FACULTY OF MEDICINE
DEPARTMENT OF ANESTHESIOLOGY

COVID-19 – INTUBATION COVID UNIT PROTOCOL

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The Airway Team

- ICU nurse
- Inhalation therapist
- Anesthesia resident
- Anesthesia therapist (outside the room)
- Anesthesia attending in case of difficult airway

PPE (personal protective equipment)

- N95 mask. (fit testing instructions: https://youtu.be/XPOzCG4DrgQ) AND apply protective face mask over N95)
- Tyvek suit
- Long sleeves protective gown on Tyvek
- Mask with face shield or goggles
- Gloves (double gloves recommended)
- Crocs or washable shoes (to shower while wearing them, shoe cover is optional)

Note: Protective gown, gloves and regular face mask should be changed between cases if more than one intubation is anticipated

Equipment

Intubation equipment already available in COVID ICU unit: *Available in the ICU emergency trolley and Anesthesia Trolley*

- Face mask (different sizes)
- MAC 3 &4 blades + handle
- ETT size 6-9
- Yankauer Suction
- Closed loop suction for ETT suctioning
- 1 bag for disposal of contaminated equipment

Additional Equipment in COVID ICU:

- The Cmac videolaryngoscope will be stationed in the covid ICU unit. It will be covered with nylon during use and cleaned by the inhalation therapist after each use
- Two blades will be available: D blade for difficult airway to be used with stylet, Macintoch blade for regular airway *(kindly note that Blades and stylets should be sent to CSD for cleaning after each use (turnover time around 1h)*

Medication kits: *Available in the ICU emergency trolley and Anesthesia Trolley.* Drugs will be prepared by the ICU nurse/resident outside the room

- Propofol
- Ketamine/Etomidate
- Rocuronium
- Succinylcholine
- Fentanyl
- Glycopyrrolate
- Lidocaine 2%
- Sugammadex
- Emergency drugs: ephedrine, atropine, neosynephrine

Any additional items needed, to be prepared before entering the room, or handed off by the standby anesthesia therapist outside the room from trolley:

- Drawer 1: Additional medications except controlled substances, syringes, needles
- Drawer 2: Different sizes oral airway, suction catheters
- Drawer 3: LMAs of all sizes, ETT of all sizes, intubating stylets, bougies (METTI), blades of all sizes
- Drawer 4: Ambu bags and face masks of all sizes
- Drawer 5: PPE kits, T piece circuits

Intubation Checklist: When you are called for intubation for a COVID-19 patient

We will make sure we are called to intubate before the patient gets in distress *IF possible* to allow appropriate time for PPE. It is recommended to have daily communications between ICU attending and anesthesia attending first on call for planning and anticipation of airway management

Stage 1: Outside the Room + Setup:

PPE Donning:

Signs with the steps to follow for donning and doffing PPEs will be visible on doors and walls

- Wear gloves and mask when getting there. Get your size fit N95 mask
- Get your PPE as listed above
- Wear PPE in the following order (see figure):
    - Wash hands
    - Wear surgical head cover
    - Wear Tyvek suit
    - Wear protective gown

- Apply N95, perform fit check
- Put the surgical face mask with face shield above the N95 mask
- Wear goggles
- Put on the hood of the Tyvek suit
- Double gloves, must be above gown, make sure hands are all covered

Stage 2: Inside the Room - Secure Airway

Airway Assessment

- Once in the room, assess the airway
- Communicate with the anesthesia therapist about any concerns of difficult airway requiring further airway equipment (stylet, bougie etc…), if it is the case ask the anesthesia therapist to hand them over to you
- Prepare Cmac videolaryngoscope appropriate blade and stylet
- Prepare your medications for rapid sequence induction (RSI) (propofol, succinylcholine or rocuronium (preferable), and emergency drugs)
  AIRWAY assessed as easy: The anesthesiology resident will instruct the nurse to give the medications, inhalation therapist or resident will handle the airway using Cmac videolaryngoscope

Possible scenarios for airway assessment:

- AIRWAY assessed as borderline: The anesthesiology resident will instruct the nurse to give the medications and will proceed with intubation using the Cmac videolaryngoscope assisted by the inhalation therapist
- AIRWAY assessed as difficult: The anesthesiology resident will call for the backup attending
- If additional equipment is needed, the anesthesia therapist outside the room shall help with getting them from the trolley – Keep the trolley clean
- In case of cardiac arrest or patient crashing, the inhalation therapist shall proceed with the intubation

Preparation for intubation

- Anesthesia resident: Check IV line is working, have all needed medications
- Equipment check by inhalational therapist and anesthesia resident: ambu bag or T-piece circuit connected, adequate O_2 supply, suction ready with Yankauer (closed suctioning systems preferred if available), oral airway, ETT ready, standby direct laryngoscope check (size, light bulb)
- Make sure all ASA monitors are applied
- Optimize positioning to maximize 1st attempt success
- Preoxygenation with 100% for at least 5 min
- RSI by anesthesia resident with propofol and succinylcholine or rocuronium (preferable)

- No ventilation
- If needed, administer fentanyl after propofol to avoid fentanyl-induced cough
- After 60 secs or witnessed fasciculations, when ready to intubate, turn off gas flow to decrease contamination from face mask, and remove face mask from patient

Intubation

- After tube is in, directly inflate the cuff, connect to ventilator as quickly as possible, ventilate and confirm tube placement by capnography

Stage 3: Inside the Room - Post-Procedure Safety

Careful Disposal

- After intubation completion, inhalation therapist to dispose the Cmac blade and stylet in the bag and send to CSD
- Dispose used and all disposable items in trash cans in patient's room

Doffing

- Remove outer set of gloves to avoid contamination and put another set immediately.
- Removing PPE – Should occur in the following order inside the patient's room (at least 6 feet away from the patient) except for N95 mask which should be removed outside the patient's room (see figure and link: https://youtu.be/agu79EUPe7U?list=PLAKISH_EKdL8eJYLjIYUv7Llejkn7WCuW)
    - Remove gloves – from outside to inside – make sure you do not contaminate your hands
    - Wash hands with alcohol based solution
    - Remove Tyvek cap
    - Wash hands
    - Remove goggles
    - Wash hands
    - Remove protective gown, untie first, fold gown inside out and fold it and dispose it
    - Wash hands
    - Remove surgical facemask
    - Wash hands

Stage 4: Outside the Room - Post-Procedure Safety

- Continue Doffing:
    - Remove N95 once outside the room

- Wash hands with soap and water
- Remove Tyvek, boot covers and surgical head cover before exiting the unit
- Take a shower with your crocs before leaving the unit and going back to main hospital. Clean scrubs, towels and laundry bags are available in the unit.
- Documentation of the airway procedure can be done from outside the unit

Possible Scenarios During and After Intubation

- If saturation is dropping and you need to ventilate, use an oral airway and low tidal volume ventilation and ensure adequate mask seal (2 hands mask to provide a good seal) to minimize aerosolizing the secretions. Recommended use of HEPA filters between mask and Ambu Bag or T-piece circuit
- If difficult airway, can't ventilate, can't intubate, try inserting an LMA (also available in the trolley in all sizes – reserved for difficult airway) or decide to wake up the patient (sugammadex)
  **If a disconnection in the circuit is needed, make sure it is done beyond the filter while the ventilator is put on standby
  ** If CPR is being performed, ask to hold chest compressions while intubating to minimize aerosolization of the virus and room contamination

References

Please refer to the following link for demonstration and additional info:
https://youtu.be/OF6dMhRvD8M

PPE tutorial in 90s
https://youtu.be/agu79EUPe7U?list=PLAKISH_EKdL8eJYLjIYUv7Llejkn7WCuW

N95 fitting instructions
https://youtu.be/XPOzCG4DrgQ

Figure: Steps of donning and doffing PPEs

APPENDIX A: Anesthesia COVID Unit Intubation Infographic for COVID-19 Patients

Phase

OUTSIDE THE ROOM + SETUP

Donning PPE
- Wash hands
- Wash surgical head cover
- Wear Tyvek suit
- Wear protective gown
- Apply N95, perform fit check
- Put the face mask with face shield above the N95 mask or wear goggles
- Put on the hood of the Tyvek suit
- Double gloves, must be above gown, make sure hands are all covered

Allocate Roles of the Airway Team
- **ICU nurse:** Inside-IV medications
- **Inhalation therapist:** Inside-Skilled airway assistant
- **Anesthesia resident:** Intubator
- **Anesthesia therapist:** outside - runner
- **Anesthesia attending in case of difficult airway:** backup

Check Equipment
- Face mask (different sizes)
- MAC 3 &4 blades + handle
- ETT size 6-9
- Yankauer Suction
- Closed loop suction for ETT suctioning
- Bougie + Stylet
- 1 bag for disposal of contaminated equipment
- Cmac videolaryngoscope
- Laryngoscopy blades:
- D blade for difficult airway to be used with stylet
- Macintoch blade for regular airway.

Medications for RSI:
- Propofol
- Ketamine/Etomidate
- Rocuronium
- Succinylcholine
- Fentanyl
- Glycopyrrolate
- Lidocaine 2%
- Sugammadex
- **Emergency drugs:** ephedrine, atropine, neosynephrine

INSIDE THE ROOM

Airway Assessment
- Communicate with the anesthesia therapist about any concerns of difficult airway requiring further airway equipment (stylet, bougie etc…)
- Prepare Cmac videolaryngoscope appropriate blade and stylet

Medications for RSI:
- Propofol, succinylcholine or rocuronium (preferable), and emergency drugs

Check IV Line

Check Equipment:
- Ambu bag or T-piece circuit connected
- Adequate O2 supply
- Suction ready with Yankauer (closed suctioning systems preferred if available)
- Oral airway
- ETT ready
- Standby direct laryngoscope check (size, light bulb)

ASA Monitors:
- Capnography
- SpO2
- ECG
- Blood

Positioning:
- Optimize positioning to maximize 1st attempt success

Preoxygentaion:
- Preoxygenation with 100% for at least 5 min

RSI by anesthesia resident :
- Propofol and succinylcholine or rocuronium (preferable)
- If needed, administer fentanyl after propofol to avoid fentanyl-induced cough

After 60 secs or witnessed fasciculations, when ready to Intubate:
- Turn off gas flow to decrease contamination from face mask
- Remove face mask from patient
- Place Tube
- Directly inflate the cuff
- Connect to ventilator as quickly as possible
- Ventilate and confirm tube placement by capnography

Disposal:
- Careful disposal of Cmac blade and stylet in the bag, by the inhalation therapist, and send to CSD

Doffing:
- Remove gloves
- Wash hands with alcohol based solution
- Remove Tyvek cap
- Wash hands
- Remove goggles
- Wash hands
- Remove protective gown
- Wash hands
- Remove face shield
- Wash hands

AFTER – OUTSIDE THE ROOM

Continue Doffing
- Remove N95 once outside the room
- Wash hands with soap and water
- Remove Tyvek outside room before exiting the unit

Shower
- Take a shower with your crocs before leaving the unit and going back to main hospital

Documentation of Procedure
- Documentation of the airway procedure can be done from outside the unit