

Perioperative Guidelines for Suspected or Known COVID-19

General Perioperative Guidelines:

- Procedures that can be performed at bedside should not be performed in the OR
- Patients must go straight to OR from their unit, without stopping in preoperative or postoperative areas
- Patients will not be recovered in the open recovery room (PACU)
 - Patients should be transported intubated to a negative pressure isolation room to be extubated and recovered.
 - If there are no negative pressure isolation rooms available, the patient should be extubated in the OR and recovered there
 - Regardless of extubation location, all staff members must be in appropriate PPE, including a N95 mask or a powered air purifying respirator (PAPR) per policy
 - Utilize the OR suite farthest from others and plan to not occupy the OR suite without N95 protection until sufficient time has elapsed to clear for enough air changes to remove potentially infectious particles (see Appendix A)
 - The procedure should be performed in the room with the highest air changes/hour, if possible
- Patients with known or suspected COVID-19 should be scheduled for surgery when a minimum number of staff and other patients are present and as the last surgical case of the day to maximize the time available for removal or airborne contamination
- The doors to the OR should be closed and traffic in and out of the room should be strictly controlled, limiting to essential personnel only
- Personnel in the OR suite should wear an N95 mask or PAPR before, during, and after the procedure when the patient is present and if in a room that has not had adequate air exchange
- The patient should wear a surgical-rated mask before and after the procedure, unless intubated and/or until returned to a negative pressure environment
- HEPA filters should be placed on the expiratory side of the breathing circuit of the anesthesia machine (as per normal protocol) and should filter particles of 0.3 um in size in an unloaded and loaded situation with a filter efficiency of >95%
 - At the conclusion of the procedure, the anesthesia machine should be decontaminated and all soda and other filters changed

OR Room Setup:

- **Post** "Airborne / Contact Precautions" sign on door
- **Post** "Stop" sign on outer doors - only essential staff are to enter room during the case (See Appendix A)
- **Post** HCW sign-in sheet on the interior door (See Appendix A)
- Confirm **HEPA filter** is attached to anesthesia circuit proximal to gas sampling line



- Confirm available **PPE: N95 mask with eye protection** (or PAPR if appropriate per policy), **head covers, gowns, shoe covers** and **gloves** are required
 - All surgical team members will double glove
- **Do not open cabinets** during case
- Remove necessary specimen containers and supplies prior to patient arrival
 - **Specimens:** call pathology / lab to notify prior to case
- **Remove case cart and all non-essential supplies and equipment** from OR suite prior to patient arrival
- Move recycle bin(s) and other bulk containers to outside hallway; utilize red biohazard trash can. No recycling is allowed for these cases
- Place cart, extra garbage can and mayo stand outside the room in the hallway
 - On mayo stand have extra gloves, red biohazard bag for specimens, and container of disinfecting-wipes
- **Limit traffic** in and out of room by gathering potential supplies and equipment beforehand. Have items available, but do not bring additional supplies into room unless you know you will need them
- Designate **2nd circulator** available as runner outside room
- **Leave patient bed / cart in the OR** during the case, if possible
- Put **enzymatic spray** in room to spray down instruments post-surgery

Anesthesia:

- **It is preferred that the patient is sedated and intubated in their negative pressure isolation room prior to transportation to the operating room**
- Intubation should occur via a means to maximize success on first attempt and minimize any need to provide bag-mask ventilation (video-laryngoscope)
 - When intubating on patient unit:
 - Bring additional staff to assist with intubation
 - Consider additional transport person to assist as needed with environment issues (opening doors, etc.)
 - Confirm appropriate PPE available – bring surgical gown, shoe covers, N95 or PAPR (if allowed per policy), and head cover from OR.
 - Confirm **HEPA filter** in place for breathing circuit
 - Have **GLIDESCOPE** available, but do not bring additional supplies into room
 - Confirm working suction and, if available, obtain closed suctioning system from RT
 - Consider rapid sequence induction to minimize droplet exposure
 - If intubating in the OR:
 - Transport patient wearing a surgical mask.
 - Notify security of need for elevator capture.
 - Confirm **HEPA filter** is in place for breathing circuit
 - Have **GLIDESCOPE** available but do not bring additional supplies into room

Intraoperative Specimens:

- Notify pathology / lab of nature of case prior to patient transport
- All specimens are sent to pathology and laboratory ASAP
- If specimen is for permanent fixation, place in formalin prior to transfer
- Document 'rule out Covid-19' or 'positive Covid-19' on pathology requisition form, as indicated by surgeon
- Once specimen is collected, labeled, and bagged, pass specimen to another staff member at the OR door
- Drop bagged specimen into red biohazard bag for transportation to pathology

Bronchoscopy Procedures:

- Patients who require bronchoscopy or other invasive/surgical procedure will have Airborne Precautions maintained during the procedure
- **A dedicated isolation room with negative air pressure is used** to perform bronchoscopy procedures for patients with known or suspected COVID-19
- N95 or PAPR is worn by the health care providers during the bronchoscopy and while handling the patient

Recovery:

- Extubation is a time of significant risk; minimize personnel, if proceeding with extubation at the end of case, extubate in the OR, keep all PPE on until after extubation. Consider transporting intubated to a negative pressure room (e.g. ICU) for emergence/ extubation
- It is preferred the patient is transported intubated to a negative pressure room for emergence/ extubation
 - When transporting intubated:
 - Direct patient care staff should continue to wear their PPE
 - Staff not involved in direct patient care are only required to wear a N95 mask when near the patient
 - Notify security of need for elevator capture
 - Call unit at time of elevator capture to ready RN and Respiratory Therapy to accept patient and assure ventilator readiness as needed
 - Ensure adequate, trained staff is available if patient will be extubated on patient unit
 - Ensure full PPE is worn by all staff in the room during extubation which includes an N95
 - Postoperative recovery care can be provided in that setting by a PACU (recovery) nurse in appropriate PPE
 - Any transport respiratory circuit or equipment used on the patient should be terminally cleaned and / or disposed of, per facility protocol

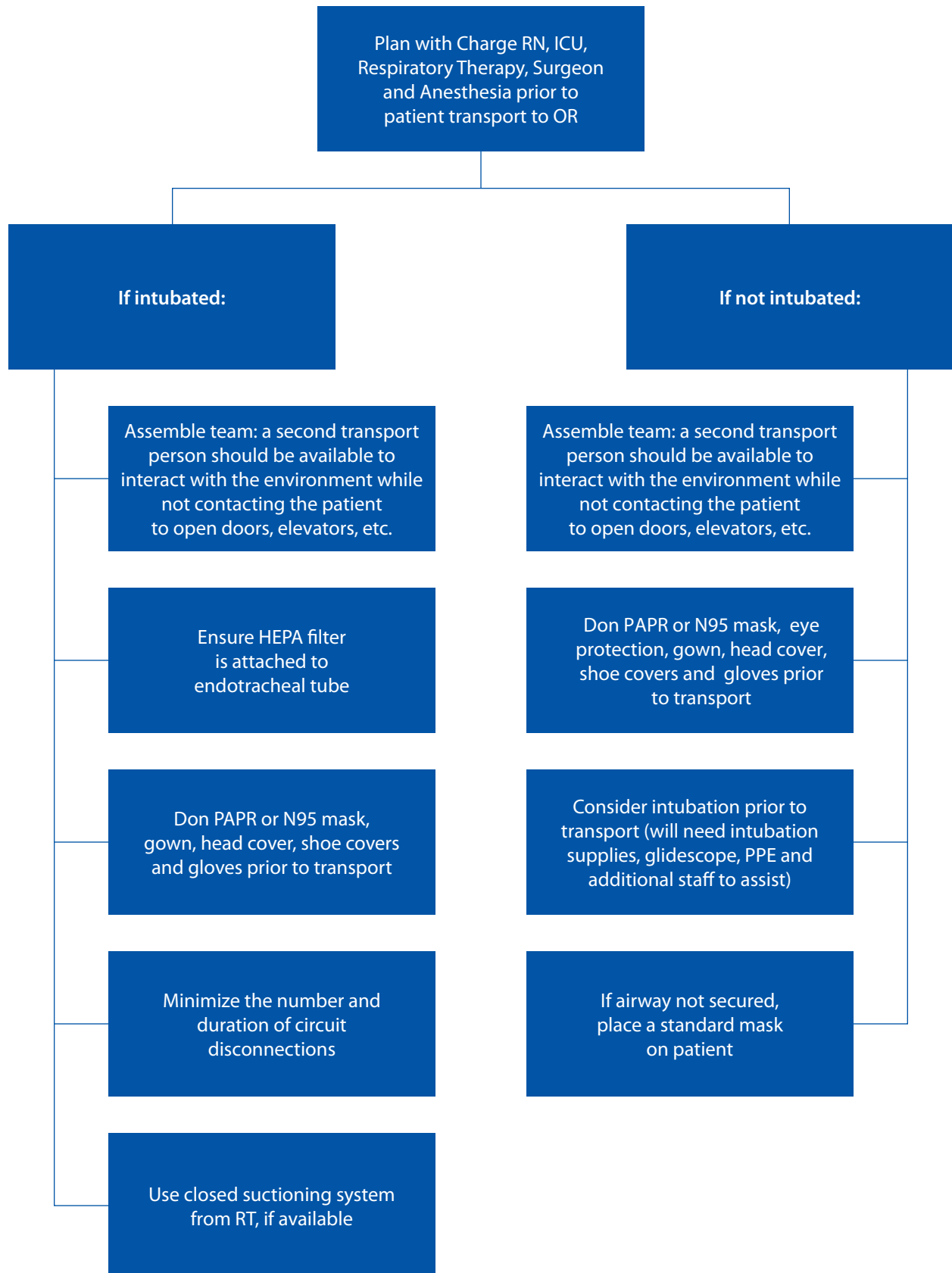
- If extubating in OR:
 - Recovery (PACU) RN:
 - » Don PPE and recover patient inside OR suite
 - If no recovery (PACU) RN available:
 - » Anesthesia to recover patient in OR suite
 - Transport patient to receiving unit with surgical-rated mask on
 - » Direct patient care staff should continue to wear their PPE
 - » Patients are kept in the procedure room until coughing subsides post aerosol generating procedure
- Antiemetics should be administered to prevent vomiting during recovery
 - Due to potential risks of steroids in COVID-19 infection, consider avoiding the use of dexamethasone for postoperative nausea and vomiting prophylaxis

Room Turnover:

- Once case is completed and patient is transferred out:
 - **Thoroughly coat** all instruments with enzymatic spray and leave in room until sufficient time has elapsed to clear for enough air changes to remove potentially infectious particles (see Appendix A). All disposable PPE (except those worn for transport) is doffed immediately outside the room into an appropriate biohazard garbage bag
 - Follow your facility policy on doffing of PPE
 - **Wipe** down PAPR helmet, cord and battery with disinfecting wipes and return to service (per facility policy)
 - **Leave all bagged trash, linen and equipment in room** until sufficient time has elapsed to clear for enough air changes to remove potentially infectious particles (see Appendix A)
 - Isolation sign remains on door until room is terminally cleaned
- Once air exchanges complete:
 - All staff should enter with gown and gloves, including EVS
 - Staff will wear standard mask and eye protection during cleaning if splash or spray to face is anticipated, or if indicated per chemical manufacturer instructions for use
 - Transfer instruments into dirty cart for transport
 - Room is terminally cleaned
 - Anesthesia machine will be thoroughly disinfected, and the circuit changed
 - The soda filters on the anesthesia machine are changed
 - All internal sections of the anesthesia machine need to be disinfected
 - Waste and linen are removed per protocol
 - The isolation signs will be removed at completion of terminal clean

Questions? Please reach out to your perioperative leader or Brian Dawson, System Vice President Perioperative Services at Brian.Dawson@DignityHealth.org

Appendix A



Staff Entering Isolation Room

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Airborne Contaminant Removal

Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency

ACH § ¶	Time (mins.) required for removal 99% efficiency	Time (mins.) required for removal 99.9% efficiency
2	138	207
4	69	104
6 ⁺	46	69
8	35	52
10 ⁺	28	41
12 ⁺	23	35
15 ⁺	18	28
20	14	21
50	6	8

+ Denotes frequently cited ACH for patient-care areas.

§ Values were derived from the formula: $t_2 - t_1 = - [\ln (C_2 / C_1) / (Q / V)] \times 60$, with $t_1 = 0$

where

t_1 = initial timepoint in minutes

t_2 = final timepoint in minutes

C_1 = initial concentration of contaminant

C_2 = final concentration of contaminant

$C_2 / C_1 = 1 - (\text{removal efficiency} / 100)$

Q = air flow rate in cubic feet/hour

V = room volume in cubic feet

$Q / V = \text{ACH}$

¶ Values apply to an empty room with no aerosol-generating source. With a person present and generating aerosol, this table would not apply. Other equations are available that include a constant generating source. However, certain diseases (e.g., infectious tuberculosis) are not likely to be aerosolized at a constant rate. The times given assume perfect mixing of the air within the space (i.e., mixing factor = 1). However, perfect mixing usually does not occur. Removal times will be longer in rooms or areas with imperfect mixing or air stagnation.²¹³ Caution should be exercised in using this table in such situations. For booths or other local ventilation enclosures, manufacturers' instructions should be consulted.

A red octagonal sign with white text. The word "STOP!" is written in a large, bold, sans-serif font at the top. Below it, the phrase "Only Essential Personnel May Enter" is written in a smaller, bold, sans-serif font, arranged in three lines.

STOP!

**Only Essential
Personnel
May Enter**