

PAEDIATRIC NURSING PRACTICE MANUAL
SECTION 7

CARE OF THE CHILD WITH A RESPIRATORY CONDITION

7.4 CARE OF THE CHILD WITH A TRACHEOSTOMY

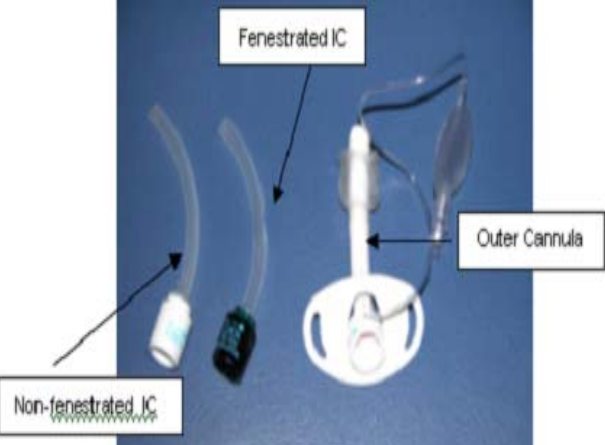
7.4.11 SUCTION AND CARE OF THE TRACHEOSTOMY WITH AN INNER CANNULA

Aims

1. To maintain a patent airway while caring for a child with a tracheostomy tube with an inner cannula.
2. To replace the unfenestrated inner cannula prior to suction of a fenestrated tracheostomy tube without compromising the airway.
3. To clean and replace tracheostomy tube inner cannula without compromising the airway.

Key points

1. Tracheostomy tubes which have an inner cannula (IC) are designed for easy removal of the IC for cleaning, without having to remove the outer tube.¹ They can remain in situ for up to 28 days.²
2. If a blocked tube is suspected, the IC can be removed to provide a patent airway, without removing the whole tube and causing potential airway compromise and distress to the patient.
3. Tracheostomy tubes with an IC are only available in sizes greater than 5.0mm (internal diameter), therefore are only used with older children and adults. As the tubes have two lumens, they have a much larger outside diameter (OD) than single lumen tubes with the same internal diameter (ID).
4. The IC has a smaller lumen than the outer cannula which may contribute to increased respiratory effort.^{1,3}
5. Tracheostomy tubes with an IC may have either a single use IC or a reusable IC.
6. In order to select the appropriate size suction catheter, be familiar with the internal diameter of the IC. The size of the tracheostomy tube does not necessarily reflect the ID as in paediatric tubes. The ID is marked on the tracheostomy tube neck plate, the tracheostomy tube packaging and documented in the child's Airway Profile.
7. Fenestrated tracheostomy tubes are used to encourage phonation and potentially weaning from the ventilator.¹
8. Fenestrated tracheostomy tubes are supplied with one fenestrated and one non-fenestrated IC. The non-fenestrated IC allows the occlusion of the fenestration/s in the outer tube. This non-fenestrated IC may be inserted overnight and when the patient does not need to vocalize.¹
9. The patient with a fenestrated tracheostomy tube should only be suctioned with the non-fenestrated IC in situ to reduce the risk of mucosal damage from the suction catheter at the site of the fenestration.¹
10. The IC needs to be cleaned to prevent narrowing and blocking of the tube. Cleaning should be performed at least twice daily or more frequently as required.¹
11. The IC should only be used with the tube they are packaged with. Each IC is precisely cut for use with that tracheostomy tube and using an IC from another tube can cause damage to the patient's trachea.^{2,3} Secretions may build up between the IC and outer cannula if the incorrect size IC is used.^{2,3}

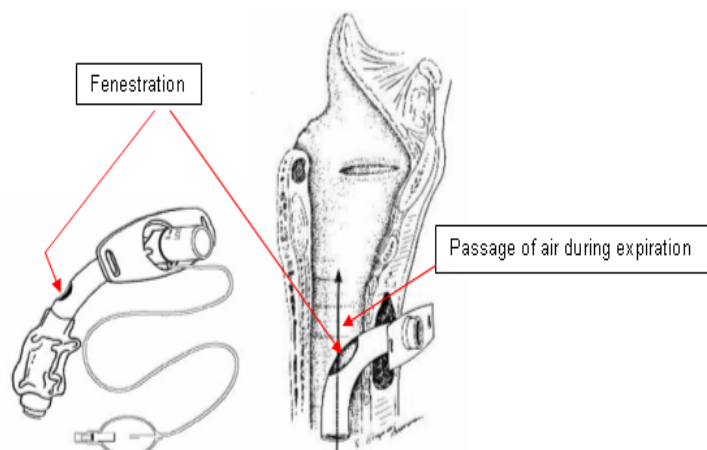
PROCEDURE	ADDITIONAL INFORMATION
<p>Removing inner cannula:</p> <p>Portex tracheostomy tube:</p> <p>Stabilise the neckplate. Gently pull the IC out in an outwards and downwards direction using the small “ring pull” at the outer end of the cannula.</p> <p>Shiley tracheostomy tube:</p> <p>Stabilise the neckplate and twist in an anti-clockwise direction to “unlock” the inner cannula. Gently pull IC in an outwards and downwards direction.</p>	 <p>The diagram illustrates three components of a tracheostomy tube. On the left, a 'Non-fenestrated IC' is shown as a clear plastic tube with a small ring pull at the end. In the center, a 'Fenestrated IC' is shown as a similar tube but with a small hole (fenestration) near the tip. On the right, an 'Outer Cannula' is shown as a larger white plastic tube with a circular neckplate at the bottom and a connector at the top.</p>
<p>To insert an inner cannula:</p> <p>Portex:</p> <p>Insert the IC using an inwards and downwards motion holding the small “ring pull”. The inner cannula should click into place.</p> <p>Shiley:</p> <p>Insert IC using an inwards and downwards motion.</p> <p>Lock the IC in place by holding the neck plate firmly with your fingertips and twisting the IC connector clockwise one-quarter turn past the locking dent.</p>	<p>Insert the IC gently. Pushing hard when inserting IC will cause the person to cough and may be painful.</p>
<p>Replace the child’s humidification, oxygen or ventilator tubing as appropriate.</p> <p>Document IC changes.</p>	
<p>If there will be a delay before the tube can be cleaned, place the IC in a dish of cool/warm tap water to prevent secretions from drying out.⁴</p>	<p>Dried secretions are more difficult to remove.</p> <p>Hot water will harden the secretions making them more difficult to remove and may affect the integrity of the plastic.</p>
<p>Cleaning the inner cannula:</p> <p>Clean the IC with tap water and a small amount of detergent (mild and fragrance free).^{2,4}</p>	<p>Handle gently and avoid distorting the shape of the tube.</p>
<p>If provided by the manufacturer, use the soft bristled brush to remove any crusts inside the inner cannula.²⁻⁴</p> <p>If no brush is supplied, thread a single layer of gauze through one end of the IC and pull through the tube.</p>	<p>Excessive scrubbing, scraping or stretching will damage the tube.²</p> <p>Pipe cleaners or other brushes not provided by the manufacturer should not be used as this can result in scratches that harbour bacteria.²</p>

PROCEDURE	ADDITIONAL INFORMATION
Rinse the IC with tap water to remove residual cleaning solutions. ^{2,4}	
<p>If the IC is to be reinserted into the patient immediately, rinse with water.</p> <p>Remove excess water prior to reinserting it into the outer cannula.</p> <p>If the IC is going to be stored, thoroughly rinse with water and shake excess water.</p> <p>Cover with a clean paper towel until air dried.</p>	The tube must be allowed to dry naturally by evaporation. Heat must not be used as it will cause distortion of the tube.
Store IC not in use in a clean, dry, sealed container.	If there is any evidence of moisture or condensation during storage, repeat the entire cleaning procedure.

Suctioning the patient with a fenestrated tracheostomy tube

Equipment

- Gloves
- Oxygen and suction equipment
- Appropriate size suction catheters
- Paper towel
- Container to store non-fenestrated inner Cannula.
- Replacement IC for disposable IC devices.



PROCEDURE	ADDITIONAL INFORMATION
<p>Remove the fenestrated inner cannula and place on a paper towel.</p> <p>Insert a clean non-fenestrated inner cannula.</p>	This avoids the suction catheter entering the trachea through the fenestration and reduces the risk of damage to mucosa. ¹
<p>Assess the need for suctioning,.</p> <p>Suction patient as per PNPM 7.4.3 Suction of a Tracheostomy Tube.</p> <p>If suction not required, simply clean inner cannula and replace</p>	Occasionally, the removal of the inner cannula sufficiently clears the secretions within the tracheostomy tube and consequently the patient may not require suctioning.

PROCEDURE	ADDITIONAL INFORMATION
Clean the fenestrated inner cannula. If the IC is a disposable, single use device discard it and replace with a new IC.	Ensures inner cannula is clean, dry and free of secretions prior to re-insertion.
Remove the non-fenestrated inner cannula and replace with the fenestrated inner cannula.	Assess patient is comfortable. Assess for signs of respiratory distress.
Clean non-fenestrated inner cannula, allow to dry. Store in a clean dry container.	Document amount and colour of secretions on observation chart.

References:

1. NHS Quality Improvement. Best Practice Statement - Caring for the child/young person with a tracheostomy [Expert opinion]. 2008. Available from: http://www.healthcareimprovementscotland.org/previous_resources/best_practice_statement/tracheostomy_care_in_children.aspx. Accessed 25 March 2013
2. Covidien. Shiley™ Tracheostomy Products. 2013. <http://www.covidien.com/rms/pages.aspx?page=OurProducts/Tracheostomy/AdultTracheostomy> Accessed 25 March 2013
3. St Georges Healthcare NHS Trust. Tracheostomy Guidelines. Standards for the care of adult patients with a temporary tracheostomy 2008. Available from *The Intensive Care Society*: http://www.ics.ac.uk/professional/standards_safety_quality/standards_and_guidelines/care_of_the_adult_patient_with_a_temporary_tracheostomy_2008 Accessed 25 March 2013
4. Smiths-Medical Portex® Tracheostomy Tubes. Product Information. 2013. Available from: <http://www.smiths-medical.com/catalog/portex-tracheostomy-tubes/>