VMC COVID Protocol

Last Updated 03-27-2020

Article I. VMC COVID-19 OR WORKFLOW PROTOCOL

This protocol is subject to change at the discretion of providers given the dynamic care environment during this state of emergency.

Initial Team Preparation

- OR West is designated for COVID-19 or highly suspicious COVID-19 patients. Flow into and out of this designated area will follow specific protocols to prevent contamination. Please see flow diagram.
- A dedicated Charge Nurse for OR West will be identified in order to control traffic and keep lines of communication open.
- Prior to entering OR West, a huddle with all team members will take place to ensure safety measures are in place and all questions are clarified.
- All patients will enter via 1 South Hallway into OR West through the existing automatic double door setup.
- All non-essential medical equipment will be removed from the patient and left behind prior to entering the 2nd set of automatic doors.
- Staff transitions and handoffs should be minimized. Therefore, verbal reports will be given prior to entering ASU West.
- During the procedure, breaks should only be in an emergent/urgent situation to decrease exposure.
- MD/CRNA/Circulator/Surgical Tech/Recovery Nurses will be one-on-one with patient to decrease flow through the OR.
- Normal phones and pagers will be suspended. Wall OR phones should be wrapped in plastic and used on speaker phone for communication outside of the OR.
- There will be one runner designated for OR West inner hallways. This runner will remain in hallways only and enter the OR suite if directed during an emergency.
- There will be one runner designated outside of OR West. This runner will remain outside of OR West at all times. This runner will never enter beyond the 2nd set of double automatic doors off of 1 South.

Airway Management Preparation

- Discussion about appropriate place for intubation and method of transport will take place with all team members involved (surgeon, ICU MD, anesthesiologist, OR staff and Charge Nurse).
- Consider intubation in ICU prior to transport, then transport with ICU ventilator.
- Patient to wear surgical mask as clinically indicated in transport if not intubated.
Donning

- All appropriate/needed PPE for donning will be house inside the inpatient pre-op holding medication room and available for donning when a procedure is scheduled with front desk
- OR Charge Nurse will make donning PPE available for team members
- Team members must remove all jewelry prior to donning
- Anesthesia team members will completely apply PPE prior to entering OR West
- Remaining surgical team members will apply 1st layer of PPE prior to entering OR West
  - Sterile 2nd layer of PPE will be applied inside OR West after surgical scrub has been performed
  - The expectation is that ALL staff (anesthesia, surgeons, residents, OR staff, PACU staff) will all follow the same process for doing and doffing of PPE
- Follow all sign for appropriate donning
- Plan for mask use in the operating room and operative area.
  - Given the concern for potential spread of virus during operative procedures and the lack of pre-operative patient testing available OR leadership has decided to consider all cases as potentially contaminated. Therefore, an increased level of protection will be required within the operative area.
  - Given the information available regarding the re-use of the N95 masks we will implement the below described process.
    - All surgeons, anesthesia providers, and operating room staff will wear an N95 mask upon entering the OR suites (beyond the red line). You should wear a disposable standard OR mask over the top of the N95 mask. This will prolong the life of the N95 and will prevent external soiling.
    - Your N95 masks will be obtained at the beginning of each day from the preoperative holding area located between the front desk and anesthesia offices.
    - If you are leaving the operative area the N95 mask should be removed and returned to the mask storage area in the preoperative holding area. The mask will be placed in a paper bag with your name on it and held securely at that location until the next time you need it. If you are staying within the operative area you may retain the mask until the end of the day.
  - Mask fit will be tested weekly on Monday to ensure that the mask is still functional. Each mask will be replaced after one month of use or when no longer passing the fit test.
  - Cases being performed on the ASU west side that are considered positive or highly suspicious for COVID-19 will have a new N95 mask for each case. These masks will be collected after the procedure.
  - All surgeons and OR staff that do not currently have a N95 mask should arrange to obtain one and have a fit test performed before their next case. Fit testing will be performed by OR staff and can be arranged at the front desk.

Entering ASU OR West

- Still need to be determined either main double automatic doors, Male locker room or both?
Airway Management Process

- Patients coming to OR intubated
  - When switching from ICU ventilator to OR ventilator:
    1. Stop ICU ventilator flow.
    2. Clamp endotracheal tube with hemostat.
    3. Disconnect from ICU ventilator, connect to OR ventilator.
    4. Remove endotracheal tube clamp and turn on OR ventilator.
- Utilize ICU ventilator where appropriate
- Avoid use of Ambu bags; if an Ambu bag is used, a PALL filter should be placed between patient and Ambu for droplet precautions.
- For direct intubations (non-clear bag method)
  1. Minimize/avoid positive pressure masking. RSI or deep paralysis prior to intubation (Rocuronium 1.2-1.6 mg/kg).
  2. The anesthesia provider should double glove to enable one to shed the outer gloves after intubation and minimize subsequent environmental contamination.
  3. Video laryngoscope recommended for all intubations to position provider farther away from airway and to maximize 1st attempt success.
  4. Have red biohazard bag available to place used airway equipment immediately after use.
  5. Supraglottic Airway Device (LMA) is the preferred method of rescue ventilation.
- In order to minimize teammate exposure during intubation, only essential airway personnel in the room will be allowed during this time
  - Anesthesia personnel will utilize clear bag-method for airway instrumentation, if at all possible, to reduce aerosolized material; this is pending final approval
  - Please see protocol published for this.
  - A HEPA filter will be placed between patient and ETCO2 sampling line.

Runner Duties - Inside OR West Hallways
- A designated runner will be positioned outside of the OR suite
  - This runner will be responsible for transporting additional equipment, supplies, labs, specimens and other items to and from the OR suites.
  - This runner will perform all item handoff’s at OR suite front door. Will not enter into the OR suite.
  - This runner will not exit OR West until procedure is completed.
  - This runner will be dressed in appropriate 1st layer PPE at all times.

Runner Duties - Outside OR West Hallways
- A designated runner will be positioned outside of OR West.
  - This runner will be responsible for transporting additional equipment, supplies, labs, specimens and other items from the Main OR into, Laboratory and Pathology.
  - This runner will never enter beyond the 2nd set of double automatic doors off of 1 South.
  - This runner will be dressed in appropriate 1st layer PPE at all times.

Handling of Specimens and Labs
- Specimens and Labs will be handled by inside runner and outside runner only
  1. All items existing OR suite will be in a biohazard bag or a container with a biohazard sticker.
  2. Circulator will place item/items on table directly outside of OR suite for inside runner to pick up.
3. Inside runner will exit inner 1st set of automatic double doors and place items/items inside on clean bin on top of table
4. Inside runner will re-enter into OR West and double set of doors will close
5. Outside runner will enter outer 1st set of automatic double doors and place clean cover over clean bin containing item/items prior to removing from area

OR West Charge Nurse Duties

- A dedicated Charge Nurse for OR West will be identified in order to control traffic and keep lines of communication open
- Prior to entering OR West, the Charge Nurse will be responsible for organizing a team huddle to ensure all safety measures are in place and all team members questions are clarified
- The Charge Nurse will be responsible for coordinating all activities between runners
- The Charge Nurse will be responsible for coordinating all activities and needs of team members inside the OR suite
- The Charge Nurse will coordinate laboratory and pathology specimen deliveries and all other aspects as needed

Emergence

- In order to minimize teammate exposure during extubation, only essential airway personnel in the room will be allowed during this time
- Use of bag-method for extubation. Place well-sealed face mask or non-rebreather under the bag.
- Consider deep extubation if safe/appropriate.

Immediately after Closing

- Surgical Tech will break down sterile tables, apply cleaning solution to instruments, place instruments inside of case carts and close doors
- All equipment, case cart and instruments must be left inside of the OR suite
- Surgical staff must leave OR suite at this time

Doffing

- Will occur at different intervals for each team member. Please see individual role specific
- Depending on individual role. When applicable, there will be two separate location for doffing
  1. Initial doffing inside OR Suite
  2. Final inside closed doffing room
- When possible, doffing should occur using the “buddy” system

Recovery

- ICU patients will return directly to designated covid-19 Intensive Care Unit. For patients remaining intubated, use clamp method when switching ventilators as above.
  - Patients will be transported by Anesthesia and OR inner runner
  - If remaining intubated, transport back to designated unit on unit ventilator. Ambu bags should not be used if possible.
  - Appropriate 1st layer PPE will be worn by all transporting staff
• Outside runner will clear the hallway in front of the patient during transport

• Non-ICU patients will be recovered in the operating room by PACU nurses and then transported to designated unit by PACU nurse and inner runner
  • PACU nurses will follow appropriate PPE attire prior to entering OR West. This attire will consist of 1st layer PPE
  • PACU nurses will bring packets containing necessary drugs and equipment to recover patient in OR suite
  • Once PACU criteria is met, patient will be transported to the designated unit
  • Appropriate 1st layer PPE will be worn by all transporting staff
  • Anesthesia staff will remain in OR suite until patient is stable to avoid need for re-entry for rescue.
  • PACU nurse will call OINC phone for general questions regarding PACU care during recovery
  • Outside runner will clear the hallway in front of the patient during transport

Existing ASU OR West

• Exist of team members with patient will occur the through automatic double doors via 1 South Hallway
• All team members transporting patient, must be wearing appropriate PPE (see below sections)
• Exist of team members without patient will occur through the door adjacent to the closed final doffing room. This door leads into the back hallway where all of the OR suite back doors lead out.
• This door will take you directly into main hospital hallway
• All doffing and final hand hygiene must have taken place prior to exiting through the back hallway door into the hospital hallway
• Follow signs for appropriate doffing

Room Turnover/Cleaning

• OR suite turnover/cleaning will only occur after 70 minutes of air exchanges have occurred. Not before
• OR suite turnover/cleaning will occur in three stages: 1) Removal of dirty case cart. 2) Initial cleaning of OR suite. 3) Terminal cleaning of OR suite
• All staff members will wear appropriate 1st layer of PPE
• All trash in OR suite will be red bagged

1. Removal of dirty case cart
   • Prior to initial OR cleaning by ORA’s, dirty case cart must be removed
   • ORA #1 will place a clean large bed bag over dirty case cart prior to leaving OR suite
   • ORA will #2 will call OR West Charge Nurse to coordinate dirty case cart pick up with SPD
   • ORA #1 will push dirt case cart through one set of automatic double doors only. This will leave case cart sitting in-between both set of automatic double doors (not in hospital hallway)
   • SPD staff member will pick up dirty case cart through 1st set of automatic double doors entering OR West and will take to SPD for decontamination

2. Cleaning of the OR suite will occur by following the operating room existing cleaning process
   • Initial cleaning will be done by two ORA’s
   • Remove all dirty plastic bags from all equipment in OR suite. Discharge in red bag
   • Supplies and disinfectants presently used to clean OR suites will be used to clean covid-19 OR suite
• Same process for wiping down all surfaces will take place during cleaning
• Once all surfaces including floor is clean, re-cover all OR suite equipment with clean clear plastic bags
• Once completed, exit OR suite to perform complete donning inside closed donning room
• Follow all donning signs

2. Terminal cleaning will occur once the initial cleaning is completed
   • OR West Charge Nurse will call EVS to coordinate terminal clean

**Anesthesia Tech Turn Over**

- OR suite turnover/cleaning will only occur after 70 minutes of air exchanges have occurred. Not before
- Anesthesia turn over will be performed by assigned Anesthesia Tech
- All staff members will wear appropriate 1st layer of PPE
- All trash in OR suite will be red bagged
  1. Supplies and disinfectants presently used to clean OR suites will be used to clean covid-19 OR suite
  2. Remove all dirty plastic covering from anesthesia equipment, including mobile equipment.
  3. Wiped down and disinfect all uncovered equipment
  4. Change soda lime and Defend after each case
  5. Replace plastic coverings of machine
  6. Clean glide-scope and replace coverings
  7. Unused supplies to be discarded
  8. Replace plastic covering of anesthesia workstation
     • Once completed, exit OR suite to perform complete donning inside closed donning room
     • Follow all donning signs

**Laparoscopy recommendations for COVID-19**

MIS procedures using gas in the abdomen / chest carries at least a theoretical risk for viral transmission via the gas. This has been shown with other viruses. It is likely impossible to guarantee that no CO2 gas that has been inside a patient can be kept within a completely closed system and not leak out into the OR environment. For example, a slowly leaking trocar site or dysfunctional valve can leak gas in low amounts through-out a surgical procedure. Therefore, the first recommendation is continuous personal protective equipment (PPE) to be worn by every staff member involved in a surgical procedure for the entire time in the OR room.

1. N95 masks with an overlying disposable surgical mask as well as other PPE should be worn by every staff member involved in all scope procedures- please see policy for N95 mask use in OR.
2. Pneumoperitoneum should be assumed to be potentially contaminated, therefore a smoke evacuator system should be used for every laparoscopic procedure which includes a filter system which at the least filters out >99% of particles > 0.1 microns in size. The standard system available in VMC OR is by Adler Instruments and meets this criteria.
3. Alternative smoke evacuation systems include the AirSeal system with AirSeal trocars as used in robotic surgery previously at VMC.
4. It is not sufficient to simply use a smoke evacuation system as leaks can occur. Furthermore, release of the pneumoperitoneum at the conclusion of the procedure by removing trocars can also vent the gas into the OR environment. The following steps are therefore recommended:
a. Keep the intra-abdominal pressure setting as low as possible so that the procedure can be done but to avoid high pressure pushing gas out via leaks in the system
b. Use a suction device to evacuate much of the pneumoperitoneum and keep all trocar valves closed except the one attached to the smoke evacuation filter rather than allowing the gas to vent into the room at the end of the procedure.

It is advisable to avoid laparoscopy and also surgery in general for the immediate future. Consider different management strategies such as using antibiotics for appendicitis or cholecystitis. It is hoped that increased availability of rapid viral testing will soon allow us to know if a patient is coronavirus positive rather than the current situation in which we should be assuming that patients are positive and taking universal precautions.

**Elective Surgery Acuity Scale (ESAS)**

<table>
<thead>
<tr>
<th>Tiers/Description</th>
<th>Definition</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>Tier 1a</td>
<td>Low acuity surgery/healthy patient</td>
<td>Postpone surgery</td>
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<tr>
<td></td>
<td>Outpatient surgery</td>
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<td>Not life threatening illness</td>
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</tr>
<tr>
<td>Tier 1b</td>
<td>Low acuity surgery/unhealthy patient</td>
<td>Postpone surgery</td>
</tr>
<tr>
<td>Tier 2a</td>
<td>Intermediate acuity surgery/healthy patient</td>
<td>Postpone surgery if possible</td>
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<td>Not life threatening but potential for future morbidity and mortality.</td>
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<td>Requires in hospital stay</td>
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</tr>
<tr>
<td>Tier 2b</td>
<td>Intermediate acuity surgery/unhealthy patient</td>
<td>Postpone surgery if possible</td>
</tr>
<tr>
<td>Tier 3a</td>
<td>High acuity surgery/healthy patient</td>
<td>Do not postpone</td>
</tr>
<tr>
<td>Tier 3b</td>
<td>High acuity surgery/unhealthy patient</td>
<td>Do not postpone</td>
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</tbody>
</table>

**Current recommendations**

Cancel all Tier 1 cases
Cancel tier 2 cases if it is anticipated that the patient will not have morbidity in the next 4 weeks but proceed if needed
Perform tier 3 cases with appropriate precautions

**Quick Team Member Reference**

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<thead>
<tr>
<th>OR West Charge Nurse</th>
<th>OR Nurse</th>
<th>Surgical Tech</th>
<th>Anesthesia Team</th>
<th>ORA</th>
<th>Anesthesia Tech</th>
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</thead>
</table>
- Perform daily rounds on OR West to ensure all items are stoked and in place
- Confirm location of patient and method of transportation
- Confirm team members by name (nurse, tech, anesthesia, runner)
- Designate staff to clear route for transport and hold elevators
- Arrange for clean bed outside OR for post op
- Ensure appropriate cleaning of room post-procedure by environmental services
- Ensure PPE stocked daily in all areas
- Be available for phone call from OR nurse/anesthesia team
- Coordinate traffic of patients in and out of

<table>
<thead>
<tr>
<th>Prepare for surgery according to scheduled procedure</th>
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<th>Acquire equipment box and drug packs as necessary</th>
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<tr>
<td>Check case cart to ensure needed items are available. DO NOT overstock supplies or trays</td>
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<td>Narcotics are obtained from alternate OR pyxis</td>
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<tr>
<td>Obtain medication box from pharmacy and place in case cart</td>
<td>Perform appropriate 1st layer of donning prior to entering OR West</td>
<td>Prepare OR as normal</td>
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<tr>
<td>Perform appropriate surgical counts</td>
<td>Perform surgical scrub and sterile donning</td>
<td>Abide by protocol to remove patient from ICU ventilator and place on anesthesia circuit</td>
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<tr>
<td>Follow routine circulating and documentation process for procedure</td>
<td>Follow routine case preparation</td>
<td>Don full PPE</td>
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<tr>
<td>Have biohazard bags ready for contaminated airway</td>
<td>Perform appropriate surgical counts</td>
<td>Utilize bag method for intubation</td>
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<tr>
<td>Break down sterile OR tables, spray</td>
<td>Follow routine case preparation</td>
<td>Do not give steroids</td>
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<td>Avoid NO</td>
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<td>Limit fluids if ARDS present</td>
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<td>If intubation occurs in OR, use technique to</td>
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<td>Anesthesia turn over will be performed by assigned Anesthesia Tech using existing process.</td>
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</tbody>
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| | | All dirty mobile anesthesia equipment will be wiped down by the anesthesia
<table>
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<tr>
<th>OR's on West side</th>
<th>equipment during intubation</th>
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<tbody>
<tr>
<td></td>
<td>- Place reusable glide-scope stylet in biohazard bag to be cleaned</td>
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<td>- Place all specimens/labs in a biohazard bag or container with biohazard sticker</td>
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<td></td>
<td>- Always remain inside OR suite</td>
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<td>- Call for hallway runner when something is need</td>
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<td></td>
<td>- Ensure that post-op clean bed is available for patient transport</td>
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<td></td>
<td>- Discard unused supplies</td>
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<td></td>
<td>- Exit OR suite once patient is in Recovery stage with PACU nurses present</td>
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<tr>
<td>instruements and place inside case cart</td>
<td>achieve first attempt success</td>
</tr>
<tr>
<td>- Open all unused trays and instruements</td>
<td>- Confirm intubation with chest rise and ETCO2, DO NOT LISTEN</td>
</tr>
<tr>
<td>- Leave case cart inside OR suite and exist by follow donning process</td>
<td>- Avoid bag mask ventilation, CPAP, LTA</td>
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<tr>
<td>- Donning will occur in two stages: Initial donning inside OR suite and final inside closed donning room</td>
<td>- Immediately place used airway supplies in biohazard bag</td>
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<tr>
<td>- Follow all donning signs</td>
<td>- Utilize equipment placed out on stainless steel tables</td>
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<td>set of automatic double doors (not in hospital hallway)</td>
<td>- Utilize runner for extra equipment</td>
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<tr>
<td>- SPD staff member will pick up dirty case cart through 1st set of automatic double doors entering OR West and will take to SPD for decontamination</td>
<td>- Forced air warming should not be used</td>
</tr>
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<td>- Supplies and disinfectants presently used to clean OR suites will be used to clean covid-19 OR suite</td>
<td>- Utilize Epic system to waste narcotics</td>
</tr>
<tr>
<td>- Once wiped down equipment is placed in the OR west equipment room, it must be draped with a clear plastic bag</td>
<td>- Follow all donning signs</td>
</tr>
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in the room
• Will remain with patient until airway stable
• MDA will enter and release PACU orders for PACU nurse to pull drugs
• Transport patient directly to ICU
• Utilize clamping protocol to place patient back on ICU ventilator if needed
• Place anesthesi a circuit in biohazard bag and discard
• Unused supplies to be discarded
• Ensure Narcotics are wasted in Epic
Quick PACU Nurse Reference

- Non-ICU patients will be recovered in the operating room by PACU nurses and then transported to designated unit by PACU nurse and inner runner
  - PACU nurses will follow appropriate PPE attire prior to entering OR West. This attire will consist of 1st layer PPE
  - PACU nurses will bring packets containing necessary drugs and equipment to recover patient in OR suite
  - Anesthesia staff will remain in OR suite until patient is stable to avoid need for re-entry for rescue
  - PACU nurse will call OINC phone for general questions regarding PACU care during recovery
  - Once PACU criteria is met, patient will be transported to the designated unit
  - PACU nurse will call OR West Charge Nurse to coordinate transport with inner runner
  - PACU nurse will call receiving unit
  - Appropriate 1st layer PPE will be worn by all transporting staff
  - Outside runner will clear the hallway in front of the patient during transport