

Special Precautions for Intubation of a COVID-19 Patient

One of the most common reasons for transmission of SARS to healthcare staff during the 2003 outbreak was related to high risk airway procedures – bag mask ventilation, intubation, and bronchoscopy.

Respiratory interventions such as intubation, bronchoscopy, use of non-invasive ventilation, use of nebulized medication, and bag mask ventilation, all increase the risk of virus transmission via greater aerosolization of virus. With these procedures, patient agitation and/or coughing can occur, which also results in further aerosolization of virus, while an agitated patient may compromise a caregiver's PPE.

To minimize risk, careful planning is required:

- **DO NOT** transport patient to ICU for intubation. This should be performed in the patient room.
 - Risk for aerosolization of virus is high if patient is transported on NPPV or other high flow oxygen device. In the case of a non-rebreather, an exhalation filter would be needed for transport.
- All necessary equipment and medications should be available in the room at time of intubation. This is to **avoid recurrent traffic** in and out of room.
 - **Consider the need to perform sterile procedures**, such as central line placement, after patient intubation. This will minimize traffic in and out of the room and help to conserve PPE.
 - **If patient is intubated in a non-ICU environment**, transportation can occur after intubation, whereupon sterile procedures can then be performed in the ICU.
 - Have procedural **equipment available in room** before intubation (e.g. central line supplies, ultrasound machine) in order to minimize recurrent traffic.
 - After the patient has been successfully intubated and attached to the closed ventilator circuit, change into your sterile gown and gloves, **donning over the principal PPE** you already have in place (yellow gown, gloves, PAPR or N95).
 - When donning your gown and gloves, plan to **use a larger size sterile glove** to put over your blue PPE glove. Otherwise use standard sterile technique when performing the procedure.
- Use **rapid sequence intubation** with paralytics.
- **Minimize number of personnel** to three – MD, RT, and RN.
 - PPE should be donned/duffed appropriately.
 - The individual performing intubation should wear a **PAPR** if possible. The most experienced individual should perform intubation to avoid unnecessary exposure to aerosolized virus.
 - If using an N95 mask, remember to use a **face shield or goggles** for eye protection.
- Attach **exhalation filter** to resuscitation bag (typically between mask or ET tube and bag).
 - Ensure a high quality HMEF (Heat and Moisture Exchanging Filter) rated to remove at least 99.97% of airborne particles 0.3 microns or greater is placed between the ETT and reservoir bag during transfers to avoid contaminating the atmosphere.
- **Video laryngoscope** should be used to avoid placing face close to patient.
- If a difficult airway anticipated, **flexible bronchoscopy** can be used with display away from patient.
- **Re-sheath the laryngoscope** immediately post intubation (double glove technique)

- Seal all used airway equipment in a **double zip-locked plastic bag**. It must then be removed for decontamination and disinfection.
- All staff should be aware of **appropriate donning and doffing** techniques for PPE (another major cause of virus transmission is incorrect donning/doffing of PPE).
- Care should be taken to **clean all equipment** per UCHHealth guidelines upon removal from the room.
- **Remember:** after removing protective equipment, avoid touching your hair or face before washing hands.

Compiled by the Section of Anesthesiology Critical Care Medicine and Division of Pulmonary Sciences and Critical Care Medicine

References:

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2. Recommendations for Airway Management in a Patient with Suspected Coronavirus (2019-nCoV) Infection. Zucco et al. Anesthesia safety foundation. Adapted from Kamming D, Gardam M, Chung F. I. Anaesthesia and SARS. Br J Anaesth 2003;90:715-18.