TRACHEOSTOMY CUFF MANAGEMENT

Staff this document applies to:

- Nurses, Medical Staff, Speech Pathologists, Physiotherapists on all campuses including ICU

Who is authorised to perform this procedure?

- Initial cuff deflation trials: Performed by Speech Pathologists with a Physiotherapist or bedside nurse.
- Routine Cuff Deflation: Nurses, Physiotherapists, Speech Pathologists and Medical staff trained in this procedure

State any related Austin Health policies, procedures or guidelines:

- Recognising & Clearing a Blocked Tracheostomy Tube
- Suctioning via the Tracheostomy
- Use of the Suctionaid Tracheostomy Tube
- Emergency Tracheostomy Management Poster

Definition:

- Cuff deflation is the withdrawal of air from the tracheostomy tube cuff, or withdrawal of water from a Bivona Tight-To-Shaft (TTS) tracheostomy tube cuff. Deflating the cuff restores airflow through the upper airway and provides the opportunity to assess the patient's voice, cough and swallow
- Cuff reinflation is the replacement of the correct amount of air or water (Bivona TTS only) into the cuff.

Clinical Alert:

- Inappropriate cuff deflation can lead to aspiration of oral secretions, respiratory distress and aspiration pneumonia.
- A deflated cuff on a ventilated patient can lead to under ventilation due to air leak. Ventilated patients who have their cuffs deflated must have their ventilation parameters changed by staff trained in this practice.
- Correct cuff inflation pressure is 20-30cmH2O (15-22mmHg). Over inflation can cause damage to the tracheal mucosa.
- Bivona Fome-cuff™ tracheostomy tubes are only used in the Intensive Care Unit (ICU), not in ward based patients. This tube cuff can self-inflate and is unsafe for ward use

Rationale:

- An inflated cuff prevents air leaks in the ventilated patient
- An inflated cuff provides some airway protection against the aspiration of oral secretions
- An overinflated cuff can result in damage to the tracheal wall.

Expected Outcome:

- Patients with cuffed tracheostomy tubes will have their cuff pressures monitored so that they remain between **20 and 30cmH2O.**
- Patients with a water filled cuff will have the minimum amount of water in their cuff to achieve a seal. This will be calculated using minimal occlusive volume **MOV** technique.(see text box for instructions)
- Appropriate cuff inflation and deflation regimes will be in place for all patients with cuffed tracheostomy tubes to optimise ventilation, airway protection and tracheal wall perfusion.

Equipment:

- 10mL syringe
- Suction catheters, standard size 12Fs (size 14F may be requested at the discretion of the Physiotherapist)
- Functioning suction unit
- Clean disposable gloves
- Cuff manometer (contact TRAMS on pager 1291 to arrange loan)
- Stethoscope (optional)

Procedure:

- This is ideally a two-person procedure. Senior physiotherapists and senior nursing staff may choose to perform this as a one person procedure.
- 1-2 qualified staff members are required to carry out the cuff deflation procedure.
- Ensure the patient is comfortable and observations are stable.
- Explain the procedure to the patient and note that it may cause them to cough.
- If the patient has a Suctionaid™ tracheostomy, clear above cuff secretions using a 10ml syringe or intermittent suction using the recommended technique (see Tracheostomy Procedure- Use of the Suctionaid Tracheostomy Tube.
- Prepare a suction catheter for use.
- Attach a 10ml syringe to the valve of the pilot cuff and slowly withdraw the plunger to deflate the cuff.
- As the cuff is deflated the patient is instructed to attempt to swallow. The staff member inserts the suction catheter into the tracheostomy tube and suctions any secretions which may have been released into the trachea by the cuff deflation.

Post Procedure:

- For an air cuff tracheostomy: reinflate the cuff using a 10ml syringe introducing air slowly so as not to cause discomfort.
  - Check that the cuff pressure is set at the correct level, which is **20-30 cmH2O** using a manometer.
  - For a water filled cuff (Bivona TTS), establish the amount of water required to achieve a cuff seal using **MOV** technique (see text box for instructions). If this is not possible, briefly inflate the cuff with air until a pressure of **20-30cmH2O** is achieved. Remove air from the cuff and introduce an equal number of mls of sterile water.
- Do not attach a manometer to a water filled cuff this will damage the manometer.
- Record in the patient's history that the cuff deflation was performed. Document the volume and nature of any above cuff secretions and the duration of cuff deflation.

Minimal Occlusive Volume (MOV) Technique

Ventilated patient: inflate the cuff until there is no leak audible in the upper airway (listen on the side of the thyroid cartilage with a stethoscope)

Non-ventilated patient who can phonate well: inflate the cuff until no voice sounds are audible

Author/Contributors:

Jack Ross, Senior Physiotherapist

Tanis Cameron, Manager TRAMS, Senior Speech Pathologist

Kristy McMurray TRAMS CNC

In Consultation With

Tracheostomy Review and Management Service (TRAMS)

Legislation/References/Supporting Documents:

- Dawson, D. Essential principles: tracheostomy care in the adult patient. Nursing in Critical Care. 19(2):63-72, 2014
- http://www.aci.health.nsw.gov.au/resources/intensive-care/tracheostomy/acute-tracheostomy Accessed 19.11.15
- Hess, D and Altobelli, N., Tracheostomy Tubes. Respiratory Care. 59(6): 956-974. 2014
- Sole, M., Penoyer, D., Su, X., Jimenez, E., Kalita, S., Poallilo, E., et al. Assessment of endotracheal cuff pressure by continuous monitoring: A pilot study. American Journal of Critical Care, 18(2), 133-143. 2009

Authorised/Endorsed by:

Clinical Nursing Standards Committee

Sue Berney, Manager Physiotherapy

Primary Person/Department Responsible for Document:

Tracheostomy Review and Management Service (TRAMS)