



## ED COVID airway procedure V1.4 26 March 2020

*This is a living document and will change as processes are refined*

### Goals

- Protection of staff health and prevention of transmission of infection
- Prevention of patient deterioration
- Carry out safe intubation in a suspected/ confirmed COVID patient

### Personal Protective Equipment (PPE) -PPE Guidance from CEC\_(March 22 2020)

Contact, Droplet & Airborne Precautions are required for Aerosol Generating Procedures (see separate guidance on PPE linked above)

### Indication

- Respiratory failure where clinical judgement is such that invasive ventilation is feasible and reasonably likely to benefit/ lead to good outcome.
- Clinical indicators include:
  - Sats <92% on >10L O2
  - RR >30
  - Hypercapnia
  - Haemodynamic instability
- Whenever possible, determine need for intubation before time-critical with early discussions with ICU, admitting teams, anaesthetics/ COVID airway team.

### Contraindications

- Competent patient (verbally, or via ACD or guardian) refusal.
- Consensus medical assessment (led by ED in ED, ICU in ICU, admitting team on wards) that intervention is futile or burdensome.

**The Guideline below is for use by ED staff and assisting anaesthetic & ICU teams. Assisting teams (ICU or anaesthetics) may have complementary or alternative approaches which should be identified and consensus plans made prior to procedure. All these services' plans will evolve, and we anticipate development of a joint procedure over coming weeks.**

### Cardiac Arrest Management

**Contact, Droplet & Airborne PPE MUST be donned before commencing resuscitation.**

**Resuscitation MUST be undertaken in safe environment (ie in ED Isolation rooms 6 & 7 in Acute, Procedure room.)**



- **Do not** listen or feel for breathing by placing your ear and cheek close to the patient's mouth.
- No chest compressions or airway procedures should be undertaken without full Aerosol Generating Procedure PPE.
- If the patient is already receiving supplemental oxygen therapy using a face mask, leave the mask on the patient's face during chest compressions as this may limit aerosol spread. If not in situ, but one is readily available, put a simple oxygen mask on the patient's face.

Advanced Life support algorithms are otherwise unchanged.

In the event of witnessed cardiac arrest, rhythm check/ shock can be delivered.

*(Further guidance: Resus Council UK document on sharedrive)*

#### **Locations in ED**

- Isolation rooms 6 & 7 in Acute, Procedure room.
- If the above full, hot zone areas

#### **All team MUST be in full PPE**

#### **Staffing**

- Intubator: most experienced available (EDSS/ anaesthetics/ ICU consultant, fellow or senior registrar)
- Airway assistant (nurse / doctor)
- Medical team leader (nurse/ doctor): drug administration and situational awareness

Outside room:

- Handler (nurse): in full PPE, doffing buddy
- Runner (nurse)

#### **Discussion with ICU and COVID intubation team alerted**

#### **Preparation outside room:**

- Prepare airway equipment and drugs as per airway checklist
  - Airway equipment (note Laerdal bag, Yankel suction in room)
  - Ventilator
  - Monitoring
  - Intubation, maintenance and rescue drugs (chosen, drawn up, labelled)
  - Visual prompt cards
- Careful donning of PPE with buddy system and cross checking

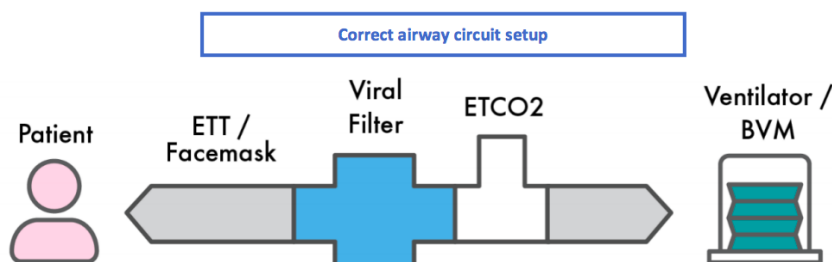
#### **In room: airway nurse to check**

- monitor with ETCO2 module, saturations, cardiac monitoring, NIBP (cycling every 1min)

- suction (checked)
- Step stool.

**In room: all equipment laid out and full airway checklist repeated (all staff)**

- NRB mask
- Cleanable wheeled procedure tray with: C-mac with 1 selected blade
- Bougie or introducer preloaded
- gauze
- ETT (#7 or 8), cuff tested, lubricated
- 10ml syringe
- BVM with viral (clear) filter, PEEP valve and O2 tubing (function checked)
- OPA (green, orange, red): pre-chosen
- LMA 3 or 4 (prefer intubating LMAs like AuraGain)
- Yankeur suction on and under pillow
- Radio (affix to wall)
- Tube tie/ clamp
- Viral filter
- ETCO2 line
- NGT (14 Fr) and jelly
- Drug tray:
  - ketamine 1-2 mg/kg or propofol 1-2 mg/kg
  - rocuronium 1.5mg/kg
  - suxamethonium 200mg (for adults)
  - metaraminol prefilled syringe
  - adrenaline minijet
- Post-intubation drugs chosen and prepared on syringe drivers
- Fluid: Saline 500ml with hand-pump.
- Ventilator set up (see appendix), attached to EtCO2 & viral filter (see diagram below)



**Outside room to obtain on request: Hander nurse to check**

- Alternative C-mac blade/s (D-blade, 3, 4)
- Direct laryngoscope with blade (3,4) OR alternative portable videolaryngoscope



- FONA quick kit with scalpel, bougie and forceps, size 6 ETT
- Spare ETT: 7.5, 6.5
- Defibrillator
- Cannulation equipment
- Arterial line kit/ transducer/ pump pack

**Procedure:**

**ABCD assessment:**

- A: anticipated difficulties/ dentures
- B: estimated height to give Ideal Body Weight
- C: haemodynamics/ fluid assessment/ latest gas electrolytes
- D: patient pre-brief, drug calculations

**Position:**

- Ramp 30 degrees
- “Sniffing position – pillow/ towels

**Haemodynamics optimised:**

- IV access x 2
- IVF on pump set
- Metaraminol infusion if necessary
- Rescue adrenaline minijet

**Preoxygenate:**

- Avoid NP O2 or NIV
- NRB O2 with 15L while setting up
- Turn off wall O2 to NRB and attach to BVM O2 tubing
- Remove NRB mask and replace with BVM
- Use 2 hand technique, avoid breaking seal
- Delayed sequence (small titrated ketamine) if not tolerating mask

**Induction:**

- Rocuronium 1.5mg/kg and ketamine 1mg/kg
- Maintain passive BVM/ PEEP, good seal, avoid ventilations unless necessary
- Once spontaneous resps settle proceed directly to VL



### **Intubation:**

- Paralysis confirmed
- Turn off O2 at wall
- Remove BVM, place on bluey
- Videolaryngoscopy by experienced operator using bougie + ETT
- Bougie removed by airway assistant using 2 hand technique: slowly removing bougie through gauze, bougie straight into bin
- Laryngoscope onto bluey
- Cuff inflated
- Attach ventilator circuit which is already connected to EtCO2 & viral filter
- Check EtCO2 trace
- Secure ETT with ties
- LMA if tube not immediately passed
- FONA if 'Cannot intubate, cannot oxygenate'

### **Post-intubation:**

- Check ventilator settings: see appendix
- Post-intubation sedation
- Insert NGT
- ETT & NGT position checked on CXR

### **Pre-departure to ICU:**

- ICU ready?
- Monitor at end of bed
- IV lines attached to bed frame
- ABCDE checklist completed:
  - A: ETT secure
  - B: EtCO2 trace, oxygenation
  - C: haemodynamics optimised
  - D: sedation adequate
  - E: monitor power, ventilator power

### **Departure to ICU:**

- Clean runner clears corridors
- Medical team leader doffs and dons clean PPE outside room
- Sheet and drape pt
- Intubator and airway nurse pass pt over to medical team leader and hander nurse
- Transport to ICU



Draft 1.1 18 March 2020 POWHED

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Change log: 18 Mar 1.1: added picture, minor text revisions, changed ventilator settings

19 March 1.2: removed NPO2 during intubation based on SAS guideline, revised CPR commencement

22 March 1.3: added aims and clinical triggers after discussion with ICU, PPE, intubation procedure to include pre-departure and departure

26 March 1.4: updated PPE and inserted link to CEC; updated Cardiac Arrest Management; reformat heading and insertion of living document status. Sally McCarthy

References/ resources:

1. Guidelines for the Management of COVID-19 in the Intensive Care Unit Prince of Wales Hospital Version 1.1, 18 March 2020
2. [Consensus statement: Safe Airway Society principles of airway management and tracheal intubation specific to the COVID-19 adult patient group. Brewster et al \*Med J Aust\*. Published online: 16 March 2020](#)
3. [RCUK Statement on COVID-19 in relation to CPR and resuscitation in healthcare settings 4 March 2020](#)



Appendix A: POW ED default COVID/ ARDS ventilator settings

Standard mode	SIMV + PS (Oxylog) APVsimv/ SIMV+ (Hamilton)
Flow pattern	Square
Pressure ramp	50 milliseconds
Expiratory trigger Sensitivity (ETS)	25%
Pause	0%
Inspiratory time (Ti)	Start 1.3 sec
Trigger	Flow trigger 2L/min
Tidal Volume (Vt)	Target 6mL/kg IBW (approximately 420ml for 174cm, 70kg male)
Pressure Support (PS)/ / Pressure Control (PC)	Start 15 cmH2O Plateau pressure <30cmH2O
Rate (minimum total delivered breaths)	Start 12/min, adjust to pH >7.2
Positive End Expiratory Pressure (PEEP)	8cm titrated up to 12cm if BP tolerates Higher PEEP with ICU involvement
FiO <sub>2</sub>	100% at start or with airway procedures, reduce ASAP to target 90-92% (unless pregnant, CNS or cardiac ischaemia- target 94%) If persistently high FiO <sub>2</sub> required, involve ICU
Backup Mode: ON	Continuous Mandatory Ventilation (CMV) 12/min 6mL/kg IBW

Peak Airway Pressure (PIP)	High: 35 cm H <sub>2</sub> O, Low 20: cm H <sub>2</sub> O. Oxylog: can raise PIP to <40cmH2O (maintain Pplateau <30), lengthen ramp or Ti if frequently cutting out/ <4ml/kg delivered
Expired Minute Volume (EMV)	High: 10 l/min, Low: 3 l/min
Rate	High: 30 breaths/ min, Low: 6 breaths/ min
Vt	High 1000 mL, Low: 250 mL
Apnoea time	20 Seconds



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