

Updated May 1, 2020

This guide applies to procedures such as endotracheal intubation, bronchoscopy, and other airway interventions that are likely to generate aerosols and are performed on patients with suspected or confirmed COVID-19 or in emergent situations in which the patient's COVID-19 status is unknown.

A full list of aerosol-generating procedures (AGPs) can be found in <u>aerosol-generating procedures</u>. AGPs should be avoided, if possible, or performed cautiously to prevent transmission of COVID-19.

- 1. Location and Personnel
 - a. AGPs should be performed using airborne precautions in an airborne infection isolation room (AIIR; negative pressure).
 - i. If an AIIR is not available, AGPs should be performed in a private patient room with doors closed and high-efficiency particulate air (HEPA) filters placed at the doors.
 - b. Limit the number of personnel present to only those essential for patient care.
 - c. The most skilled individual available should perform the intubation or other AGP.
- 2. Perform **hand hygiene** before patient contact (soap/water hand wash >20 seconds is preferred; or alcohol-based hand rub).
- 3. Don appropriate PPE as available, optimally:
 - a. **N95 respirator, powered air-purifying respirator (PAPR), and half-facepiece elastomeric respirator** (requires medical clearance and/or fit-testing; elastomeric respirators may not be worn for sterile procedures).
 - Respirators should be prioritized for airway interventions and other AGPs for patients suspected or confirmed to have COVID-19 and for patients in emergent situations when COVID-19 status is unknown. Surgical masks (ear-loop masks) are recommended if respirators are not available.
 - ii. Respirators may be reused. Follow instructions in <u>PPE and isolation precautions</u>.
 - b. Eye protection
 - i. Wear full face shield if using N95 respirator; wear goggles if using elastomeric respirator. PAPR hood provides eye protection.
 - ii. Personal eyeglasses, contact lenses, and half-shields are NOT considered adequate eye protection.
 - iii. Face shields may be resused. Follow instructions in <u>PPE and isolation precautions</u>.
 - c. **Long-sleeve, fluid-resistant gowns** (disposable or launderable) or "bunny suit". Consider wearing a disposable cap or bouffant cap.
 - d. **Two pairs of gloves** with one pair under sleeves of gown and one pair over. Choose long, cuffed gloves for the under layer, if available. Over layer gloves are removed after airway intervention or AGP.





COVID-19 Airway intervention protocol,

cont.

- 4. Intubation Strategy and Management
 - a. Maximize pre-oxygenation for 3-5 minutes, if possible.
 - i. Use lowest O₂ flow that is safe, and avoid/use caution when using high-flow delivery oxygen or noninvasive PPV/BiPAP due to risk of dispersion of aerosolized virus.
 - ii. Place surgical mask over patient's face if using nasal cannula oxygen.
 - b. Rapid sequence intubation (RSI) with high-dose muscle relaxant.
 - c. Make every effort to avoid bag-valve mask (BVM) ventilation.
 - i. If using BVM, the mask may be held with PEEP with a **viral filter** (see photos below) **at the Y of circuit or stem of BVM** to prevent decruitment, but patient should not be actively bagged.
 - ii. If intubation attempt is unsuccessful, re-oxygenate and ventilate with **low tidal volumes/pressure** between attempts using mask or LMA per difficult airway algorithm.
 - d. Use **video laryngoscope**, **if available and applicable to unit**, to maximize first attempt success and to distance proceduralist from exposure to oropharynx.
 - e. Place a **cuffed tube**, if at all possible. Ensure cuff of endotracheal tube (ETT) is inflated to seal. Exceptions may include small or preterm infants.
 - f. Position viral filter on the inspiratory and expiratory portion of the ventilator circuit, on the BVM, and/or at the end of ETT <u>PRIOR TO</u> bagging/manual ventilation/connecting to circuit.
 - g. Discard intubating stylet into plastic bag. Immediately remove an outer glove to re-sheath the dirty laryngoscope blade and place this into the bag with the stylet for decontamination/disposal.
 - h. Confirm placement with prepared in-line mainstream EtCO₂ monitoring if continued use of EtCO2 monitoring is planned, placed distal to viral filter in the circuit. If ventilator is not readily available, or unit does not intend to continue EtCO₂ monitoring (i.e., code situation, NICU, CVICU), place the calorimetric indicator **beyond** the viral filter, then stem of BVM.









COVID-19 Airway intervention protocol, cont.

- 5. Post-intubation Management
 - a. Minimize circuit disconnects. For bag/circuit/ventilator disconnections, place the ventilator in *standby*, and if the ETT is cuffed and does not have a viral filter, clamp the ETT.
 - b. Use in-line suction when able. If possible, place in-line suction catheter prior to intubation to avoid disconnecting the circuit. Open suction only if absolutely necessary.
 - c. For units connecting the viral filter directly to the ETT, be aware that the filter affects ventilation and dead space. May need to keep filters at both inspiratory and expiratory limbs for young/small patients if the location at ETT is too cumbersome or significantly affects dead space.
 - i. Supply chain may dictate what filter is available.
 - ii. Some units have small or large HEPA filters that are intended to and attach directly to the ETT.
- 6. Post-intubation Airway Equipment Management
 - a. Place disposable equipment in sealed biohazard bag.
 - b. Do not remove video for laryngoscope from room before cleaning.
 - c. Clean all non-disposable airway equipment per infection control standards.
- 7. To minimize risk of self-contamination when doffing PPE, use a spotter. Refer to <u>step-by-step donning</u> <u>and doffing</u>.
- 8. Repeat hand hygiene.
- 9. If the procedure is performed in an airborne infection isolation room (AIIR), the door should remain closed for 30 minutes following the procedure. If the procedure is performed in a regular room, the door should remain closed for 60 minutes following the procedure. Clinicians may exit the room during this time; if a clinician stays in the room during this period, they should stay in the same PPE as what they wore for the procedure. After the appropriate time has passed to allow for adequate air exchanges to clear the air, EVS should be notified to clean horizontal surfaces and high-touch surfaces. After the procedure and cleaning have taken place, staff may care for patients in the otherwise posted precautions.

The Society of Pediatric Anesthesiologists has not yet issued a statement regarding the safety of sevoflurane mask inductions for asymptomatic patients in whom COVID-19 testing is not indicated. Avoiding sevoflurane mask inductions for patients with suspected and confirmed COVID-19 is recommended.

References:

- Centers for Disease Control and Prevention. 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/hcp/infection-control-recommendations.html
- Anesthesia Patient Safety Foundation: https://www.apsf.org/news-updates/perioperative-considerations-for-the-2019-novel-coronavirus-covid-19/
- American Society of Anesthesiologists: <u>https://www.asahq.org/about-asa/governance-and-committees/asa-committees/committee-on-occupational-health/coronavirus</u>

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