



# SLEEPY TIMES

VOLUME 14, ISSUE 4 APRIL 2020



## MESSAGE FROM THE CHAIRMAN: ALL THINGS COVID-19

-SCOTT T. REEVES, MD, MBA



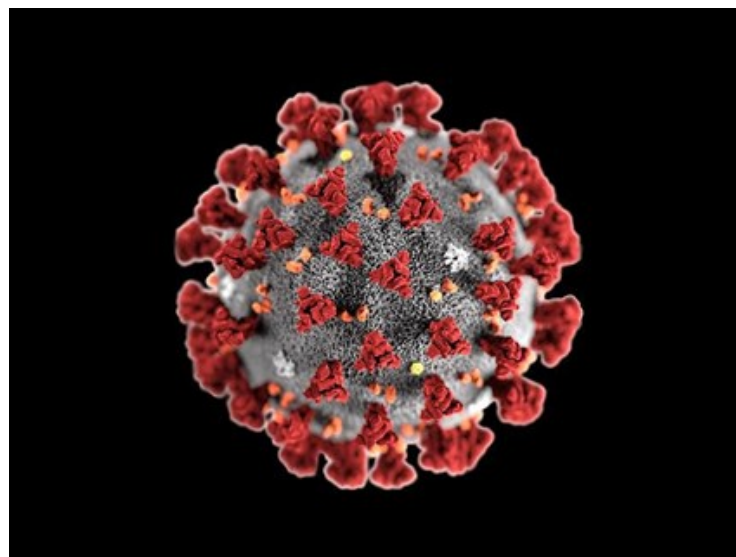
The April edition of *Sleepy Times* is coming out a little early in order to use this platform as a resource for education for COVID 19. There are only a few events that tend to ultimately get burned into our consciousness as healthcare providers. I still remember treating young frail men in Houston as an Internal Medicine resident while they presented with strange purple skin lesions (kaposi sarcoma) whited out chest X-rays (tuberculous and pneumocystis carinii pneumonia) and head ache (cryptococcal meningitis). This new disease would eventually be discovered to be caused by HIV. We knew nothing about this new disease but healthcare workers stayed safe by returning to the basics, proper hand washing with soap and water and isolation of airborne patients while wearing masks.

Fast forward two decades and we all know where we were on September 11, 2001 when the Twin Towers fell in New York City. The current COVID 19 pandemic will be similar for all of us and maybe the first such event for our young trainees and our children.

Our department will ultimately become either the front line of defense or where the last stand is made depending upon how you look at it. Our rapid response and ICU teams have done a remarkable job preparing and responding. Under the guidance of Jerry Reves, Stephanie Whitener, Catherine Tobin and Jeff McMurray, we have developed multiple protocols dealing with things as simple as proper hand washing, how to appropriately putting on and taking off our Personal Protective Equipment and urgent intubations. These protocols have been constantly updated over the past several weeks based on emerging data and updates from the CDC and WHO. Videos have been developed that show step by step how to do a particular process. It is the purpose of this edition of *Sleepy Times* to bring everyone up to speed on what we know, what resources are available and how to prepare for the COVID 19 patient.

### Inside This Issue:

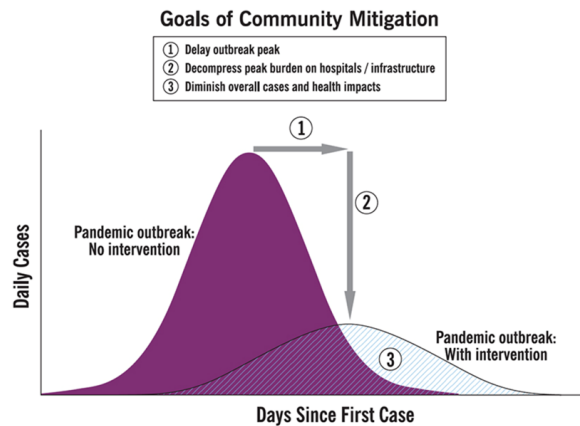
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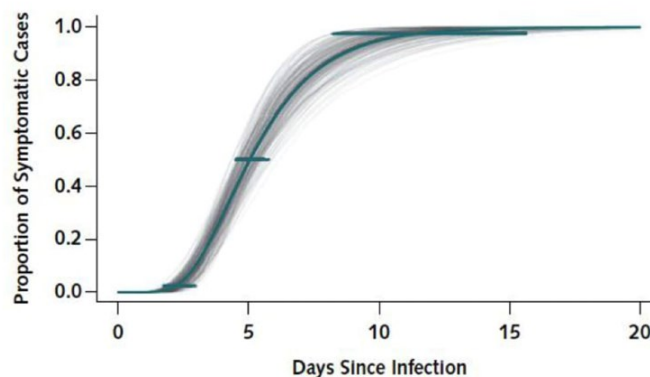
## OPENING STATEMENT CONTINUED

Recently Scott Curry with MUSC Infectious disease did critical care grand rounds. His lecture is an excellent summary and can be seen [here](#). In addition, Dr. Jerry Reves has updated his grand rounds training session materials which can be accessed [here](#).

The graph below shows the United States strategy of trying to flatten the curve to allow for our health systems to catch up with the potential demands of health care and hospital resources. The primary way to do this is by social distancing. This means we do not go out in public. No more children play dates, having social gatherings at our homes etc. China has shown that it does work.



The Annals of Internal Medicine published the proportion of symptomatic patients and the time from exposure. If a person is exposed if they are going to develop symptoms 50% will have symptoms within it 5 days. This is important to know that we will not be seeing anyone within the first 3 days or so from exposure.



Finally, I want to discuss the negative economic impact COVID 19 is having in our community. Daily layoffs are being presented in the news. Our excellent restaurants and their staff are struggling. We can all help. Simple things we can do:

1. Order take out.
2. Move forward things that you are planning on doing. If you plan to have the outside of your house painted or power washed hire someone now.
3. Have your car maintenance done
4. Order firewood for next year.

The little things may keep our neighbors employed just be smart with social distancing.

### MEET OUR NEW INTERNS

It is with great enthusiasm that I introduce you to our new intern class. This will be a very special class. Welcome aboard and we are looking forward to you all joining us in July.

## 2020-21 Anesthesiology Interns



Jared Cadogan, DO  
Alabama College of  
Osteopathic Medicine



Christina Lee, DO  
Edward Via College of  
Osteopathic Medicine—  
Virginia



Bradley Miller, MD  
University of South Carolina—  
Greenville



Christopher Reardon, MD  
MUSC



Riley Chambers, MD  
University of South Carolina  
—Greenville



Cecilia Lipman, MD  
MUSC



Ornella Oluwole, MD  
Medical College of Georgia



Jessica Stockinger, MD  
East Carolina University



Julie Chedister, MD  
MUSC



Elliot Mappus, MD  
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Andra Oprisan, MD  
MUSC



Henry Tomlinson, MD  
MUSC



Terri-Ann Glispie, DO  
Alabama College of  
Osteopathic Medicine



Alexander Meinzer  
MUSC



Andrew Park, MD  
Morehouse School of  
Medicine

## STARTING WITH THE BASICS: HAND HYGIENE

# How to Handrub

**RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED**

**⌚** Duration of the entire procedure: 20-30 seconds



Apply a palmful of the product in a cupped hand, covering all surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Once dry, your hands are safe.

**VIDEO LOCATED HERE:**

[HTTPS://WWW.YOUTUBE.COM/PLAYLIST?LIST=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z](https://www.youtube.com/playlist?list=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z)

**COVID-19 DONNING AND DOFFING****Donn (Put on) Gown with N-95 with Hood Checklist - MUSC anesthesia protocol****Updated 3-23-20****VIDEO LOCATED HERE:**

[HTTPS://WWW.YOUTUBE.COM/PLAYLIST?  
LIST=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z](https://www.youtube.com/playlist?list=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z)

Both the buddy and provider are in Yellow zone (outside the patient's room) while donning. The Buddy reads this checklist for the Provider to follow. **Each step should be confirmed when done by the Provider.**

**Provider:** Ensure trained observer is present.

**Provider:** Remove personal items (phone, pager) and jewelry, etc. Eyeglasses can remain on.

**Tip:** Long hair should be placed in a braid or bun. A hair band should be used to keep hair away from the face.

**Provider with Buddy:** Inspect all PPE pieces for integrity.

- a. Surgical gown (body fluid resistant, blue one)
- b. N-95 respirator mask
- c. Face shield
- d. 2 pairs of gloves
- e. Head cover (hood)

**Provider:** perform hand hygiene.

**Provider:** Don shoe covers

**Provider:** Don first pair of gloves.

**Provider:** Don disposable gown.

**Buddy:** Secure and tie disposable gown in back

**Provider:** Put on N-95 face mask and perform mask seal check

**Provider:** Put on the hood

**Provider:** Put on face shield or protective eye goggles. (This helps hold the hood in place)

**Tip:** Wipe the face shield with an anti-fogging agent if available

**Provider:** Don second pair of gloves with cuff over gown if possible.

**Provider:** Perform Hand hygiene.

**Buddy and Provider:** Perform final check of PPE.

**Tip:** provider and Buddy should self-check in mirror if present

**COVID-19 DONNING AND DOFFING**

**Doff (take off) Gown with N-95 Doffing with hood Checklist - MUSC anesthesia protocol Updated 3-23-20**

**VIDEO LOCATED HERE:**

[HTTPS://WWW.YOUTUBE.COM/PLAYLIST?LIST=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z](https://www.youtube.com/playlist?list=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z)

Provider and buddy are wearing full PPE in Red Zone. (patient care room) The Buddy reads this checklist for the Provider to follow. **Each step should be confirmed when done by the Provider.**

**Provider:** Ensure trained observer is present.

**Provider:** Perform hand hygiene.

**Provider:** Remove shoe covers.

**Provider:** Perform hand hygiene.

**Provider:** Remove gown.

**TIPS:**

a. Untie knot, pull from back to front, rolling inside out and remove from body.

b. Try leaning forward and taking care to avoid contaminating your hands.

**Provider:** Perform hand hygiene.

**Provider:** Remove outer pair of gloves if they did not come off when taking off the gown.

**TIPS:**

a. Grasp outside of one glove using the other gloved hand. Do not touch the hand from which you are removing the glove. **Do not touch your bare skin**

b. Peel glove away from body turning it outside in

c. Dispose of removed glove

d. Peel off second glove by placing fingers inside of cuff of glove at the wrist

e. Turn the second glove inside out while pulling it away from your body

f. Dispose of second glove

**Provider:** Perform hand hygiene.

**Provider:** Remove face shield, leaning forward, by grasping string in back and pulling forward overhead taking care to avoid contaminating your face. If removing eye goggles avoid contamination of your face.

**Provider:** Perform hand hygiene.

**Provider:** Remove hood. Lean forward. Avoid contaminating your face. Start in back. Roll back to front, inside out.

**Provider:** Perform hand hygiene.

**Provider:** Step into yellow zone. (outside patients room)

**Provider:** Perform hand hygiene

**Provider:** Remove N-95 mask /or surgical mask by grasping string in back and pulling forward over the head.

**Provider:** Perform hand hygiene.

**Provider:** remove last pair of gloves.

## COVID 19 DONNING AND DOFFING

### TIPS:

- a. Grasp outside of one glove using the other gloved hand. Do not touch the hand from which you are removing the glove. Do not touch your bare skin
- b. Peel glove away from body turning it outside in
- c. Dispose of removed glove
- d. Peel off second glove by placing fingers inside of cuff of glove at the wrist
- e. Turn the second glove inside out while pulling it away from your body
- f. Dispose of second glove

**Provider:** Perform hand hygiene.

**Provider:** Go to sink and wash hands and arms with soap and water. Put on clean scrubs if possible

## COVID-19 ECHOCARDIOGRAPHY PROCEDURE RECOMMENDATIONS BY: ALAN FINLEY

At this time there is no universal testing of patients available to prophylactically test for COVID-19 prior to a TEE Examination. Going forward, this process will be evaluated as testing becomes readily available and will be the goal in all patients who are at risk of having COVID 19.

Prior to a TEE examination, all patients should be screened for severe acute respiratory infection (fever and at least one sign/symptom of respiratory disease, such as new onset of cough, shortness breath) prior to contact with echocardiography staff. If COVID-19 is suspected, the appropriateness and urgency of performing an echocardiography TEE should be discussed between the requesting attending physician and echocardiography attending physician.

In patients that cannot be ruled out for COVID-19, liberal use of TEE examinations is strongly discouraged and alternative imaging modalities should be discussed. When alternative imaging is not possible, appropriateness and urgency of a TEE examination will need to be considered to determine the timing of an examination. Additionally, risk of transmission in the unintubated and/or unparalyzed patients may be greatly increased due to coughing and may not be the best option or interest for all parties involved.

Any suspected or confirmed COVID-19 patients should be handled with airborne precautions for TEEs (similar to procedures involving the airway) regardless of the patient's intubation status. PRECAUTIONS FOR ASSYMPTOMATIC PATIENTS - THOUGHTS ???

During a TEE Examination, the exam should be as focused as reasonable, but complete enough to avoid the need for reimaging.

Only essential personnel should be present during a TEE examination. In the current environment, performance of a TEE Examination by novice/inexperienced performers should be suspended.

All personnel should be educated in appropriate utility of personal protective equipment (PPE) as per institutional policies. A trained assistant should be present to help with the donning and doffing of the PPE. Consideration should also be given to have separate personnel handle the TEE probe and machine controls

After the completion of a procedure in a suspected or confirmed COVID-19, the echocardiography machine and handheld transducers should be immediately wiped down. The TEE transducer should be placed in a red biohazard bag and taken to the "soiled equipment room" for further processing by trained personnel. .



## COVID 19 INTUBATION KITS

As the department continued its training program, it became apparent that the neck area maybe exposed in smaller frame individuals when using the PPE. An attempt was made to acquire hoods. Unfortunately, the supply chair for these have been substantially disrupted so we developed a process to build our own. Each COVID 19 Kit has 2 protective glasses, 2 hoods and 2 pairs of surgical shoe covers.

### VIDEO LOCATED HERE:

[HTTPS://WWW.YOUTUBE.COM/PLAYLIST?LIST=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z](https://www.youtube.com/playlist?list=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z)





## INTUBATION PROTOCOLS

MUSC Department of Anesthesiology and Perioperative Medicine

*Updated 3/19/2020*

Protocol for intubations in patients suspected of COVID 19

1. Complete MyQuest Modules to review donning and doffing the appropriate respiratory protection (N95 mask), double gloves, face shield, hat, and waterproof gown for intubator (ie blue MRSA gown) yellow or blue gown for assistant (preferably blue)
  - a. This is extremely important. Post-SARS outbreak analysis showed that noncompliance with PPE procedures lead to significant number of infected healthcare workers.
  - b. This will take some time, even in an urgent situation
2. Remove all jewelry, personal items, phones, and pagers from person.
3. Practice appropriate hand hygiene BEFORE and AFTER all procedures.
  - a. **Most important form of contamination is droplet landing on surfaces, and touching contaminated surfaces**
4. Wear fit-tested N95 respirator, face protector such as shield, gown, and DOUBLE gloves.
  - a. See PPE checklist and don with buddy
5. Limit the number of providers in the room.
  - a. Senior provider to push drugs and intubate (will push drugs at head of bed), one provider to attach vent (RT vs 2nd anesthesia provider)
  - b. Additional assistant in case of failed airway, or post intubation help will need to be fully donned outside the room and ready to enter the room. If adjuvant devices are needed (bougie) they will be in charge of taking them into the room.
6. Avoid the use of CPAP or BiPAP in these patients prior to intubation. Pre-oxygenate with non-rebreather.
  - a. Preoxygenation should be for as long as possible- 5 minutes
7. The most experienced person who has been fitted for N95 mask should perform the intubation to limit number of attempts.
8. Avoid awake fiberoptic intubations whenever possible. Atomized local anesthetic may aerosolize the virus.
9. Plan for rapid sequence intubation (RSI) and avoid bag mask whenever possible. Important to pre-oxygenate the patient for up to 5 minutes when possible.
  - a. If unable to avoid bag mask, you should have a HEPA filter inserted between bag-valve-mask and the patient. 2 hand mask for best seal. Use smallest tidal volumes possible to minimize aerosolizing the virus.
10. Prior to entering room assemble the following or confirm already in the room:
  - a. Induction meds drawn up and ready to go
  - b. Airlife viral filter
  - c. EtCO2 detection device (color change or actual EtCO2 connection if available)
  - d. Video laryngoscope with disposable blade, and ETT
  - e. Chuck pad and biohazard bag
  - f. Hand sanitizer and purple top wipes on vent or nearby
11. Place chuck pad, and biohazard bag on chest of patient for collection of contaminated airway equipment
12. Intubate with **Video Laryngoscope** and confirm correct tracheal position via ETCO2 detector and XRAY. DO NOT use your personal stethoscope on patients. Use airlife filter between ETT and bag mask; or directly connect to EtCO2 capable ventilator.
  - a. Video laryngoscopy will allow for the further distance between yourself and the patient's mouth
  - b. Once ETT in place, in room assistant will inflate cuff, attach ambu-bag or vent with ETT detector and confirm correct placement, secure ETT
  - c. After confirmed tracheal intubation place video laryngoscope on chuck pad, and **hand sanitize outer glove**

**INTUBATION PROTOCOLS CONTINUED**

13. Institute mechanical ventilation with HEPA filter attached to vent (RT will setup)
14. Once patient stable or primary team assumes care of patient proceed with cleaning video laryngoscope & supplies:
  - a. Place disposable plastic blade on chuck pad
  - b. Hand sanitize
  - c. Open biohazard bag
  - d. Hand sanitize
  - e. Using purple top wipes clean VL device with 2 wipes including removing battery to wipe down inside and place in biohazard bag
  - f. Hand sanitize
  - g. Using purple top wipes clean the biohazard bag, and place into clean receptacle that assistant or other provider outside of room will be holding
  - h. Hand sanitize
  - i. Discard chuck pad and all disposable items in red biohazard trash
  - j. Hand sanitize
  - k. Remove outer gloves and hand sanitize
15. Doff PPE in patient room at least 6 feet away from the patient, except N95 mask-which is removed outside of room.
  - a. Keep in mind door handles will be contaminated
16. Assistant who remained outside will now clean the VL again with purple top wipes with disinfectant wipes (allow for 2 min dry time), and then remove protective equipment per protocol.
  - a. If assistant was needed in the room, the second cleaning of VL can be done with gloves only outside of the room.
17. After correctly removing protective equipment, avoid touching hair, eyes or face before washing hands.
18. **Overall key is to minimize contamination of surfaces in the room, and contamination of yourself.**

**Special Circumstances:****CPR**

1. Hand hygiene and full PPE with N95 prior to entering room
  - a. This will take time, you SHOULD NOT rush, instruct all team members that they should don PPE appropriately, with checklist
2. Goal is early intubation to minimize aerosolization
3. Minimize BMV—If you must, use two hand technique to minimize aerosolization
4. Hold Chest Compressions while intubating to minimize aerosolization of virus. Clearly alert code leader and providers before attempting intubation.

**Extubation**

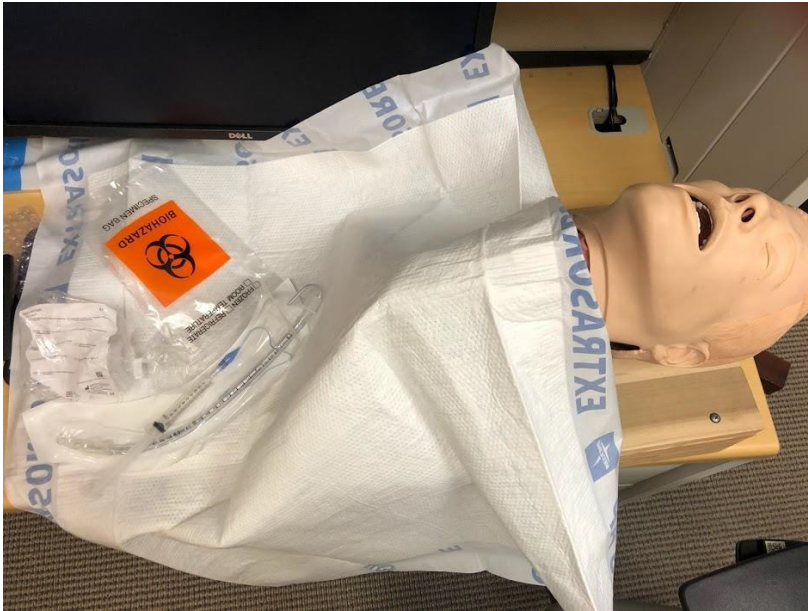
1. Ideally would extubate in negative pressure room
2. Proper hand hygiene and PPE—see checklist
3. Limit staff to minimum
4. Extubate to face mask
5. Avoid BiPAP/HFNC

**References:**

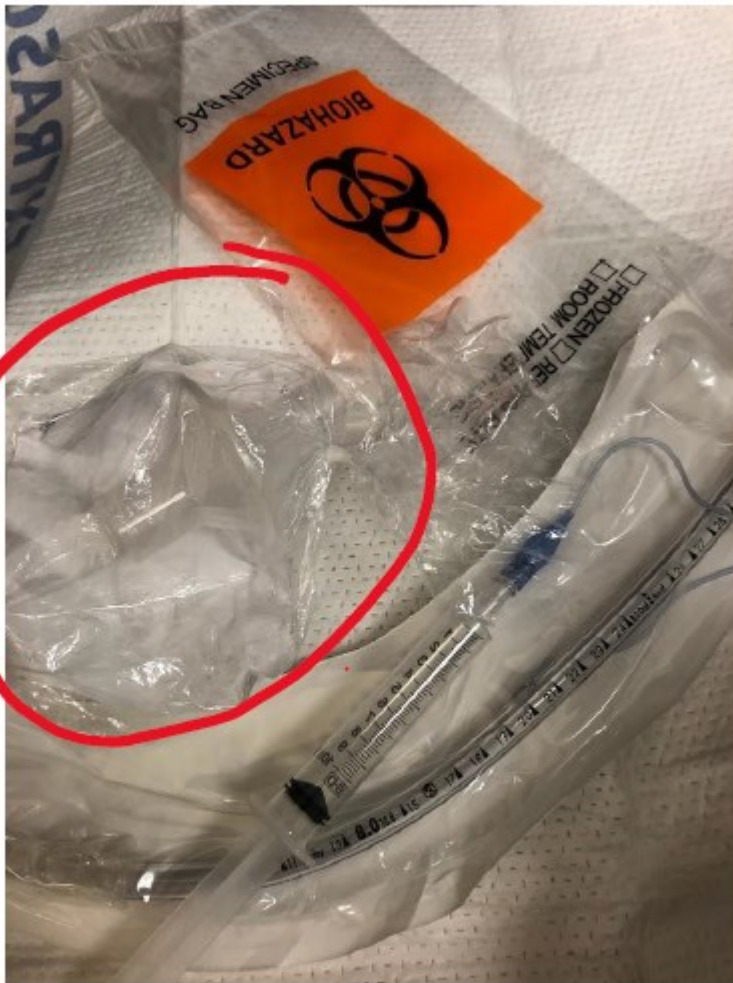
Caputo KM, Byrick R, Chapman MG, Orser BJ, Orser BA. Intubations of SARS patients: infection and perspectives of healthcare workers. *Can J Anaesth.* 2006. 53(2):122-129.

ASA Coronavirus (2019-nCoV) Recommendations for Invasive Procedures.

**INTUBATION PROTOCOLS CONTINUED**

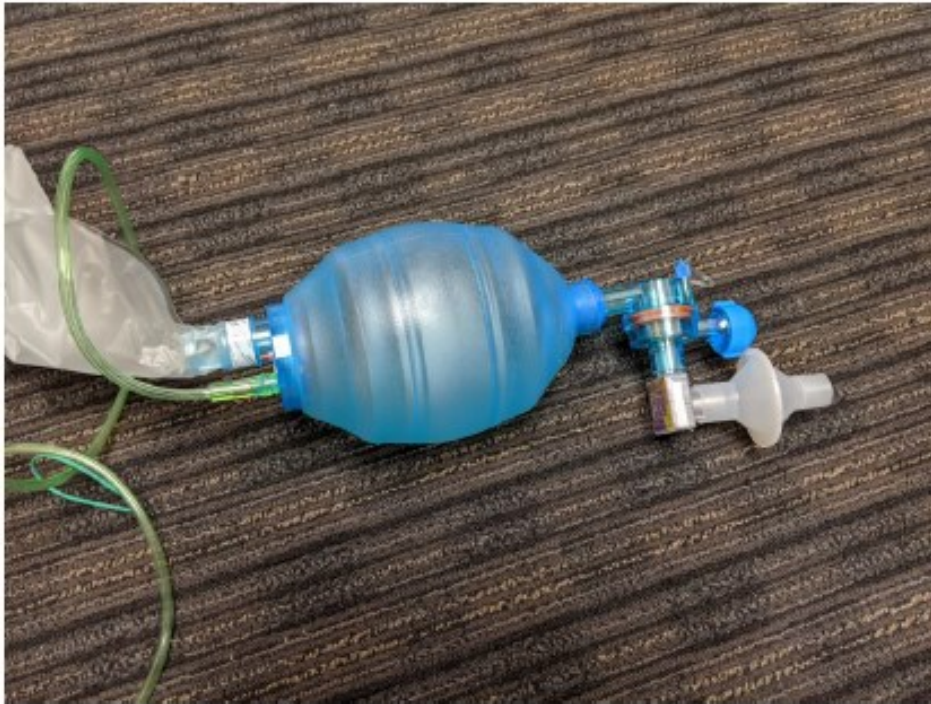


Chuck pad placed on patient's chest for placement of contaminated airway items



Airlife Filter

**INTUBATION PROTOCOLS CONTINUED**



Ambu Bag  
with filter  
and EtCO2  
setup



[MUSC COVID19 Pre-Intubation Planning Checklist](#)

**INTUBATION PROTOCOLS CONTINUED**

**VIDEO LOCATED HERE:**

[HTTPS://WWW.YOUTUBE.COM/PLAYLIST?  
LIST=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z](https://www.youtube.com/playlist?list=PLNPWQ7VTZUB2UNTBTPRMWNZ4E-AVJY13Z)

**DISCLAIMER: We WILL NOT take off outer layer of gloves immediately after intubation, but HAND SANITIZE outer layer of gloves immediately after intubation. We will clean McGrath as per the intubation protocol and doff outer layer of gloves per the doffing protocol.**

## MUSC HEALTH: PERSONAL PROTECTIVE EQUIPMENT (PPE) REUSE GUIDANCE UPDATED: MARCH 22, 2020

**COVID-19 is a rapidly evolving situation. The guidance below and from CDC represents current strategy based on available information and the current state of our supplies. This guidance is likely to change frequently, so please ensure you are reviewing the most current version of this guidance, which will be available on the MUSC intranet.**

### Key reference:

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html>

The purpose of this guideline is to provide instruction for the conservation of personal protective equipment (PPE) during a time of **crisis capacity** as defined by the U.S. Centers for Disease Control and Prevention (CDC). Crisis capacity is defined as strategies that are not commensurate with the *typical and routine* US standards of care, but may be considered during surge / shortage periods. **Care team members will only practice reuse if given authority by hospital leadership.** The duration shall continue for only so long as there is a declared public health emergency. These guidelines shall be in accordance with written guidance received from the CDC and/or South Carolina Department of Health and Environmental Control (SCDHEC), but as necessary MUSC guidelines will be more stringent/conservative or otherwise differ from interim CDC/DHEC guidelines. These guidelines are adopted in order to further protect the safety, health and well-being of our care team members and patients. All used Personal Protection Equipment referenced in this guideline and which was generated in the care and treatment of patients with a highly contagious infectious disease shall be in accordance with applicable regulations and guidelines of CDC, OSHA and SC DHEC related to the safe handling of contaminated and infectious biohazardous waste, including appropriate containers, handling and transportation.

### General Conservation Principles

- Limit caregivers to essential personnel only. Whenever possible, avoid PCT, EVS, student, resident, and/or trainee presence in rooms requiring isolation.
- Bundle patient care activities and room entrances.
- Utilize telemedicine whenever possible.
- Discontinue precautions as soon as possible, while aligning with infection prevention guidelines.

### Eye Protection: this reuse guidance can be used for all patients.

1. Do not reuse eye protection if:
  - visibly soiled
  - damaged in any way
2. Care team members should not touch their eye protection. If they touch or adjust their eye protection, they must immediately perform hand hygiene.
3. To reuse eye protection: When manufacturer instructions for cleaning and disinfection are unavailable, such as for single-use disposable face shields, consider:
  - A. While wearing gloves, carefully wipe or spray the *inside* of the face shield or goggles using a purple top PDI Super Sani Cloth (purple top) wipe or 70% ethanol or isopropyl alcohol spray, or CaviCide surface disinfectant spray. The goggles/faceshield should remain wet at least for 3 minutes.
  - B. Carefully wipe the *outside* of the face shield or goggles using the same disinfectant in step 3a.
  - C. After Steps 3a-3b, all surfaces of the items should be wet for at least 3 minutes; re-apply/wipe as necessary.
  - D. If CaviCide spray or PDI wipes were used for disinfection, wipe the outside of face shield or goggles with clean water or alcohol to remove residue.
  - E. Fully dry (air dry or use clean absorbent towels).
  - F. Remove gloves and perform hand hygiene.

**NOTE:** Use of 70% alcohol-based spray will result in quicker drying without residue. Acrylic eyewear components may become brittle with repeated disinfection.

**PERSONAL PROTECTIVE EQUIPMENT (PPE) REUSE GUIDANCE CONTINUED...****Facemasks: this reuse guidance can be used for all patients (including COVID-19 patients)**

1. Do not reuse face masks if:
  - Visibly soiled or wet
  - Damaged in any way
  - Difficult to breathe through
2. Facemasks with elastic ear hooks are more suitable for reuse. However, facemasks with attached face shields and ties can be disinfected with the procedure below.
3. To reuse facemasks:
  - A. After performing hand hygiene over gloves, remove facemask carefully with gloved hands per usual doffing protocol.
  - B. Visually inspect for any contamination or damage. If contaminated or damaged, discard.
  - C. Place facemask on a clean surface with the outer surface facing up.
  - D. Spray the facemask, ties, and (if applicable) the attached faceshield with 70% isopropyl alcohol or 70% ethanol (ethyl alcohol) solution until the mask is thoroughly saturated.
  - E. With gloved hands, turn the mask over and spray the inner surface.
  - F. Hang the mask and allow to air-dry for a minimum of 2 hours.
  - G. If not using again, store mask in a clean, sealable paper bag or breathable container. Dispose of the mask when it loses its visible integrity or after 5 disinfections, whichever comes first.
  - H. Each disinfected mask should be used for a single patient.

**NOTE:** DO NOT USE CaviCide surface disinfectant spray, bleach-containing sprays, or PDI Super Sani Cloth wipes to disinfect surgical masks. These disinfectants will take substantially longer to dry. More importantly, these disinfectants can be irritating if inhaled or in contact with skin from an incompletely dried mask. Skin irritation or contact dermatitis will increase opportunities for exposure to COVID-19.

**N95 or Respirators: This reuse guidance should be utilized only when reliable replenishment of N95/respirators are not available. Personnel reusing N95s should have been fit tested and/or conducted a seal check.**

1. Do not reuse N95 or respirator if:
  - Visibly soiled
  - Damaged in any way
  - Difficult to breathe through
2. To reuse a N95 or respirator, ideally a full-face shield should be donned over the N95 or respirator. If no full-face shields are available, please proceed with caution to steps 3-7.
3. Doff the facemask barrier and conserve, following the instructions above under facemask.
4. Complete hand hygiene.
5. Remove the N95 or respirator and visually inspect for contamination or damage. If contaminated or damaged, discard.
6. Store the N95 or respirator in a clean, sealable paper bag or breathable container. Each conserved mask should be used for single provider and a single patient. Write the provider name and date on the outside of the bag. Add a patient label to the container.
7. Dispose at the end of each shift.

**Additional references**

Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH)  
<https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html> <https://www.cdc.gov/niosh/topics/hcwcontrols/pandemic-planning.html>

## MANAGEMENT OF COVID-19 + PATIENTS IN THE OPERATING ROOM

### PREOPERATIVE PHASE:

#### PLANNING

- We are currently in the process of identifying best ORs at each location for cases. Ideally would be out of the way of other ORs and have an ante-room for donning/doffing of PPE. Unfortunately, do not have the capability to make any of them negative pressure.
- Designated OR will be stripped of all unnecessary equipment and any loose supplies as well as possibly the Pyxis machines. Remaining equipment (anesthesia machine and monitors, laptop computers, and ultrasound machine) to be covered with plastic wrap to decrease the risk of contamination and facilitate cleaning
- If possible, try to have patient be last case of the day. We want to leave as much time as possible between when the patient leaves the operating room and any subsequent patient care to allow for removal of any airborne contamination

#### ACTIVATION

- Possible COVID case identified by scheduler who notifies DOD or IHC anesthesia attending
- Anesthesia to discuss urgency/case appropriateness with attending surgeon and identify OR anesthesia team
- Huddle among surgery attending, attending anesthesiologist, anesthesia tech, OR nurse manager, OR circulating nurse and scrub to discuss operative and anesthetic plans (including intubation plan), anticipated needs specific to the case.
- **If intubation is anticipated for procedure for an ICU patient, prefer that patient be intubated IN THE ICU prior to transfer to minimize risk of aerosolization in OR and patient should be transferred to OR on ICU ventilator**
- Designate a runner (to assist with transfer and getting needed supplies during case) and "dofficer" for the case (observe donning and doffing of team members)
- Plan/discuss a designated route to OR that minimizes contact with others
- Circulating nurse to contact security 30min prior to transport so that they can help clear designated route and call elevator if needed

#### ROOM PREPARATION

- Prior to transferring patient, should have all anticipated drugs and equipment arranged on disposable covers on anesthesia machine/designated work surface
  - We may be pulling Pyxis machines out of the OR since they are not air-tight, vs covering them in plastic wrap and not accessing during the case
  - Need to discuss making packs/buckets for drugs, airway supplies, IV kits, IV tubing, etc vs just pulling for individual cases since will need to toss any unused drugs/supplies at the close of the case
- Ensure that standard HMEF filter is in place at the circuit Y and an additional HMEF filter is in place in-line at expiratory limb (our standard HMEF filter at the Y should be adequate, but in the event that it becomes soiled, a second filter on expiratory limb serves as a good backup to keep anes machine from becoming contaminated). **Ideally, most patients will come intubated on the ICU vent which we would use for the case and will plan to do TIVA in these cases.**
  - (\*\*if you don't have a filter between the gas sampling line and the patient you need to change out the water trap at room turnover because you have contaminated water\*\*)
  - For peds patient or other patients in whom the additional dead space or weight of the filter may cause problems, the HEPA filter should be placed on the expiratory end of the corrugated breathing circuit before expired gas enters the anesthesia machine. (if this is the case, will need to change water trap at close of case since gas analyzer will be contaminated)
- Designate one entry/exit to OR and place signs/bar other entries to minimize entry to Should only enter and exit through one door



**MANAGEMENT OF COVID-19 + PATIENTS IN THE OPERATING ROOM CONTINUED...****TRANSPORT OF PATIENT TO OR:**

- Transport team will consist of anesthesia attending, circulating nurse and RT
  - Transport team to don full PPE outside of patient's room with a buddy per our donning protocol
  - Primary nurse and ward RT to prepare the patient in the room for transport
    - >Place clean sheet over the patient, have the patient perform hand hygiene and don surgical mask if to remain extubated, transfer cables to transport monitor, wipe down high contact areas of bed/IV pole/vent and will push patient out of the room to the transporting team.
- If intubation is anticipated for procedure for an ICU patient, prefer that patient be intubated IN THE ICU prior to transfer to minimize risk of aerosolization in OR and patient should be transferred on ICU ventilator with HEPA filter in place
  - If using a transport vent or ambu bag, ensure that there is a HEPA filter between the Y-piece of the breathing circuit or ambu bag and the ETT
- If patient to remain extubated for transfer, have patient perform hand hygiene and don surgical mask
- Security should help ensure that our designated route is clear of obstacles and people
- We should have a HC worker with surgical mask act as "runner" to interact with environment throughout the route (open doors, etc)
- Have the unit charge or runner contact the OR to confirm transport

**INTRA-OP**

- Once the patient arrives in the OR, the plan is to keep the bed in the OR is possible. If there is no room to keep in the OR, we will strip the bed, push it out and have someone clean it immediately
- Surgical team is to be ready in the room in full PPE
- Anesthesia team to maintain full PPE in the room and to remain in room for the duration of case through recovery/transport phase
- If transitioning from a transport vent or to ambu bag to OR vent, the gas flow is turned off, ETT clamped briefly during switch to avoid aerosolization
- The most impactful thing that we can do as anesthesia providers is maintain good hand hygiene: should be performing before and after removing gloves, after contact with soiled or contaminated areas, before touching the anesthesia machine and after every contact with the patient (e.g. placing esophageal temp probe, NGT)
- If it's available, use the closed suction system from the ICU during airway suctioning. Avoid disrupting the circuit to suction.
- If devices such as point-of-care ultrasound are used:
  - A long sheath cover of the probe and cable should be used to minimize equipment contamination
  - Can cover non-essential parts of the ultrasound cart can be covered with drapes to minimize droplet exposure.
- There will be designated runner remain outside OR to retrieve needed items for anesthesia and surgery

**EMERGENCE/RECOVERY**

- For patients from non-ICU locations who are considered stable for transfer back to floor:
  - Patient is to be extubated in the OR after all non-essential personnel have exited the room (i.e. just anesthesia in the room)
  - Patient will be recovered in the OR by anesthesia team
  - Patient will be transported back to their unit by anesthesia personnel who will remain in full PPE and then doff with the help of a buddy after transition of care back to unit team
- For patients from ICU returning to ICU locations or for who are upgraded to ICU post-procedure
  - Patient to remain intubated
  - Patient to be transported to ICU by anesthesia personnel who will remain in full PPE and then doff with the help of a buddy after transition of care back to unit team
    - >If transitioning from OR vent to transport vent or to ambu bag, the gas flow is turned off, ETT clamped briefly during switch to avoid aerosolization

**MANAGEMENT OF COVID-19 + PATIENTS IN THE OPERATING ROOM CONTINUED...****POSTOPERATIVE PHASE:**

Proper care of anesthesia equipment after COVID case

- Leave equipment in the room after exiting with patient and wait one hour before re-entering room for cleaning
- Should re-don PPE for cleaning
- Recommend changing circuit, both HMEFs and the CO2 absorbent between cases

Resources:

<https://www.asahq.org/about-asa/governance-and-committees/asa-committees/committee-on-occupational-health/coronavirus>

**AM MED DEVELOPS A COVER FOR N95 MASK**

Our academic partners at Am Med in Anderson, SC have developed a process to make covers for N 95 mask using simple surgical drapes. This process would allow N 95 mask to be cleaned with 70% isopropyl alcohol and reused. We will attempt to replicate the process this week. In this difficult time with supplies running short creative ideas are being born. You can see the process on the following you tube link:

<https://www.youtube.com/watch?v=szMIHWiT8wg>

## COVID COHORT UNITS

<3

COVID+  
Patients

### COVID+ Patient Workflow Plan Tier 1

- When we have **3 confirmed positive patients** (ICU or floor patients) the COVID Response Team will make the call to activate the Infectious Disease Units.
- USID1 will be activated first to cohort all positive COVID patients.
- Once the USID1 has **6-8 positive patients** the COVID Response Team will make the decision to activate the second unit on the 4<sup>th</sup> floor. Once that unit is activated, floor patients will move out of USID1 down to the unit on 4 center allowing USID1 to become solely an ICU unit.
- We will then continue to fill the units on 4&5 simultaneously.
  - 1) USID1 (*diagram 1*)
    - 12 bed ICU COVID+ unit (4 pods of 3 beds) on the 5<sup>th</sup> floor (USID1)
    - One pod is truly negative and will be the initial isolation room
  - 2) 4 center (*diagram 2*)
    - 14 bed COVID+ unit for floor patients on 4<sup>th</sup> floor

<26

COVID+  
Patients

- If USID1 reaches full capacity with ICU patients, ICU COVID+ will overflow into the unit on the 4<sup>th</sup> floor.
- At that point, the COVID Response Team will active Tier 2

### COVID+ Patient Workflow Tier 2

- Once both 5<sup>th</sup> and 4<sup>th</sup> floor infectious disease units approach capacity, the COVID response team will meet to activate the 3<sup>rd</sup> unit, 7B in old CH.
  - 3) 7B (*diagram 3*)
    - 18 bed unit with 6 negative pressure rooms
- 7B will only be equipped to support floor patients. Therefore, we will move the floor patients out of the unit on 4<sup>th</sup> floor into 7B of old CH.
- The two units in MH will then be dedicated only to ICU level care.
- If our third COVID unit reaches 60% capacity and we are overwhelmed with floor patients we will move into Tier 3.

<34

COVID+  
Patients

### COVID+ Patient Workflow Tier 3

- If we must move into Tier 3, the COVID response team will convert the prep & recovery space on the 3<sup>rd</sup> floor of ART to become a COVID+ unit.
  - 4) ART 3<sup>rd</sup> floor Pre & Recovery (*diagram 4*)
    - 30 bays
      - 4 have sliding glass doors
    - 2 rooms
      - 1 procedure
      - 1 negative pressure
- This unit will be equipped to support both ICU and floor level patients

<64

COVID+  
Patients

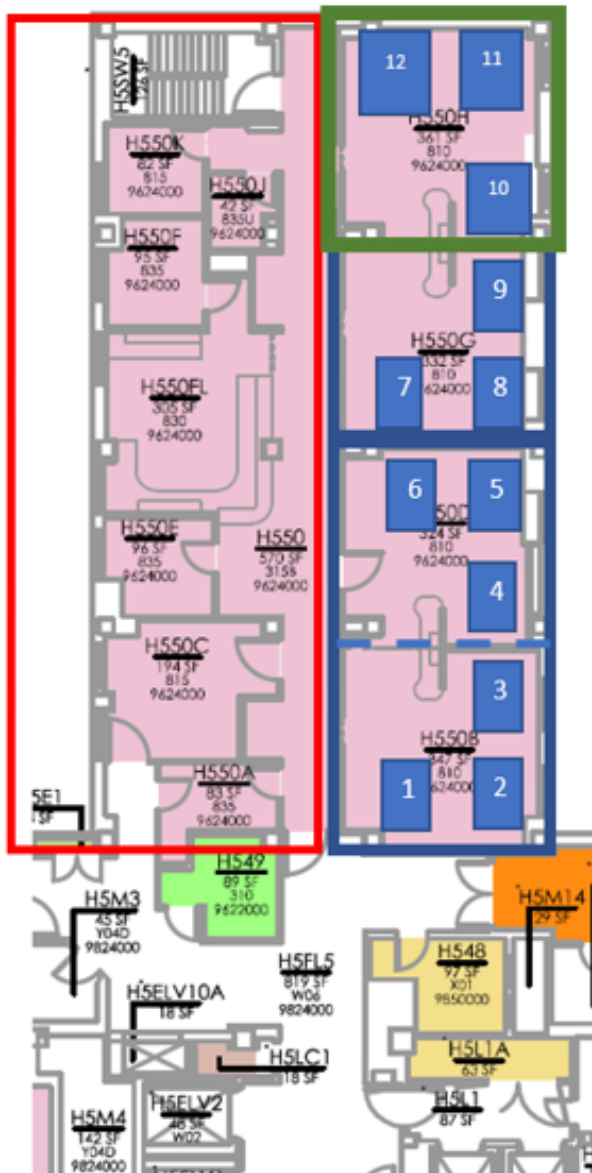
### COVID COHORT UNITS

- Until Tier 3 is needed, COVID+ patients in ART will be held in Negative Pressure Rooms on the floors

#### COVID+ Patient Workflow Tier 4

84  
COVID+  
Patients

- Once the prep & recovery space reaches 60% capacity the COVID response team will active the 5<sup>th</sup> infectious disease unit – 3West in ART
  - 5) 3 West in ART (diagram 5)
    - 20 beds



**PPE Requirements for COVID Unit on 5<sup>th</sup> floor**

Within the RED box: face mask

Within the BLUE boxes: full PPE must be worn

\*Green= fully negative pressure, full PPE

Diagram 1: USID1 - 5<sup>th</sup> floor MH

### COVID COHORT UNITS

If there is a need to intubate or perform invasive procedure it will be done in the negative pressure room

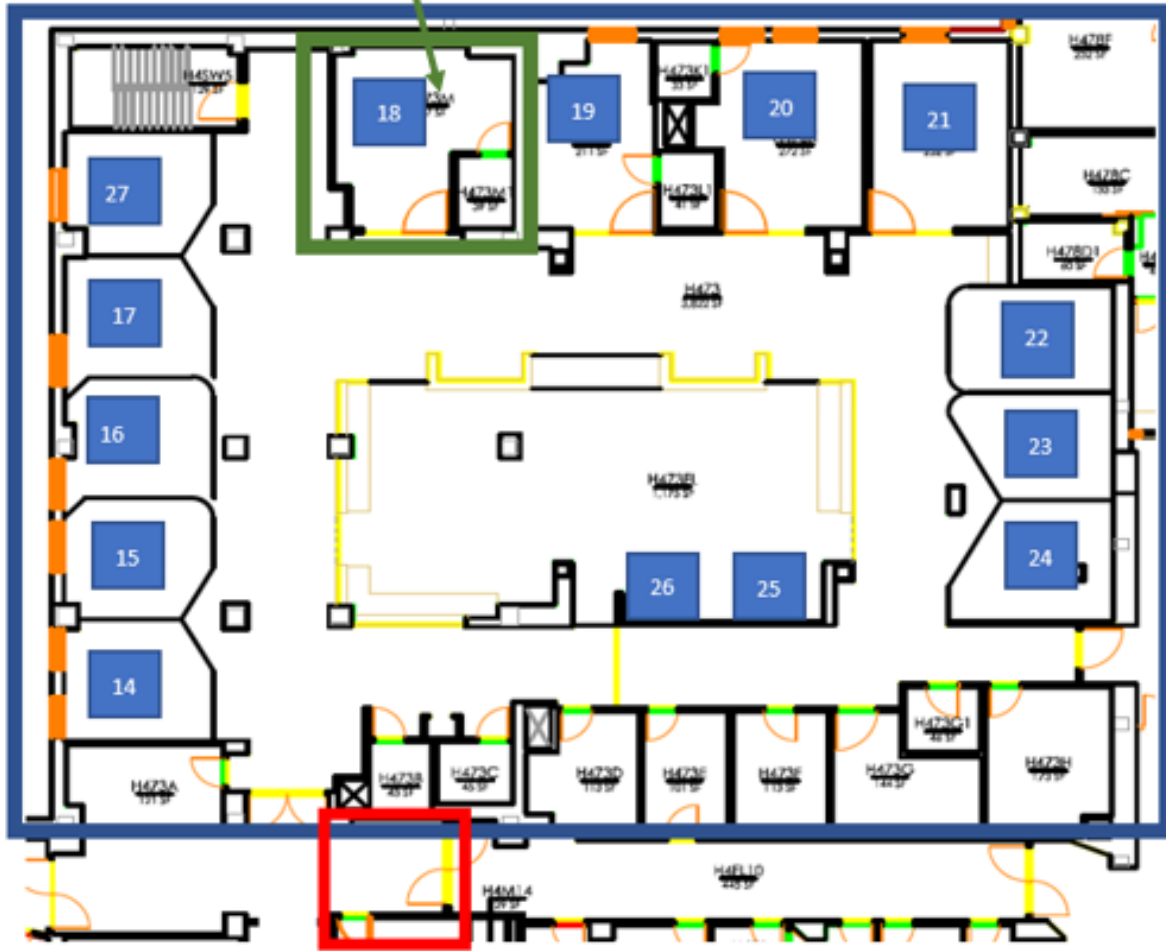


Diagram 2: 4<sup>th</sup> floor MH

**PPE Requirements for COVID Unit on 4<sup>th</sup> floor**  
RED box- a designated area outside the unit that care team members can chart without PPE  
BLUE box - Full PPE must be worn anywhere inside the unit

COVID COHORT UNITS

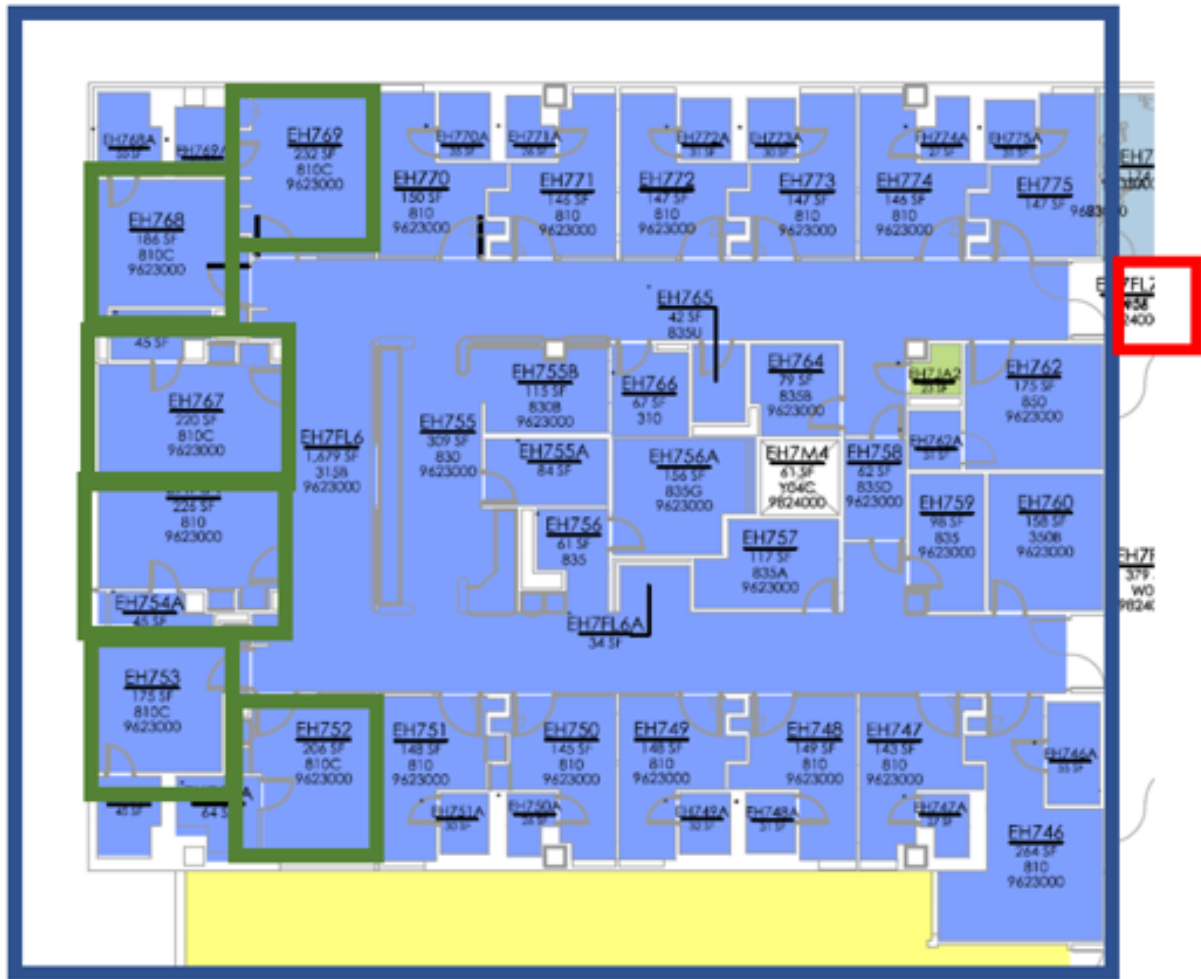


Diagram 3: 7<sup>th</sup> floor old CH

**PPE Requirements for COVID Unit on 7<sup>th</sup> floor CH**

RED box- a designated area outside the unit that care team members can chart without PPE

BLUE box - Full PPE must be worn anywhere inside the unit

\*\*Green rooms are fully negative, can be used to intubate or perform invasive procedure it will be done in the negative pressure room

### COVID COHORT UNITS



Diagram 4: 3<sup>rd</sup> floor Prep & Recovery ART

**PPE Requirements for COVID Unit on 3<sup>rd</sup> floor ART**

RED box- a designated area outside the unit that care team members can chart without PPE

BLUE box - Full PPE must be worn anywhere inside the unit

\*\*Green rooms are fully negative, can be used to intubate or perform invasive procedure it will be done in the negative pressure room

## COVID COHORT UNITS



Diagram 5: 3 West

**PPE Requirements for COVID Unit on 3<sup>rd</sup> floor ART**

RED box- a designated area outside the unit that care team members can chart without PPE

BLUE box - Full PPE must be worn anywhere inside the unit

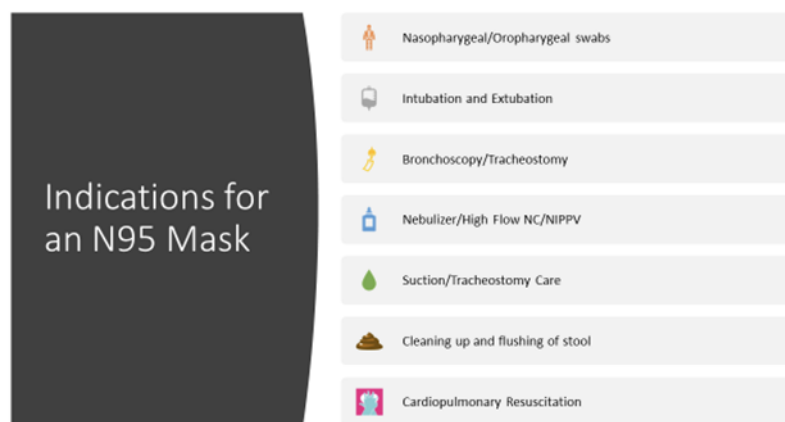
\*\*Green rooms are fully negative, can be used to intubate or perform invasive procedure it will be done in the negative pressure room



## PPE CONSERVATION GUIDANCE—MARCH 18, 2020

Situation- Experts have suggested that the national supply of personal protective equipment (PPE), including gloves, gowns, facemasks (surgical and N95 respirators), face shields, and goggles, will not be adequate if we continue to utilize our supply at the current rate. In order to preserve our supply of PPE here at MUSC Health, we offer the following practices. Please note that this is a very fluid situation and guidance may change as additional information becomes available:

- Work expeditiously to transfer non-COVID-19 patients out of AIIR (negative pressure rooms).
- Centralize the supply of all PPE items in a secured area. Supply out on an allocation basis.
- Clearly identify essential personnel who will be caring for any rule out or confirmed COVID-19 patient and limit entry into the patient room to those essential individuals.
- Wear a surgical mask instead of an N95 respirator for routine care of a suspected or confirmed COVID-19 patient, preserving N95s for use when performing an aerosol generating procedure.



- It is not recommended that you don an N95 respirator in non-airborne isolation areas of the hospital or in the community.
- It is not recommended that you don a surgical mask when not performing patient care in the hospital or in the community.
- Please do not take PPE supplies out of the hospital for home use.
- To preserve gowns and gloves, effective immediately we will stop contact precautions for patients colonized or infected with vancomycin-resistant *Enterococcus* (VRE) and *Stenotrophomonas*.
- Similarly, we will immediately remove patients from contact precautions for methicillin-resistant *Staphylococcus aureus* (MRSA) if they have not had a positive MRSA culture within the previous year.
- For patients who remain on contact precautions for MRSA and gram negative organisms, please use yellow gowns with your gloves to preserve blue gowns for COVID-19 patients.
- For patients with active diarrhea on contact precautions for *C. difficile*, please continue to use blue gowns with your gloves.
- For patients without active diarrhea who remain on contact precautions for *C. difficile*, utilize only gloves, preserving gowns for COVID-19 patients.

Additional resources and recommendations can be found on the CDC website

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html>

**COVID19 UPDATE IN PREGNANCY: DONNA JOHNSON, MUSC'S CHAIR OF OB/GYN**

As obstetricians, we take care of many employees in the healthcare field. We feel an obligation to give you information about working during the crisis but also protecting you and your unborn child. COVID-19 is a coronavirus. This is not the first time we have encountered a coronavirus. A coronavirus caused SARS and MERS.

Thus far, coronaviruses of any kind are not thought to be vertically transmitted. In other words, if you get the virus, we do not think your fetus is at risk for getting sick in utero.

We do not feel pregnant women are more likely to become infected with COVID-19 than non-pregnant women. Most cases of COVID-19 cause mild to moderate symptoms such as cough and fever. However, a small number of young healthy people (<45 years old) can get severe symptoms and require hospitalization and potential respiratory support. The rate of severe disease in young people reported from China is up to 8%.

We do know some viral illness such as Influenza A and B can be more severe in pregnant women than in non-pregnant women. At this point, a case report of 19 pregnant women suggests this is not the case for COVID-19. However, we feel that the number of cases in this report is too low to be assured that the disease is not modified by pregnancy.

Pregnant women who are severely ill with any viral illness, such as the flu, can have complications during pregnancy, such as preterm delivery. We do not yet know if this happens with COVID-19.

We make the following recommendations to pregnant women who are members of our healthcare team:

- You may continue to work in the clinical setting and should adhere to standard, contact, and airborne precautions.

- If a patient is under investigation or is known to be infected with the coronavirus, then avoid caring for this patient.

- Avoid, to the extent possible, aerosol-generating procedures. These include endotracheal intubation, airway suctioning, sputum collection, among others.

- If you have an unexpected exposure to coronavirus, we asked that you perform self-monitoring by checking your temperature twice daily – once prior to your work shift and then again 12 hours after. If you develop a temperature of 100.4 F or 38 C or higher, cough, gastrointestinal symptoms, or difficulty breathing stay home from work. If you develop difficulty breathing, call your OB provider as you may need to be evaluated in an appropriate outpatient setting. If you develop symptoms, we suggest that you be assessed by MUSC Virtual Care at [www.muschealth.org/virtualcare](http://www.muschealth.org/virtualcare). If MUSC Virtual Care feels you need testing, an order will be written for you. If you develop any pregnancy symptoms such as preterm contractions or maternal symptoms such as shortness of breath, please notify us. We will direct you to the place where you should be seen.

In accordance with University recommendations, we encourage you to speak with your immediate supervisor to determine if it is possible for you to work remotely. We understand that this option may not be possible for many members of our healthcare team.

As everyone knows, this is an evolving situation. Additional or revised recommendations will be provided as new information leads us to change or update our current recommendations.



DEPARTMENT OF ANESTHESIA AND PERIOPERATIVE MEDICINE

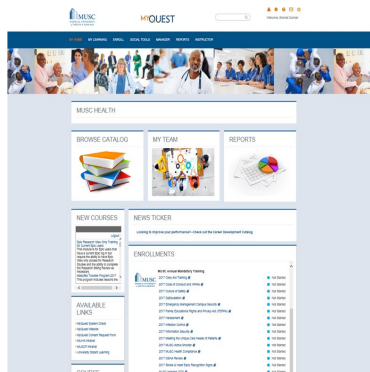
Email: [hiottg@musc.edu](mailto:hiottg@musc.edu)  
Phone: 843-792-7503  
Fax: 843-792-9314

[CHECK OUT OUR WEBSITE](#)



It is time again to complete our MUSC Annual Mandatory Training courses which can be accessed through MyQuest. Training modules are tailored for specific roles in the organization and are due on or before June 30, 2020.

To access your required training modules, use the MyQuest icon found on your desktop and login using your netID and password. Your specific modules will be displayed in the *Enrollments* section of your home screen. Remember, these are mandatory and must be completed by June 30.



### I HUNG THE MOON

Please don't forget to nominate your co-workers for going 'Beyond the Call of Duty.' I Hung The Moon slips are available at the 3rd floor front desk and may be turned in to Tammie Matusik.



- Resident Graduation 2020**  
Friday, June 26, 2020  
Founders Hall
- Resident Welcome Party**  
Saturday, August 1, 2020  
Riverdogs game
- Holiday Party**  
Friday, December 4, 2020  
Carolina Yacht Club



MUSC Leading Health Innovation for the Lives We Touch

[Imagine 2020 Strategic Plan](#)

#### We Would Love to Hear From You!

If you have ideas or would like to contribute to *Sleepy Times*, the deadline for the May edition will be April 19, 2020.