IR Workflow for Suspected/COVID+ Cases

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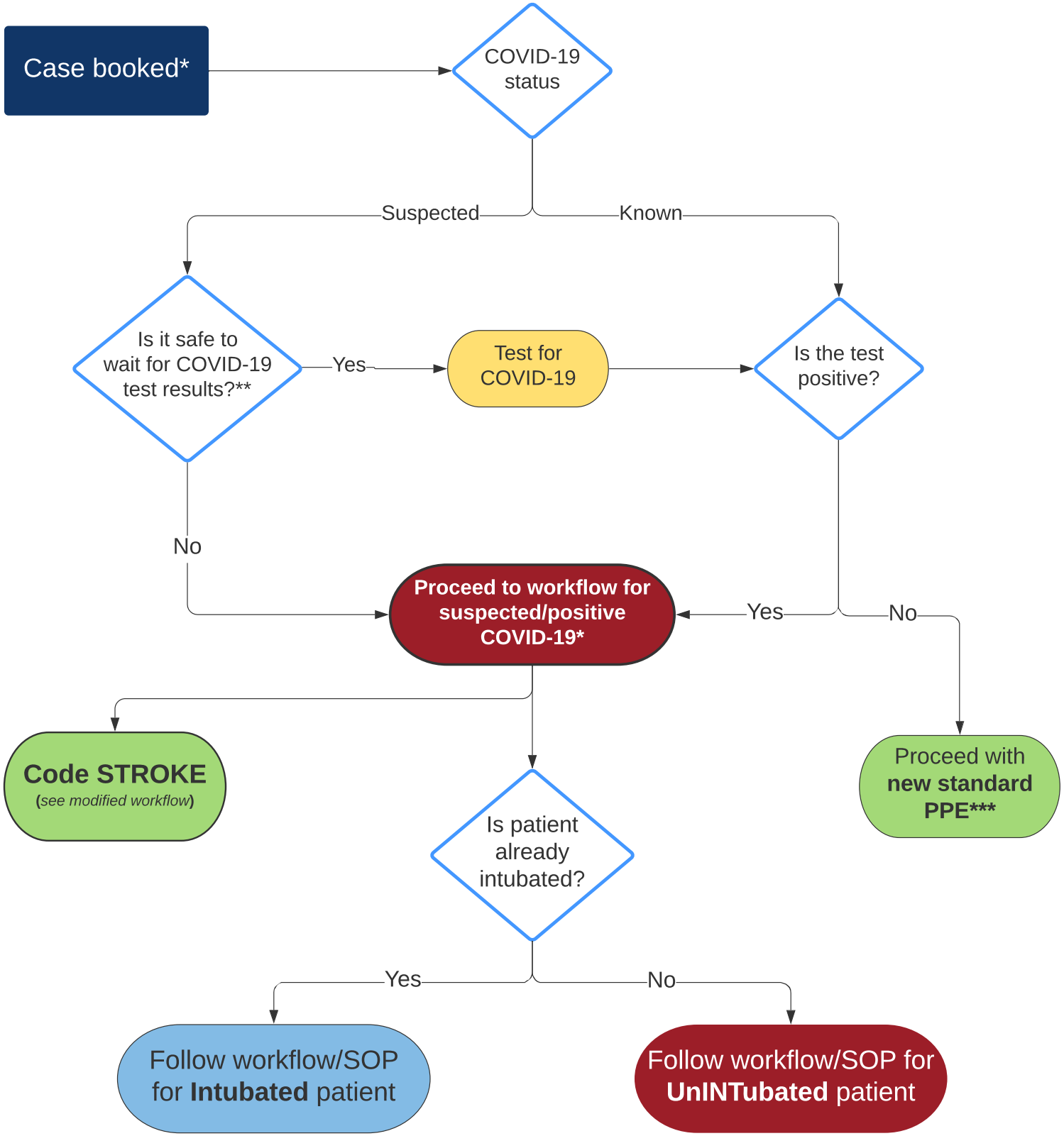
Updated 04/27/2020

IR Procedural Algorithm for COVID-19



*__Front desk staff__ must make direct phone contact with patient care team to verify screen status before putting patient on call
Consult Highly Infectous Disease **P# 33860. A confirmatory test may be required after 24h of first negative test.
*** Follow new PPE recommendations for aerosolizing procedures

All patients with suspected/confirmed COVID requiring a general anesthetic for an IR procedure should be intubated inside the IR suite or within a designated intubation room. (East: GI3, West OR17)

IR - Workflow for a COVID-19 case – UnINTubated PATIENT

Pre-procedure Huddle & Room Preparation

Team members designated to be in the IR suite should huddle once the case has a scheduled start time (**in person or virtually**):

- ❑ Designated Team leader
- ❑ Anesthesia provider assigned for case
- ❑ Anesthesia runner
- ❑ IR Attending & Fellow
- ❑ IR Nurse
- ❑ Interventional tech & anesthesia tech
- ❑ Outside door runner
- ❑ **Designated safety officer to prevent any entry without PPE, particular attention to flow of traffic in/out of control room**
- ❑ *Designated anesthesia Airway team member (optional)*

For specific concerns/advice: (optional huddle attendance)

- ❑ *Anesthesia COVID Admin on Call EAST (pg 36502)*
- ❑ *Anesthesia COVID Admin on Call WEST (pg 36503)*

- ❑ **Print and display signage outside all doors to the designated procedure room (STOP and PPE posters)**

Anesthesia prep:

- ❑ Confirm anesthesia plan (GA*/MAC)

Confirm if Procedure Room is ready as below:

- ❑ Cover anesthesia machine and Omnicell
- ❑ Ensure additional HMEF on expiratory limb of anesthesia circuit
- ❑ Prepare required airway equipment onto a designated cart, including an HME filter, Ambu bag, PEEP valve & Kelly clamp in case of disconnection, extubation or ventilatory failure
- ❑ Prepare required drugs onto a second cart ***inside*** the room
- ❑ Confirm which supplies/drugs may be required ***outside*** the room

Procedure prep:

- ❑ Procedure staff to physically verify & confirm the setup for case
- ❑ Confirm supplies required ***inside*** the room
- ❑ Confirm supplies that may be required ***outside*** the room

Preoperative Consent, H&P

- ❑ Confirm pre-procedure phone consents and H&P are completed

Prepare for intubation (if required):

- ❑ Schedule designated Airway Team Member if needed

Prepare for transfer:

- ❑ Identify transfer team based on patient location
- ❑ Prepare routine transport equipment if patient is in ICU:
  - ❑ HME filter, Ambu bag with PEEP valve & Kelly clamp
- ❑ Confirm route & ensure it is clear of all moveable obstacles

Contact ICP (Pg: 94277): to clarify COVID status & start/stop time of HEPA filter, as required

Contact EVS (Pg: 92746 East, 92745 West) to inform case start

Ensure correct PPE is worn by all members**

Transfer to IR Suite

- ❑ Confirm that the patient is wearing a surgical mask
- ❑ Directly transfer patient into the IR suite
- ❑ **Do NOT bring patient to holding/PACU areas**
- ❑ Continue current infusions, per clinical indication
- ❑ Transfer team members verify patient and staff PPE is per code
- ❑ Ensure HEPA filter is turned ON, prior to arrival

If transporting from ICU:

- ❑ Pre-transfer huddle inside patient room with transfer team
- ❑ Call IR to confirm patient is en-route
- ❑ Transport monitor – use monitoring brick from patient room

Start of Case & Induction of Anesthesia

Perform check-in ***inside*** procedure room with following all team members present wearing appropriate PPE** & lead (if applicable)

If MAC:

- ❑ Ensure patient is wearing a surgical mask on arrival
- ❑ All procedural team members may be present in the room when the patient arrives
- ❑ Apply supplemental O2 via facemask over surgical mask, if required, avoid nasal cannula

If GA:

- ❑ Ensure patient is wearing a surgical mask on arrival
- ❑ Intubation to be performed inside IR suite
- ❑ Follow SOP for intubation of COVID+/PUI patient
- ❑ Maximum 3 staff in attendance in room with patient, with appropriate PPE** & lead (if applicable)
  - ❑ Primary anesthesia provider
  - ❑ Circulating RN
  - ❑ *Assisting anesthesia provider (if available)*
  - ❑ *Airway Team member (as required)*
- ❑ All other staff briefly exit the room, doffing not necessary
- ❑ Connect to anesthesia machine as per usual, adjust settings through plastic covering
- ❑ Maintain anesthesia using a volatile agent to conserve supplies of total intravenous anesthesia

Transfer patient to procedural table

- ❑ In room team strips linens off bed & pushes bed into hallway
- ❑ Attendants decontaminate patient bed ***immediately*** in hallway

- ❑ Procedural time-out, as usual
- ❑ Designated safety officer and runner stay outside during case

IR Procedure

Communication during case:

- ❑ In room team uses hospital phone/intercom/walkie-talkie to contact outside support

Handing in supplies or drugs

- ❑ Outside runner hands in to the inside-RN-circulator or places onto designated cart immediately outside procedure room

End of Case

Team leader confirms the return pathway , choosing one of the options below

- ❑ Confirm members and roles for subsequent care
- ❑ End of case sign out, as usual

If planning to extubate in designated recovery room

- ❑ Page PACU nurse to be ready for post-op care
- ❑ PACU nurse to identify 1 additional inside aide and 1 additional outside runner to assist with care

If planning to transfer to ICU

- ❑ Call ICU to notify of case finish

Option 1 (Extubate & recover in designated room)

- ❑ Patient is moved to designated room with transfer team
- ❑ Follow transfer protocol for intubated patient
- ❑ Transfer ventilation: Ambu bag + PEEP valve + HME filter
- ❑ Ensure deep muscle relaxation and propofol sedation
- ❑ Staff **not** involved with extubation may doff PPE & exit
- ❑ Primary anesthesiologist performs extubation, per SOP for extubation of COVID+/PUI patient, assisted by up to 2 other staff members in the room (IR fellow, IR RN or PACU nurse)
- ❑ Discard airway supplies and seal equipment
- ❑ PACU nurse dons PPE and enters room if not already in place
- ❑ **Certain logistical situations may necessitate transfer of the patient after extubation to a designated room for further recovery**
  - ❑ Patient PPE must be maintained for the transfer
  - ❑ Place an O2 mask over the surgical mask

Option 2 (patient remains intubated; transfer to ICU)

- ❑ Patient is moved to ICU, with transfer team
- ❑ Follow transfer protocol for intubated patient
- ❑ Transfer ventilation: Ambu bag + PEEP valve + HME filter
- ❑ Staff members not on transfer may doff PPE and exit procedure room

Option 3 (Recovery from MAC)

- ❑ Move patient from procedure table onto bed
- ❑ Discard airway supplies and seal equipment
- ❑ Move patient to designated recovery room,
- ❑ Supplemental O2 should be given over the surgical mask

Post-procedure Care

- ❑ Anesthesia staff to remain with PACU nurse until RN is comfortable with patient status
- ❑ When appropriate, anesthesia staff doffs and leaves room
- ❑ PACU nurse manages care until patient is ready for transfer back to non-ICU bed
- ❑ When appropriate, patient is moved to hospital room or discharged
- ❑ Contact EVS (Pg: 92746 East, 92745 West) to inform end of recovery care

End of Case – Decontamination

Refer to Room Turnover for suspected or confirmed COVID-19 for both IR suite and designated recovery area

**PPE for staff involved with care

In the procedure room

All staff entering room	N95 respirator + eye protection + gown + head covers + double gloves +/- leg covers

Out of the procedure room

Anesthesia and nurse runner	Surgical mask + eye protection + gloves

On transfer to designated extubation room

Team leader	Surgical mask + eye protection + gloves
All transfer staff except team leader	N95 respirator + eye protection + gown + head covers + double gloves +/- leg covers
Patient	Surgical facemask

Location of Donning

In clean area near or in procedure suite

Doffing

- ❑ Ensure a buddy is present to observe doffing

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IR - Workflow for a COVID-19 case – INTUBATED PATIENT

Pre-procedure Huddle & Room Preparation

Team members designated to be in the IR suite should huddle once the case has a scheduled start time (**in person or virtually**):

- ❑ Designated Team leader
- ❑ Anesthesia provider assigned for case
- ❑ Anesthesia runner
- ❑ IR Attending & Fellow
- ❑ IR Nurse
- ❑ Interventional tech & anesthesia tech
- ❑ Outside door runner
- ❑ **Designated safety officer to prevent any entry without PPE, particular attention to flow of traffic in/out of control room**
- ❑ *Designated anesthesia Airway team member (optional)*

For specific concerns/advice:

- ❑ *Anesthesia COVID Admin on Call EAST (pg 36502)*
- ❑ *Anesthesia COVID Admin on Call WEST (pg 36503)*

- ❑ **Print and display signage outside all doors to the designated procedure room (STOP and PPE posters)**

Anesthesia prep:

- ❑ Report ICU attending discussion and ventilation management plan

Confirm if Procedure Room is ready as below:

- ❑ Cover anesthesia machine and Omnicell
- ❑ Ensure additional HMEF on expiratory limb of anesthesia circuit
- ❑ Prepare required airway equipment onto a designated cart, including an HME filter, Ambu bag, PEEP valve & Kelly clamp in case of disconnection, extubation or ventilatory failure
- ❑ Prepare required drugs onto a second cart ***inside*** the room
- ❑ Confirm which supplies/drugs may be required ***outside*** the room

Procedure prep:

- ❑ Procedure staff physically verify & confirm the setup for case
- ❑ Confirm supplies required ***inside*** the room
- ❑ Confirm supplies that may be required ***outside*** the room

Preoperative Consent, H&P

- ❑ Confirm pre-procedure phone consents and H&P are completed

Prepare for transfer:

- ❑ **Prepare routine transport equipment, including**
  - ❑ HME filter, Ambu bag with PEEP valve & Kelly clamp
- ❑ **Confirm transfer team members and roles** mandatory/*optional:*
  - ❑ Team leader (will call/hold elevators/wipe down)
  - ❑ Anesthesiologist (head of bed)
  - ❑ IR attending or fellow (end of bed)
  - ❑ *Extra member (ICU or circulating RN, depending extra equipment & staffing)*
  - ❑ *If RT required, please see addendum*
- ❑ Confirm route & ensure it is clear of all moveable obstacles

Contact ICP (Pg: 94277) to clarify COVID status & start/stop time for HEPA filter
Contact EVS (Pg: 92746 East, 92745 West) to inform case start

Ensure correct PPE is worn by all members**

Transfer

- ❑ Pre-transfer huddle inside patient room with transfer team
- ❑ Direct transfer into procedure room
- ❑ Call procedural room to confirm patient is en-route & to ensure HEPA filer is turned ON

- ❑ Transport monitor – use monitoring brick from patient room
- ❑ Continue current infusions, per clinical indication
- ❑ Emergency and intubation drugs, per clinical indication
- ❑ Optimize sedation to prevent awareness
- ❑ Deep muscle relaxation recommended
- ❑ Move to transport ventilation (**perform planned circuit disconnection**)
  - ❑ Turn OFF ICU ventilator (RT to perform this step)
  - ❑ Clamp ETT using Kelly clamp
  - ❑ Disconnect ETT from ICU circuit
  - ❑ Connect Ambu bag + HME filter + PEEP valve onto ETT
  - ❑ Remove clamp
  - ❑ Confirm ventilation as per usual

Start of the Case

Stabilize patient in IR

- ❑ Connect patient to anesthesia ventilator (**planned circuit disconnect as above**)
- ❑ Maintain anesthesia using a volatile agent to conserve supplies of total intravenous anesthesia, where possible

Perform check-in ***inside*** procedure room with following team members present wearing appropriate PPE** & lead (if applicable):

- ❑ Anesthesia provider
- ❑ IR attending / fellow
- ❑ Interventional technician
- ❑ IR nurse

Transfer patient to procedural table

- ❑ Avoid disconnecting ETT from circuit

In room team strips linens off bed & pushed bed into hallway

- ❑ IR attendants decontaminate patient bed surfaces ***immediately*** in hallway

Interventional Procedure

- ❑ Procedural time-out, as usual
- ❑ Designated safety officer and runner stay outside during case

Communication during case:

- ❑ In room team uses hospital phone/intercom to contact outside support

Handing in supplies or drugs

- ❑ Place onto designated cart immediately outside procedure room
- ❑ Inside nurse opens procedure room door & collects supplies or drugs

End of Case

Team leader coordinates the return back to ICU

- ❑ Confirm members and roles for subsequent care
- ❑ End of case sign out, as usual
- ❑ Move patient from procedure table onto ICU bed
- ❑ Patient is moved to ICU, with transfer team
- ❑ Staff not on transfer may doff PPE and exit procedure room
- ❑ Contact EVS (Pg: 92746 East, 92745 West) to inform end of case

End of Case – Decontamination

Refer to Room Turnover for suspected or confirmed COVID-19

**PPE for staff involved with care

In the procedure room

All staff entering room	N95 respirator + eye protection + gown + head covers + double gloves +/- leg covers

Out of the procedure room

Anesthesia and nurse runner	Surgical mask + eye protection + gloves

On transfer to/from ICU

Team leader	Surgical mask + eye protection + gloves
All transfer staff except team leader	N95 respirator + eye protection + gown + head covers + double gloves +/- leg covers
Patient	Surgical facemask

Location of Donning

In clean area near or in procedure suite

Doffing

- ❑ Ensure a buddy is present to observe doffing

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Addendum

Code STROKE

Pre-procedure huddle ASAP (in person or virtually)

- ❑ Confirm ETA of patient
- ❑ Confirm plan on arrival into hospital; e.g.: via CT or direct admission into procedure room

Personnel

- ❑ Confirm ***inside*** staff and ***outside*** staff
- ❑ Confirm all staff members can adhere to PPE

Room Prep

- ❑ Confirm that any inside equipment/supplies that not required are covered with plastic sheets
- ❑ Ensure STOP & PPE posters displayed

Confirm Airway Plan

If MAC:

- ❑ Supplemental O2 via facemask over surgical mask, avoid nasal cannula

If GA:

- ❑ Follow SOP for intubation of COVID-19 patient
- ❑ Connect patient to anesthesia ventilator
- ❑ Maintain anesthesia using a volatile agent to conserve supplies of total intravenous anesthesia
- ❑ Ensure Ambu + HMEF + PEEP valve and Kelly clamp available

Designate safety officer to prevent any entry without PPE, with particular attention to flow of traffic in/out of control room

Remainder of the case can proceed via the *INtubated* or *UNintubated* workflows

ICU ventilation & Respiratory therapist

If ICU ventilation is required for the case

- ❑ RT will assist with:
  - ❑ Any planned circuit disconnections
  - ❑ Transfers while on the ICU vent
  - ❑ Intubation onto the ICU vent
  - ❑ Stabilizing patient inside the OR/procedure
  - ❑ Confirming ventilation settings and ensuring anesthesiologist has clear instructions on how to modify vent setting
- ❑ RT should be donned in the appropriate PPE
- ❑ Maintenance of anesthesia:
  - ❑ Avoid the use of the anesthesia machine in OR/procedure room
  - ❑ Maintain anesthesia with total intravenous anesthesia

Checklist for Intubation & Extubation (all cases, including COVID-19+)

Preparation

Designate team leader and confirm:
- ❑ Patient ID
- ❑ Allergies
- ❑ Weight
- ❑ Can the patient be optimized any further?
  - ❑ Fluids/vasopressors
  - ❑ NGT aspiration

Prepare for an unanticipated difficult airway*
- ❑ Is there a clinical indication/need for fibreoptic intubation?
  - ❑ Call for disposable Ambu fiberoptic scope
  - ❑ Discuss need for additional expertise
- ❑ Confirm primary & backup plan for difficult airway

Reduce exposure
- ❑ **Limit staff member in room during intubation (max 3)**
- ❑ 1st intubator (Anesthesiologist or Airway Team Member)
- ❑ 2nd intubator (if required)
- ❑ RN
- ❑ Runner (outside the room)

Anesthesia prep:
- ❑ Check equipment:
  - ❑ Facemask + Ambu bag + HME filter
  - ❑ Oropharyngeal airway
  - ❑ Yankauer Suction
  - ❑ VL: McGrath
  - ❑ Bougie
  - ❑ ETT x 2
  - ❑ EtCO2 confirmatory method
- ❑ Prepare required drugs which will be brought ***inside*** the room
  - ❑ Induction agents
  - ❑ Emergency (hemodynamic support)
  - ❑ Maintenance (sedation, hemodynamic support)
- ❑ Confirm which supplies & drugs will remain ***outside*** the room
- ❑ Prepare how you will dispose of used items (2x bags: clean and dirty contaminated bags)

Apply PPE**
- ❑ Remove personal items (pens, mobile phones, ID badges)
- ❑ Buddy/mirror check

- ❑ **Confirm plan with all members**
- ❑ How will we call for help, if needed?

Anesthesia Induction

Prepare
- ❑ Apply standard ASA monitors
- ❑ Check for working IV access
- ❑ Ensure HME filter is between facemask & ***circuit/Ambu bag***

Preoxygenate
- ❑ Optimize position
- ❑ 5min or until target EtO2 reached (as defined by airway team)

Perform RSI
- ❑ Rapid administration of induction drugs and flush
- ❑ **If difficulty intubating, follow difficult airway plan below**
- ❑ Connect ETT to anesthesia circuit
- ❑ Inflate cuff BEFORE applying PPV
- ❑ Confirm intubation via EtCO2 (avoid auscultation)
- ❑ Secure ETT

*Difficult Airway Plan

- ❑ Option 1: McGrath VL (preferred 1st line)
- ❑ Option 2: iGel + small tidal volume ventilation
- ❑ Option 3: Ambu fiberoptic scope
- ❑ Option 4: mask ventilation +/- surgical airway

If bag-mask ventilation is required, use small volumes

In the event of an anesthesia stat call
- ❑ The outside staff member (circulator/runner) must prevent any entry without appropriate PPE

Post-intubation

- ❑ Place laryngoscope (handle & blade) into biohazard bag and seal
- ❑ Place facemask into biohazard bag and seal
- ❑ Ensure HME filter is between ETT and circuit
- ❑ Clamp ETT if disconnection of circuit is required

Extubation

- ❑ Perform routine extubation planning
- ❑ Ensure full NMB recovery
- ❑ Antiemetics recommended
- ❑ Extubation sequence:
  - ❑ Consider using a blue chuck or towel to cover the patient's mouth during extubation (as a barrier for aerosolization)
  - ❑ Retain HMEF on ETT during extubation
  - ❑ Deflate ETT and extubate along with the towel/chuck
- ❑ Dispose of used disposable supplies (ETT, temp probe, bite block, OPA, NG/OG tube, suction) using the dirty contaminated bag
- ❑ Do NOT throw away laryngoscopes, keep in sealed specimen bag in OR for anesthesia technician collection

**PPE for staff involved with care

In the OR/ICU room

1st intubator	PAPR or N95 + eye protection + gown + head cover + double gloves +/- shoe/leg covers
2nd intubator or Anesthesia stat responder	PAPR or N95 + eye protection + gown + head covers + double gloves +/- shoe/leg covers
Nursing	N95 + eye protection + gown + head covers + double gloves +/- leg covers

Out of the OR/ICU room

Runners (Nursing, Anesthesia)	Surgical facemask + eye protection + gown + double gloves

Doffing

- ❑ Ensure a buddy is present to observe doffing!

DON'T RUSH!!!
YOUR personal protection is THE priority.