TRACHEOSTOMY MANAGEMENT – Adult

Definitions

Definitions

The following terms are used within this document.

Term	Definition
Tracheostomy	A tracheostomy is an artificial airway which bypasses the glottis and larynx and can be used for basic gaseous exchange and ventilation (Mason, 1993).
Tracheotomy	A tracheotomy or opening in the neck, is the surgical procedure required to put in a tracheostomy tube A tracheotomy is one of the procedures most commonly carried out on the critically ill patient if prolonged Positive pressure ventilatory support is needed. (Russell 2004)

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Indications

Indications

There are a number of specific indications for performing a tracheostomy, which include:

Airway Obstruction

- Tumours of the upper airway with reduced air entry.
- Laryngeal spasm or physical obstruction caused by impacted foreign body.
- Infection and inflammation of the glottis area with airway compromised.
- Extensive head and neck surgery.

Airway Protection

- Neurological disorders e.g. Tumour, neuro-degenerative disease affecting swallow and /or cough reflexes which may increase the risk of aspiration.
- Obstructive sleep apnoea.
- Coma with inadequate airway protection
- Facial trauma, airway trauma, burns
- Severe chest injury (Flail chest)

Prolonged Ventilation

- Obstructive sleep apnoea.
- Extensive head and neck surgery.
- Acute critical illness leading to respiratory failure with associated multi organ failure requiring prolonged ventilatory support.
- Severe pulmonary disease requiring assisted ventilation and the removal of secretions.
- Chronic respiratory failure secondary to impaired neuromuscular function (Mason, 1993).
- Facilitate early weaning from intensive care therapies and early transfer to specialised wards for focused therapy and rehabilitation

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Indications, Continued

Otorhino-laryngology

Short term tracheostomies:

- Laryngectomy
- Major head and neck surgery

Long-term tracheostomies:

- Bilateral recurrent laryngeal nerve palsy
- Failed extubation due to cranial nerve damage (in particular cranial nerves IX, X, XII) post surgery (Roth, Sokolov, Adle, Ezry & Harell, 2003).

Permanent tracheostomies:

- Bilateral recurrent cranial nerve palsy
- Obstructive sleep apnoea
- Tracheal injury
- Obstruction caused by Rheumatoid arthritis
- Motor neurone disease

How Does A Tracheostomy Affect The Airway?

The tracheostomy provides access for gaseous exchange which bypasses the nose.

Normally tissues in the nose provide humidification and warmth to the inspired air and the cilia provide a means of filtering particles and bacteria.

Without this warmth, moisture and filtration the inspired air becomes dry, secretions become more viscous, and the possibility of infection increases.

Secretions may accumulate due to:

- Dehydration / overhydration
- Decreased lung volumes
- Decreased respiratory muscular strength
- Decreased co-ordination of closure of the glottis
- Decreased protective cough reflex
- Pulmonary oedema
- Chest infection/bronchitis
- Aspiration post tracheostomy tube insertion

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Advantages

- One of the main purposes of a tracheostomy is to reduce airway resistances and extrathoracic dead space. By bypassing the upper airways a tracheostomy can reduce work of breathing (WOB)> 30%.
- Reduced risk from laryngotracheal injury than with Endotracheal tubes (ET)
- Airway more secure than ET and patient not at risk of biting tube so less sedation required therefore earlier weaning from ventilator once ventilation requirements are met.
- Enhanced patient mobilisation, increased oral intake and easier mouth cares
- Increased secretion removal (1. Russell & Matta. 2.Raggio)
- Easier to communicate without oral ET

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Indications, Continued

Disadvantages

- Those of bypassing the upper airway with no humidification, filtering, with drying out of the epithelium leading to increased mucus production as with a foreign body in airway [the tracheostomy tube], increased viscosity of mucus [no humidity] leading to plugs or crust formation, leads to blocked tubes.
- Mucociliary membrane clearance mechanism disrupted stopping normal secretion clearance
- Tube disrupts normal swallow mechanism and the cuff may compress the oesophagus so swallow power may be reduced.
- Aspiration and pooling of secretions above the cuff
- Normal cough mechanism altered with the loss of the positive intralaryngeal pressure on expiration