

COVID-19

Respiratory Care management

Version 3: 3/18/20

Principles of Care:

- Only essential providers in the room during intubation or other aerosol-generating procedures.* All providers must adhere to infection prevention guidelines. These procedures should be performed in an Airborne Infection Isolation Room (AIIR), if possible.
- During Code Blue response, limited PAPR availability may mean that those directly involved with airway management should be prioritized for PAPR and all others should use N-95 plus eye protection at a minimum (see COVID-19 Code Blue protocol).
- High Flow Nasal Oxygen (HFNO) can be considered for use in selected hypoxemic patients but caution with higher flows (e.g > 25 LPM). Definitive data regarding safety of HFNO are currently lacking but it should be considered a aerosol-generating procedure and airborne precautions are required.
- Non-invasive ventilation (NIV, e.g. CPAP or BiPAP) should be used only in selected patients with respiratory failure but it should be considered a aerosol-generating procedure and airborne precautions are required.
- Patients receiving either HFNO or NIV should be cared for in a monitored setting by personnel capable of performing endotracheal intubation. We recommend short trials of therapy (e.g 1 hour) with frequent clinical re-evaluation. Proceed directly to endotracheal intubation in patients with no evidence of improvement.
- Emergent intubations are to be avoided given the prolonged time to apply PPE and increased risk of infection to the person performing the intubation.

Personal Protection Prior to Tracheal Intubation

- Remember that YOUR personal protection is the priority.
- Please review the material and use airborne/droplet/contact isolation precautions (PPE includes: PAPR, gown and gloves) when interacting with patients prior to aerosol-generating procedures. Remember to plan ahead as it takes time to apply all the barrier precautions.
- Prior to intubation of the patient with suspected or confirmed COVID-19, review and practice donning and doffing gloves, gown and PAPR.
- Leave personal items (stethoscope, jewelry, patient list, watch) outside the room.

- Apply gown, gloves and PAPR before entering patient room. Person intubating should wear double gloves [+/- hair bouffant caps].

Preparation (ED, ICU or ward for emergent intubations)

- Personnel inside the room:
 - Airway expert physician (ICU or ED or Anesthesia staff physician/clinical fellow/senior resident)
 - One Respiratory Therapist (RT) to assist with intubation and ventilation
 - One Registered Nurse (RN) to deliver medications
 - A second qualified MD to assist with airway and/or resuscitation.
- Personnel outside of the room:
 - RN in PPE available to monitor PPE compliance, assist in case a provider has to leave the room, or obtain additional equipment or medications.
 - Physician or APP to assist with logistics/flow coordination.
 - RT to assist with emergency airway equipment and ventilator
- Equipment to prepare
 - Manual resuscitation bag with appropriate filter placed between the mask and the bag (must be present in all rooms of patients with confirmed or suspected COVID-19)
 - Capnograph
 - Glidescope with blade
 - Endotracheal tubes (have back up)
 - Medications for induction, hemodynamic support and maintenance of sedation/analgesia

Intubation procedures:

- Only experienced providers should perform intubation.
- Plan for rapid sequence induction (RSI) and ensure skilled assistant is able to perform cricoid pressure. RSI may need to be modified if patient is unable to tolerate apnea due to hypoxemia. If manual ventilation is needed, small tidal volumes should be applied. Consider two-handed mask ventilation to ensure good mask seal.
- If possible, preoxygenate with 100% oxygen x 5 minutes and use RSI in order to avoid manual ventilation of patient's lungs and potential aerosolization of virus from the airways.
- Consider video laryngoscopy as preferential airway equipment.
- Avoid awake fiberoptic intubation. If absolutely necessary, consider use of disposable fiberoptic scope.
- Use high efficiency hydrophobic filter between mask and Ambu bag. Ambu-bag is preferable because it is pre-packaged with filter. Jackson-Reese requires a separate filter and may take time to assemble.

- Once intubated, minimize circuit disconnects and use in-line suction.
- Ventilators and anesthesia machines should have filters on the expiratory and inspiratory circuits. Capnography tubing should be filtered.
- If patient requires transport to ICU, the use of a ventilator with inspiratory and expiratory filters are required (i.e. C3 and EnVe ONLY).
- Video laryngoscope tower (if applicable) and blade should be wiped down with disinfectant wipes before removing from the room. Blade should be placed in a biohazard bag and standard pre-cleaning procedure should be followed.

After Procedure:

- Careful attention to doffing procedure.
- Debrief with staff to identify any potential lessons for future procedures.
- Any concerns about contamination should be reported immediately to provider's supervisor.

Reviewed and approved by:

J. Matthew Aldrich, MD; Executive Medical Director, Adult Critical Care Medicine

Linda Liu, MD; Medical Director, Respiratory Care Services

Tristin Penland, RN, MS, CCRN; Patient Care Director, Adult Critical Care Services

Samantha J. Scott-Marquina BS, RRT; Manager, Department of Respiratory Care

Jahan Fahimi, MD, MPH; Medical Director, Emergency Medicine, UCSF Health

Maria Raven, MD; Chief, Emergency Medicine, UCSF Parnassus

References:

1. Caputo KM, Byrick R, Chapman MG, Orser BJ, Orser BA. Intubation of SARS patients: infection and perspectives of healthcare workers. *Can J Anesth* 2006;53(2):122-9
2. American Society of Anesthesiologists. Coronavirus (2019-nCoV): Information for Health Care Professionals. Recommendations. 2/23/20.

3. World Health Organization. Clinical Management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected. Interim Guidance. WHO/2019-nCoV/clinical/2020.4.

4. Centers for Disease Control. Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings. https://www.cdc.gov/coronavirus/2019-ncov/infection-control/control-recommendations.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Finfection-control.html (accessed online 3/17/20).