

Duke Health Tracheostomy Protocol During COVID-19

This document provides multidisciplinary guidance for safely performing tracheostomies and for post-tracheostomy care in patients who were diagnosed with COVID-19.

Key Takeaways:

- For COVID positive patients, special airborne contact isolation may be discontinued once the patient meets appropriate criteria using the [symptom-based strategy](#)
- The recommendation for placing patients on COVID-recovered patients on Special Contact/Droplet precautions post-tracheostomy has been removed. Care providers should follow standard precautions for tracheostomy care.

Timing of Tracheostomy:

- The optimal timing for tracheostomy should be determined by the multidisciplinary team (MDT) decision in conjunction with the patient/family.
- Special Airborne Contact isolation may be discontinued

Treatment Team:

- Treatment team considerations are made based on the patient’s location at the time of the tracheostomy as outlined in the table below.

	MICU	SICU	NEURO	CTICU
Procedural Team	Interventional Pulmonologist, Pulmonologist, Pulmonary Fellow, IP Respiratory Therapist, Nurse	Anesthesiologist, Surgeon, Unit Respiratory Therapist, Nurse	Anesthesiologist, Surgeon or OHNS or Interventional Pulmonologist, Unit Respiratory Therapist, Nurse	Cardiothoracic Surgeon, Anesthesiologist, Unit Respiratory Therapist, Nurse
Proceduralist	Interventional Pulmonologist	Surgeon	Surgeon or OHNS or Interventional Pulmonologist	Cardiothoracic Surgeon
Procedural Assistant	Interventional Respiratory Therapist	Unit Respiratory Therapist	Unit Respiratory Therapist	Unit Respiratory Therapist

- A Nurse will not be required to be present in the procedure room unless deemed necessary by the proceduralist. When a nurse is required, he/she will be provided the same PPE as the procedure team.

Pre-Procedure Considerations:

- For patients who have tested positive for COVID-19 within the last 90 days, pre-procedure testing is no longer required to determine whether isolation precautions may be removed. Instead, the symptom-based criteria for [Discontinuing Special Airborne Contact Isolation](#) should be followed. Patients who have not yet met the symptom-based criteria for discontinuing precautions should be maintained on SAC isolation for their procedure.
- For patients who have not previously tested positive for COVID, or who have a history of COVID-19 and 90 days has elapsed, the standard pre-procedural testing guidance applies.
- Personal protective equipment used for tracheostomy procedures for **COVID-positive patients who remain on special airborne contact isolation** includes the following:
 - **PPE:** PAPR with shrouded hood, gown, gloves, and booties
 - Anesthesia team will provide the observer (aka Marshall) to help with donning and doffing for the procedure team.
 - **Room requirement:** Special airborne precautions with negative room pressure or HEPA filter in place.
 - **Location:** Tracheostomy should be performed using percutaneous dilatational technique (PDT) at bedside in negative pressure room with antechamber. If the anatomy precludes PDT, ENT or surgery will perform an open tracheostomy at the bedside (preferred) or in the operating room.
- Personal protective equipment used for tracheostomy procedures for **COVID-recovered patients, or non-infected patients** includes the following:
 - **PPE:** PAPR with shrouded hood OR N95/face shield, gown, and gloves
 - **Room requirement:** No special room requirement
 - **Location:** bedside or OR.
- The COVID airway team will provide anesthesia support, and the team should be notified 24 hours before the procedure.
- Disposable bronchoscopes and Butterfly iQ Ultrasounds will be used during tracheostomy.
- Only the essential personnel should be present in the room to conserve PPE for both COVID-positive and COVID-negative patients.
 - Interventional Pulmonary Team: Two operators (fellow and supervising interventional pulmonologist, bronchoscopist, respiratory therapist, anesthesia provider (anesthesiologist and/ or CRNA).
 - Trauma Surgery: Two surgery attendings, anesthesia provider (anesthesiologist and/or CRNA).

Peri-Procedural Guidance:

Pre-Procedure:

- A Time Out will be performed according to current standards and will be documented in the Electronic Medical Record (EMR).
- The procedural team will provide needed equipment and supplies and will perform the procedure.
- PPE requirements, room requirements, and the location of the procedure should be determined based on COVID test results, as outlined in the “pre-procedure test” section above.

Procedure:

- **General:**
 - The Proceduralist will perform the procedure according to current standards for each type of procedure (percutaneous trach vs. open trach).
 - The Procedural Assistant or Unit Respiratory Therapist as listed above will assist the Interventional Pulmonologist with the procedure and manage the respiratory response to the procedure.
 - The Nurse caring for the patient will monitor the patient and manage patient response under guidance of the Proceduralist, covering Attending, and/or Fellow.
 - **Steps to mitigate aerosolization during the procedure as follows:**
 - Pre-procedure hyper-oxygenation should be instituted.
 - Patient should be paralyzed.
 - Consider glycopyrrolate 0.4 mg intravenous to reduce secretions.
 - The mouth should be packed and a Yankauer suction placed in the mouth to remove secretions.
 - Ventilation pause will be administered by disconnecting inspiratory limb of the respiratory circuit from the ventilator but leaving the filter on the ventilator. It may be done by anesthesia provider.
 - Ventilation should be paused when bronchoscope adapter is attached to the endotracheal tube (ETT) and bronchoscope inserted at the same time.
 - Ventilation should be paused when withdrawing the ETT above the point of insertion of tracheostomy tube.
 - ETT cuff should be minimally deflated during withdrawal and re-inflated once ETT position is adequate.
 - Gauze should be used to cover the tracheal entry site during the removal of dilators to minimize aerosol spread.

- Ventilation should be paused when the dilators are removed from the tracheal stoma.
- Ventilation should be paused when tracheostomy tube is inserted into the trachea, during the bronchoscopic confirmation of the placement of tracheostomy tube in the trachea, and connection of ventilator circuit along with bronchoscope adapter on the tracheostomy tube.
- Ventilation should be paused again for removal of bronchoscope and adapter disconnection.
- Ventilation pauses will be modified based on patient's respiratory status.
- Other steps to prevent aerosolization like ventilator pause from the time of percutaneous needle insertion to tracheostomy tube placement, after instituting preoxygenation and hyperventilation can be considered, as suggested by Trauma Surgery.
- Avoid electrocautery if possible; recommend smoke evacuator cautery.

Post Tracheostomy:

- Proceed according to current standards for the following:
 - Patient recovery
 - Bronchoscopy equipment processing (disposable bronchoscopes should be used for all patients with ongoing positive COVID test results or in whom a pre-procedure test was not performed)
 - Procedure sample labeling, packaging, transporting and processing
- Equipment to be kept at bedside post-procedure and for the duration of tracheostomy placement:
 - Obturator
 - Appropriately sized tracheostomy tube
 - Appropriately sized disposable inner cannulas
 - Appropriately sized suction catheters
 - Oxygen source, humidified as indicated
 - Manual resuscitator with appropriately sized mask
 - Suction source, cannister, and tubing
 - Commercially available tracheostomy holder SAP # 12442
- **COVID test-negative, or COVID-Recovered patients:**
 - Standard post-tracheostomy care should be delivered using standard precautions and does not have special room requirements.
 - Tracheostomy capping is indicated for COVID-negative patients with cuffless tracheostomy tubes and will follow current policy and procedure.
 - Downsizing is indicated for COVID-negative patients and will follow current policy and procedure.

- Decannulation is indicated for COVID-negative patients and will follow current policy and procedure.

- **COVID Test-positive or Unknown COVID status (I.e. no test performed):**
 - Maintain tracheostomy tube cuff appropriately inflated post-procedure and avoid cuff leaks.
 - Tracheostomy cuff pressures should be evaluated every 4 hours.
 - Place a heat moisture exchanger/viral filter in line prior to reconnecting tracheostomy tube to mechanical ventilator.
 - Avoid respiratory circuit disconnections.
 - Suction only via closed circuit.
 - Delay routine post-procedure tracheostomy tube change by proceduralist until the patient meets criteria to discontinue Special Airborne Contact isolation. For any changes occurring before SAC Isolation is discontinued, the proceduralist should wear N95, face shield, gown and gloves.
 - The tracheostomy tube will be sutured for 10 days following the procedure.
 - The tracheostomy site will be examined once per shift by the unit Respiratory Care Practitioner for cleanliness, dry site, and skin integrity to include around the tracheostomy flange, beneath the flange, and underneath the tracheostomy ties.
 - Changing of the site dressing and tracheostomy care will be performed as indicated to maintain a clean, dry area.
 - The disposable tracheostomy inner cannula will be suctioned at minimum every shift and according to secretion quality to promote patency.
 - The tracheostomy tube disposable inner cannula will be changed as needed to avoid disconnection, unnecessary aerosol dispersion, and alveolar de-recruitment.
 - The need for tracheostomy tube disposable inner cannula change will be indicated by secretion quantity and thickness, resistance to suction catheter passage, unexplained rising mean airway pressure, or indicative volume-pressure loop changes.