

## Standard Operating Procedure 13 (SOP 13)

# Tracheostomy Care for a Child with an Established Tracheostomy

**Why** we have a procedure?

The following clinical procedures for tracheostomy care provide Nurses and carers with frameworks. These frameworks promote safe, consistent practice as well as enabling Nurses and carers to support and guide the child and carers within the community setting. These should be followed at all times when caring for a child with a tracheostomy.

These procedures are intended to supplement the instructions given by the referring hospital. If they are in conflict with such instructions then further guidance should be sought from those with clinical responsibility for the child's care.

**What** overarching policy the procedure links to?

Children's Community Nursing Team Operational Policy

**Which** services of the trust does this apply to? **Where** is it in operation?

| Group                              | Inpatients | Community | Locations |
|------------------------------------|------------|-----------|-----------|
| Mental Health Services             | x          | x         | all       |
| Learning Disabilities Services     | x          | x         | all       |
| Children and Young People Services | x          | ✓         | all       |

**Who** does the procedure apply to?

These procedures apply to all Trust staff and staff working on behalf of the Trust that care for children with a tracheostomy

**When** should the procedure be applied?

When caring for children with a tracheostomy, which includes the following:

- Tracheostomy suction
- Tracheostomy tape change and stoma care
- Cleaning the Tracheostomy tube
- Routine changing of a Tracheostomy tube
- Changing of a Tracheostomy tube in an emergency

## ***How*** to carry out this procedure

All routine tracheostomy care should be treated as a clean procedure.

### **Irrigation and Humidification in Tracheostomy Care**

Dry air dehydration may produce thick, sticky secretions which are difficult to clear, these may crust and accumulate in the tracheostomy tube, which may form mucus and block the tube.

Humidification is preferable to frequent suction and high suction pressures. The referring hospital should advice on appropriate humidification. Options include:

- Irrigation if recommended in tracheostomy care, saline from plastic vials must be used to avoid the risk of small glass particles.
- Heat and moisture exchangers are recommended as they are easy to use and will maintain continuous humidification. Nebulised saline/sterile water, room humidifiers or direct humidification may also be used.
- Direct humidification is not recommended in the home environment as warm air humidification direct to a tracheostomy presents dangers, including burns, scalding and condensation entering the tracheostomy. The hot humidifier containing boiling water is a danger to others. The close supervision necessary may be impossible in the home.

### **Guidelines for Tracheostomy Suction**

#### **Purpose of Tracheostomy Suctioning**

Tracheostomy formation impairs the ability of many children to cough and clear tracheal secretions from the airway. Suctioning removes excessive secretions and keeps the airway patent. The frequency of suction will vary with each child and the need should be continually assessed.

Indications of the need for suction include:

- The child complains of dyspnoea
- Ineffectual coughing
- Audible secretions in the tracheostomy tube
- Signs of respiratory distress, for example, restlessness, recession and nasal flaring
- Rising respiratory and pulse rates
- Cyanosis (a late sign)

The objectives of tracheostomy suctioning are to:

- Maintain a patent airway
- Ensure safety from cross infection by using a 'no touch' suctioning technique

#### **Safe Practice in Tracheal Suction**

Suction, unless otherwise recommended, should not be given on a routine basis, but only performed as needed. Tracheal suction is potentially traumatic and dangerous with potential for causing mucosal damage, hypoxia, infection, and airway collapse caused by poor technique and inappropriate equipment.

Suctioning is technically an aerosolising procedure and therefore carries risks of cross infection. Where possible a suction procedure should be carried out from standing behind the child reducing risk of contamination, if this isn't possible then goggles and a mask or full face visor should be worn.

Suctioning time should be kept to a minimum, not lasting longer than five seconds.

Suction must not be attempted with a 'speaking tube' in situ. The speaking tube must be removed before a catheter is inserted.

Catheters should be inserted and withdrawn gently. Rotation on withdrawal is unnecessary if multiple-hole catheters are used.

Suction catheters are single use only.

It is recommended that the suction catheter external diameter must not exceed one half the internal diameter of the tracheostomy tube. Catheter Size Guide:

$$\frac{\text{Tube Internal Diameter}}{2} \times 3 = \text{French Gauge (FG)}$$

The depth of the catheter insertion must not exceed the length of the tracheostomy tube plus 0.5cm. The necessary depth of insertion of the suction catheter should be assessed at the beginning of a care episode by checking it against the child's spare tracheostomy tube (i.e. tube length plus 0.5cm).

The suction vacuum should be regulated not to exceed 100mmHg on full occlusion for a child, and 150mmHg for an adolescent or adult.

Suction Pressure Guide:

- Infants 50-95 mmHg
- Children 80 – 100mmHg
- Adolescent not to exceed 150mmHg

The catheter or suction tubing should have an inbuilt vacuum breaker to avoid the sudden application of full vacuum and the dangerous practices of 'pinching' the tubing to control vacuum.

Suction machines used on children should have a vacuum regulator and ideally a gauge to register the applied vacuum.

All children that are discharged home with a tracheostomy must have a mains and a portable suction machine.

Maintenance of suction machines must follow manufacturer's guidance along with BCPFT's policy on the Management of Medical Devices, plus a schedule must be agreed. Cleaning instructions should be given to the child's carer.

The carer must have both instruction in the usage of the machines and clear guidance on how to seek help, if a machine fails.

## Cautions and Interferences

Healthcare professionals undertaking tracheostomy suctioning should be aware of the potential problems it may cause, including:

- Hypoxia – reduced oxygen levels
- Hypotension and/or bradycardia – caused by Vagal nerve stimulation
- Atelectasis – collapse of the alveoli
- Infection (including appropriate uses of microbiology)
- Tracheal mucosal damage – bleeding
- Paroxysmal coughing – bronchospasm
- Over stimulation of secretions

Procedure for tracheostomy suctioning follows three phases:

### Preparatory Phase

| ACTION  | RATIONALE  |
|---|--|
| Explain the procedure to both the child and their carers.                                   | To ensure both the child and their carers have good understanding. |
| Take both the age and development of the child and carers understanding into consideration. | To obtain consent and co-operation, gaining trust and confidence.  |
| Advise the carer on the ways of assisting in the procedure.                                 |  |
| Assemble equipment.   | To ensure all equipment is available.                              |
| Position the child to allow easy access to the tracheostomy.                                | To ensure safe, effective performance of the procedure.            |
| Swaddle infant if necessary.  |  |
| Wash hands thoroughly, following the Trust's Hand Hygiene Policy                            | To reduce the risks of cross contamination/infection.              |

### Performance Phase

| ACTION   | RATIONALE  |
|--|--|
| Switch on the suction machine and check the vacuum applied.  | To ensure effective clearance of secretions whilst limiting the negative pressure applied to the child's airways, so as to minimise the risk of airway collapse. |
| Open the suction catheter packet, exposing the connector, and join this to the suction connecting tubing. Leave the catheter tube within its sterile pack. | To ensure the sterility of the catheter tube.  |
| Put on apron and facial protection (if   | To reduce the risks of cross   |

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| required). Put a disposable non-sterile glove on dominant hand.  | contamination/infection.   |
| If indicated, use ungloved hand to instil sterile saline into the tracheostomy.  | To liquefy and aid removal of secretions.  |
| Place child in a safe comfortable position.<br>Remove the catheter from its pack and pick up the sterile catheter tube with the gloved hand.       | To encourage co-operation.   |
| Avoid touching the part of the catheter that is to be inserted into the tracheostomy.  | To reduce the risks of cross contamination/infection.                              |
| Measure the length of insertion of the catheter against pre-existing measured catheter.  | To prevent trauma to mucosa caused by deep insertion of the catheter.              |
| <b>DO NOT APPLY SUCTION YET</b><br>Gently insert the catheter into the tracheostomy, without applying suction. Insert up to pre-measured distance. | It is easier to pass the catheter with no suction applied, this minimises hypoxia. |
| Apply suction as the catheter is gently removed. If necessary use a slow turning action of the catheter.   | To encourage secretions from the inside edges of the tube                          |
| Suction must not be applied for longer than five seconds.  | Prolonged suction may induce excessive hypoxia.                                    |
| Remove the catheter, and dispose as clinical waste wrapped into the glove.   | To avoid hand contamination by the soiled catheter tip.                            |
| Observe secretions for signs of infection or trauma. Obtain microbiology samples where appropriate.  | To identify problems and signs of infection as early as possible.                  |
| Observe the child and the effect of the suction. Repeat with new glove and catheter if needed, but allow 30 - 60 seconds between catheter passes.  | To allow re-oxygenation.   |

### Follow up phase

| <b>ACTION</b>  | <b>RATIONALE</b>  |
|--|---|
| Comfort and reassure the child   | To minimise distress  |
| Using a suction catheter suck tap water from the bowl through the connecting tube. Switch off suction unit.<br>Discard all used items as per BCPFT's Waste Management Policy and decontaminate hands following approved technique. | To flush secretions into suction collecting jar.<br><br>To reduce the risks of cross contamination/infection. |
| Record frequency of the suction needed, including the colour, smell and  | To detect signs of respiratory tract infection, or need for   |

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| viscosity of secretions.                                   | increased humidity.  |
| Re-attach heat moisture exchange device i.e. (humidi coil) | To compensate for the normal humidification system being bypassed. |

The healthcare professional responsible for the care of a child with a tracheostomy must ensure that the size of the tracheostomy tube (internal and external diameter) and the relevant recommended suction catheter size are clearly documented in the child's records.

The healthcare professional responsible for the care of a child with a tracheostomy must ensure that all episodes and outcomes of suctioning are recorded in the child's records with each entry stating time, date and each entry signed.

In cases of known communicable respiratory infection or pandemic influenza, staff will require respiratory protection and should take advice from the Infection Prevention Team.

### **Guidelines for Tracheostomy Tape Change and Stoma Care**

The purpose of tracheostomy tape change and stoma care is as follows:

- Tapes should be changed if they become soiled or wet, this is a clean procedure
- The carer will normally change tapes and clean the stoma area daily but this will need to be increased, if secretions are copious or the child's neck is sore

The objectives of the tracheostomy tape change and stoma care are to:

- Ensure that the tracheostomy tube is securely attached to the child's neck at all times, therefore avoiding accidental decannulation. The tracheostomy tube **must never** be left unsecured
- Ensure the child's neck is free from chafing and soreness
- N.B if any child is using a different securing arrangement i.e. chains, staff should ensure that the referring hospital is aware of this and complete a risk assessment. (Appendix 5)
- All staff should have training on how to change the securing device.
- This affects very few children and the specialist hospital consultant/nurses will be consulted re the benefits and any particular risks this may present

### **Cautions and Interferences**

Healthcare professionals undertaking tracheostomy tape change and stoma care should be aware of the potential problems it may cause, including:

- Infected stoma site – swab site for microbiology, inform GP, possibly increase cleaning regime
- Over-granulation – consider using trache dressings, or different method of securing the tube. Inform Ear, Nose and Throat (ENT) Consultant.
- Sore/broken skin – alter reef knot position, use barrier creams, may need lyofoam dressing
- Accidental decannulation – replace immediately with a spare tube

Procedure for tracheostomy tape change and stoma care follows three phases:

### Preparatory Phase

| <b>ACTION</b>   | <b>RATIONALE</b>   |
|---|--|
| Explain the procedure to both the child and their carers. Take both the age and development of the child and carers understanding into consideration. | To ensure both the child and their carers have good understanding. |
| Advise the carer on ways of assisting in the procedure.   | To obtain consent and cooperation, gaining trust and confidence.   |
| Assemble equipment.   | To reduce the risks of cross contamination/infection.              |
| Ensure emergency equipment including spare tubes and suction equipment are within reach.  | In case decannulation occurs.                                      |
| Position the child to allow easy access to the tracheostomy. Swaddle infant if necessary.   | To ensure safe, effective performance of the procedure.            |
| Wash hands thoroughly, following approved technique, and put on gloves, plastic apron and facial protection   | To reduce the risks of cross contamination/infection               |

### Performance Phase

| <b>ACTION</b>  | <b>RATIONALE</b>  |
|--|---|
| Place the child in a safe comfortable position.  | To encourage co-operation   |
| If indicated perform suction prior to the procedure.   | To ensure airway is clear and child is comfortable.   |
| The assistant should hold the tracheostomy tube in place using finger and thumb to flanges. Cut the old tapes or remove Velcro fastenings    | To ensure the airway is safe when the tapes are cut.  |
| Using a gauze and cleaning solution clean the stoma site, neck area and tube flanges. Use cotton buds for access to difficult areas.         | To remove any build up of dirt or secretions, reducing risk of infection and maintaining comfort. |
| Ensure area is dried thoroughly with clean gauze.  | To prevent irritation and soreness.   |
| Observe stoma area and neck for signs of infection, over-granulation or pressure markings. Obtain swabs for microbiology, where appropriate. | To identify problems or signs of infection as early as possible.                                  |
| Apply barrier or treatment cream as indicated for the individual child.  | To maintain comfort and continuity of care.   |
| Thread a new piece of tape through the slot in the flange at each side of the tube and secure using a reef knot.                             | To secure the tube and avoid soreness.  |

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| Tie new tapes to each side of the child's neck again using a reef knot, avoid area where previous knot lay. Leave space between the knot and flange to enable ease of cutting with scissors. |  |
| Secure new Velcro tapes in place   | Velcro fasteners do not need to be tied.   |
| Check for tightness by inserting the top of one little finger under the new tapes/fasteners and adjust until one finger space only remains.  | To avoid chaffing from overtight tapes, or accidental decannulation, if tapes are too loose. |
| Cut off any excess tape, leaving enough for re tying if needed.  | For comfort.   |

### Follow up Phase

| ACTION   | RATIONALE   |
|--|---|
| Comfort and reassure the child.  | To minimise distress.                                 |
| Assess child's airway and comfort.   | To ensure airway is still patent.                     |
| Discard all used items as per BCPFT's Waste Management Policy and decontaminate hands, following approved technique. | To reduce the risks of cross contamination/infection. |

The healthcare professional responsible for the care of a child with a tracheostomy must ensure a record of the procedure carried out and its outcomes is made available in the child's records. Each entry should state the time and date of the procedure.

### Guidelines for Cleaning Tracheostomy Tubes

The purpose and objectives of cleaning a tracheostomy tube are:

- To ensure the tracheostomy tube is clean and thoroughly dried ready for the next tracheostomy tube change, reducing risks of infection
- To ensure efficient use of tracheostomy tubes and funding
- Any other tracheostomy tubes introduced to the trust will be cared for following manufacturer's guidelines

### Safe Practice when Cleaning a Shiley Tracheostomy Tube

Ensure the stored tube is clearly labelled with the date, cleaned and length of time it has been in use on the container tube should be stored in a resealable plastic bag. If condensation is seen in the bag the tube should be discarded as it may not be sterile.

The tube must be inspected before and after each clean.

If the tube has not been stored in a clean container, consider either cleaning the tube again or discard and use a new tube.

If the tubes integrity is affected, it should be discarded immediately and a new tube used.



If the markings on the tube are not clearly visible and it is not possible to read the information on the flange of the tube, it should be discarded immediately and a new tube used.

If the tube has a crack, scratches or is not fully intact, it must be discarded immediately and a new tube used.

If secretions are not easily cleaned from inside the tube, it must be discarded immediately and a new tube used.

If it is not known how long the tube has been used for then the child's documentation should be checked. Check the integrity of the tube and consider either cleaning the tube again or discard and use a new tube.

The tip of a pipe cleaner used to clean the tube can be sharp. A small fold can prevent any scratching to the inside of the tube being cleaned. (Scratches can give a surface that secretions can adhere to and infection can result).

Healthcare professionals cleaning tracheostomy tubes should adhere to the following guidelines, if the child has confirmed or suspected lower respiratory tract infection.

Obtain secretions for microbiology, where appropriate:

- A course of antibiotics may be prescribed, within individual guidelines, by the GP or Consultant
- During the infection the tube may be changed more frequently, these tubes can be cleaned and reused whilst the antibiotics are being taken
- When the course of antibiotics is complete, brand new tracheostomy tubes should be used and all old tubes discarded despite their age

### **Procedure for Cleaning Shiley Tracheostomy Tubes**

The Shiley tube is classified as "a disposable medical device." The manufacturer recommends "that the tracheostomy tube usage not exceeds twenty nine days." (Shiley, Mallinckrodt 1999). "Twenty-nine" days is the time the tube is actually in situ in the child's neck and does not include 'stored' time.

| <b>ACTION</b>  | <b>RATIONALE</b>   |
|--|--|
| Soak the tube in warm water with all purpose detergent for 5-10 minutes  | To loosen secretions inside the dirty tube.  |
| Carefully clean the tube inside and out with the pipe cleaner. Throw away the pipe cleaner after use.  | To ensure all secretions are removed.  |
| Rinse the tube thoroughly with sterile normal saline or sterile water.   | To remove all traces of sodium bicarbonate that can cause irritation and inflammation in the trachea.                  |
| Thoroughly air-dry the tube on a sterile towel. Place in a resealable plastic bag. Store in a clean plastic pot with tapes ready attached. The tube is now ready for the next tube change. | To reduce risk of contamination, maintain clean status of the tube, and to be prepared for next tube change procedure. |

### Procedure for Cleaning a Bivona Tracheostomy Tube

Bivona tubes tend to provide tracheal access for a patient for up to 29 days of actual use. The tube may be reprocessed up to 5 times for single patient reuse.

| ACTION  | RATIONALE  |
|---|--|
| Soak the tube for 60 minutes in warm water or with mild detergent to loosen any biological material.    | To loosen secretions inside the dirty tube.  |
| Gently scrub with a soft brush.   | To ensure all secretions are removed.  |
| Rinse tube with clean water to remove any cleaning solution residues.                                   | To remove all traces of sodium bicarbonate that can cause irritation and inflammation in the trachea.                  |
| Air dry tube on a paper towel.  | To reduce risk of contamination, maintain clean status of the tube, and to be prepared for next tube change procedure. |
| Inspect tube for damage prior to use.   | To prevent using a damaged tube.   |
| Place dry tube into a resealable plastic bag which is labelled with the date of cleaning and first use. |  |

For appropriate patients sanitation may be required immediately before reinsertion to minimize bacterial growth

| ACTION  | RATIONALE  |
|---|--|
| Place the cleaned tube and introducer (separated) in either an electric steam disinfectant (i.e. baby bottle sterilizer) and sanitize according to manufacturer's instructions.<br>OR<br>In an autoclave pouch or other suitable packaging for steam sterilization, sterilize in a gravity displacement steam autoclave cycle at 121°C (250°F) for 40 minutes. Do not use deep vacuum, flash cycles or pulse vacuum cycles. | To sterilize the tube for patients who may require it i.e. immuno-suppressed patients. |
| Then inspect the tube for damage prior to use. Do not use if there are signs of damage and use immediately.   | To ensure a damaged tube is not being used.  |

The healthcare professional responsible for the care of a child with a tracheostomy must ensure that documentation is up to date regarding length of time each tube has been in use, including the last date it was cleaned and stored. All entries in the child's records should be signed with full signature and printed with name, designation and date.

All disposable equipment used should be discarded as clinical waste and hands should be decontaminated following this procedure.

### **Guidelines for Routine Changing of a Tracheostomy Tube**

The purpose and objectives of changing a tracheostomy tube are:

- To maintain a safe airway
- To maintain a healthy stoma site and reduce the risk of infection
- Unless otherwise indicated or an emergency situation arises, a tracheostomy tube should be changed weekly

### **Safe Practice when Changing a Tracheostomy Tube**

A tracheostomy tube should be replaced weekly with another of exactly the same size.

It is usual for a routine tube change to be performed at the same time as that day's stoma care to minimise interventions for the child. In this circumstance ensure the cleaning is performed before the tube change to prevent the introduction of bacteria to the airway.

If possible two people should perform a routine tube change, one to perform the task and the second to hold the child.

Be aware of the discharging hospital's guidelines to ensure continuity of care for the child and their carers.

If at any time an emergency tube change is indicated, it should be performed immediately.

### **Cautions and Interferences**

Healthcare professionals changing tracheostomy tubes should be aware of the potential problems it may cause, including:

If tube is difficult or impossible to insert:

- Try smaller size tube
- If directed to do so by the discharging hospital, use shortened suction catheter or cut down endo-tracheal tube to keep stoma open (Dilators are not routinely distributed by discharging hospitals)
- If necessary oxygenate via tracheostomy mask and ambubag, or facemask if a tracheal airway is not patent
- If unable to insert a tube within 1 minute initiate a 999 call

Over-granulation:

- Inform ENT consultant

Infected stoma:

- Swab, inform GP, possibly increase cleaning regimen

Sore/broken skin:

- Alter reef knot position, use barrier creams, may need lyof foam dressing.

Procedure for changing tracheostomy tubes follows three phases:

### Preparatory Phase

| <b>ACTION</b>   | <b>RATIONALE</b>  |
|---|---|
| Explain the procedure to both the child and their carers. Take age, development and understanding into consideration.   | To ensure both the child and their carers have a good understanding.  |
| Advise carers on ways of assisting in the procedure.  | To obtain consent and co-operation, gaining trust and confidence.   |
| Wash hands thoroughly following approved technique and prepare all equipment. Disposable gloves and apron should be worn, goggles and face mask may be indicated, if coughing expected. | To reduce the risks of cross contamination/infection and enable the procedure to run as smoothly and effectively as possible. |
| Ensure that the tube to be inserted is prepared with tapes attached and introducer moves freely within the tube   | Introducer eases tube insertion by creating a rounded end.  |
| Ensure that a tube of the next size down and all emergency equipment is within reach.   | In case the child has breathing difficulty or there is difficulty inserting the new tube.                                     |
| Position the child to allow safe, easy access to the tracheostomy. This will be individual choice and should be discussed prior to starting the procedure. Swaddle infant if necessary. | To allow the procedure to be performed safely but encourage co-operation.   |
| If indicated, perform suction prior to commencing the tube change.  | To ensure airway is clear.  |

### Performance Phase

| <b>ACTION</b>  | <b>RATIONALE</b>  |
|--|---|
| The assistant should hold the tracheostomy tube in place using finger and thumb to flanges, a glove should be worn.                    | To ensure airway is safe once tapes are cut or removed. To reduce the risks of cross contamination/infection. |
| Now cut the tapes securing the tube or remove Velcro fastenings.   | To free the tube and allow removal.   |
| Perform stoma cleaning procedure as per guidelines. Observe for signs of infection, soreness and over granulation and act accordingly. | To remove build up of dirt or secretions, reducing risk of infection and maintaining comfort.                 |
| Consider swabbing for microbiology where appropriate.  | Early identification of infection.  |
| Hold new trachy tube in dominant   | To safely change the tracheostomy   |

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| hand. Cover end of tracheostomy tube in lubricant i.e. aqual gel. When all parties are ready, the assistant should remove the old trachy tube and the carer should immediately insert the new tube. Follow the curve of the tube to aid insertion. | tube, maintaining the child's comfort as much as possible. Lubricant will ease insertion. |
| <b>IMMEDIATELY REMOVE THE INTRODUCER.</b>  | Child cannot breathe with the introducer in place.  |
| The assistant now holds the new trachy tube in place, while it is secured with new tapes using reef knots as per tapes guidelines or Velcro fastenings.  | To secure the tube and maintain a safe airway.  |
| Check the child's condition and ensure they are comfortable and settled.   | To ensure clear airway has been established.  |

### Follow up Phase

| <b>ACTION</b>   | <b>RATIONALE</b>  |
|---|---|
| Reattached heat moisture exchange device or oxygen or required ventilation.   | To compensate for normal humidification system being bypassed.                        |
| The removed tube should be discarded or cleaned in accordance with manufacturer's recommendations if suitable to do so, See Shiley tube and Bivona tube cleaning procedure. | To reduce the risks of cross contamination/infection, and to maintain tube integrity. |
| Decontaminate hands following approved technique and dispose of used equipment as per BCPFT's Waste Management Policy.  | To reduce the risks of cross contamination/infection.                                 |
| Ensure that the spare tube and a smaller tube is still available in case of an emergency.   | To prevent any complications should an emergency arise.                               |

The healthcare professional responsible for the care of the child with a tracheostomy must ensure that a record of the procedure and outcomes is documented in the child's records. It should include the size of tube used and any difficulties encountered. Each entry should state the time and date of the procedure.

The removed tube should be labelled with date cleaned and the length of time it has already been in situ.

### Guidelines for Changing a Tracheostomy Tube in an Emergency

When undertaking the care of a child with a tracheostomy, emergency replacement of the tube is always a consideration to maintain the child's airway, either because of accidental decannulation or, as a last resort, when the tracheostomy is blocked and both

suction and removal of the inner tube are ineffective in clearing the child's airway. In such situations, an emergency tube change is life saving.

### **Safe Practice when Changing a Tracheostomy Tube in an Emergency**

Routinely all tracheostomy care should be treated as a clean procedure. In an emergency a procedure should be performed as clean as possible, at that time.

Good maintenance including humidification, irrigation and suctioning of a tracheostomy airway will help minimise episodes of blocking of the tube.

If at any time the child has difficulty breathing through the tube and/or it is impossible to pass a suction catheter through the tube, an emergency tube change is indicated.

Healthcare professionals changing tracheostomy tubes in an emergency should be aware of the potential problems it may cause, including:

- The replacement tube may be difficult or impossible to insert-try a tube the next size down (which should be stored ready taped)
- If the smaller size is impossible to insert-use recommended method, e.g., cut down suction catheter or endo-tracheal tube to keep the stoma open and initiate a 999 call

The following equipment is required when changing tracheostomy tubes in an emergency:

- Spare tracheostomy tube set, including introducer
- Tapes to secure the tube (already tied to tube) or relevant child specific securing method
- Scissors
- Lubricating gel
- Suction and irrigation equipment
- Shortened suction catheter or endotracheal tube
- Disposable non-sterile gloves, plastic apron and facial protection are recommended if situation allows

The procedure for changing tracheostomy tubes in an emergency follows two phases:

### **Performance Phase**

| <b>ACTION</b>  | <b>RATIONALE</b>                                      |
|--|---|
| Summon help from another person, if no one is available proceed alone.                     | Procedure is safer with assistant.                    |
| Stay with the child. If there is time, briefly explain to the child what you intend to do. | To reassure the child and aid co-operation.           |
| If you have time put on gloves and apron.  | To reduce the risks of cross contamination/infection. |
| Obtain the child's spare tracheostomy equipment and suction machine.                       |   |
| Insert introducer into new trachy tube.  | The introducer eases tube insertion by                |

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|   | creating a rounded end to the trachy tube.                               |
| Ask assistant to gently extend and steady the child's head to give support and comfort or place child in a safe place with head gently extended.  | To ease tube insertion and to calm the child.                            |
| Cut the tapes on the old tube.  | To remove blocked or displaced tube.                                     |
| Hold the new trachy tube in dominant hand. Remove the old trachy tube with one hand and immediately insert the new tube with the other. Follow the curve of the tube to aid insertion. If unable to pass tube, try smaller tracheostomy tube or cut down suction catheter/endotracheal tube to maintain airway. | A speedy tube replacement may minimise the risk of difficult intubation. |
| <b>REMOVE THE INTRODUCER</b><br>If the child is not breathing go on to resuscitation following the NTSP Algorithm for tracheostomy basic life support and call 999. (see <b>Appendix 2</b> )  | If the child cannot breathe with the introducer in place.                |
| Hold the trachy tube in place, whilst the assistant threads and ties the trachy tapes.  | To secure the tube to the child's neck.                                  |

### Monitoring Compliance

Monitoring Compliance will be carried out by the assigned Team Leader of staff carrying out this task

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|--|---|
| Closely monitor breathing, giving suction and irrigation as necessary.   | To ensure a clear airway is maintained.   |
| Check the child's condition and ensure he/she is comfortable and settled.  | To ensure safe and effective completion of the procedure including comfort and wellbeing of the child.                              |
| Complete nursing records relating to the emergency tube change.  | To complete the episode of the care and adhere to record keeping requirements.  |
| Review the reason for the emergency tube change and adjust care accordingly.   | Additional humidification and suction may avoid further tube blockage. Correct tension of tapes may avoid accidental decannulation. |
| Dispose of used, disposable equipment as clinical waste. Follow cleaning procedure for re-useable equipment. Decontaminate hands by washing with soap and water. | To reduce the risks of cross contamination/infection.   |

The healthcare professional responsible for the care of the child with a tracheostomy must ensure that a record of the emergency procedure carried out and its outcomes is documented in the child's records. Information given should include size of replacement

tube, internal diameter, consideration of why tube change was necessary and plan of necessary treatment/further action. The entry should state time and date of the emergency tube change procedure and be signed. Staff member's yearly appraisal & ad hoc clinical reviews.

If shortfalls are identified, individual action plans will be commenced & a time frame for completion set. Mentor support will be given to the individual, both theoretically & clinically, to enable them to meet arranged targets.

### **Associated Documents**

- Waste Management Policy
- Medical Devices Policy
- Infection Prevention and Control Assurance Policy
- Mental Capacity Act Policy
- Royal Marsden Manual of Clinical Procedures – Ninth Edition Chapter 9
- Children with Tracheostomies Tracheostomy care Group Birmingham Children's Hospital 2010
- National Tracheostomy Safety Project accessed 4/7/16
- Competence document for oral and nasopharyngeal suctioning

### **Clarification of Terminology**

**Tracheostomy** - A surgical procedure to create an opening (stoma) into the wind pipe (trachea). The opening itself can also be called a tracheostomy.

**Tracheostomy tube** – a tube inserted through the stoma and secured. This tube allows the passage of air to and from the respiratory tract and the removal of secretions

**Suction** - An aspiration of fluid by mechanical means.

**Cyanosis** - A physical sign causing discoloration of the skin and mucus membranes

**Dyspnoea** - Difficult or laboured breathing.

**Vagal nerve** - One of the largest of the cranial nerves, passing through the neck and thorax into the abdomen and supplying sensation to part of the ear, tongue, larynx, pharynx, motor impulses to the vocal cords and motor and secretory impulses to the abdominal and thoracic viscera.

**Vagal nerve stimulation** - Stimulation of this nerve can cause bradycardia.

### **Safety Warnings**

- All equipment should have the safety mark on and the date that the equipment was serviced

### **Equipment and Supplies**

The following equipment is required for tracheostomy suctioning:

- A regulated suction machine with connecting tubing attached
- Sterile suction catheters of appropriate size and type for the child's tracheostomy. The suction catheters external diameter must not exceed half the internal diameter of the tracheostomy tube
- Disposable non-sterile latex gloves or a latex free alternative
- Plastic apron
- Facial protection is recommended if there is a risk of a splash
- Clinical waste bags



- A bowl containing tap water
- A syringe with the amount of sterile normal saline for irrigation or saline spray as indicated/recommended for the individual child

The following equipment is required for tracheostomy tape change and stoma care:

- Two lengths of linen tape cut diagonally, each long enough to go around the child's neck, one and a half times. Natural fibres are preferable for the tape as they cut cleanly, allowing easy threading through the slots on the tracheostomy tube. The tape needs to be with width of the slots in the tracheostomy tube
- Velcro fasteners may also be used as indicated for the individual child. The child must have a risk assessment before Velcro fasteners are used due to the fact they can be undone easily therefore risking decannulation
- Other fasteners may be used only after a risk assessment is completed
- Scissors
- Disposable non-sterile latex gloves, apron and facial protection
- Clean area to work from – dressing towel or clean tray
- Solution for cleaning – normal saline or cooled boiled water
- Gauze and cotton buds (cotton wool is not used for cleaning the stoma due to risk of fibre inhalation)
- Barrier or treatment cream as indicated for the individual child
- Suction set up and ready in case use is required

Emergency equipment must always be within reach in case of decannulation

The following equipment is required when cleaning tracheostomy tubes:

- Non-sterile, disposable gloves and plastic apron
- Container to put dirty tube in
- Sodium bicarbonate
- Clean teaspoon and measuring jug
- Sterile normal saline
- Sterile towel
- Disposable pipe cleaners
- Clean plastic pot with lid

The following equipment is required when changing tracheostomy tubes:

- Spare tracheostomy tube set, including introducer
- Tapes to secure the tube
- Scissors
- Suction and irrigation equipment
- Lubricant i.e. aqua gel
- Equipment for cleaning and maintaining the stoma if care is being performed at the same time
- Disposable non-sterile gloves, plastic apron and facial protection if necessary

### Care Plan

Each child/ young person should have an individualised care plan, however the care plan (**Appendix 2**) can be adapted.

## Appendix 1

### Tracheostomy Care Competency

Name of Community Children's Nurse/ carer / teaching Assistant: \_\_\_\_\_

| Area of Concern   | Required Skills and Knowledge  | Initial and Date when level reached |   |    |    |    |
|---|--|-------------------------------------|---|----|----|----|
|   |  | I                                   | P | CP | CE | CT |
| 1. Demonstrate knowledge of the respiratory system and its functions. | <ul style="list-style-type: none"> <li>• Anatomy and physiology of upper respiratory tract.</li> <li>• Anatomy and physiology of lower respiratory tract.</li> <li>• Normal gaseous exchange.</li> </ul>   |                                     |   |    |    |    |
| 2. The rationale for a tracheostomy.                                  | <ul style="list-style-type: none"> <li>• Able to give a simple explanation of a child/young person's condition and why they require a tracheostomy.</li> <li>• Show awareness of the complications this has on the child/young person and their carers.</li> <li>• Aware of the hazards associated with having a tracheostomy e.g. aerosols/smoke/small particles/sand.</li> </ul> |                                     |   |    |    |    |
| 3. Perform a basic respiratory assessment.                            | <ul style="list-style-type: none"> <li>• Knowledge of normal parameters for heart rate, respiratory rate and oxygen saturations appropriate to the age/condition of the child/young person.</li> <li>• Identify signs/symptoms of respiratory distress and demonstrate knowledge of action that could be taken.</li> <li>• Awareness of "dry" secretions –</li> </ul>              |                                     |   |    |    |    |

|   |  |  |  |  |  |  |
|---|--|--|--|--|--|--|
|   | <b>reasons for and responses required.</b>   |  |  |  |  |  |
| <b>4. Understand the psychological implications of having a tracheostomy.</b>     | <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of the psychological implications of a tracheostomy.</li> <li>• Demonstrate age appropriate support.</li> <li>• Body image implications for the child and those people they meet.</li> <li>• The impact of exclusion from certain activities.</li> <li>• Effects on speech.</li> </ul>  |  |  |  |  |  |
| <b>5. Proficient in daily stoma care.</b>   | <ul style="list-style-type: none"> <li>• Observation of stoma.</li> <li>• Safe hand washing technique.</li> <li>• Personal protective equipment.</li> <li>• All appropriate equipment checked for integrity and placed accessibly.</li> <li>• Demonstration of a safe cleaning technique.</li> <li>• Complications of cleaning.</li> <li>• Importance of humidification and use of heat/moisture exchange devices e.g. Swedish Nose.</li> <li>• Healthcare Waste Management Policy.</li> </ul> |  |  |  |  |  |
| <b>6. Awareness of the importance of record keeping.</b>                          | <ul style="list-style-type: none"> <li>• Accurate, appropriate documentation.</li> <li>• Who to report to.</li> <li>• When to contact carers/GP/999.</li> </ul>  |  |  |  |  |  |
| <b>7. Demonstrate changing the tracheostomy tube safely including dual tubes.</b> | <ul style="list-style-type: none"> <li>• Identify when it is appropriate for a change of tube.</li> <li>• Considers whether or not the child/young person requires oxygen therapy prior to the tube change.</li> <li>• Appropriate staffing.</li> <li>• Identify correct primary and</li> </ul>  |  |  |  |  |  |

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
|  | <ul style="list-style-type: none"> <li>emergency tube size.</li> <li>Safe hand washing technique and use of personal protective equipment.</li> </ul>  |  |  |  |  |  |
| 8. Demonstrate safe and effective tracheostomy suction.                        | <ul style="list-style-type: none"> <li>Rationale for suction.</li> <li>Problems associated with inappropriate suction technique e.g. hypoxia/infection/trauma/blocked tube.</li> <li>Selection of appropriate catheter.</li> <li>Age appropriate suction pressure.</li> <li>Hand washing and personal protective equipment.</li> <li>Demonstrate safe and effective suction technique.</li> <li>Use of 0.9% saline to loosen tenacious secretions.</li> <li>Observations of secretions (colour, consistency, etc.)</li> <li>Waste disposal.</li> </ul> |  |  |  |  |  |
| 9. Able to change tracheostomy tapes safely.                                   | <ul style="list-style-type: none"> <li>Appropriate environment.</li> <li>Appropriate staffing.</li> <li>All appropriate equipment checked for integrity and placed accessibly.</li> <li>Hand washing and personal protective equipment.</li> <li>Safe and effective changing of tapes.</li> <li>Check tightness of tapes.</li> <li>Check skin integrity.</li> <li>Complications of tape changes.</li> </ul>  |  |  |  |  |  |
| 10. Demonstrate knowledge of potential complications and emergency procedures. | <ul style="list-style-type: none"> <li>Knowledge of emergency equipment (including phone).</li> <li>Describes emergency tube change procedure.</li> <li>Use of smaller tube.</li> </ul>  |  |  |  |  |  |

|  |   |  |  |  |  |  |
|--|---|--|--|--|--|--|
|  | <ul style="list-style-type: none"> <li>• Use of cut down endotracheal tube.</li> <li>• Calling for help, knowledge of emergency contact procedure.</li> <li>• Basic CPR training.</li> <li>• Individual CPR requirements including use of ambu-bag.</li> <li>• Transfer to hospital procedure.</li> </ul> |  |  |  |  |  |
|--|---|--|--|--|--|--|

### ASSESSORS

Name\_\_\_\_\_Initials\_\_\_\_\_Designation\_\_\_\_\_

Signature\_\_\_\_\_

Name\_\_\_\_\_Initials\_\_\_\_\_Designation\_\_\_\_\_

Signature\_\_\_\_\_

Name\_\_\_\_\_Initials\_\_\_\_\_Designation\_\_\_\_\_

Signature\_\_\_\_\_

### DECLARATION

I certify that I have received training and consider myself proficient in all aspects of the Tracheostomy Care Competency

Name\_\_\_\_\_Signature\_\_\_\_\_

Date\_\_\_\_\_

KEY: I - Initial Training, P - Practical Training, CP - Competent to Practice\*, CE - Competent and Experienced, CT - Competent to Teach. \*Minimum level of achievement required to practice unsupervised

# Children's Community Nursing Team

## Appendix 2

### Tracheostomy Care Plan







Name:

NHS No.:

DOB:

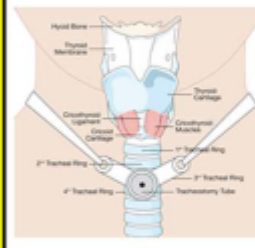
|   |
|---|
| <b>Nursing need</b>   |
| _____ has a tracheostomy to maintain their airway.  |
| <b>Aim</b>  |
| <ul style="list-style-type: none"> <li>To ensure that _____'s airway remains patent.</li> <li>To ensure _____'s parent/carer maintains the hygiene needs of _____'s stoma site to minimise risk of tissue breakdown/infection.</li> </ul>   |
| <b>Action</b>   |
| <ul style="list-style-type: none"> <li>_____ has a size _____ make _____ tracheostomy tube insitu.</li> <li>_____ has been taught to care for _____'s tracheostomy by _____ hospital.</li> <li>Ensure family/carer/child have adequate supplies available.</li> <li>_____ parent/carer will check equipment daily and restock emergency equipment.</li> <li>_____ parent/carer will ensure that _____ has a tracheostomy tube of the same size and one smaller incase an emergency tube change is needed.</li> <li>Parent/carer will ensure that _____ airway is humidified by ensuring a thermovent or humidivent is worn on the tracheostomy tube at all times and is changed as necessary.</li> <li>_____ parent/carer will change _____ tracheostomy tapes each day and clean site as per their training. In doing so observing stoma site for signs of infection i.e. discharge/exudate, odour, if necessary swab site and check temperature.</li> <li>To apply barrier product as necessary, if the tracheostomy tape has caused skin to break down then foam product can be applied to skin under tape.</li> <li>_____ parent/carer will ensure that _____ tracheostomy tube is changed once a week (unless emergency tube change is required).</li> <li>_____ parents/carers will ensure that they have _____'s emergency box with them at all times containing spare tracheostomy tubes, angled tracheostomy dilators, tracheostomy tape, scissors, humidicoil and ensuring suction machine and catheters are nearby.</li> <li>_____ Parent/carers will ensure that _____'s tracheostomy tube is suctioned as required to keep airway patent. Size of catheter _____ and make of catheter _____.</li> <li>If _____ requires oxygen it should be administered via humidivent via oxygen tubing with adaptation on to fit humidicoil/ humidivent.</li> <li>Disposal of clinical waste as per trust policy.</li> <li>Community teams to provide support as needed.</li> </ul> |
| <b>Nurse Name:</b><br><b>Date:</b>  |
| <b>Parent(s) Name:</b><br><b>Date:</b>  |

# Tracheostomy Care

|   |  |   |
|---|--|---|
| T | <p><b>Tapes: Keep tube secure</b></p> <p>Ensure the tension on the tapes is tight enough to support the tube. ONE finger should fit comfortably between the child's neck and tapes. Velcro tapes may be used (by exception only) but must be risk-assessed.</p>  |    |
| R | <p><b>Resus – Know the resuscitation process</b></p> <p>Safety, Stimulate, Shout for help. Provide <b>oxygen to face and over tracheostomy</b>. SUCTION airway – the tube may be blocked or displaced. Follow the <b>Tracheostomy</b> resuscitation algorithm and give BLS</p>   |    |
| A | <p><b>Airway clear – Use correct suction technique</b></p> <p>Use correct catheter size and length of suction. Know the length of the child's tube and only suction to this length. Keep a pre-cut measure at the bedside. The catheter size should be 'double the size of the tube'; e.g. 8 FG catheter for a 4.0 ID tube.</p>            |   |
| C | <p><b>Care of the site – Stoma and neck</b></p> <p>Trache site should be cleaned at least daily and any breakdown noted and treated. Don't forget the back of the neck! Escalate concern if evidence of breakdown. Consider cushioned (Marpac) tapes after a risk assessment.</p>  |  |
| H | <p><b>Humidity – Essential to keep the tube clear</b></p> <p>Must use a wet circuit or a heat &amp; moisture exchanger (HME). Use warmed humidity systems for small babies at risk of heat loss. Use the correct size HME.</p>   |  |
| E | <p><b>Emergency Box – Have the box present and visible</b></p> <p>Emergency box should only contain the correct equipment. Equipment list inside the lid of the box. No other items should be present. The box should NOT be individualised as this reduces the ease of recognition. Keep basic airway equipment ready at the bedside.</p> |  |



## Appendix 4

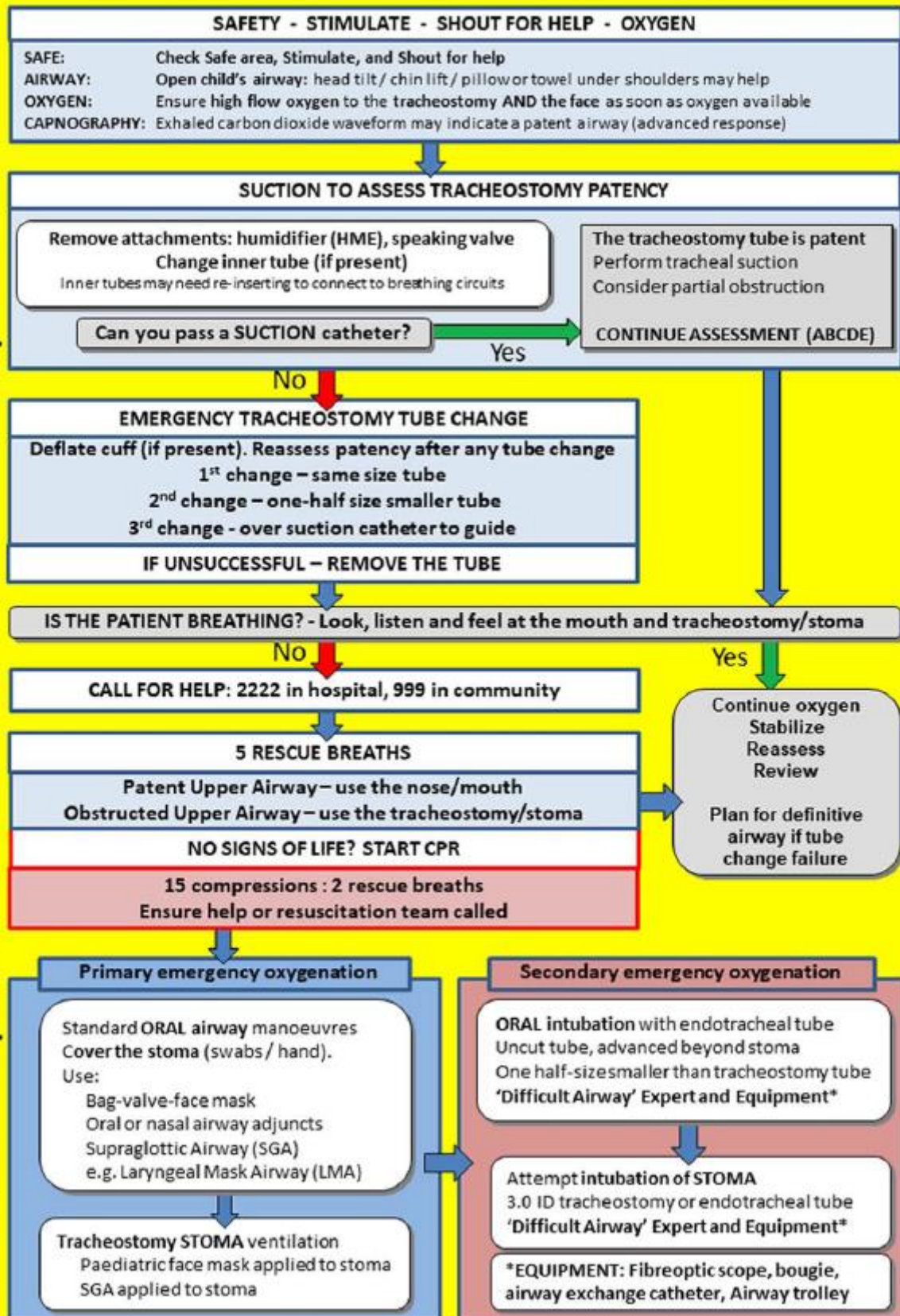
| This paediatric patient has a<br><h1 style="margin: 0;">TRACHEOSTOMY</h1>   |  |   |
|---|--|---|
| <b>Patient ID:</b>  | <div style="border: 1px solid black; height: 30px; margin-bottom: 5px;"></div> <i>Patient Label/Details</i>  |  |
| <b>Tracheostomy:</b>  | <div style="border: 1px solid black; height: 50px; margin-bottom: 5px;"></div> Add tube specification<br>including cuff or inner tube<br><br><div style="border: 1px solid black; padding: 5px; text-align: center;">                         ____ mm ID, ____ mm distal length                     </div> |   |
| <b>Suction:</b>   | <div style="border: 1px solid black; height: 30px; margin-bottom: 5px;"></div> <div style="border: 1px solid black; padding: 5px; text-align: center;">                         ____ FG Catheter to Depth ____ cm                     </div>   |   |
| <div style="border: 1px solid black; padding: 5px;"> <b>UPPER AIRWAY ABNORMALITY: Yes / No</b><br/>                     Document laryngoscopy grade and notes on upper airway management or patient specific resuscitation plans<br/><br/> <div style="border: 1px solid black; height: 100px; margin-top: 10px;"></div> </div> |  |   |



# Emergency Paediatric Tracheostomy Management

Basic Response

Advanced Response



NTSP (Paediatric Working Group) www.tracheostomy.org.uk Review January 2020

## Appendix 5

Name

NHS number

|                          |   |              |                     |
|--------------------------|---|--------------|---------------------|
| <b>Area/Department:</b>  | <b>Site:</b>                                | <b>Date:</b> | <b>Review date:</b> |
| <b>Risk Assessor(s):</b> | <b>Team Leader :</b><br><b>Nicki Davies</b> |              |                     |

|                         |
|-------------------------|
| <b>Details of Risk:</b> |
| <b>Recommendation:</b>  |

| Hazard | Persons Affected | Controls in Place and influencing factors | Recommended Action | Responsible Persons |
|--------|------------------|---|--------------------|---------------------|
| 1.     |                  |   |                    |                     |
| 2.     |                  |   |                    |                     |
| 3.     |                  |   |                    |                     |
| 4.     |                  |   |                    |                     |

**Risk assessment signed by**

**Parents-**

**Nursing Staff**

**Education /care staff**

**(Adapted from BCH risk assessment)**

**Where** do I go for further advice or information?

It is the responsibility of all staff to ensure the equipment is working correctly and report any faults as appropriate. All equipment should be in date and clean. Staff can find further advice from the manufacturer's guidelines and Royal Wolverhampton Equipment.

**Training**

The care of the child with a tracheostomy is an extended role. The care of tracheostomy tubes should only be undertaken by nurses and carers who have received training and been assessed as competent. Initial training should be provided by a recognised institution, for example, Birmingham Children's Hospital. Regular updating of knowledge is essential and should be undertaken every three years minimum, to maintain competency. The team leader for the service must ensure that relevant competency documents have been completed before nursing staff can care for a child with a tracheostomy tube in situ. Competencies to be completed must be established from the research evidence base (see **Appendix 1** above).

All people caring for a child or young person with a tracheostomy must be competent in basic life support and have access to the Paediatric Emergency Management Algorithm

**Monitoring / Review of this Procedure**

In the event of planned change in the process(es) described within this document or an incident involving the described process(es) within the review cycle, this SOP will be reviewed and revised as necessary to maintain its accuracy and effectiveness.

**Equality Impact Assessment**

Please refer to overarching policy

**Data Protection Act and Freedom of Information Act**

Please refer to overarching policy

**References**

Policy for Caring for an Infant, Child or Young Person with a Tracheostomy –Birmingham Children's Hospital Version 2

<http://www.tracheostomy.org.uk/storage/files/Paeds%20Bedhead%20Algorithm%20Combo.pdf>  
assessed 28/01/2020

## Standard Operating Procedure Details

|   |   |
|---|---|
| <b>Unique Identifier</b> for this SOP is                          | BCPFT-CYPF-SOP-OP-13  |
| State if SOP is <b>New</b> or <b>Revised</b>                      | revised   |
| <b>Policy Category</b>  | Children's Services   |
| <b>Executive Director</b><br>whose portfolio this SOP comes under | Executive Director of Nursing, AHPs and Governance              |
| <b>Policy Lead/Author</b><br>Job titles only                      | Paediatric Palliative care team leader - Community Nursing Team |
| <b>Committee/Group Responsible for Approval of this SOP</b>       | Quality and Risk Safety Group                                   |
| <b>Month/year consultation process completed</b>                  | n/a   |
| <b>Month/year SOP was approved</b>                                | April 2020  |
| <b>Next review due</b>  | April 2023  |
| <b>Disclosure Status</b>  | 'B' can be disclosed to patients and the public                 |

### Review and Amendment History

| Version | Date     | Description of Change   |
|---------|----------|---|
| 1.1     | Sep 2019 | SOP fully reviewed with amendments below; <ul style="list-style-type: none"> <li>• Added about different securing devices</li> <li>• Added information regarding what a tracheostomy is.</li> <li>• Added about training requirements</li> <li>• Updated algorithm added</li> </ul> |
| 1.0     | Aug 2016 | New SOP for BCPFT   |