CLINICAL GUIDELINE
Intubation of patients with suspected or confirmed COVID-19

Western Health

COVID - 19

Be Safe -- Be Smart -- Be Kind

VERSION 8: LAST UPDATED 29/04/2020

General Principle

There is a designated off the floor intubation team during the COVID-19 pandemic to improve patient and staff safety for this aerosol generating procedure (AGP). This is in line with international and national practice for intubation attempts to be performed by the most experienced personnel with minimal attempts.

Contents

Objectives

- To provide prompt, definitive airway intervention by specialist anaesthetists and an anaesthetic nurse in ED, ICU and on the ward.
- To reduce number of staff exposed to AGP.
- To ensure the most experienced airway providers are performing this high-risk aerosol generating procedure.
- A designated intubation team results in team members that are familiar with each other and the process of intubating a COVID-19 suspected or proven patient.
- To improve staff safety and the safety of other patients in the ward, intubations will occur in negative pressure isolation rooms, where possible.
- Providing a standardized, largely self-sufficient intubation team will reduce cognitive load on all staff in a stressful situation.
- For ease of implementation, we will use existing Western Health deteriorating patient systems and processes and adapt our response for COVID-19 patients.

Intubation team:

Staff

- One to two consultant anaesthetists and one anaesthetic nurse.
    - One consultant anaesthetist only overnight.
- ED and ICU to provide one to two skilled assistants.
- ICU liaison, CCU nurse and ICU registrar to assist in event of ward intubation.

Equipment

- Standardised equipment box that is stored in ED, ICU and theatres (See Appendix 1).
- Video laryngoscope to be provided by either the intubating team or ED/ICU, depending and availability.
- McGrath video laryngoscope on code blue trolley in the event of ward intubations.
- Standardised intubation procedure for COVID patients based on the Safe Airway Society guidelines.
- Standardised cognitive aids at intubating sites as able (see Appendix 2&3).
- Personal protective equipment (PPE) for AGP and to be provided by ED/ICU and on code blue trolley in the ward.
- Standardised sealed drug packs stored in theatres as grab bags and at intubating locations, as able.
    - Anaesthetic nurse and doctor responsible for recording of drug transactions and discards
- Vasopressors to be provided by ED/ICU as requested by intubating team.
- Negative pressure rooms (NPRs) or intubating sites in ED/ICU to be checked and restocked for suction and Laerdel bag as per unit.

Drug Pack contents

Red = unavailable in ED Blue = ED substitution

Pack A (Ketamine pack)	Pack B (Propofol/midaz pack)
Medication ▪ Ketamine 200 mg/2 mL x1 ▪ Suxamethonium 100 mg/2 mL x2 ▪ Rocuronium 50 mg/5 mL x3 ▪ Sodium chloride 0.9% 10 mL x2	Medication ▪ Propofol 200 mg/20 mL x1 ▪ Midazolam 5 mg/5 mL x1 **OR** Midazolam 5 mg/mL x1 + Sodium chloride 0.9% 10 mL x1 ▪ Suxamethonium 100 mg/2 mL x2 ▪ Rocuronium 50 mg/5 mL x3
Consumables ▪ 20 mL luer lock syringe (clear) x1 ▪ Drawing up needle x1 ▪ Red plunger syringe 5 mL x3 ▪ Braun micropins x3 / 19G needle ▪ Ketamine label x1 ▪ Rocuronium label x3 ▪ Suxamethonium label x2	Consumables ▪ 20 mL luer lock syringe (clear) x1 ▪ 5 mL luer lock syringe (clear) x1 ▪ Drawing up needle x2 ▪ Red plunger syringe 5 mL x3 ▪ Braun micropins x3 / 19G needle ▪ Propofol label x1 ▪ Midazolam label x1 ▪ Rocuronium label x3 ▪ Suxamethonium label x2

Figure 1: Example of a drug pack

Activating the Intubation Team (see appendix 4 for overview)

ACTIVATION OF INTUBATING TEAM VIA IN-CHARGE ANAESTHETIST

FOOTSCRAY PHONE 8345 6540

SUNSHINE PHONE 9055 3021

- Prior to Activation clearly document goals of care (FACEM, FCICM, FRCAP).
    - Ensure all patients have an Acute Resuscitation Plan (ARP).
    - Review the appropriateness of intubation (this is not for determination by the intubation team).
    - These steps will allow the intubation team to focus on the technical procedure of safe intubation, which requires considerable planning and cognitive processing to ensure everyone's safety.
- Call EARLY for deteriorating patient review.
    - Clinical concern, SaO2 <92% on 6L HM, RR >24, respiratory distress.
- Medical emergency team (MET) and code blue calls as per current Western Health guidelines and practice.
    - ICU liaison nurses to escalate MET calls or reviews to Intubation team and ICU registrar.
    - Code blue – call Intubation team if COVID high risk suspected or confirmed.

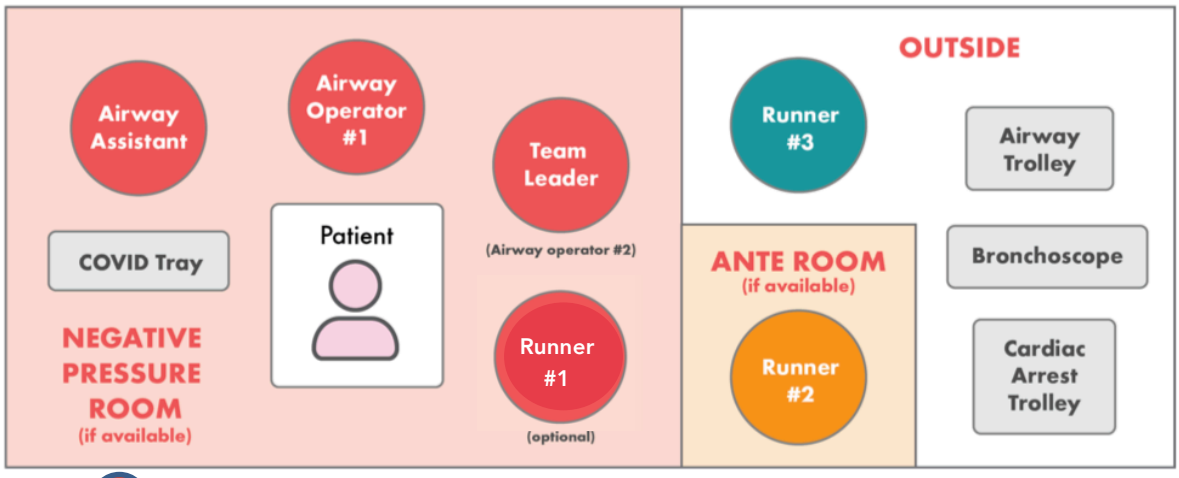
Intubation:

1. Preparing for Intubation

Location

- Intubating team to assess and decide if patient is stable enough to transfer.
- Preference of Intubation location:
  1. ICU NPR.
  2. NPR in ED or other sites (bronchoscopy rooms).
  3. Operating theatres (designated COVID-19 theatre).
  4. ED rooms, ward rooms.

Positioning



High risk patient and high risk AGP

Prior to entering Intubation room (NPR if available), don AGP PPE with spotter

Figure 2: Safe airway society suggestion for personnel

- Refer to intubation checklist (see Appendix 2):
  - Optimise position.
  - Confirm monitoring.
  - Confirm IV access.

Communication with team in anteroom

- The support team will stand outside the anteroom.
- Any clean equipment that needs to be sent in will be placed on the 'exchange trolley' inside the anteroom.
- Walkie talkie will be available for communication.

2. Intubation

Preoxygenation

- Mask-filter-etCO_2-Laerdel bag with PEEP valve.
- Tight fitting mask, with two-hand grip.
- 45 degrees head up.

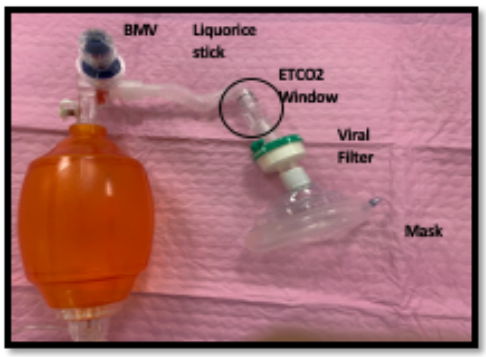


Figure 3: Order of placement for viral filter in Bag Mask set up

Rapid sequence induction

- Modified RSI (1.5mg/kg IBW Roc OR 1.5mg/kg TBW Sux). Wait 60 seconds for paralysis).
- Avoid routine cricoid pressure.
- Avoid BMV during apnoea unless life threatening hypoxia.

Intubation

- Use video laryngoscopy for first attempt at intubation. Size 8 ETT if able.
- **Cuff-up with 10mL air prior to ventilating.**
- Connect BMV and increase PEEP 10.
- Confirm ventilation with ventilator waveforms and capnography, as well as chest movement and auscultation.
- Plan B i-gel LMA
- Plan C two handed BMV
- CICO algorithm approach with scalpel-bougie-tube technique, if intubation fails.

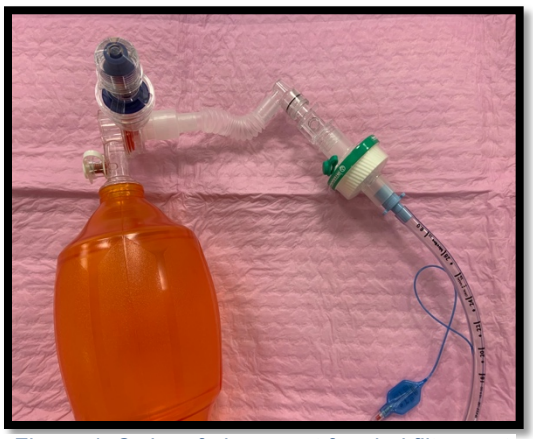


Figure 4: Order of placement for viral filter post ETT placement

Transfer to ventilator

- Ventilator preferences (resources as able):
    1. ICU Marquet ventilator.
    2. ED Hamilton ventilator.
    3. ICU/other Oxylog/Hamilton ventilator
- Circuit of Marquet to be prepared by ICU nurse
    - SIMV + PS, volume control
    - Vt 6-8mls/kg ideal body weight (often around 450 – 550ml)
    - RR 12
- Airway doctor:
    - Turn off the oxygen flow to the self-inflating bag.

- Clamp the ETT using a chest drain clamp.
- Disconnect the ETT from the HME.
- Take prepared circuit from nurse and connect to ETT.
- Unclamp ETT.
- Turn ventilator on and commence ventilation.
- Sleek ETT connections

In ICU NPR: $ETCO_2$ is not part of the ventilator circuit when transferred to ICU ventilator

In ED/Ward: $ETCO_2$ should be part of the ventilator circuit as patient will need to be transported to ICU

3. Post intubation

- Insert nasogastric tube (NGT) immediately post-intubation, in the NPR.
- Move to patient to a COVID19 cubicle in ICU no less than 30min (but ideally 60min) post-procedure
- AGP PPE should be worn in intubation room for 30 minutes after intubation, even if the patient has been moved to a different room
- Lines and chest x-ray outside NPR.
- Please note IN ICU- The ICU medical team (Consultant/registrar) will have the responsibility of inserting the central/arterial lines. The intubating team may be able to assist where possible.

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APPENDIX 1: COVID-19 Airway Trolley Contents List

Top Shelf

1. ***Kit dump A3 laminated sheet (taped to left side of surface)***
2. ***COVID-19 Airway Trolley A4 laminated sheet (taped to surface)***
3. ***Dirty tray on the right***
4. ***Intubation box***
    - Laryngoscope handle
    - Mac 3 and 4 blades
    - Bougie 15F
    - Stylet
    - Size 6, 7 and 8 ETTs
    - Disposable medium adult facemask
    - HME filter
    - Liquorice stick
    - Salem Sump NG tube 14 Fr and spigot
    - 10ml syringe
    - Tube tie white tape
    - Transpore tape
    - Lube sachet
    - Forceps or clamp (for ETT) thoracic tube clamp
    - Inline/closed suction pack
    - This contents list

Bottom shelf

1. ***LMA box***
    a. Size 3, 4 and 5 igels
    b. Lube sachet
2. ***Facemask and adjuncts box***
    a. Small/Medium/Large adult disposable facemask
    b. 70mm Green, 80mm Yellow and 90mm Red Guedel airways
    c. Size 7.0 nasopharyngeal airways x2
    d. Lube sachet
3. ***CICO box***
    - Disposable size 10 scalpel
    - Bougie 15F
    - Size 6 ETT
    - 10 ml syringe

Don't forget to bring the video laryngoscope with your chosen *primary* and *backup* blades

APPENDIX 2: COVID-19 Intubation Team Checklist

Western Health

COVID-19 INTUBATION TEAM CHECKLIST

Version 6

Western Health

CHECKS BEFORE ENTERING ROOM

TEAM

- ❍ **Contact Anaesthesia**
  - FH – 8345 6540
  - SH – 9055 3021
- ❍ **Allocate Roles**
  - Team Leader
  - Airway Doctor
  - Airway Nurse
  - Runner
  - Scribe
- ❍ **Don PPE in Anteroom & Buddy Check**

PATIENT

- ❍ **Patient Assessment**
  - Airway
  - Allergies
  - Medication
  - Past History
- ❍ **Haemodynamics optimised**
- ❍ **IV access**
  - 2 preferable
- ❍ **Positioning**
  - Head up 45°, Oxford Pillow/Ramp

EQUIPMENT

- ❍ **Set up Airway Trolley**
  - Select CMAC blade
- ❍ **Induction Drugs**
  - Ketamine (Pack A) ***OR***
  - Propofol/Midazolam (Pack B)
  - Sux & Rocuronium in both packs
- ❍ **Vasopressor**
- ❍ **Post-Intubation Planning**
  - Ventilator & Settings
  - Sedation

PLAN

- ❍ **INDUCTION PLAN**
  - Induction
  - Paralysis
  - Vasopressor
- ❍ **AIRWAY PLANS**

A – INTUBATION
- CMAC
- Stylet/Bougie

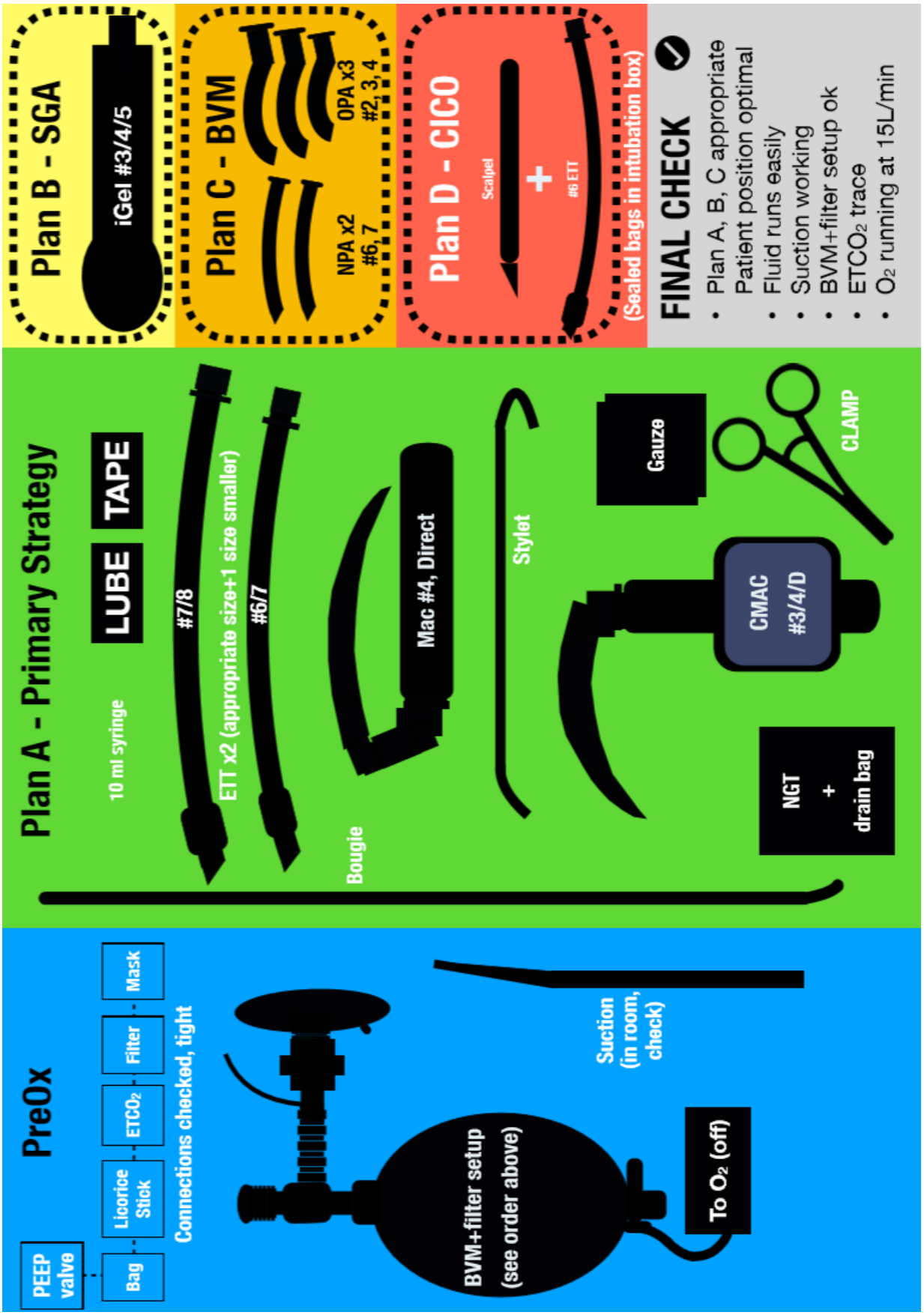
B – LMA (I-GEL)

C – MASK VENTILATION
- 2 handed grip
- 2 person technique
- Consider OPA/NPA

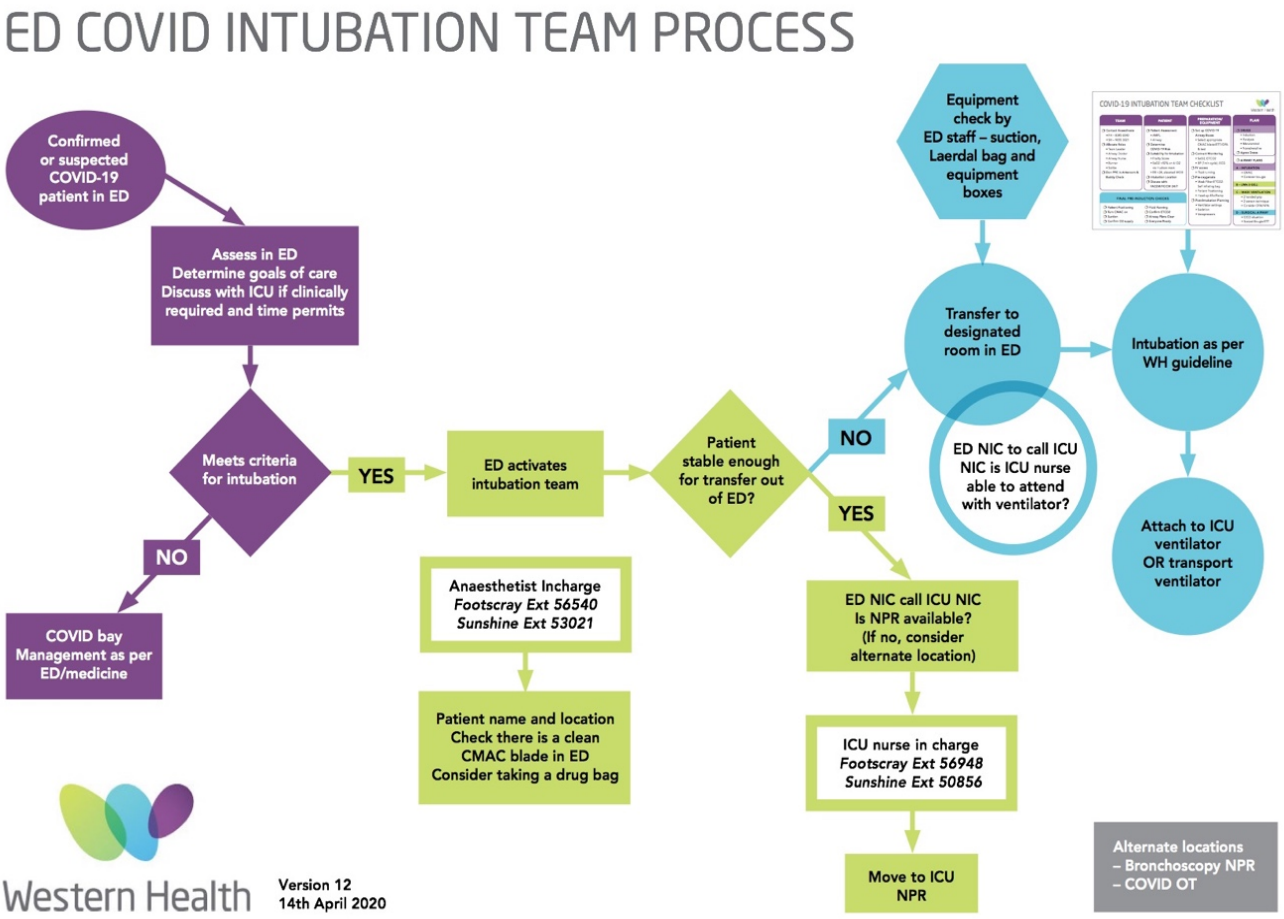
D – SURGICAL AIRWAY
- Scalpel-Bougie-ETT

FINAL PRE-INDUCTION CHECKS INSIDE ROOM

- ❍ Patient Positioning Optimised
- ❍ Turn CMAC on
- ❍ Suction working
- ❍ Connect Monitoring
  - BP (1min cycle)
- ❍ Confirm $ETCO_2$ Trace
- ❍ Pre-oxygenation
- ❍ Mask-Filter-$ETCO_2$-PEEP valve-self inflating bag complete
- ❍ Oxygen 15l/min
- ❍ Fluid Running
- ❍ Induction Plan Clear
- ❍ Airway Plans Clear
- ❍ Everyone Ready



APPENDIX 3: LAYOUT OF RESUS TROLLEY



APPENDIX 4a: ED COVID-19 Intubation Team Process

APPENDIX 4b: WARD COVID-19 MET Call Workflow