Anesthesia Adult, Pediatric and Obstetric Perioperative Guidelines for the Care of Confirmed/Suspected Patients with COVID-19 at UCSF

Last Updated: 2/10/2023

Scope: Parnassus, Mt.Zion, Mission Bay, and BCH-Oakland

As of November 21, 2022, routine pre-operative covid testing for asymptomatic patients is no longer required.

All patients who have confirmed COVID-19, suspected COVID-19 (have signs or symptoms concerning for COVID-19 and are undergoing evaluation), or have been exposed to a COVID-19 case must be placed on **Novel Respiratory Isolation**.

COVID-19 Confirmed/Suspected/Exposed Patients requiring Novel Respiratory Isolation:

Decisions around the timing of surgery for patients with COVID-19 should be based on the surgeon's assessment of potential risks and benefits. When possible, procedures should be delayed until official results of COVID-19 testing are available (for suspected patients) or the patient clinically recovers. At all sites, the case should be scheduled as a "last case" whenever possible.

All staff should familiarize themselves with the following procedures. There are many important steps to follow and being familiar with them will help to avoid error.

1-Pre-Patient Arrival:

- Ensure that all members of the surgical, nursing and anesthesia teams are aware that a patient requiring Novel Respiratory Isolation is booked for a procedure; this can be due to the patient having confirmed or suspected COVID-19 or being exposed.
- It is the responsibility of the E1 Anesthesia attending to discuss the upcoming case with PACU to ensure that nursing staff will be available to recover the patient in the OR/procedure area, if applicable.
- A pre-procedure huddle must occur between all members of the surgical team to ensure that all requirements and preparations are in place before transporting a patient. Anesthesia personnel will lead the discussion of any planned AGPs.
- Inform the anesthesia techs about the case
    - Currently, none of the ORs at any site provide a negative pressure environment:
        - Keep the doors closed as much as possible

        - Minimize personnel traffic
- All entry points to the OR/procedure area must have Novel Respiratory Isolation signage on the doors to avoid inadvertent entry by staff not wearing the appropriate PPE.
- Ideally, the surgeon(s) should not be scheduled to participate in other procedures at the same time as operating on a patient requiring Novel Respiratory Isolation.
- If participation in more than one procedure is unavoidable, the surgeon must remove and discard all PPE and perform hand hygiene each time he/she exits the Novel Respiratory Isolation OR/procedure area and don new PPE before entering other ORs as noted in this guidance. This reference has additional guidance on donning and doffing.
- All members of the surgical team leaving the OR/procedure must remove and discard all PPE and perform hand hygiene.
- If re-entering the OR/procedure area, new PPE should be donned before entering the OR/procedure area/room.
- Consider a dedicated runner for the case.

*****Specific considerations for the OR *****

- In order to limit the potential spread of aerosols, **providers must wait 15 minutes** after the last AGP before exiting the OR with the patient through the double doors.
    - If a patient in the OR requires an AGP post-extubation, wait 15 minutes after the last AGP before exiting through the double doors.
    - Providers should exit as quickly as possible to limit the amount of time the doors are left open.
    - After completion of the case, the Novel Respiratory Isolation sign should remain posted on all the doors and the room should sit empty for at least 15 minutes before undergoing a high clean. This time may vary outside of the OR setting.

During the care of patients on Novel Respiratory Isolation, remove gloves and perform hand hygiene and don clean gloves before accessing the **anesthesia cart** for medications and supplies:

- Always perform hand hygiene and apply clean gloves before accessing the cart and ensure the drawers are closed when not in use.
  If you feel that an area of the cart has become contaminated during the case or was grossly soiled, please inform the anesthesia techs so that the appropriate items can be discarded while the cart undergoes a thorough cleaning.

Make sure your **circuit**, **suction** and anesthesia **workspace** are prepared in the following way:

- Ensure that the anesthesia circuit has a high-efficiency filter at **BOTH** the eye piece and the expiratory limb.
    - Filters add resistance. If this becomes a problem, you can consider removing the expiratory limb filter during a case only.
- Also make sure that the in-line ETT suction is set up and ready for use (see images).
    - The goal is to limit circuit disconnects when at all possible.
    - Can consider clamping ETT briefly between changes.

- Ensure that the gas sampling line is on the filtered end of the circuit.
- **If it is necessary to disconnect the circuit for patient positioning, turn off the ventilator, pause gas flow, and leave the distal filter attached to the ETT during the disconnect and consider briefly clamping the ETT.**
- The Yankauer suction should be kept in an empty saline bottle or plastic bag between uses to avoid contaminating the environment.
- Ultrasounds and other devices should be sheathed and kept as clean as possible.
- Do your best to limit contamination of the environment and other re-usable equipment:
    - Leave unnecessary personal items outside (bags, fanny packs, etc).
    - Use OR telephone in speaker mode.
    - Pens and sharpies should be disposed of after each case.
    - Ideally, use disposable stethoscopes. If using a reusable stethoscope, wipe with a hospital approved disinfectant wipe after use.
    - Use hospital approved disinfectants/disinfectant wipes to clean pagers, cell phones and other devices that are brought into room. Use a 1 minute contact time.

2-Patient Transport:

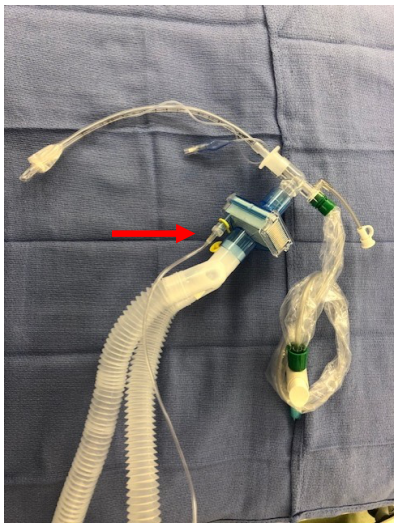
Bring the necessary PPE from the OR supply to the ICU/floor for donning in ICU/floor.
Please see specific section on **Patient Transport and Disposition** for further details.

3-Intraoperative Management:

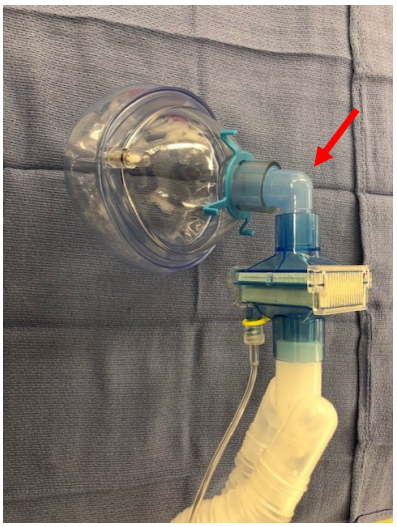
All members of the OR team must wear PPE consistent with **Novel Respiratory Isolation** throughout the procedure. Perform frequent hand hygiene and wear double gloves. Remember to limit repeated entry/exit from the OR during a case.

The **type of anesthetic** required will depend on the patient's clinical status and the nature of the procedure. However, some important considerations are as follows:

- If amenable, regional/local techniques can be employed:
    - Patient should wear nasal cannula at lowest possible flow and surgical mask throughout.
- Limit the amount of staff in the room during AGPs before transporting to final destination.
- Ensure filter is in place between mask and circuit (see images).
- Once ETT secure, remove outer gloves and use them to sheath soiled airway equipment.
    - Do not interact with the environment until outer gloves removed.
- Place soiled airway equipment in sealed double bags for cleaning.
- Perform hand hygiene and don new double gloves.



Examples of in-line ETT suction and optimal locations of HME filters and gas sampling



- At **ML**, PACU staff will follow their recovery procedure guidelines:
    - Once the patient is stabilized, not coughing or vomiting, a PACU RN can enter O.R. to complete recovery process. Maintain **Novel Respiratory Isolation**.
    - The patient should be moved to the transport bed and wear a surgical face mask for recovery phase.
- At **MB**, patients will be recovered in the negative pressure room in PACU (total of 3 negative pressure rooms: 1 adult side and 2 pediatric side).
- At **MZ**, patients will be recovered in PACU
- At **BCH-Oakland**, patients will be recovered in the OR.

If the patient is **returning to ICU intubated**, make sure to properly doff and then don a **new gown and gloves** for transport. This reference has additional guidance on donning and doffing.

- Assemble necessary transport supplies in large plastic bag and discard all materials after patient dropped off.
- Follow the same principles for transport for return to ICU.

For **Donning and Doffing**:

- Before the patient arrives, staff not involved in transport may don (and scrub) in ante-room.
- If in a location that does not have an ante-room, remove gown and gloves in location and follow the remainder of the steps below when outside the location.
- For **Doffing**:
    - Doff gloves and gown in OR, perform hand hygiene.
    - Exit OR and ante-room, perform hand hygiene.
    - If patient is to be **immediately transported**:
        - Keep fit-tested N95/face shield/goggles/PAPR on and don new gown and gloves.

- If **clinical duties are complete**:
    - Once outside ante-room, if wearing a face shield and N95 respirator, perform hand hygiene then carefully remove face shield by holding the elastic band and place on a designated "dirty" table for subsequent cleaning. Repeat hand hygiene, then carefully remove the N95 respirator and store if being reused or discard. Repeat hand hygiene. Wearing non-sterile gloves, use disinfectant wipes to clean the face shield and place in designated "clean" area. Remove gloves and repeat hand hygiene.
    - Once outside ante-room, if wearing a PAPR, perform hand hygiene then carefully remove the PAPR. Detach the PAPR face shield and place on a "dirty" table for subsequent cleaning. Repeat hand hygiene. Wearing non-sterile gloves, use disinfectant wipes to clean the outer surface of the PAPR and the PAPR face shield. Remove gloves and perform hand hygiene.

4-Postoperative Management:

Once the **patient leaves**, the OR must be left unoccupied for **at least 15 minutes** and then undergo a high level clean:

- Techs/Environmental service workers need to don PPE in accordance with their protocols for room cleaning.

Transportation and Disposition for COVID-19 Confirmed/Suspected Patients:

Do not transport any patient until the pre-procedure huddle is complete. Patients with known or suspected COVID-19 should never be brought to holding areas or PACUs:

- Always consult with staff at destination to ensure they are prepared to receive the patient directly.
- Only transport patients for procedures or imaging studies that are deemed **absolutely** necessary.
    - When in doubt, pro-actively consult with care team to discuss risk/benefit scenario.

Clean stretcher handles and IV pole surfaces with wipes prior to exiting ICU room or OR

- When leaving a location, one team member wearing **clean** PPE (no gown or gloves) is designated to interact with the environment (elevator buttons, door controls…etc) but will maintain at least a 6 foot distance from the patient whenever possible.
- The other team members will also don **clean** PPE before transport and attend to the patient and avoid contacting environmental surfaces.
- Ensure that patient bed is wiped down before it is moved to hallway for definitive cleaning while patient in OR (exact procedures vary by site).

For **intubated ICU patients**, consider switching to a portable ventilator in the negative pressure ICU room (clamping ETT briefly during switch):

- Providers don clean **Novel Respiratory Isolation** precautions for transport.
- Providers interacting with the environment only will wear N95 with face shield/goggles or PAPR and will maintain at least a 6 foot distance from patient whenever possible.
- Assemble necessary transport supplies in large plastic bag and discard all materials after patient dropped off.
- Ensure a high efficiency hydrophobic filter is in place between the ETT and Ambu bag/Jackson-Reese or ventilator to avoid releasing infectious droplets to the surroundings.
- Do not use the single-limb transport ventilator.
- **Consider using the portable ventilator in the OR with TIVA to avoid disconnects.**

Non-intubated patients should wear a surgical face mask during transport:

- Providers don clean **Novel Respiratory Isolation** precautions for transport.
- Providers interacting with the environment only will wear N95 with face shield/goggles or PAPR and will maintain at least a 6 foot distance from patient whenever possible.

Obstetric Anesthesia for COVID-19 Confirmed/Suspected/Exposed Patients:

1-Pre-Delivery:

- COVID-19 confirmed, suspected, and exposed patients will be isolated in triage, transported to delivery location with surgical mask.
- All care team members will be notified of case and location of delivery.
- Location should have clear signage at every entrance.

2-Labor Process:

- Early neuraxial is encouraged to reduce likelihood of general anesthesia.
- All members of the team must don **Novel Respiratory Isolation** PPE throughout the neuraxial procedure. PAPRs are preferable over N95 when available, but both are fully appropriate forms of protection for COVID-19 patients. Perform frequent hand hygiene and wear double gloves. Remember to limit repeated entry/exit from the labor room during a procedure.
- **DO NOT** bring the epidural cart into the patient's room (apply similar hygiene principles relating to the cart as in the O.R.).
- There is currently insufficient information about the cleaning, filtering, and potential aerosolization when using nitrous oxide in labor analgesia systems in the setting of COVID-19. As such, we have suspended its use in this population until further notice.

3-Operating Room Delivery:

- All providers must don **Novel Respiratory Isolation** PPE throughout the delivery, regardless of the type of anesthesia (general versus regional). PAPRs are preferable over

N95 when available, but both are fully appropriate forms of protection for COVID-19 patients. Perform frequent hand hygiene and wear double gloves. Remember to limit repeated entry/exit from the operating room during an operative delivery.

- All OB ORs are positive pressure environments.
- A similar workflow as the General O.R. relating to the anesthesia carts will be employed (see previous).
- Patient transported to delivery operating room with regular surgical mask on. Oxygen therapy NOT recommended for abnormal fetal heart rate.
- For **neuraxial anesthetic**, oxygen should be provided via nasal cannula at the lowest flow possible, if necessary:
    - Patients should wear a surgical mask over the NC if feasible.
- If **general anesthesia** and **intubation** is required:
    - Follow same procedure as General OR.
    - Once stable, not coughing or vomiting, can transport with surgical mask on patient.
    - Extubated patients will recover in their room, preferably a negative pressure airborne isolation room.
    - Patients with ICU beds should stay intubated and then extubated in ICU per protocol.