

# COVID-19 Intraoperative Airway Management

## Guidelines:

Created by UVA Department of Anesthesiology, March 2020  
Version 3, *last edit 3/24/2020*

**NOTE: AS OF 3/18/20, FOLLOWING COMMUNITY TRANSMISSION IN VIRGINIA**  
**ALL PATIENTS ARE CONSIDERED SUSPECTED CASES**

**APSF Protocol will be used for ALL patients:**

### **Recommendations for Airway Management in a Patient with Suspected Coronavirus (2019-nCoV) Infection**

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#### **General**

**Your** personal protection is **the** priority. Personal protective equipment (PPE) should be available for all providers to ensure droplet/contact isolation precautions can be achieved. Providers and organizations should review protocols for donning and doffing PPE. Careful attention is required to avoid self-contamination.

#### **Patients with confirmed or suspected 2019-nCoV infected cases:**

- Should **NOT** be brought to holding or PACU areas
- Should be managed in a **designated OR**, with signs posted on the doors to minimize staff exposure.
- Should be **recovered in the OR** or **transferred to ICU** into a negative pressure room. 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.

#### **Plan ahead:**

- For time to allow all staff to apply PPE and barrier precautions
- Consider intubation early to avoid the risk of a crash intubation when PPE cannot be applied safely.

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## During Airway Manipulation

### Apply:

- Disposable mask, goggles, footwear, gown and gloves. Consider adopting the **double glove** technique.
- Standard ASA monitoring should be applied before induction of anesthesia.
- N95 mask at a minimum should be utilized. PAPR devices may offer superior protection when manipulating an airway of an infected patient.



### Assign:

- Designate the most experienced anesthesia professionals available to perform intubation, if possible. Avoid trainee intubation for sick patients.



### Avoid:

- Awake fiberoptic intubation, unless specifically indicated. Atomized local anesthetic can aerosolize the virus.



### Prepare to:

- Preoxygenate for 5 minutes with 100% FiO<sub>2</sub>
- Perform a rapid sequence induction (RSI) to avoid manual ventilation of patient's lungs and potential aerosolization of virus from airways.
- Consider using a video-laryngoscope.

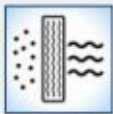


### RSI:

- Depending on the clinical condition, the RSI may need to be modified. If manual ventilation is required, apply small tidal volumes.

### Use:

- Ensure there is a high quality HMEF (Heat and Moisture Exchanging Filter) rated to remove at least 99.97% of airborne particles 0.3 microns or greater placed in between the facemask and breathing circuit or between facemask and reservoir bag.



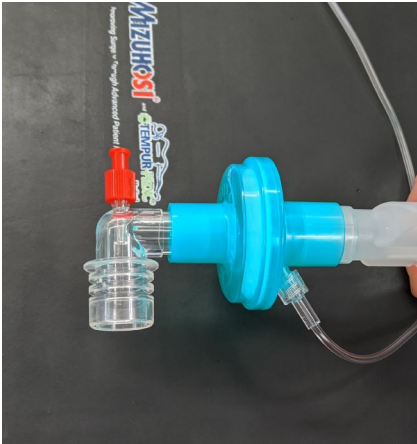
### Dispose:

- 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.



### Remember:

- After removing protective equipment, avoid touching your hair or face before washing hands.

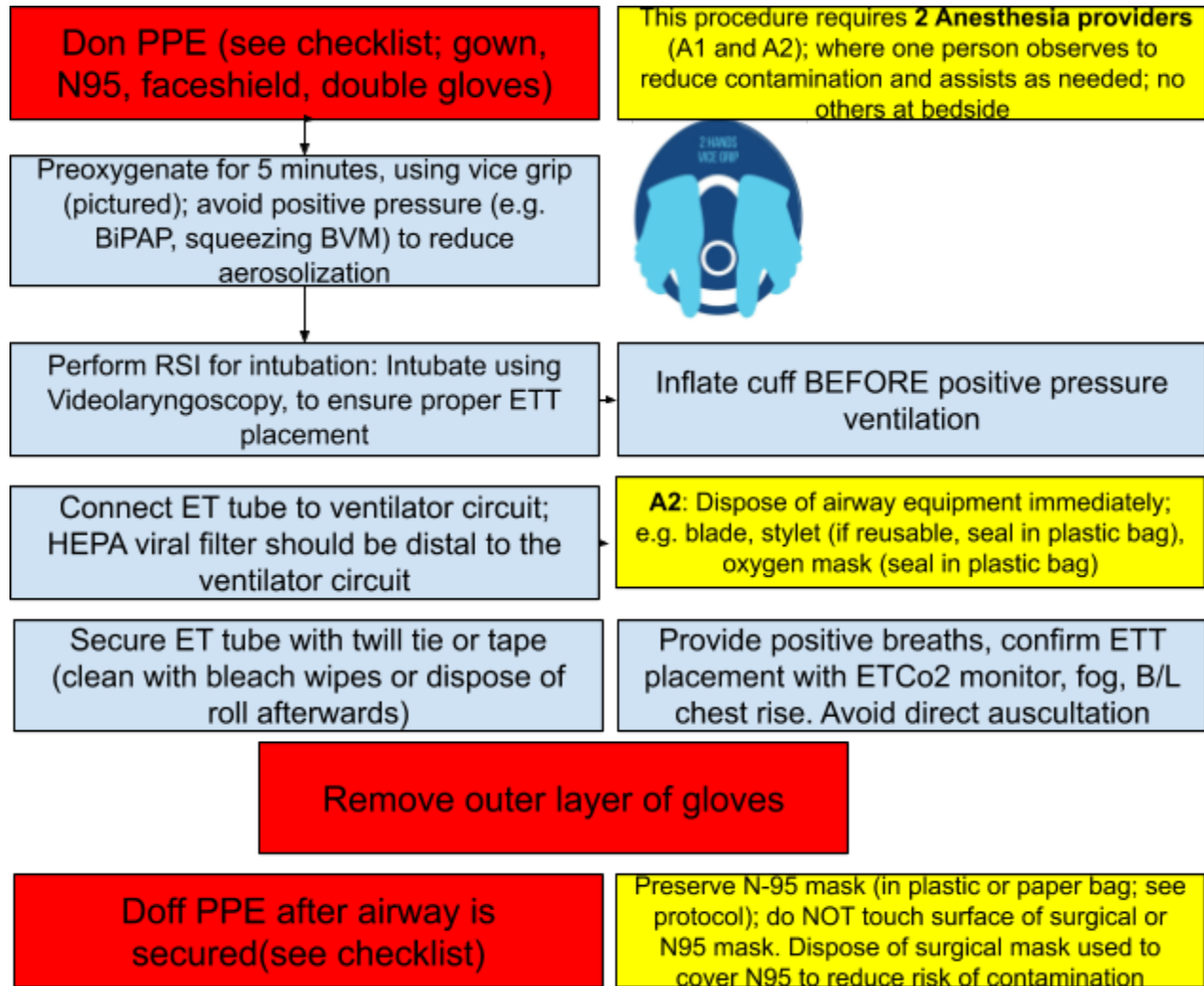


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- HEPA filters (aka HMEF) should be used as pictured above. Sampling line should be proximal to the filter. Found in the Anesthesia Tech room.
- **All patients will now be treated as above - proceed with APSF guidelines on airway management for COVID-19 positive patient**

*Proceed with utmost caution! There is good observational evidence from simulations that without double gloving self-contamination risk increases significantly. This is critical because in SARS and EBOLA, provider self-contamination was THE MOST common reason for HCW infection. Beware of behavioral mishaps - improper doffing of PPE, absent-minded face-touching, not maintaining CLEAN/DIRTY areas in the OR. Please work with your colleagues to minimize contamination.*

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## INTUBATION FLOWSHEET



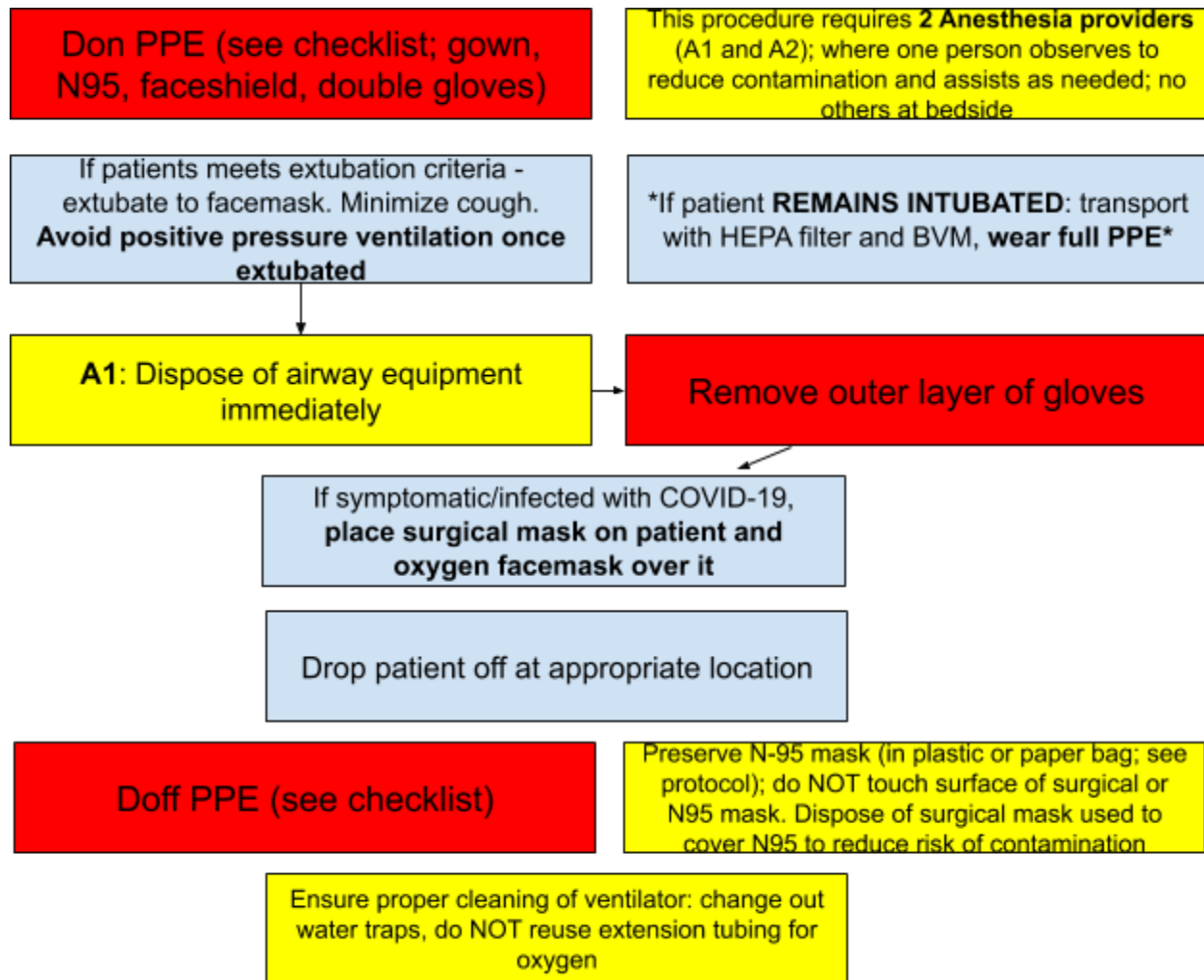
### Important points:

- **If disconnection of circuit from ETT is required (e.g. positioning of patient): PAUSE Ventilator or CLAMP tube (e.g. gauze and Kelly clamp) or SEAL tube (keep HEPA filter on) to prevent viral exposure.**
- Avoid mask ventilation by doing appropriate pre-oxygenation. If mask ventilation is required, use small tidal volumes. Otherwise, proceed with Rapid Sequence Induction.
- Limit number of non-anesthesiology providers at the bedside during intubation
- Double glove

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## EXTUBATION FLOWSHEET



### Preserve N-95 respirators:

- <https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextu se.html>
- CDC states that N-95 mask has been studied successfully for use up to 8 hours continuously or intermittently. The main reason for removing mask or exchanging it was due to overt contamination
- **Preserve mask by wearing second surgical mask over it**
- **In between cases, place N-95 in a ziplock bag (found in anesthesia carts) in your pocket if the mask is not visibly contaminated.**
  - Do not bend or fold mask
  - Keep ziplock back open to allow for proper drying of mask

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- Avoid touching outside surface of mask
- Cleanse hands after re-donning mask
- **CDC guidelines:**
  - Discard N95 respirators following use during aerosol generating procedures.
  - Discard N95 respirators contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.
  - Discard N95 respirators following close contact with, or exit from, the care area of any patient co-infected with an infectious disease requiring contact precautions.
  - **Consider use of a cleanable face shield (preferred) over an N95 respirator and/or other steps (e.g., masking patients, use of engineering controls) to reduce surface contamination.**
  - Perform hand hygiene with soap and water or an alcohol-based hand sanitizer before and after touching or adjusting the mask (if necessary for comfort or to maintain fit).

Proper Donning and Doffing of PPE should be done with a second provider to minimize contamination. Follow checklist below [modified from the general UVA checklist]:

*Abbreviated UVA checklist:*

Donning:

- Cleanse hands
- Inspect gown for tears
- Don gown
- Apply N-95 respirator mask
- Apply surgical mask over respirator
- Don eye protection
- Don 2 layers of gloves

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Doffing:

- Cleanse hands
- Remove gown
- Cleanse hands
- Remove eye protection and surgical mask
- Cleanse hands
- Leave the treatment area
- Remove N95 - if not contaminated place into bag to reuse
- Cleanse hands

DONNING Checklist	DOFFING Checklist
<p>Before donning:</p> <ul style="list-style-type: none"> <li>· Remove all personal items such as jewelry, watches, cell phones, pagers, and pens.</li> <li>· Keep on ID badge and hands-free Vocera device, if available</li> </ul> <p><i>Coach, please state "I am going to direct you through this. Listen to each step completely before proceeding to the next"</i></p>	<p><i>Coach, please state "I am going to direct you through this. Listen to each step completely before proceeding to the next. Prior to doffing, move at least 6 feet away from the patient's head. Check integrity of PPE; check for breaks/visible soil. If breach, see below"</i></p>
<p>1. Cleanse hands.</p>	<p>1. Take a bleach wipe and clean gloved hands. Allow to remain wet for one minute (<i>only allowed for special pathogen isolation</i>).</p>
<p>2. Choose appropriately sized PPE:</p> <ul style="list-style-type: none"> <li>a. Yellow or waterproof blue gown, Double Gloves</li> <li>b. Mask: N95 respirator plus surgical mask ideally with built-in face shield</li> <li>c. Eye protection: Reusable goggles or Eye shields (if not using Regular mask with built-in face shield)</li> </ul>	<p>2. With one thumb, pop waist tie at side of gown. Cross arms and grasp gown at anterior portion of shoulders and pull away from body to break neck stay. Hold gown away from body. Roll up gown, rolling it up inside-out into a bundle with gloved hands. Peel off gloves while holding the rolled-up gown, touching only inside of gloves and gown with bare hands.</p>

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<p>3. Inspect PPE for tears or breaches prior to donning.</p>	<p>3. Dispose of gown/gloves in regular trash<sup>^</sup>. <b>Do not compress</b> discarded PPE in trash bin, to avoid airborne spread of contaminants.</p>
<p>4. Cleanse hands</p>	<p>4. Cleanse hands. If hands are visibly soiled, perform soap and water hand washing.</p>
<p>5. Don gown. Fasten ties.</p>	<p>5. In setting of Operating Room:  <b>a. You may remove N-95 mask once patient airway is secured. However, you must don N-95 mask again during extubation.</b>  b. See below for appropriate doffing of eye protection and mask:  i. Remove eye protection  1. Reusable goggles: Grasp frame at ears. Remove and wipe frame with disinfect wipe  2. Eye shields: Grasp frame at ears. Remove and dispose of removable visor. Wipe frame with disinfect wipe  3. Regular mask with built-in face shield: Pull off ear loops simultaneously while “giraffing” the neck forward</p>
<p>6. Don proper mask:  a. N95 respirator  i. If wearing glasses, remove them from bridge of nose before applying respirator.  ii. Secure elastic bands at crown of head (top strap) and at nape of neck below ears (bottom strap).  iii. Perform a seal check by inhaling and exhaling, testing for air leaks.  b. Place facemask over N95</p>	<p>6. Cleanse hands.</p>

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7. Don eye protection.	8. Remove mask/respirator (if not already done): a. Facemask: i. Pull off ear loops simultaneously while “giraffing” the neck forward. ii. Do not touch front of facemask b. N95 respirator: i. Grasp bottom elastic and bring forward over the head, then ii. Grasp top elastic and bring forward over the head. Allow mask to come off and dispose of mask in trash <sup>^</sup> .
8. Don 2 layers of gloves: Extend to cover wrist of isolation gown.	9. Cleanse hands.
9. Verify the integrity of PPE ensemble (i.e. no tears/breaches). All areas of the body should remain covered during full range of motion.	

<sup>\*</sup> If at any time a breach of protection is noticed, notify your manager immediately. Follow UVA Health employee health policies, including PIC 1523.

<sup>^</sup> If any PPE is dripping with bodily fluids, dispose of in regulated medical waste (RMW) red bins.

### Departmental COVID-19 Airway Protocol Task Force:

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