COVID RESUSCITATION

Assume all patients requiring resuscitation are COVID+

<table>
<thead>
<tr>
<th>Put mask on patient</th>
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<tbody>
<tr>
<td><strong>Bring patient to room</strong></td>
</tr>
<tr>
<td>1) Negative Pressure Room</td>
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<tr>
<td>2) HEPA Filter Room</td>
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<tr>
<td>3) Acute Room with closed door</td>
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</tbody>
</table>

**Call for help** (CN or delegate)

When appropriate, call: ACT team, RT, MD to lead, MD to intubate
If Arrest: May need 6+ RNs (2 in room, Charter, Runner, 2 additional RNs to help with meds/CPR etc.)

**Huddle**

- Assemble Team: Identify Team Lead, Introductions, Assign Roles,
- Verbalize Plan: Oxygenation & Intubation Plan ABC, Arrest Management, etc.
- Plan Communication Strategy (ex: write on glass, whiteboards, bluetooth, baby monitors)

**Gather supplies**

- See Page 2. Every team member to ensure they have supplies for task they will perform.

**Don PPE under guidance of Safety Officer.**

- Contact-Droplet PPE for all team members outside room.
- AGMP: add N95
- Arrest or Intubation: add N95 and Hood
- Order: 1) Hand Hygiene, 2) Mask, 3) Hood, 4) Gown, 5) Shield, 6) Gloves, 7) 360 check with Safety Officer

**Confirm Code Status** with patient/SDM. If recent visit: check Meditech for GOC Team note.

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**Suggested Team Composition:**

**INSIDE ROOM:**

MD: Lead
RT: Airway
RN A: Assess & Meds
RN T: Tasks

If ED Team Intubating:
MD#2: Intubation

**OUTSIDE ROOM:**

RN C: Charting
Safety Officer: MD/RN
RN T: Runner (in N95)
RT: Assist (in N95)

If Available:
MD#2: Assist
Additional RNs

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**If no Anteroom:**

Use HEPA Filter.
Doff Gown, Gloves and Shield inside room.
Doff Mask outside room.

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**Enhanced PPE**
**Contact-Droplet PPE**

Modify team composition based on type of resuscitation, availability of team members, etc.
## Phase 1: Initial Resuscitation

**Medications**

**Intubation:**
- COVID Intubation Med Kit
  - Rocuronium 100mg IV (1.5mg/kg)
  - Ketamine 100mg IV (1-2mg/kg)
  - Propofol 100mg IV (0.5-2mg/kg)
  - Push dose Phenyl 100mcg
  - Levophed 0-30mcg/min

**Arrest:**
- 3 x Epi 1mg (Peds: 0.01mg/kg)
- 1 x Calcium Gluconate amp
- 1 x HCO3 Amp

**COPD/Asthma:**
- Ventolin MDI, Atrovent MDI
- Epi 0.5mg IM (Peds: 0.01mg/kg)
- Mg 2g IV

**Pulmonary Edema:**
- Nitro 0.4mg spray, patch
- Nitro IV 50-200mcg/min

**Hypotension:**
- 2 x IV NS 1L (Peds: 10-20mL/kg)
- Levophed 0-30mcg/min
- Vasopressin 0.04U/min (2.4U/hr)
- Peds 1st line: Epi 0.1-1mcg/kg/min

**Equipment**

**RN**
- IV pump
- Thermometer
- Glucometer
- Disposable Stethoscope
- Acute Respiratory Illness Box

**Other**
- Defibrillator
- Portable CXR
- ECG
- Ultrasound machine
- IO Kit
- **Peds:** Broselow tape into room, Broselow cart outside room. (Enlarged copies of Breslow tape with drug doses in respective cart drawers)

**RT**
- NP, NRB, O2 Tubing, Venti-Mask
- Oral Airway
- Bag Valve Mask + Filter + PEEP
- Glidescope + Blade + Stylet
- MAC3 Blade + Handle*
- ETT 7, 7.5, 8 + Stylet
- 20mL syringe, Jelly
- ET Tube Holder
- Inline suction
- Tube Clamp
- ETCO2 Detector
- Vent + Viral filter
- LMA
- Bougie, Chlorhexidine, Scalpel

*Most items are contained within the RT Isolation Intubation Box. Bolded items are not.

**Phase 2: Post-intubation Management**

**Medications**

- Propofol 5-50mcg/kg/min
- Fentanyl 25-50mcg/hr
- Midazolam 1-6mg/hr
- Ceftriaxone 1g IV

**Peds:**
- Midazolam 0.4-6mcg/kg/min

**Equipment**

**RN**
- COVID Swabs
- Foley Kit

**RT**
- Art line kit

**Machines**
- Portable CXR

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*RT Isolation Box contains additional sizes of: OPA2-5, ETT 6.5-8.5, Mac3/4, Glide blade 3/4

*Cric kits kept by RT intubation boxes.*
Hypoxic Patient

Oxygen by Nasal Prongs
Max flow rate: 6L/min adults
(Infants: 2L/min; Peds: 4L/min)
Place surgical mask over nasal prongs.

Oxygen by Venti Mask
Patient $O_2$ Sat <90% despite 50% FiO2?

Consider HFNC in ICU
If: Well-appearing patient with no other indications for intubation.
   Call RT, Do ABG, Consult ICU.

Prepare for Intubation.
Call RT, HOB up, 100% NRB 10-15L to temporize
If time: Facilitate patient phone call with loved ones.
Transition to High Risk AGMP PPE.
Who does the intubation:
Plan A: Airway Management Team (x5555)
Plan B: Anesthesia on Call
Plan C: ED Team

PROTECTED INTUBATION

Pre-ox
• 2-hand BVM 15L O2 with viral filter + PEEP
• Passive: hold bag over face, do not bag unless apneic.
• x3-5mins if possible

Intubation
• Sedation + Paralysis. Wait 60sec+.
• Avoid bagging.
• Most qualified provider and VL for first attempt.
• Back up: BVM to pre-ox. Then Provider 2/LMA/Cric

When tube in:
• Inflate Cuff.
• Attach to Ambu-bag with filter + ETCO2 on.
• Begin Bagging.
• Confirm placement with ETCO2. Do not auscultate.
• Secure ETT.
• Clamp ETT.
• Remove Ambubag. Connect to Vent with Filter.
• Unclamp ETT.

Post-Intubation
• TV 4-8mL/kg. Consider higher PEEP (15).
• Post-intubation care: Sedation, Analgesia, OG, Foley
• Disinfect all equipment, place in anteroom.
• Team Debrief.

Transfer:
• Call ICU.
• Clean sheet on patient
• Enhanced PPE for transfer (don clean gown & gloves)

AGMP TO AVOID:
• Open Suctioning
• Nebulized Medications
• BiPAP, CPAP
• High Flow Nasal Cannula*
*HFNC may be done in ICU at the discretion of the ICU MRP.

Principles:
• Use lowest flow possible to achieve O2 saturation of 90%
• Place surgical mask over patient’s oxygen source

Prep for Intubation Early if:
• <90% $O_2$ Sat on >6L/min, FiO2 >50%
• Worsening Hypercapnia
• Respiratory fatigue
• Hemodynamic instability
• Significantly altered mental status

Post-Intubation RN Care
• Ensure adequate sedation
• Continue to wear Enhanced PPE (N95) after intubation while in room and during transfer

Circuit Setup
**Principles:**
- Every Code is a Protected Code!
- Safety first, then CPR:
  - Patient's face covered (NRB + surg mask)
  - Providers don N95 before compressions
  - Minimize Staff & Supplies in room
  - Use Safety Officer (guided by checklist)
- Prioritize Intubation:
  - Avoid bagging before intubation
  - Complete intubation ASAP
  - Pause compressions during intubation
- If Shockable Rhythm:
  - Defib early (like usual)
  - Keep patient's face covered (mask on)
  - Turn Oxygen off during Defib

**Pulseless Patient:**

**EMS - ED Handover:**
2. Prepare Negative Pressure/HEPA Filter Room.
3. Team Huddle: Assign Roles, Gather Supplies.
4. Team Don PPE.
   - **Expected Poor Prognosis:** only MD puts on N95 in advance, remaining team have N95 prepared to don.
   - **Expected Good Prognosis:** Entire team to don N95s.
5. MD and Don RN meet EMS at entrance.
6. EMS Transfer into ED Room. During transfer:
   - All providers in Enhanced PPE
   - Cover patient's face (2 hand BVM seal)
   - Compression-only CPR
   - No ventilation (unless definitive airway)
   - Ensure surrounding area empty of staff and patients
7. EMS Leave:
   - When possible: EMS doffs gowns & gloves in room, mask and eye protection in truck.
   - Cover stretcher with clean sheet to take back to truck.

**ED Patient:**
1. Call CODE BLUE.
2. Cover patient's face with NRB and surgical mask.
3. **If patient not already in room:** Patient placed on stretcher, brought to room ASAP.
4. Provider leaves room.
5. Provider dons high risk AGMP PPE.
6. Provider re-enters room and closes door.
7. Provider begins compressions.

**Team Huddle**
(While First Provider does CPR)
Assign Roles, Gather Equipment
**MD Lead:** Decide if Code should Continue.
If plan to Run Code:
- **RN:**
  - Enter Room with: IV supplies, Epi, Defib, Backboard.
  - Leave Crash Cart and RN Box outside room.
  - Put pads on and attain IV.
  - Take over CPR from First Provider.
- **MD:**
  - Enter room with: US
  - If Intubation Team not there: prepare to intubate
- **RT:**
  - Enter room with: Airway Supplies
  - 2 hand tight BVM seal with viral filter and PEEP.
  - Avoid bagging before intubation.

**First Priority:**
Complete Protected Intubation
Pause CPR during Intubation.

**Resume CPR**
May need RN3, RN4 to assist with CPR.

**Should this Code be Run?**
- **Code Status?**
- **Poor Prognostic Features?**
  - Asystole/PEA
  - Unwitnessed Arrest
  - No pre-hospital ROSC
  - Prolonged Downtime

If Pronouncing Patient:
1. Patient covered with sheet.
2. Body moved to private room until can be registered and transferred to the morgue.
3. MD/RN/EMS all doff in room.
4. Swab if needed for public health (ex: NH)

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## MD Intubation Checklist

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<tr>
<td><strong>EQUIPMENT:</strong></td>
</tr>
<tr>
<td>Self-inflating Ambubag?</td>
</tr>
<tr>
<td>Viral/bacterial filter attached?</td>
</tr>
<tr>
<td>PEEP valve attached?</td>
</tr>
<tr>
<td>ETCO2 monitor attached?</td>
</tr>
<tr>
<td>Second IV running well?</td>
</tr>
<tr>
<td>Suction on and positioned?</td>
</tr>
<tr>
<td>ETT loaded on stylet?</td>
</tr>
<tr>
<td>Glidescope covered, on and ready?</td>
</tr>
<tr>
<td>20cc syringe ready?</td>
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<tr>
<td>Direct laryngoscope working and ready as backup</td>
</tr>
<tr>
<td>LMA ready? (In anteroom)</td>
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<tr>
<td>NIBP cycling q2mins? ECG attached? SpO2 working?</td>
</tr>
<tr>
<td>Hemodynamics optimized?</td>
</tr>
<tr>
<td>Preox with two hand BMV seal + PEEP, NO BAG</td>
</tr>
<tr>
<td>Assessment of difficulty BMV/intubation done?</td>
</tr>
<tr>
<td>Induction dose of ketamine/propofol ready?</td>
</tr>
<tr>
<td>Paralytic dose of rocuronium ready?</td>
</tr>
<tr>
<td>Patient positioned?</td>
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**TIME OUT – REVIEW plan.**