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Title: CRIT CARE – Tracheostomy During COVID-19 Pandemic

Applies to: All HHS Staff and Physicians Providing Care for Patients with Tracheotomy During the COVID-19 Pandemic

1.0 Purpose

1.1 COVID-19 pandemic planning anticipates a large volume of ventilated patients with a possibility of prolonged endotracheal intubation. Moreover, patients in the community with mature tracheotomies as well as post-laryngectomy patients may require management of their stoma during the COVID-19 pandemic. Since there are many opportunities for aerosol generation in caring for a patient with tracheostomy/laryngectomy tube including tracheotomy tube change, suctioning, decannulation, and other aspects of routine care, guidance is needed to prevent spread of infection and reduce risk to the healthcare force.

For the purposes of this document, the terms "COVID-19 positive" and "COVID-19 negative" refer to results of a single nasopharyngeal swab reverse transcriptase-polymerase chain reaction (RT-PCR). Given the current local epidemiology, one single negative test has a very high negative predictive value, and in keeping with other policies around Aerosol Generating Medical Procedures (AGMPs) at HHS/SJHH, we rely on a negative test to rule out COVID-19. In keeping with the overarching AGMP policy, we will test patients prior to AGMPs on day 8+ after admissions (i.e. at the tail end of the incubation period). If AGMPs are required prior to day 8 of admission, testing should be done prior to the first AGMP and then repeated on day 8 of admission.

For the purposes of this document, AGMP includes any procedures that have a reasonable potential to result in production of aerosols. These include open suction, decannulation, tracheotomy/inner cannula tube cleaning or changes, bronchoscopy as well as manipulation of the tube likely to induce cough/sputum if the airway is open to room air. Given the difference in coughing mechanics, coughing in tracheotomy patients may result in aerosols - currently unresolved given the lack of evidence.
It is recognized that some higher risk AGMP are more likely to induce larger quantity and longer duration aerosol/droplet production while others are less likely to do so. As such, sustained AGMPs (e.g. ENT surgery requires a higher level of PPE and environmental controls than transient procedures such as suctioning; a HEPA filter or negative pressure room would be required for non-ventilated tracheostomy patients on treatment such as humidified air, AIRVO or other).

2.0 Key Recommendations

In COVID-19 positive or unkonwn[1] adult patients with a temporary or permanent tracheostomy, larygectormy stoma:

- Contact/Droplet precautions is sufficient for the majority of patient encounters. Enhanced PPE (Contact/Droplet plus N95 respirator or PAPR) may be utilized based on a point of care risk assessment (PCRA) for higher risk AGMPs.
- **Minimize** the number of Health Care Workers (HCW) in the room when performing high risk manipulation of the tracheostomy/laryngectomy tube
- Any intervention that risks significant aerosol generation (e.g. bronchoscopy,

cauterizing, dilating through the tracheotomy (see provincial/local AGMP list) requires at minimum N95 respirator with appropriate eye/face protection and should be performed in a negative pressure room whenever possible.

- **Avoid** open suction and instead use closed, inline suction whenever possible.
- If the patient has unknown COVID-19 status obtain COVID-19 status and delay manipulation of the tracheotomy site if possible. If not possible, treat as COVID-19 positive until status is verified.
- Avoid repeated suctioning and disconnection of the ventilator circuit.
- When unventilated, use an HME with HEPA level filter (preferred) to provide humidity, reduce secretions with minimal increase in perceived respiratory resistance in the ventilator circuit or on the ventilator exhaust portion.
    - Monitor filter for obstruction risk
- Minimize nebulization, instillation of fluids as appropriate.
- Handle contaminated devices/equipment and equipment with caution and adopt infection control principles.
- Avoid all unnecessary examinations or procedures including decannulation until the patient is considered COVID-19 negative.[1][1]

[1] the level of risk depends on factors such as local epidemiology/rates of infection/patient isolation status.

3.0 Ventilated tracheotomy Patients

3.1 If the Patient is COVID-19 Positive

3.1.1 Contact/Droplet precautions if performing routine patient care (not involving tracheotomy/non AGMP) don surgical mask, face shield, gown and gloves.

3.1.2 Avoid changing the tracheotomy tube until COVID-19 has resolved as per current infection prevention and control guidance.

3.1.3 Make every effort not to disconnect the circuit.

3.2 If performing AGMP is Required

3.2.1 Minimize the number of HCW in the room to the minimum required.

3.2.2 Use a N95 respirator instead of a surgical mask, remaining PPE as for non-AGMP listed above.

3.2.3 If high risk AGMP (e.g. bronchoscopy, cauterizing dilating through the tracheotomy), enhanced PPE is required.

3.2.4 Transient/brief AGMPs can be safely performed in a single patient room.

3.2.5 Prolonged/sustained AGMPs should be performed in negative pressure room or a HEPA filter can be used in a single patient room as per internal AGMPs policy.

3.2.6 Only Tracheal Closed Suction System (TCSS) aka inline suction, for suctioning should be used.

3.2.7 The tube should be connected to the ventilator via a filter with appropriate monitoring.

3.3 If the Patient is COVDI-19 Negative

Contact/Droplet precautions if performing routine patient care or AGMPs after appropriate COVID-19 clearance as per internal policies (i.e. test on day 8+ after admission, and if AGMP required prior to day 8 of admission, to test earlier and repeat on day 8) along with symptom screening for new acute respiratory symptoms at the time of care.

N95 respirator is generally **not** required but can be considered after completing a PCRA for higher risk/sustained AGMPs.

4.0 Non-Ventilated Tracheotomy Patients

4.1 If the Patient is COVID-19 Positive

4.1.1 Contact/Dropolet precautions if performing routine patent care (not involving tracheotomy/non- AGMP) i.e. surgical mask, face shield, isolation gown and gloves.

4.1.2 Minimize tracheostomy tube manipulation to avoid coughing.

4.1.3 Avoid instillation of saline into tracheotomy for secretion management.

4.1.4 Tracheotomy tube change should be deferred (except for emergency circumstances) until COVID-19 status is negative as per current infection prevention and control guidelines.

4.2 If Performing AGMOs is Required

4.2.1 Minimize the number of HCW in the room to the minimum required.

4.2.2 Use an N95 respirator instead of a surgical mask, remaining PPE as for non-AGMPs listed above.

4.2.3 If high risk AGMP (e.g. bronchoscopy, cauterizing, dilating through the tracheotomy), enhanced PPE is required.

4.2.4 Transient/brief AGMPs can be safely performed in a single patient room. Prolonged/sustained AGMPs should be performed in a negative pressure room, or a HEPA filter can be used in an single patient room as per internal AGMPs policy.

4.2.5 Cuff should remain inflated until COVID-19 negative status is achieved. If the patient has clinically resolved and persistently tests COVID-19 positive, risks of cuff deflation/decannulation may be discussed on a case by case basis (see decannulation in controversies section below).

4.2.6 Ideally HME/HEPA level filter should be on tracheotomy tube, if not tolerated, tracheotomy tube should be covered with mask or other safe mechanism to reduce risk of droplets/spray.

4.2.7 Change disposable inner cannula once daily, option to increase to twice daily if required e.g. depending on the degree of mucus plugging or if difficult to suction.

4.3 If the Patient is COVID-19 Negative

4.3.1 Contact/Droplet precautions if performing routine patient care or AGMPs after appropriate COVID-19 clearance as per internal policies (i.e.+ after admission, and if AGMP required prior to day 8 of admission, to test earlier and repeat on day 8 to confirm negative status), along with symptom screening for new acute respiratory symptoms at the time of care.

4.3.2 N95 respirator is generally **not** required but can be considered in PCRA for higher risk/sustained AGMPs.

5.0 Laryngectomy Patient and Permanent Stoma

5.1 If the Patient is COVID-19 Positive

5.1.1 In the rare situation that the patient needs to be intubated through the stoma, treatment and care is similar to proven COVID-19 positive patients with a tracheotomy.

5.1.2 Encourage the use of HME or (other suitable covering to reduce the risk of droplets/spray), particularly hands free HME if possible once the patient is no longer in need of ventilation.

5.1.3 Laryngectomy tubes and buttons need to be handled with a N95 respirator and ideally avoided until the patient test negative to reduce exposure to health care providers.

5.1.4 Defer non urgent laryngectomy care including communication assessment, voice prosthesis changes, open stoma wound care until the patient is confirmed to be COVID-19 negative.

5.1.5 The need for in-person, urgent assessment and treatment (e.g. leaking valve, valve displacement, bleeding etc.) should be evaluated on a case by case basis with application of appropriate level of PPE depending on whether procedure is considered and AGMP or not.

5.1.6 Reduce and avoid unnecessary instillation, nebulizers, and open suctioning.

5.2 If the Patient is COVID-19 Negative

5.2.1 Routine laryngectomy stoma care and management in contact/droplet precautions similar to COVID-19 negative patient with mature tracheotomy.

5.2.2 Encourage use of HME, particularly hands free HME, if possible encourage regular patient and healthcare provider hand hygiene.

6.0 Decannulation Protocol

6.1 If the Patient is COVID-19 Positive

6.1.1 Leave the tracheotomy tube in place until considered COVID-19 negative as per infection prevention and control (see controversies section below).

6.2 If the Patient is COVID-19 Negative

6.2.1 Leave trachotomy tube in place until tested COVID-19 negative.

6.2.2 Droplet/Contact precautions and decannulate as per local HHS protocol for deannulation.
RESP - Tracheostomy Tube Weaning & Decannulation Protocol

7.0 Controversies in Postoperative Tracheotomy Management

7.1 Humidification

7.1.1 Although some sources advocate against the use of humidification in the COVID-19 era, there is limited evidence to support this and it is well possible that the aerosol produced was from the machine rather than the patient derived and thus poses very little risk. However, at this point we are erring on the side of caution and consider humidified air as potential AGMP.

7.2 Decannualtion and Tracheotomy Changes in the COVID-19 Patient

7.2.1 Although there are obvious benefits of decannulation in the reduction of aerosol generation and cough, these need to be weighed against the high short-term risk of such interventions during the decannulation steps. Similar risks of aerosol and droplet production occur during tracheotomy tube changes in individuals who remain COVID-19 positive. Furthermore, by the time patients are ready for decannulation and tracheotomy tube change, the vast majority will have likely converted to COVID-19 negative status. For these reasons, we feel that it may be best to defer these interventions until these patients convert to COVID-19 negative status. However, each case may be considered individually and discussed with relevant stakeholders including the most responsible physician (MRP), Nursing, Respiratory Therapist and Speech Language Therapy.

8.0 Cross References

IC - Coronavirus Infectious Disease (COVID -19) Surveillance and Management of contains a list of AGMPs
RESP - Tracheostomy Tube Weaning & Decannulation Protocol

9.0 Developed By

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10.0 In Consultation With

IPAC
COVID-19 Subject Matter Expert Group

11.0 Approved By

COVID-19 Command Center
MAC

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