostomy box.

APPENDICES

TYPES OF TRACHEOSTOMY TUBE

Appendix 1

Non-Fenestrated Cuffed Tube with Inner Non-Fenestrated Inner Cannula



Appendix 2

Fenestrated Cuffed Tube with Fenestrated Inner Cannula (blue tip) and Non-Fenestrated Inner Cannula (white tip).



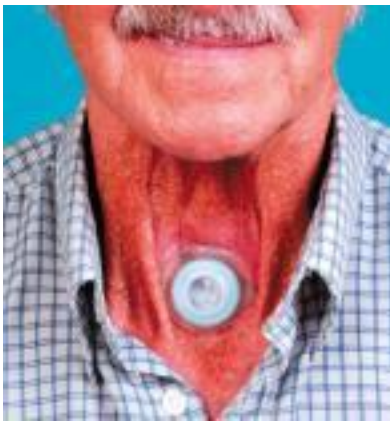
Appendix 3

Tracheostomy Tube with Adjustable Flange



Appendix 4

Laryngectomy Tubes



Appendix 5

Mini-tracheostomy



Appendix 6

AirVo Heated Wire Humidifier with Tracheostomy Innerface



Appendix 7

Closed Suction Circuit



Appendix 8

Speaking Valve



Appendix 9

Laryngectomy 'Stoma' Site



Appendix 10

Queens Hospital, Burton on Trent Tracheostomy Intervention Chart

Name		Date trache sited
Hospital number		Trache ID Type
DOB		Ward

**Minimum 4 hourly observations on track and trigger or MEWS chart
Check inner tube at least once per shift, more frequently if lots of secretions**

- Check site for crusts, secretions and clean site as necessary
- Listen for noisy, "rattly" breathing which may require suction
- Look for signs of respiratory distress

If concerned call Outreach or CSP on bleep 581 or anaesthetist on bleep 511 in emergency

Use of humidification via AIRVO, Fisher Paykel 850 or humidified speaking valve to be encouraged at all times.

Date/time	Intervention	Secretion type eg; mucoid, sticky, thick & colour of secretions	Signature

APPENDIX 11

Tracheostomy bed head sign

This patient has a

TRACHEOSTOMY

There is a potentially patent upper airway (Intubation may be difficult)


Surgical / Percutaneous

Performed on (date)


Tracheostomy tube size (if present)

Hospital / NHS number


Notes: Indicate tracheostomy type by circling the relevant figure.
Indicate location and function of any sutures.
Laryngoscopy grade and notes on upper airway management.
Any problems with this tracheostomy.



Percutaneous



Björk Flap

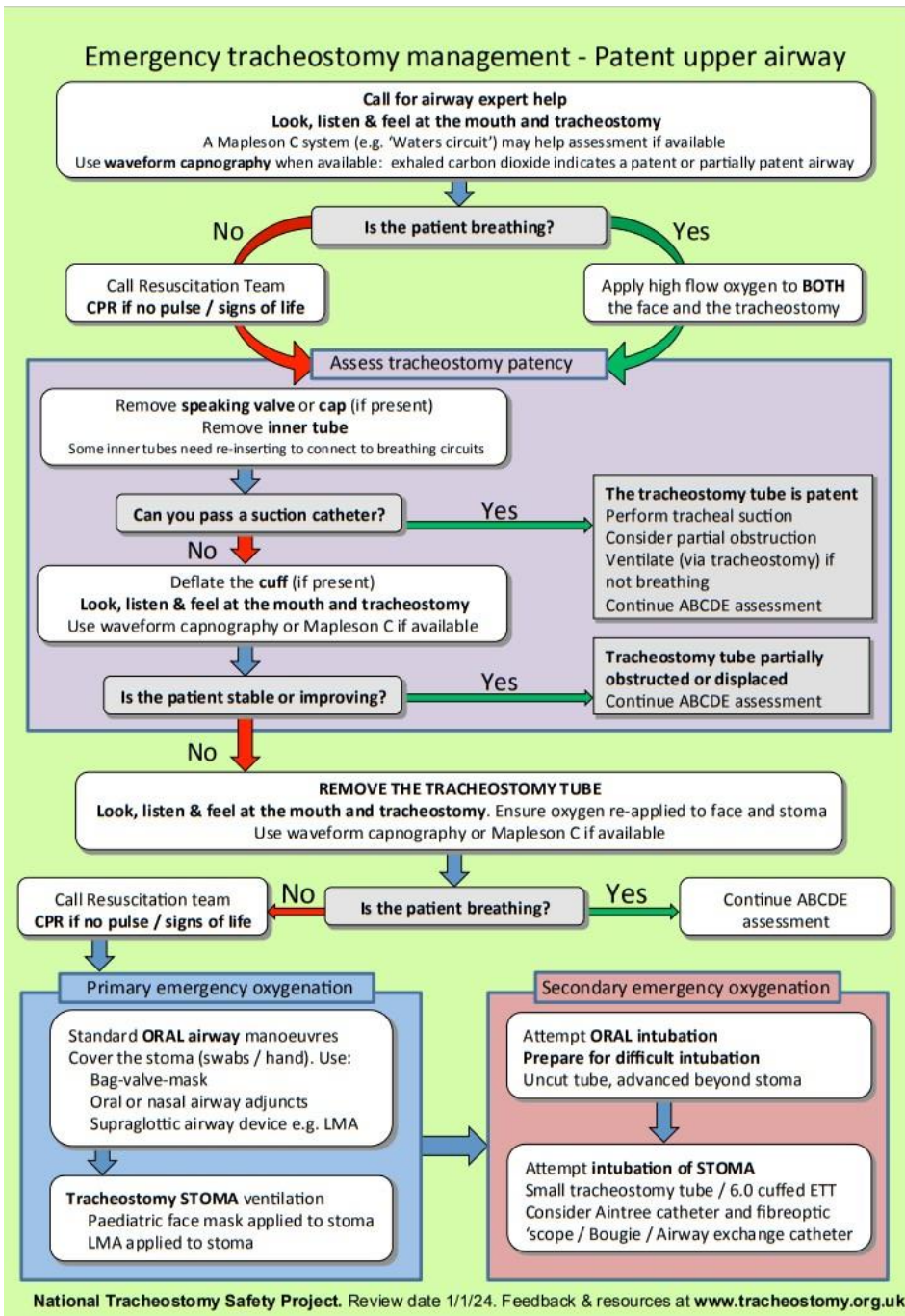


Slit type

Emergency Call: Anaesthesia ICU ENT MaxFax Emergency Team

www.tracheostomy.org.uk

Appendix 12



Appendix 13

Emergency laryngectomy management

Emergency laryngectomy management

Call for airway expert help
Look, listen & feel at the mouth and laryngectomy stoma
 A Mapleson C system (e.g. 'Waters circuit') may help assessment if available
 Use **waveform capnography** whenever available: exhaled carbon dioxide indicates a patent or partially patent airway

Is the patient breathing?

No
 Call Resuscitation Team
CPR if no pulse / signs of life

Yes
Apply high flow oxygen to laryngectomy stoma
 If any doubt whether patient has a laryngectomy, apply oxygen to face also*

Assess laryngectomy stoma patency

Most laryngectomy stomas will NOT have a tube in situ

Remove **stoma cover** (if present)
 Remove **inner tube** (if present)
 Some inner tubes need re-inserting to connect to breathing circuits
 Do not remove a tracheoesophageal puncture (TEP) prosthesis

Can you pass a suction catheter?

Yes

The laryngectomy stoma is patent
 Perform tracheal suction
 Consider partial obstruction
 Ventilate via stoma if not breathing
 Continue ABCDE assessment

No

Deflate the **cuff** (if present)
Look, listen & feel at the laryngectomy stoma or tube
 Use waveform capnography or Mapleson C if available

Is the patient stable or improving?

Yes

Continue ABCDE assessment

No

REMOVE THE TUBE FROM THE LARYNGECTOMY STOMA if present
Look, listen & feel at the laryngectomy stoma. Ensure oxygen is re-applied to stoma
 Use waveform capnography or Mapleson C if available

No
 Call Resuscitation Team
CPR if no pulse / signs of life

Is the patient breathing?

Yes

Continue ABCDE assessment

Primary emergency oxygenation

Laryngectomy stoma ventilation via either
 Paediatric face mask applied to stoma
 LMA applied to stoma

Secondary emergency oxygenation

Attempt intubation of laryngectomy stoma
 Small tracheostomy tube / 6.0 cuffed ETT
 Consider Aintree catheter and fiberoptic 'scope / Bougie / Airway exchange catheter

* Laryngectomy patients have an end stoma and **cannot be oxygenated via the mouth or nose**
 * Applying oxygen to the face and stoma is the default emergency action for all patients with a tracheostomy

National Tracheostomy Safety Project. Review date 1/1/24 Feedback & resources at www.tracheostomy.org.uk

References

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The Royal Marsden Hospital Manual of Clinical Nursing Procedures. Eight Edition (2011). Wiley Blackwell. London.

St George's Healthcare NHS Trust. 2006. Guidelines for the care of patients with tracheostomy tubes. London: Smiths-Medical Ltd.

Useful Websites

FICM guidance for tracheostomy care www.ficm.ac.uk

National Tracheostomy Safety Project. www.tracheostomy.org.uk

NCPOD www.ncpod.org.uk

British Association of Head & Neck Oncology Nurses

www.bahnon.org.uk ENT information www.ENTLinx.co

Head and Neck Oncologists' / Surgeons' Association www.bahnon.co.uk

Information on head and neck cancers www.headandneckcancer.org

Kapitex airway equipment info@kapitex.com

Mallinckrodt airway equipment www.mallinckrodt.com

Portex www.smiths-medical.com