Lancashire and South Cumbria Regional Tracheostomy Team

Covid-19: Acute Tracheostomy Management

This guidance has been developed by the Lancashire and South Cumbria Regional Tracheostomy Team (LSCRRT) to support clinicians in the care of tracheostomy patients should they be admitted to acute areas during the Covid-19 pandemic. This document is applicable to all clinicians delivering care to individuals with a tracheostomy.

Aerosol Generating Procedures (AGP)

During AGPs there is a high risk of aerosol spread of infectious agents and Public Health England advise that airborne precautions must always be implemented when performing AGP's on both positive and suspected cases of Covid-19. Local risk assessment must be adopted for AGPs performed on patients not suspected of being Covid-19 positive.

Routine tracheostomy specific AGP include:

1) Tracheal open suctioning
2) Tracheostomy changes
3) Induction of sputum

Administration of Oxygen and nebulisers are not considered AGP's at present. The New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) advised that the aerosol derives from a non-patient source (the nebulised drug or the water) and therefore does not carry patient-derived particles. If one of these non-patient aerosol particles makes contact with a contaminated mucous membrane, it will then cease to be airborne and therefore no longer be deemed an aerosol.

Additional routine tracheostomy interventions which are not classed at AGP's however may increase the likelihood of cough stimulation and therefore production of sputum include:

1) Chest management / secretion mobilisation techniques
2) Use of a cough assist machine
3) Inner cannula changes
4) Dysphagia assessments
5) Trial of one-way valve and tracheostomy cap

For all patients, regardless of Covid-19 status, these AGPs should only be carried out when essential. Where possible, these procedures should be carried out in a single room or cohorted bay with the doors shut. Only those healthcare workers who are delivering / assisting with the intervention should be present in the room. As per national guidance, appropriate personal protective equipment (PPE) should be worn whenever performing an AGP and in any clinical area deemed an AGP cohort area (where frequent AGPs are being performed).

	Entry to cohort area with no patient contact	High risk unit (HDU / ITU)	AGP (any setting)
Disposable gloves	Yes	Yes	Yes
Disposable plastic apron	No	No	No
Disposable gown	No	Yes	Yes
Fluid resistant (Type IIR) surgical mask (FRSM)	Yes	No	No
Filtering face piece (class 3) (FFP3) respirator	No	Yes	Yes

Disposable eye protection	No	Yes	Yes

Adapted from: COVID-19: Guidance for infection prevention and control in healthcare settings (2020)

Each suspected or positive case should be reviewed on an individual basis. Many long term tracheostomy patients may have high secretion loads and frequent self-expectorating coughs meaning that additional PPE protection may be indicated for non-standard AGPs.

Tracheal suctioning

Tracheal suctioning should be performed via a closed circuit with a HME filter placed on the open side port to reduce the risk of viral transmission. All patients who are requiring tracheal suction should have a closed suction circuit attached to the tracheostomy. The suction catheter size should be chosen as per national guidelines:

Tracheostomy size	Suction catheter size (Fg)
6.0	10
7.0	12
7.5	12
8.0	12

Inner cannula changes

Inner cannula changes should continue to be performed to maintain the patency of the tracheostomy tube. However due to the potential droplet transmission risk, the frequency should be assessed on patient specific secretion load and viscosity and can be supplemented with closed circuit suctioning to assess tube patency. If the patient is requiring tracheal suctioning, a non-fenestrated inner cannula should remain in situ. See below for specific guidance.

Tracheostomy changes

Tracheostomy changes are performed every 28-days unless otherwise clinically indicated and documented. This is to reduce the risk of infection, maintain tube patency, integrity and is outlined in the tracheostomy manufacturer guidelines. If a patient is confirmed or suspected Covid-19 positive and remains clinically symptomatic, a patient specific risk assessment should be completed due to the risk of transmission and potential clinical complications of the intervention.

As per the National Tracheostomy Safety Project Covid-19 advice, on hospital admission, patients with an un-cuffed tracheostomy should have a simple face mask placed over their face to minimise droplet spread. Patients may only require change to a cuffed tracheostomy to facilitate effective invasive ventilation and this decision should be made with a senior clinician.

If the patient remains clinically well whilst positive or suspected positive, and already has a cuffed tracheostomy in situ, tracheostomy changes should be postponed until asymptomatic of Covid-19. Careful monitoring of the cuff integrity is vital as this can degrade over time and may impact ventilation (if required) and increase the risk of aerosol production. Ongoing monitoring of tracheostomy related infection is imperative, this includes: stoma inflammation, temperature, increased secretion load, change in secretion colour, viscosity, and smell or worsening infection markers.

If the patient is showing worsening signs of tracheostomy related severe infection and remains suspected or confirmed Covid-19, the tracheostomy change should be discussed with the senior clinical team to outline the potential risks versus the benefits of this AGP. If performed, it should be established that the patient is a routine tracheostomy change (contact can be made with the relevant community teams to establish this) and appropriately

trained staff should be available however only those essential staff present at the bed side. Emergency equipment should be checked and available.

If the patient is Covid-19 negative or not suspected, routine tracheostomy changes should be reviewed on a case-by-case basis. As per ENT UK advice, they should be avoided where possible however it is important to acknowledge limitations this may cause with tracheostomy weaning and therefore hospital discharges along with the potential for infection and cuff degrading. The decision should be made as an MDT with clear documentation outlining the reason to perform the change. If there are any concerns regarding skill set of staff or concerns regarding Covid-19 status within that clinical area, changes should be delayed.

The following PPE guidance should be followed for all changes:

Covid negative	Suspected or confirmed Covid positive
Filtering face piece (class 3) (FFP3) respirator	Filtering face piece (class 3) (FFP3) respirator
Gloves	Gloves
Disposable gown	Disposable gown
Disposable eye protection	Disposable eye protection

Respiratory management

Tracheostomy patients may be admitted who have established chest management plans within the community to aid secretion clearance and chest expansion. The risk versus benefits of any mechanical AGP need to be assessed and Public Health England advise that this should be discussed with a senior respiratory clinician prior to being performed. If performed, it would be advisable to cohort all AGP requiring patients together to reduce transmission risks and allow one/two clinicians to perform all AGPs to patients in one PPE session. This will reduce staff exposure and assist with PPE stores.

Humidification and oxygen

Wherever possible, the tracheostomy should be covered to reduce the risk of virus transmission. If the patient is requiring tracheal suctioning then a closed suction catheter should be applied to reduce the risk of the AGP with a HME filter placed on the open side port. If the patient is self-expectorating, a HME filter should be applied to the tracheostomy regardless of Coid-19 status. We would recommend that Buchanan Bibs are not used. Despite NERVTAG stating the aerosol is derived from a non-patient source, it is advised that wet humidification circuits are not used for any suspected or confirmed Covid-19 cases due to the risk of room contamination (Royal College of Anaesthetists, 2020) and inability to apply bacterial HME filter without creating increased circuit resistance due to the dampened filter. All patients should be trialled on dry oxygen via a HME filter as first line intervention. If secretions are unmanageable and the patient is compromised and at risk of tracheostomy secretion plugging, humidified oxygen can be administered however they must be in a cohorted bay wherever possible with clear documentation of clinical indications. This should be frequently reviewed and all management steps, for example nebulisers and mucolytic agents, considered. Nebulisers can be administered if clinically indicated however this should be reviewed prior to each administration. Wherever possible, staff should remain at least 2 metres away from the patient during inhalation. It is important to note that this may stimulate sputum induction and therefore escalate into an AGP so appropriate PPE should be worn.

Routine tracheostomy care

Routine care should continue despite a suspected or confirmed Covid-19 case to reduce the risk of tracheostomy related infection to the patient. The frequency of intervention should be reviewed and re-evaluated as needed to

reduce clinical risk to the patient as well as to protect staff. All contaminated waste should be discarded as per policy and appropriate PPE used.

Stoma dressing	Changed daily or additional as needed however could be applied whilst tapes remain in situ to remove the need for two staff members (if the ties were removed)
Tracheostomy tapes/ties	Usually changed daily in the acute setting however often changed weekly in the community therefore acute guidance could be reviewed to reduce risk of accidental de-cannulation, cough stimulation and staff exposure. These should however be changed whenever wet or soiled to prevent skin break down and whenever the Velcro integrity is degrading
Stoma site cleaning	Daily cleaning of the stoma site should be performed to reduce the risk of infection. Can be performed with the ties in situ to reduce the risk of accidental de-cannulation and remove the need for two staff members (if the ties were removed)
Inner cannula changes	Usually changed 2-4 hourly in the acute setting however often changed 8-12 hourly in the community if otherwise not indicated. The frequency during the Covid-19 pandemic should be patient specific dependent on secretion viscosity and volume however changes should be performed as in-frequently as possible. Closed circuit suctioning should be used as a supplementary method of maintaining tube patency
Cuff pressure monitoring	Cuff pressure monitoring should be frequent to ensure the cuff remains fully inflated (15-25 cm H20 as per NTSP recommendations) to reduce the risk of virus aerosol. This should be rechecked post proning procedures, after suctioning and if any oral secretions, air leak, stoma bubbling or vocalisation is heard