

Tracheostomy - Unavoidable early (<72 hours) Tracheostomy Tube change

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Summary The document outlines the risks associated with changing a tracheotomy tube within 72 hours of first being inserted and it provides a protocol for early tracheotomy tube change.

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Applies to Area Health Services/Chief Executive Governed Statutory Health Corporation, Affiliated Health Organisations - Non Declared, Affiliated Health Organisations - Declared, Divisions of General Practice, Private Hospitals and Day Procedure Centres, Public Hospitals

Audience Surgical, clinical and nursing staff, emergency and intensive care departments

Distributed to Public Health System, Divisions of General Practice, Government Medical Officers, Health Associations Unions, NSW Department of Health, Public Hospitals, Private Hospitals and Day Procedure Centres, Tertiary Education Institutes

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Director-General

Compliance with this policy directive is mandatory.

UNAVOIDABLE EARLY TRACHEOSTOMY TUBE CHANGE (<72 HOURS) IN THE ADULT PATIENT

This Policy Directive is intended for medical and nursing staff. It provides guidance for changing a tracheostomy tube in an adult patient within 72 hours of the tube being inserted, either surgically or via percutaneous dilation technique.

The interpretation of this Policy Directive should be within the context of the patient's immediate clinical environment, type of tracheostomy and tracheostomy tube, and the causative event. The event resulting in the need for an unavoidable early tracheostomy tube change may include:

1. Tracheostomy tube partial or total occlusion
2. Malposition of the tracheostomy tube
3. Loss of an effective tracheostomy tube cuff seal
4. Dislodgement of the tracheostomy tube.

The available equipment and personnel will vary between clinical areas (intensive care vs. ward) and health facilities. It is essential that experienced senior clinical staff are notified immediately as this is a clinical emergency. In general ward areas, the medical emergency response system must be activated.

BACKGROUND

Early tracheostomy tube change may be defined as a change required within 72 hours of the formation of the tracheal stoma. Changing a tracheostomy tube for the first time within the initial 72 hours of insertion may be hazardous, particularly in patients with a history of difficult intubation. The risks associated with tracheostomy change decrease the longer the tracheostomy tube has been in situ.

The major risk associated with early tracheostomy change is failure to re-cannulate the trachea. A newly formed tracheostomy site that has not had time to mature is at risk of spontaneous collapse when the initial tube is removed and this may result in obstruction of the tracheal passage. Incorrect reinsertion of the tracheostomy tube may create a false passage in the paratracheal space, complicating re-establishment of the original, correct route. Collapse of the tracheal passage is seen particularly with wire-guided percutaneous tracheostomy as a formal surgical passage has not been created.

Where practical, all elective tracheostomy tube changes should be performed during normal working hours when senior staff members (medical and nursing) are available. In principle, early tracheostomy tube change (<72 hrs) should be avoided and should only be carried out where it is felt that the patient is at greater risk if the procedure is not carried out. Remember a "bad airway is better than no airway". If the procedure is unavoidable, appropriate senior clinical staff, airway management and intubation equipment and patient SaO₂ monitoring must be immediately accessible. Where possible difficult intubation

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equipment, a fiberoptic bronchoscope and end tidal CO₂ monitoring should also be made available.

The protocol (see Table 1) outlines the minimum principles and actions required to ensure the appropriate and safe clinical management of this clinical emergency; it should be adopted and used in conjunction with existing local clinical protocols.

Robyn Kruk
Director-General

**TABLE 1: UNAVOIDABLE EARLY TRACHEOSTOMY TUBE CHANGE (< 72 HOURS)
IN THE ADULT PATIENT**

1	<p>Patient in Respiratory Distress</p> <ul style="list-style-type: none"> Increased work of breathing i.e. patient acutely distressed/restless, tachypnoeic, stridor, accessory muscles use, diaphoretic, cyanotic Decreased/gurgling breath sounds High inspiratory airway pressures/low tidal volumes if mechanically ventilated Oxygen desaturation <p>Unable to pass suction catheter or inner cannula</p>	<p>Potential Causes</p> <ul style="list-style-type: none"> Airway partially/completely obstructed due to blockage Tracheostomy dislodgement Persistent cuff leak Faulty oxygen source or ventilation device Ineffective humidification
	<p>2</p> <p>Immediate Action</p> <ul style="list-style-type: none"> Stay with the patient and provide 100% O₂ via tracheostomy and/or face mask and manually ventilate if indicated (it may be necessary to deflate tracheostomy cuff). Check oxygen source and connections, cuff inflation, humidifier. Call for assistance (MET in Ward/Clinical Staff in ICU). Check position of tracheostomy tube and realign to midline if necessary. If the tracheostomy tube dislodged maintain a patent oropharyngeal airway with head/neck positioning, jaw thrust and/or Guedel airway as indicated. If tracheostomy tube in situ, pass suction catheter and apply suction (change inner cannulae if present, using non-fenestrated cannula if possible). Observe tube patency, secretions and patient response to suctioning. If the patient becomes less distressed, air flow is present and unobstructed, and oxygenation is satisfactory then undertake full clinical assessment to establish the cause of respiratory distress. If tracheostomy tube obstructed then let down cuff (if present and inflated). If no airflow around/through tracheostomy tube then insert tracheal dilators around tube into stoma, remove tube, insert bougie or suction catheter and maintain oropharyngeal airway to achieve oxygenation. Laryngectomy patients: Concentrate all measures on clearing stoma/trachea, the sole airway access. 	
3	<p>Patient Distressed: Tube Obstructed/Dislodged/Cuff leaking</p> <ul style="list-style-type: none"> 100% Oxygen via face mask and manually ventilate if indicated (it may be necessary to deflate tracheostomy cuff). Prepare for rapid tracheostomy tube exchange/placement (provide brief explanation to patient). Assemble and check equipment: <ul style="list-style-type: none"> Intubation trolley with LMA's, endotracheal and tracheostomy tubes, and tracheal dilators Ensure 1 same size tracheostomy tube plus 1 tracheostomy tube a full size smaller are prepared with lubrication and cuff check Laryngoscope, blades, flexible bougie/introducer and suction equipment Difficult airway and intubation equipment should be immediately accessible if available (usually in ICU) Brochoscope if available Ensure oxygen saturation monitoring is applied and where available continuous End Tidal CO₂ monitoring Position patient supine. Consider the need for sedation – this will be indicated based on individual patient assessment and the senior Medical Officer orders. Remove pillow and extend neck (ensure no clinical contra-indication). Suction oropharynx. If no tracheostomy tube in place then clean stoma, insert new tube, inflate cuff if present, reoxygenate and assess air entry, work of breathing and clinical status. If tracheostomy tube in place <ul style="list-style-type: none"> clean stoma, loosen ties, hold tube in place, insert bougie into tracheostomy tube, assistant deflates cuff, remove tracheostomy tube over bougie while ensuring bougie is held in situ immediately slide new tracheostomy tube over bougie into the trachea, hold in place, remove bougie, inflate cuff, reoxygenate and assess air entry, work of breathing and clinical status. Confirm correct placement by ET-CO₂, ease of air flow, auscultation, SpO₂ and complete an appropriate physical assessment. 	
	<p>4</p> <p>Successful</p> <ul style="list-style-type: none"> Secure tracheostomy tube in place. Review oxygen and ventilation as required. Reposition patient. Provide education and further reassurance to the patient and family. 	<p>Unsuccessful</p> <ul style="list-style-type: none"> Maintain oxygenation and manually ventilate if required. Prepare for intubation or LMA insertion. Intubate or place LMA. Only use stoma if laryngectomy patient .