Penn Medicine

Clinical Emergencies Committee

Clinical emergencies guidelines during COVID-19 response

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Clinical emergencies during COVID-19 pandemic

- Overriding considerations
  - Prevent COVID-19 spread to healthcare providers and other patients
  - Recognize that clinical emergencies may prompt new COVID testing, and that a deteriorating patient with unclear status should be treated like a PUI
  - Provide necessary emergency treatment to both COVID and non-COVID patients

- BEFORE a clinical emergency occurs
  - Review these guidelines to prepare for possible clinical emergency management
  - Give COVID+/PUI patient a surgical mask to don when personnel enter room

Clinical emergencies: initial PPE and infection control approach

COVID status	Emergency	PPE	Risk minimization
Non-PUI	RRT (non-respiratory)	Surgical Mask + Gloves + Eye Shield	Standard
	RRT (respiratory)	Single use N95 or PAPR† + Gown/Gloves + Eye Shield	Minimize in-room personnel† + Close door / cell phone communication†
	Code and/or Intubation		
PUI	RRT (any)	Single use N95 or PAPR + Gown/Gloves + Eye Shield	Minimize in-room personnel + Close door / cell phone communication
	Code and/or Intubation		
Confirmed COVID-19 +	RRT (any)		
	Code and/or Intubation		

† These are initial PPE and infection control recommendations given:

1) Potential for aerosolizing interventions (non-rebreather mask, high flow nasal cannula, bag mask ventilation)
2) Possibility that RRT may prompt new COVID testing in a non-COVID patient

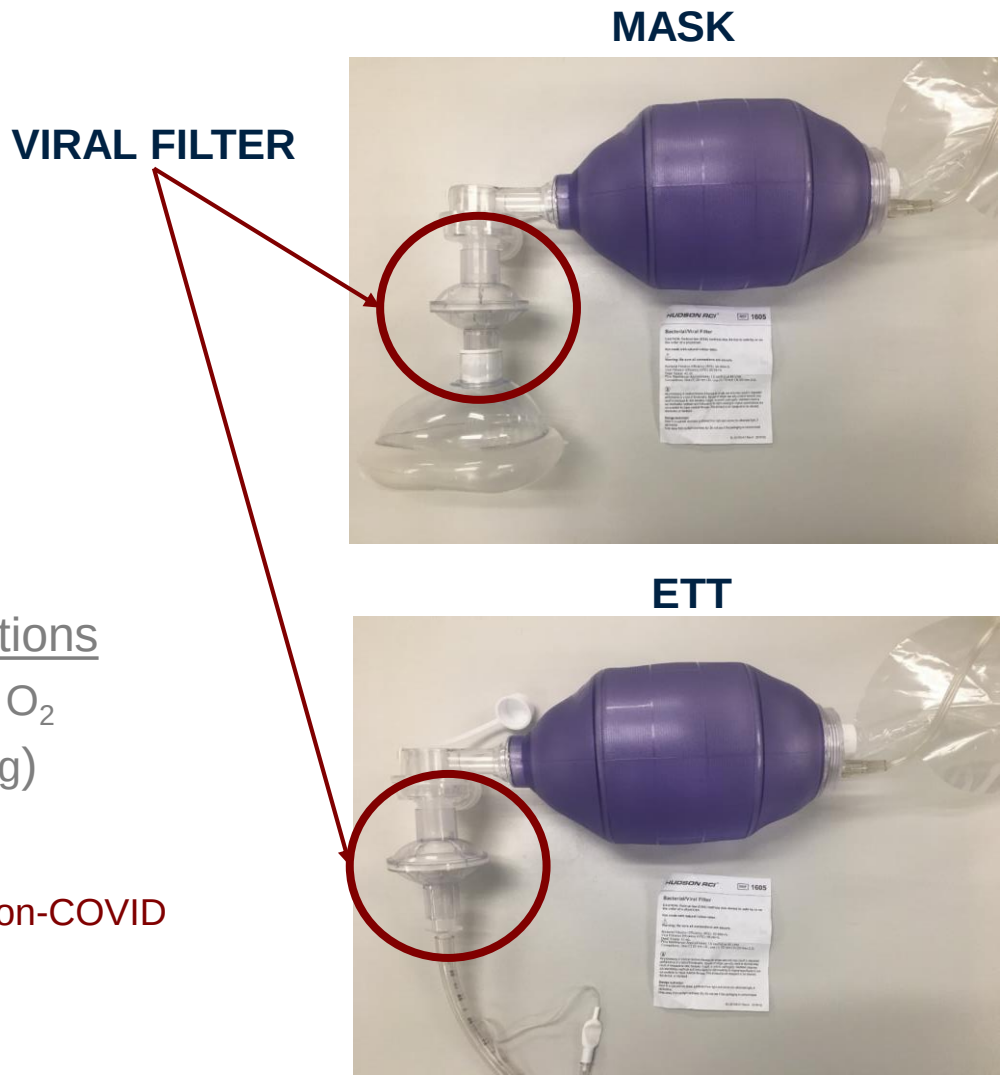
De-escalation to pre-emergency level of precautions may be considered if:

1) Aerosolizing interventions are not needed (e.g., only nasal cannula used)
2) New testing for COVID-19 is deemed unnecessary

Clinical emergencies: initial respiratory management

- In all patients*:
  - Don PPE per clinical emergencies PPE table
  - If spontaneous respirations:
    - Apply 100% FiO_2 by non-rebreather mask, 10-12 LPM
    - Place loosely fitted surgical face mask over NRB
  - If persistent low O_2 sat, poor ventilation, or no respirations
    - Place Viral Filter between mask and bag, attach to wall O_2
    - Bag ventilate with 2 providers (one mask seal, other bag)

*Due to the possibility that respiratory decompensations and codes even in non-COVID patients may prompt re-evaluation for COVID infection



RRT initial management / personnel

Initial response (<1 min)

- In-room personnel (n=2)
  - Bedside nurse (1)
  - 1st available provider (1, preference for 1° team)
  - Focus on ABCs, need for further escalation (code), delivery of basic life support
  - Request more personnel if immediately needed
- Out-of-room personnel
  - Charge nurse:
    - Manage initial provider flow
    - Provide initial PPE donning/doffing supervision
    - Call nursing admin for PPE SME (see PPE slide)
  - Documenting nurse
  - Local responders (can enter if immediately needed)

At full RRT arrival (<5 min)

- In-room personnel (n=4-5)
  - Bedside nurse (1)
  - 1° team provider (1)
  - NCC (1)
  - CC attending, fellow, APP, or senior resident (1)
  - +/- respiratory therapist (1) if needed
- Out-of-room personnel
  - Nursing: charge, documenter, PPE SME, 2nd NCC
  - Respiratory therapist (if not in room)
  - Pharmacist
  - Providers: Residents (1-2), CC APP (1)
  - Transport, Security
  - **All others should clear the area**

Code initial management / personnel

- In-room personnel (n=7)
  - Anesthesiologist (1)
  - Respiratory therapist (1)
  - NCC (1)
  - CC attending / code leader (1)
    - CC fellow, APP, or senior resident if attending unavailable
  - CPR (2, bedside nurse + 1 other)
    - Can reduce to 1 if using LUCAS device
  - Utility provider (1, pref 1° team provider)
- Note:
  - In room: orange med box, defib, backboard
  - Outside: crash cart, documentation binder

- Out-of-room personnel (n=10-12 max)
  - Nursing: charge, recorder, PPE supervisor, 2nd NCC
    - Roles same as in RRT
  - Respiratory therapist
  - Pharmacist
  - Providers: residents (1-2), CC APP (1)
  - Transport, Security
  - **All others should clear the area**
    - Charge or other nursing leadership should instruct others to leave given hindrance to communication with in-room providers

Code roles, compressions, IV access

- Code leader
  - Role may transition from initial leader to critical care attending or fellow
  - Prior code leader may remain in room/PPE to assist as utility provider
- Anesthesia
  - After intubation, may remain in room/PPE to assist (airway management, vascular access, etc.)
- Chest compressions
  - Considered an aerosol generating procedure
  - Pause chest compressions during intubation to minimize aerosolization
- IV access
  - Recommend 2 PIVs for all COVID/PUI patients
  - Early identification of central access need
  - IO access, if needed

Cardiac arrest in prone position

- If no established airway:
  - Supinate onto backboard as quickly as / if able
  - Initiate standard chest compressions

- If established airway (ET tube):
  - Supinate onto backboard as quickly as / if able
  - If unable to supinate, start manual compressions on the back*
    - Hand position T7-T10
  - Place defibrillator pads as shown (picture)

*From AHA: When the patient cannot be placed in the supine position, it may be reasonable for rescuers to provide CPR with the patient in the prone position, particularly in hospitalized patients with an advanced airway in place (Class IIb, LOE C)

LUCAS chest compression device (if available)

- Benefits:
  - Reduce personnel exposed to aerosolizing procedure (CPR)
  - Standardize chest compression depth, rate, and recoil
  - Defibrillate during chest compressions (no interruption needed)
- Contraindications:
  - Fresh sternotomy
  - Patient in prone position (supinate first)
- Use:
  - Continue manual compressions as able while fitting LUCAS
  - If LUCAS does not fit or operate properly, resume manual compressions immediately
  - Monitor for suction cup migration (marker suction cup borders) and reposition if needed
  - On exit: clean per guideline (see UPHS COVID SharePoint site)
- Power:
  - Battery runtime = 45 minutes, if needed use external power cable or backup battery
  - Battery must always be installed for device to operate, even when powered by external power supply
  - Charge time: LUCAS = 2hrs, external battery charger = 4hrs

Instructional link: https://www.lucas-cpr.com/web_training/lucas3/device_orientation/#home

PPE management

- Supervisor
  - Initial: charge nurse or designee
  - Call nursing admin: 215-301-2797 and request immediate assistance, if available, from a Subject Matter Expert (SME) to assume PPE supervising role from charge nurse

- Responsibilities
  - Distribute correct PPE to providers entering room
  - Observe/ensure correct donning/doffing of all PPE (see UPHS SharePoint site for protocol)
  - Ensure patient dons surgical mask while personnel are in room, as symptoms allow
  - Monitor/minimize door opening; assist with batching of materials going in
  - Assist with transport to ICU (see UPHS COVID SharePoint site for Transport Guidelines)

- Note
  - As management allows, in-room providers should limit time spent within 6 feet of patient

Communication and documentation (*possible/confirmed COVID*)

- Communication
  - Cell phone in room on speaker setting works best
  - Out-of-room personnel (charge nurse or designee):
    - Call between 2 phones (e.g., SCiP phones), place on speaker setting, hand into room
    - Use closed loop communication
    - Minimize personnel outside of room to reduce extraneous noise
  - Other options: whiteboards, nurse call system, window (written, verbal)

- Documentation
  - Document outside patient room
  - Document as well as able via communication strategies above
  - Documentation should NOT take precedence over adequate PPE / infection control

Equipment/supplies (*possible/confirmed COVID*)

- Efforts should be made to batch equipment/supplies going into room
- Ultrasound
  - CC attending or CC APP will bring handheld U/S
  - If needed for management
    - Bring/pass U/S, probes, surgilube packets (but not bag) into room
    - Extra battery left in bag– can be requested if needed
    - On exit: clean per guideline (see UPHS COVID SharePoint site)
- Other typical supplies (batch as able)
  - RRT: ABG materials, IV set up, volume line / pressure bags, IV pump, accucheck
  - Code: orange med box, defibrillator, backboard
  - GI: OG tube, tape, irrigation tray, stethoscope, NSS
  - Respiratory: Ambu bag/mask/filter, O_2 masks, portable O_2, portable suction
  - EKG: only use if clearly needed

Transport on ventilator (*possible/confirmed COVID*)

- Use trach ties (picture) to ensure endotracheal tube stays attached
- Bring scissors *en route* for cutting ties in the event of an emergency
- Use portable ventilator during transport
- If bagging needed, use in-line suction adaptor, viral filter
- If any disconnection is necessary
  - Place vent in standby
  - Clamp ET tube

Other considerations (*possible/confirmed COVID*)

- Please refer to UPHS COVID SharePoint site for guidelines on…
  - Handling patient specimens
  - Logistics of portable radiology
    - Consider whether in-room U/S can provide adequate alternative information
    - Consider whether CXR should be done in ICU at time of transfer
  - Patient transport