Mount Sinai Health System

Person Under Investigation/COVID-19 Positive

Cardiac Arrest Guide (for Floor and ICU codes)

Important Things to Consider Before ACLS

- Enter the room after donning PPE - use N95 mask, face shield, hat, gown, double gloves, and other equipment as indicated.
- Minimize staff and throughput within the room. **Do not enter the room if you are not needed.**
- Use automated external compression device (LUCAS) if available.
- If patient is already intubated: perform CPR on the ventilator VC mode and FiO2 100%.
- If the patient is not intubated, utilize a non-rebreather for oxygenation during CPR with a face mask under the non-rebreather.
- The airway should be prioritized once the intubation team arrives.
- Chest compressions must be held during endotracheal intubation to minimize aerosolization.
- The room door should be closed all the time.
- Review advanced directives and explore goals of care as appropriate before and during ACLS.

Team Members (max 5) in room, all wearing PPE:

1. Cardiac Arrest Leader
2. RN N1: Medication administration and recording.
3. RN or MD: CPR
4. RN or MD: CPR (If not using LUCAS)
5. Respiratory therapist: Only if the patient requires intubation, Use ONLY two person bag mask ventilation technique to ensure a seal. Ventilate with a Bag Valve Mask (BVM) with a HEPA filter.

Team Members (2) outside room, not wearing PPE:

1. MD, RN or PA: Remains outside the room – not wearing PPE. Supplies medications, hands off materials, and observes for breach in PPE of providers inside the room.

ACLS Process

1. The person who identifies patient in cardiac arrest (already in the room wearing PPE)
    a. Activate Cardiac Arrest notification (e.g. press “code blue button”)
    b. Start chest compressions

2. 2nd person to arrive:
    a. Bring cardiac arrest cart and intubation box *outside* the room
    b. Don PPE and enter the room
    c. Place backboard
    d. Bring defibrillator into the room and Place Zoll pads
    e. Check appropriate IV access

3. 3rd person to arrive:
    a. Don PPE

b. Assist critical care MD in setting up intubation equipment (if the patient is not already intubated).
c. Brings ACLS medications into the room per code leader.
    - Consider: epinephrine x 5; bicarb x 2; calcium x 1; flushes x 10
d. Assist with CPR, if LUCAS is not available

4. First Critical Care MD to arrive
    a. Don PPE
    b. Identified as a Code leader and assigns responsibilities.
    c. Manage airway if required

****Follow standard ACLS protocol**

Intubating during code:

Because the most likely cause of the cardiac arrest in these patients would be a hypoxic respiratory failure, we recommend inserting an endotracheal tube as soon as possible *(Follow the Mount Sinai Health System COVID-19 Airway Management Guide: Appendix 1).*

- A Respiratory therapist is required in the room only if the patient requires endotracheal intubation.

- Do not perform endotracheal intubation during active chest compressions. When ready to intubate, chest compressions must be held.
    1. Intubate using video-laryngoscope
    2. Inflate the balloon
    3. Place a HEPA filter between ETT and vent.
    4. Directly connect patient to the ventilator. If a ventilator is not available, attach endotracheal tube with a filter to an BVM.

    Note: If the patient requires ventilation during the intubation process *only use a 2 person ventilation technique* with the BVM and a HEPA filter. One person uses both hands around the mask to develop a seal with the patients face and the other person squeezes the bag. This will ensure a proper seal and minimize aerosolization.

Post-CPR:

- Exit room
- Doff PPE
- Debrief

Appendix 1:

Mount Sinai Health System
COVID-19 Airway Management Guide

Preparation:

1. Respiratory Therapy should prepare the ventilator in the room prior to intubation
2. Take only the things that you need with you into the room, but make sure to take everything you need
3. Prepare medications and intubation equipment outside of the patient's room
4. Suggested hypnotic agent and succinylcholine 1-1.5 mg/kg, or rocuronium 1.2 mg /kg
5. Verify intravenous access
6. See equipment checklist
7. Have a dedicated provider outside the room not in PPE to hand additional equipment/medications that may be needed and to come in to assist if needed

Airway Management:

We recommend starting supplemental O2 for SPO_2 < 92% and aim for maintaining a SPO_2 of no higher than 96%. There should be a low threshold for early intubation for adult patients. (Consider discussions with pediatric critical care team for children unless patient is unstable). Patients with worsening respiratory failure should be intubated early. A short trial of High Flow Nasal Cannula (HFNC) can be used on COVID-19 patients, ideally in a negative pressure room with a surgical mask over the HFNC. If HFNC not available, non-invasive ventilation with BIPAP with a filter on the exhalation port can be considered for a short trial.

Personnel:

1. The provider on the team with the most intubation experience should intubate the patient
2. The Difficult Airway Response plan should be activated in the event of a difficult airway following the standard protocol
3. There should be no more than 3 people, ideally 2 people in the room during intubation
4. Designate a person outside the room to help with supplies if needed, and to monitor for breaches of PPE

Pre-intubation:

1. Ventilator should ideally be set up prior to intubation.
2. Advance planning and clear communication are paramount
3. If patient is not in a single patient room, separate from other patients by 6 feet using curtains or screens
4. Set up and confirm ETCO2 waveform capnography is working
5. Minimize personnel
6. All equipment/medications that are needed should be setup and brought into the room prior to the start of the procedure, see intubation check List
7. Don PPE (gown, gloves, n95 respirator, eye protection, hair cover) outside of the patient's room

Intubation:

1. Prolonged pre-oxygenation for more than 5 minutes with 100% FiO2 non rebreather (caution: expiratory ports may aerosolize secretions)
2. Most experienced provider should intubate, second provider should push medications and assist
3. Goal is Rapid Sequence Intubation (RSI)
4. Can use push dose vasopressors for post intubation hypotension if needed
5. If manual ventilation is needed, use 2 hands to provide good seal, place filter between mask and bag, and deliver small tidal volumes.
6. Do not use non-invasive ventilation if it can be avoided
7. Preferred use of video-laryngoscopy (using the device that the intubator is most experienced with and hand-held device if available) to increase the distance
8. Inflate cuff immediately after intubation
9. Doff outer gloves after intubation and prior to touching other equipment
10. Attach filter to ETT, then the rest of the system
11. Institute mechanical ventilation on volume control mode at 6-8cc/kg IBW flowing the ARDS net titration.
12. Use disposable stethoscope to auscultate from the patient's side
13. Avoid awake intubation (risk of aerosolizing the virus during topicalization and coughing)
14. Avoid supraglottic airway (LMA) ventilation, unless warranted for a difficult airway

Post-intubation:

1. Connect the patient to the ventilator and secure the tube
2. If need to disconnect the patient from the ventilator, put it in standby first
3. Dispose used and all disposable items that were brought into the room in trash in the room
4. Video Laryngoscope: thoroughly wipe all surfaces with peroxide wipe prior to doffing PPE making sure to fully saturate the surface following standard droplet cleaning protocols.
5. Doff PPE, ideally in anteroom if available (can remove all pieces including N95, and wash hands) but if anteroom is not present, then doff in patient's room (at least 6 feet away from the patient), except for the N95 mask, which is removed outside of the room. Hand hygiene.
6. Wipe Video Laryngoscope again with peroxide wipe after doffing PPE. After this it is ready for next patient use and can be returned to its storage location

Suggested COVID-19 Airway "Go" Bag Contents, can be individualized for each department

1. HEPA filter
2. N95 masks x 4 (2 small, 2 regular)
3. Face shields x 2
4. Video laryngoscope, 3 blade x 2, 4 blade x 2
5. Stylet x 2
6. Isolation gown x 2
7. Waterproof (blue) gown x 2
8. Sterile gown x 1
9. Bouffant hat x 2
10. Sterile gloves: 6.0, 6.5, 7.0, 7.5
11. Biohazard bag x 1

Intubation Check List:

- Working IV (ideally two IVs)
- BVM (± PEEP Valve) on Oxygen
- Waveform Capnograph on BVM
- Video Laryngoscope
- Backup Laryngoscope
- ET tube the size your plan to use and 1 size smaller
- ET tube stylet
- Oral airway
- Bougie
- LMA sized for the patient
- Suction
- NRB for pre-oxygenation
- Nasal Cannula for Apneic Oxygenation
- Paralytic (succinylcholine 1-1.5 mg/kg or rocuronium 1.2 mg /kg)
- Induction Agent (Suggest ketamine 1-2mg/kg or etomidate)
- Flushes
- Post intubation sedation (hydromorphone or midazolam) (setup on PCA or Pump)
- Orogastric tube
- Norepinephrine on pump only if needed
- Bolus dose of phenylephrine