St. James's Hospital
Tracheostomy Care Working Group.

Tracheostomy Weaning and Removal Standard Operating Procedure
SJH:N069.13 version 5.

This Standard Operating Procedure (SOP) is effective from September 2020 onwards and is due for renewal in September 2023. It will be reviewed during this time as necessary to reflect any changes in best practice, law, and substantial organisational, professional or academic change. This SOP is supplementary to the Tracheostomy Care and Management Guideline (SJH:N069) and describes standards for Tracheostomy weaning and removal.

1.0 Tracheostomy Weaning and Removal

1.1 An aim of weaning is to liberate the patient from their artificial airway and to ensure that respiratory difficulties will not occur after airway decannulation (Tube removal).

1.2 In the event that a patient is identified as suitable to commence weaning the doctor/nurse must undertake the following procedures in order to ensure and facilitate safe and effective decannulation.

1.3 Patient Suitability

- Patients with a Surgical or Percutaneous Tracheostomy may be candidates for weaning in accordance with the following procedures.
- Patients with a Permanent Tracheostomy, e.g. Total Laryngectomy **are not candidates** for weaning.

1.4 Weaning Readiness: Weaning can **only** commence once all of the following criteria have been met:

- The patient must be medically stable.
- The primary indication for tracheostomy has been resolved.
- The patient should be spontaneously breathing off the ventilator for 24 hours.
- The patient has an adequate ventilatory reserve.
- The patient has effective cough strength and cough reflex(where possible).
- The patient must be free from serious bronchopulmonary infection.
- There are minimal pulmonary secretions (suctioning < 12 hourly).
- O2 Therapy is less that 40% (FiO2 < 0.4).
- Patient has successfully tolerated cuff deflation.

1.5 Weaning Procedure: There are 4 stages to the weaning process (but not all patients will go through each stage of the process). These are as follows:

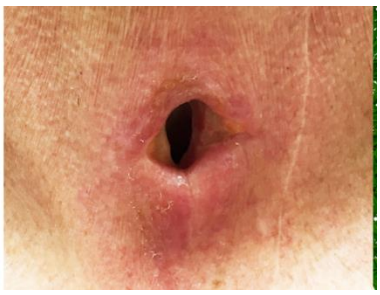
- Stage 1: Patient tolerance for **Cuff deflation.**
- Stage 2: Patient tolerance to **Downsizing the Tracheostomy tube** (not routine for all patients).
- Stage 3: Patient tolerance to use of **Passy Muir Speaking Valve.**
- Stage 4: Patient tolerance to **Decannulation cap** (not routine for all patients).
- **Stage 5: Decannulation (Removal of the Tracheostomy Tube).**

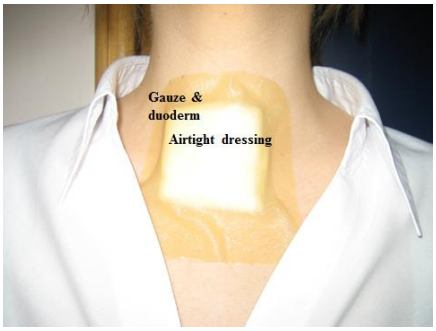
Stage 1: Weaning – Cuff Deflation	
Procedure Indications & Rationale	**Nursing Considerations and Management**
Cuff Deflation This is usually carried out in non-ventilated patients 24 – 48hrs after tube insertion unless otherwise indicated. **Why?** To assess if patient can manage their own airway and manage their own oral secretions despite alteration in tracheal airflow. In the event that the patient has an inflated cuffed tracheostomy tube in place, the deflation should be undertaken as per the column over. In the event that the patient has an un-cuffed tracheostomy tube or a cuffless tracheostomy tube in situ, move directly on to Stage 2.	**In the event that the patient has an inflated cuffed tracheostomy tube in place, the deflation should be undertaken as follows:** ▪ Provide a full explanation of all procedures and reassurance must be given to the patient. ▪ The weaning programme must be planned in advance by the multidisciplinary team with the patient. ▪ The patient ideally should to be in maximum view of the nursing station, with their call bell within easy reach. ▪ **The patient must be sitting in an upright position if tolerated.** ▪ Patient must be attached to a SaO2 monitor. ▪ All secretions in the oropharynx must be cleared using suction catheter/Yankauer, patient is asked to cough. ▪ If the patient has a subglottic suction aid tube, aspirate via the subglottic port with a 10ml syringe prior to cuff deflation (refer to Cuffed Tube Care SJH:N069.8). ▪ If the patient has non suction Aid tube in place. Suction via the tracheostomy while simultaneously deflating gradually the tracheostomy tube cuff with a 10ml syringe. ▪ A competent practitioner should assess cuff deflation tolerance, e.g. Tracheostomy CNS/SLT. ▪ Document progress. ▪ Remain with the patient, observe and monitor for respiratory distress. ▪ **Re-inflate the cuff if the patient becomes distressed, desaturates or is coughing continuously.**

Stage 2: Downsizing the Tracheostomy Tube (not routinely undertaken in all patients)	
Procedure Indications & Rationale	**Nursing Considerations and Management**
▪ Where downsizing of the tracheostomy tube is indicated, it is usually undertaken 5-7 days after the original tube insertion. ▪ **Rationale:** Airflow is increased either around or through the tracheostomy tube and this reduces the work of breathing for the patient.	Following successful patient tolerance for cuff deflation the following must be undertaken: ▪ Downsize the tracheostomy tube to a smaller size. ▪ Check with the multidisciplinary team regarding the possible benefits of using a fenestrated tube at this time. ▪ Ensure the emergency tracheostomy tray with all equipment required is present at patient's bedside. ▪ **The first tube change must always be undertaken by ENT Doctor/Anaesthetics , Tracheostomy CNS, or Clinical facilitator ICU.** ▪ Leakage of air +/- secretions around the new tracheostomy tube may be observed following insertion of a smaller tube. ▪ This should reduce and settle once the stoma reduces in size around the new tube. ▪ Monitor, reassure and observe the patient. ▪ Sometimes a second downsizing may be necessary before proceeding to Stage 3, this will be patient specific.

Stage 3: Tolerance to use of Passy Muir Speaking Valve (non- ventilated patient)	
Procedure Indications & Rationale	**Nursing Considerations and Management**
In order to determine tolerance of a Passy Muir Speaking Valve, the patient must be at least 48-72 hours post tracheostomy, prior to the initial placement of a speaking valve. Refer to protocol for ventilated patients including contraindications (Refer to SOP SJH:N069.9). **Rationale:** This is a one-way valve which covers the opening of the tracheostomy, allowing air in through the valve on inspiration, but closing on expiration, thus diverting the air through the vocal cords and out through the nose and mouth of the patient. Where a speaking valve is tolerated, the patient and valve should be managed as directed in Section 15.5 which includes the following: ▪ Ensure the cuff is deflated prior to applying / using the speaking valve. ▪ Do Not Leave the Speaking Valve on overnight unless specifically ordered. ▪ Liaise with SLT if difficulties arise with voicing or communication.	▪ Patient should be sitting in an upright position if tolerated. ▪ Explain the procedure to the patient ▪ Suction orally and via the tracheostomy tube prior to cuff deflation. ▪ Cuff must be fully deflated prior to using / applying the speaking valve. ▪ Perform suction of the oropharynx and trachea. ▪ Place the speaking valve on the outer rim of the tracheostomy tube. ▪ Continuously monitor the patient's oxygen saturations. ▪ Commence with a 5-15 min period where speaking valve is applied. ▪ Stay with the patient during this period or until the patient is confident wearing the valve. ▪ Offer the patient reassurance, observe and monitor for respiratory distress. ▪ **In the event that there are any signs of distress, remove the speaking valve.** ▪ Document progress. ▪ Extend the period of the speaking valve insertion in 15 – 30 min increments, as tolerated. ▪ The aim is to gradually increase tolerance to all day. • In the event that the patient is extremely tolerant with no complications, the speaking valve can be left on and then substituted for a decannulation cap (See Step 4). • Due to changes in ventilation during sleep, **the speaking valve should not be left on overnight** (even where it might be tolerated by some patients).

Stage 4: Tolerance to Decannulation Cap (not routinely undertaken in all patients)	
Procedure Indications & Rationale	**Nursing Considerations and Management**
▪ A Decannulation Cap is a device that blocks the tracheostomy tube so that the patient must breathe through their nose and mouth. ▪ **Rationale** The use of a decannulation cap increases patient confidence and gradually increases respiratory muscle strength, avoiding over exertion. ▪ Once capping is tolerated for at least **24 consecutive hours** the appropriate medical team and the Tracheostomy CNS in collaboration with the patient decide if decannulation can occur.	The use of a decannulation cap can only be attempted following successful patient tolerance of a Speaking Valve, and in liaison with the Tracheostomy CNS and the patient's medical team. The nurse trialling the cap should undertake the following: ▪ Ensure that the patient is sitting in an upright position, if tolerated. ▪ Ensure a small non-cuffed tube no granter than a size 6 insitu. ▪ Place the Decannulation Cap on the tracheostomy tube connection and apply the Decannulation Cap over the inner cannula. ▪ Continuously monitor the patient's oxygen saturations, and administer oxygen if prescribed via nasal prong/face mask. ▪ Stay with the patient during the first wearing i.e. the 5-10 minute trial, or until the patient is confident wearing the Cap. ▪ While remaining with the patient, reassure, observe and monitor for respiratory distress. ▪ The Decannulation Cap is left on for as long as the patient tolerates it. ▪ If there are any signs of distress, remove the Decannulation Cap immediately. ▪ Encourage the patient to call for assistance if required. ▪ Where appropriate, instruct the patient about how to remove the cap themselves in the event that they experience any breathing difficulty or discomfort. ▪ The Decannulation Cap is usually left on overnight. ▪ Record activity on EPR (Refer to Recording Tracheostomy Observations on EPR). ▪ Once capping is tolerated for at least 24 consecutive hours the appropriate medical team and the Tracheostomy CNS in collaboration with the patient will decide if decannulation can occur.

Stage 5: Decannulation (Removal of the Tracheostomy Tube)	
Procedure Indications & Rationale	**Nursing Considerations and Management**
▪ **Indication** The decision to decannulate / remove the tracheostomy tube, is based on the ability of the patient to maintain their own airway without the tracheostomy tube in situ. ▪ **Decannulation Predictors** The presence of the predictors listed below indicate that the 'patient will tolerate decannulation without suffering from airway obstruction' (Rumbak 2004). ▪ The patient has successfully completed the previous 4 stages of weaning. (Not all patients will go through each stage of the process however). ▪ The patient is able to expectorate pulmonary secretions effectively. ▪ The patient is not myopathic. 	The tracheostomy tube is removed only with the agreement of the patient and the multidisciplinary team caring for the patient. The team and clinician undertaking the procedure must ensure the following: ▪ The patient is fully informed about the procedure. ▪ The decannulation is planned, agreed and undertaken in optimal conditions which include: ▪ When the patient is well rested (usually in the morning following a good night's rest). ▪ Decannulation should not occur late in the working day or at weekends unless adequate staff and resources are constantly available to provide advice, assessment, and advanced airway and tracheostomy management should the procedure not be successful (McGrath 2014). ▪ The optimum time for decannulation at SJH is Monday-Friday 8am-4pm, on ward areas. Decannulation can take place at any time/day in the ICU setting. ▪ All relevant staff on duty should be made aware of the intended decannulation. ▪ The patient should be located in maximum view of the nursing station or available staff to monitor the patient closely. ▪ The patient must be provided with a functioning call bell and shown how to use it. ▪ The patient must be sitting in an upright position if tolerated. ▪ The patient's respiratory depth, rate, rhythm and oxygen saturations must be continuously monitored and recorded. ▪ The patient should be attached to a SaO2 monitor. ▪ Adherence to universal precautions is essential. ▪ Protective clothing /gown/ face mask /eye shield should be worn. ▪ The staff member undertaking the procedure should undertake the following: o Loosen the tracheostomy ties. o Gently but firmly withdraw the tube in an outward and downward movement. o Ensure the area is clean and dry once the tube is removed. o If stay sutures are still present, it is recommended that they are removed on elective non-high risk decannulations. o If a high risk decannulation is identified and the medical team requests the stay sutures to remain in situ, the



patient must be reviewed 24 hours later and the stay sutures removed before the exit site fully closes over.

- Once the tube has been removed, apply a dry gauze dressing to the exit site and secure with an occlusive airtight dressing such as duoderm or granuflex. Hypafix may be required to achieve an airtight seal. **Do Not Use Sleek due to increased risk of skin irritation/rash.**

- An ECG dot is placed on top of the exit site dressing in the location of the trachy exit site to show the patient where to apply digital pressure (for talking/coughing) This prevents air leak and seepage of tracheal secretions from the exit site and promotes quicker healing.(Garcia-Rodriguez et-al 2017).

- Review dressing and stoma site PRN.
- Monitor the patient closely for signs of respiratory distress.
- Administer oxygen via face mask/nasal prongs if required.
- Encourage deep breathing exercises, coughing and reassure the patient.
- Keep an emergency tracheostomy tray by the patient's bedside until the patient is a least 24 hours post decannulation.
- Document tube removal on EPR and on the patient's tracheostomy bed sign.
- If respiratory distress is noted within the first 24 hours post decannulation, remove the dressing from the exit site and contact anaesthetics #666 or ext 6123, and inform the medical team.

Links to related PPPGs:

- Tracheostomy Care and Management Guideline (SJH:N069)
- Tracheostomy Care and Management Guideline: Associated Documents