Integrated FSH Intensive Care COVID-19 Plan

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Section 1- FSH Intensive Care Clinical Management Plan for COVID-19 patients

Background

This document is designed to provide specific guidance on clinical management issues specific to COVID-19 patients in ICU. It is envisaged that most patients will be mechanically ventilated.

All protocols are subject to change as more data becomes available.

This document should be read in conjunction with the ICU Operational Plan for COVID-19

Online Information

ICU COVID-19 Online Resources

https://workspaces.hdwa.health.wa.gov.au/fsh/icu/Pages/COVID-19.aspx

FSH COVID-19Hub Page

General information on COVID-19 is available on the FSG hub

https://fsh-healthpoint.hdwa.health.wa.gov.au/workingatfsh/emergencyprocedures/covid19/Pages/default.aspx

DoH Clinician Alerts

Please keep up to date with current definitions of confirmed or suspected cases and indications testing and isolation. The latest Clinician Alerts are online at:

https://ww2.health.wa.gov.au/Articles/A_E/Coronavirus/COVID-19-clinical-alerts

National Living Evidence Taskforce

Excellent continuously updated evidence for COVID-19

https://covid19evidence.net.au/

Referrals to ICU

All referrals for ICU management for any confirmed or suspected COVID-19 must be discussed with the ICU Duty Consultant at all times. All patients that present to FSH will initially follow the Hospital-wide Clinical Pathway for Coronavirus (COVID-19) plan which is available at

https://fsh-healthpoint.hdwa.health.wa.gov.au/workingatfsh/emergencyprocedures/covid19/Documents/Clinical%20Guideline%20for%20COVID-19%2020032020.pdf

ICU Referral Criteria

It is foreseen that most people who are referred to ICU will be for advanced respiratory support including mechanical ventilation, with or without nitric oxide therapy or VV ECMO. Admission and management in ICU are reserved only for those patients who have had appropriate Goals Of Care (GOC) discussed and in place. Only those patients that are suitable for mechanical ventilation are likely to be admitted during a full blown pandemic.

The following criteria are only a GUIDE to suitability for ICU Referral

1. ***GOC has been completed by a senior clinician and suggest that extended use of mechanical ventilation and organ support is deemed appropriate for the patient.***
    - We will attempt to have a process for early identification of GOC and ICU suitability using a multidisciplinary approach within 24-48 hours of admission

    AND ONE OR MORE OF

2. O2 flow >/= 8lpm via HM with non-rebreather bag to maintain SaO2 >/= 88-92%. These patients are at risk of further deterioration and early transfer to ICU for intubation is preferred

3. Progressive CXR changes where tiring is present or likely.

4. Other organ system involvement that requires ICU management e.g.-

    - significant hypotension requiring vasopressors beyond limits of ward protocols,
    - renal failure unresponsive to fluids/diuretics requiring dialysis
    - confusion interfering with safe care

It is imperative that transfer to ICU is planned to avoid emergent need for intubation. The most suitable location for intubation will be determined on a case by case basis

The Duty ICU Consultant/ on call should be informed of any referral from wards or ED for any suspected or confirmed COVID-19 patient so that necessary planning for transfer can be started if required.

Transfer Protocol of Non-Ventilated Patients to ICU from ED or Wards

1. Where possible medical and nursing staff that will be looking after the patient in ICU should perform the transfer. This limits the number of staff exposed and also PPE use

2. The most senior doctor transferring the patient should ensure proper use of PPE by all transporting staff (medical, nursing, porter).

3. Prior to transfer confirm bed location with the shift coordinator and inform of departure.

4. Pod leader to minimise traffic flow through the pod during the admission.

5. A dedicated member of staff, with a surgical mask only, must accompany any patient transfer as the 'Clean Escort'. They should travel ahead of the transferring team and open doors and priority lifts. They must NOT touch the patient or equipment. All members of the transferring team must avoid touching shared surfaces during the transfer.

6. All patients should wear a surgical mask during transfer. Consider switching to nasal prongs if oxygen requirement low to facilitate a better fit on the surgical mask.

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Personal Protective Equipment

1. All staff who enter the room must follow Contact, Droplet AND Airborne precautions, and must follow the steps in the modified CDC PPE donning/doffing/ N95 fit-testing guidance procedures. **(see Appendix1)**

    a. All staff must demonstrate competence with PPE procedures prior to entering patient rooms

    b. Staff who do not know how to fit themselves with an N95 or P2 mask, or who have a beard, should seek advice prior to entering a negative pressure room.

    c. To avoid self-contamination, ALL DONNING and DOFFING will need to be witnessed and follow the CDC process.

2. All staff who enter or leave a negative pressure room must enter and leave via the anteroom.

3. All staff who leave a standard single room must doff the PPE EXCEPT for the N95 mask prior to leaving the bedspace and then
    a. Perform hand hygiene and exit the room
    b. Close the doors
    c. Perform hand hygiene
    d. Remove mask and dispose of in yellow clinical waste bin
    e. Perform hand hygiene

4. All used/doffed PPE is to be placed into the **yellow clinical waste bins**. Which can be ordered through ICU cleaner

5. The use of Powered Air Purifier (PAPR) is reserved for high risk aerosol generating procedures-intubation, bronchoscopy etc. The guidelines for set up, testing , donning and doffing the PAPR must be followed **(see specific PAPR guidance –Appendix 2)**

6. Scrubs –refer to Hospital policy on provision of scrubs to staff

Oxygen therapy in ICU

It is our current policy that all patients referred to ICU will need intubation to manage COVID-19 pneumonia. Oxygen Therapy should align with the FSH Clinical management Guideline

https://fsh-healthpoint.hdwa.health.wa.gov.au/workingatfsh/emergencyprocedures/Documents/COVID-19/Clinical%20Guideline%20for%20COVID-19%2013032020v2.pdf-

O2 therapy may only be used to bridge in preparation for intubation

DO NOT USE THE FOLLOWING MODALITIES

1. **NIV/CPAP**
2. **HFNP (unless in Class N room with airborne precautions)**
3. **Nebulisers – use spacer and MDI instead**

Diagnosis of COVID-19 and COVID Precautions

Clinical suspicion, radiological appearance, PCR testing as well as knowledge of community transmission should all inform the determination of the likelihood of the diagnosis of COVID. If in doubt always treat the patient as suspected COVID-19 under airborne precautions in ICU

Isolation management of suspected cases will be on advice of ID and the case definition is changing rapidly. All suspected cases should remain under precautions until a multidisciplinary ID/ICU team has determined it safe to do so.

PCR

1. **A Single PCR, especially from upper airway sample in patient with pneumonitis, is not adequate to clear patient of Covid-19.**
2. If upper airway PCR negative, collect and test lower tract sample for PCR if strong clinical/radiological suspicion.
3. The ASID clinical guidelines suggest
    a. If SARS-CoV-2 PCR is negative and strong clinical suspicion for COVID-19 remains:
    b. Continue isolation and treatment of patient as provisional COVID-19 diagnosis
    c. Repeat SARS-CoV-2 swab as soon as possible; add stool PCR if loose stool;
    d. repeat serology if symptoms present >7 days (of course we do not have access to serology)
    e. CT scan chest if not already done

4. Swabbing: The current gold standard is positive PCR from upper or preferably lower airway secretions/swabs. No swabbing is to be sent for testing without completing the online request form.

    a. Use the flocked viral respiratory testing swabs as for ILI (green top). Use one swab, swab the throat first and then the nose. Additionally label the request form 'for SARS-CoV-2' with their travel or case contact history or whether they are a healthcare worker.
    b. If the clinician requires urgent testing, please call the ID COVID Consultant on-call
    c. Samples are to be placed in a specimen bag and then be transported by hand (not chute) to PathWest.
    d. Do not test asymptomatic patients

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5. Serology (a yellow-topped vial) should be sent for patients requiring admission and will be processed once these tests are available

6. A rapid Flu test , sputum and blood cultures should also be sent

Chest Xray

1. CXR is non-specific for a diagnosis of OCVID-19. It may increase the suspicion if history is compatible especially in the phase of community transmission.
2. CXR should occur after intubation and line or NGT placement.
3. CXR's are only subsequently ordered on the basis of clinical need. Portable imaging is recommended for patients with suspected or confirmed COVID-19.

Chest CT scanning

1. The American College of Radiologists statement on imaging for the diagnosis of COVID-19 states that CT scan is not specific and neither includes or excludes a diagnosis of COVID-19 and is not helpful in management unless a specific complication is suspected.
    a. https://www.itnonline.com/content/acr-recommendations-use-chest-radiography-and-ct-suspected-covid-19-cases

2. CT appearances that may be consistent with COVID-19 may be seen on scans where the presentation may not be primarily respiratory (ILI) in nature. Careful re-consideration of the possibility of COVID-19 should be made with ID and radiology input.

3. All CT imaging should be performed in the ICU CT Scanner on level 1

    a. After imaging, the Nurse should raise a work order for an Standard Discharge Clean via Agility. Cleaner to complete clean wearing Droplet PPE, including surgical mask. The CT scanner should be cleaned between patients.

Ultrasound

Cardiac US using handheld devices should be performed where possible by a Senior clinician in order to screen for myocardial dysfunction which may occur in the course of this illness

Lung US may be useful to exclude effusions, collapse, consolidation and interstitial oedema

Pathology Investigations in ICU

1. U+E, FBP, LFT's, Mg, TnI, ECG on admission
2. 2nd daily D-dimer, LDH TnI and PCT probably useful on admission and serially to track progression

Monitoring/Lines

All patients will have lines inserted after intubation where possible. This allows these procedures tobe done in a controlled manner (**see Appendix 4** for Runner Equipment for lines)

1. Continuous monitoring ECG, ETCO2, SpO2, ST segment alarms
2. 5 lumen central venous line
3. Arterial line
4. Naso/orogastric tube

General Supportive Care

Intensivists led rounds will direct routine ICU supportive care

General management goals

1. Ventilation management
    a. Maintain O2 sats 88-92% only
    b. Permissive hypercapnia may be needed if lung compliance poor
2. Avoid fluid overload
3. DVT prophylaxis (unless contraindicated) with SC heparin 5000 units tds unfractionated heparin
4. Enteral feeding (consult dietitian or Intensivist)
5. Pressure area care

Adjunctive Therapies

Antimicrobial Therapy

1. Cover with ceftriaxone + azithromycin for 72 hours
2. Cover with Tamiflu until exclude influenza

Experimental Therapies/Research

All experimental therapies should be in the context of a clinical trial and must be in consultation with the ID clinician

REMAP-CAP Research Trial

Please be aware that we aim to recruit all patients to the REMAP-CAP platform trial. This trial aims to assess the possible experimental therapies as quickly as possible. Please contact Dr Ed Litton of you have any queries about this trial.

Intubation Procedure in ICU (refer to checklist Appendix 2)

1. ROOM: Perform all intubations in a negative pressure room if available

2. PATIENT: should wear a face mask and not be on NIV or HFNP

3. All staff to wear full PPE with N95 masks. PAPR hoods reserved for patients with predicted or known difficult airway only (see Appendix for indications of PAPR use)

4. STAFF in room should be minimised to three people if possible

    a. Airway: Most experienced airway doctor to perform intubation
    b. Team Leader: Senior doctor to administer drugs and manage haemodynamics
    c. Bedside Nurse: Competent airway assistant
    d. Runner: Senior nurse who is donned with PPE but remains outside the room to assist with supply of additional equipment as required

    Communication between runner and team via speaker phone

5. VENTILATOR AND MONITORING: Hamilton S1 Ventilator and Philips monitoring must be operational and checked to confirm
    a. ETCO2 is available and activated on room monitor.
    b. Ventilator circuit checked and closed suction system attached
    c. Suction checked and working

6. AIRWAY EQUIPMENT: Runner trolley already prepared for Male/Female patients, with appropriate airway equipment on top

    a. Two ETT tubes with subglottic suction port (selected size and one size lower) -check cuff and lubricate.(Size 7 on female trolley, size 8 on male trolley)
    b. Bougie and/or stylet unpacked and lubricated by intubator
    c. ETT tapes or tie (do not use Hollister initially)
    d. CMAC Videoscope with selected blade (already on male and female trolleys) connected to camera and screen image confirmed prior to entry in to room. DO NOT PLUG INTO POWER OUTLET in room
    e. Mapleson C bag and mask system connected and checked and present in patient room
    f. HME filter attached between mask and Mapleson mask connector
    g. Guedel oral airway of appropriate size: (Green guedel on female trolley and yellow on male trolley)
    h. iGEL size 4 opened and lubricated
    i. Nasogastric tube and Magill's forceps
    j. CMAC D Blade available on difficult airway trolley, if required


CMAC
4
MALE TROLLEY

7. DRUGS: Prepare Drugs and label all syringes rapid access of intubation drug box from non-imprest cupboard
    a. Fentanyl 500mic in 10ml
    b. Suxamethonium 1.5mg/kg (200mg in 4 ml)
    c. Rocuronium 1.5-2mg/kg (200mg in 20ml)
    d. Metaraminol 10mg/20ml
    e. Propofol 200mg in 20ml
    f. 0.9%saline flush 20ml x2
    g. Ketamine 100mg in 10 ml (200mg in 20ml)
    h. Midazolam 10mg in 10ml
    i. Running IV fluid line with gelofusine attached for fluid bolus if needed
    j. Infusions of propofol and fentanyl will be prepared prior to intubation

8. PLAN TECHNIQUE AND PERFORM TEAM BRIEF: Use the FSH ICU Intubation checklist before entry into the room and settle on plan. Avoid awake fibreoptic intubation unless specifically indicated. Atomized local anaesthetic will aerosolize the virus

    a. **Plan for rapid sequence induction (RSI).** This may need to be modified if the patient has a very high alveolar-arterial gradient and is unable to tolerate 30s of apnoea, or has a contraindication to suxamethonium

b. **Five minutes of preoxygenation** with 100% with Mapleson C Circuit at 6-8l/min oxygen flow
c. If manual ventilation is unavoidable small tidal volumes should be applied using a **2 handed technique with a Guedel airway**

d. **Use video laryngoscope (CMAC)**

e. If BVM difficult or failed attempt at intubation insert **iGel LMA to ventilate**

f. Preferred Front of neck access approach is scalpel/bougie technique with size 6 ETT

g. Only use positive pressure ventilation with BVM **once ETT cuff fully inflated**

h. Secure ETT with ties or tapes. DO NOT use Hollister system initially

i. Remove outer gloves after airway handling
j.
k. Use tube clamp to change from Mapelson Circuit to Ventilator

l. Insert nasogastric tube prior to doffing PPE

9. POST INTUBATION:
   a. DO NOT DOFF PPE or allow entry into room for 30 minutes from the time the closed circuit has been established. Line insertion, if required, can be done during this time

   b. Bag and seal ALL airway equipment IMMEDIATELY after use for decontamination or disposal

   c. Disposable equipment to be discarded directly into clinical waste bin; **non disposable** equipment ie. CMAC Blade to be bagged (zip-lock) and sealed for collection

   d. Wipe CMAC equipment, ultrasound machine and runner trolley with oxivir wipes prior to removal from room

10. DOFF PPE: Airway doctor and Team leader to doff PPE within the room, as per policy

Extubation Procedure

Extubation of a patient who has been cleared of COVID-19 precautions

A patient who has been cleared of Covid19 precautions as per current hospital policy can be extubated as per normal ICU practice. In this situation High Flow Nasal Prongs or Non-Invasive ventilation may be used to assist oxygenation or ventilation

Extubation of a patient who still has Covid19 precautions.

1. PATIENT: must have minimal oxygenation and ventilation supports. There must be a clinical expectation that the patient can manage on 6L facemask or less and no ventilation support post extubation

2. STAFF: 3 people required.
    a. Person 1 inside the room can be nursing staff competent in extubation or an SR/consultant competent in airway management. Person 1 and 2 must wear PPE (see below).
    b. Person 2 is a senior medical officer competent in airway management and assists person 1
    c. Person 3 acts as a runner/PPE spotter for Person 2.

    For a complex extubation (e.g. Known difficult airway, obese, confused, haemodynamically unstable) consider having person 3 inside the room in full PPE and person 4 donned in PPE outside the room ready to assist (similar staffing to intubation)

3. EQUIPMENT IN ROOM: Yankauer sucker, Hudson or Non-rebreather mask, Low flow nasal cannula, bluey for chest, surgical facemask for patient.

4. EQUIPMENT OUTSIDE ROOM: Essential intubation equipment on silver trolley (as per intubation protocol). Do not need to open equipment.
    a. Two ETT tubes with subglottic suction port (selected size and one size lower)-check cuff and lubricate.
    b. Bougie and/or stylet unpacked and lubricated by intubator
    c. ETT tapes or tie (do not use Hollister initially)
    d. CMAC Videoscope with selected blade connected to camera and screen image confirmed prior to entry in to room. DO NOT PLUG INTO POWER OUTLET in room
    e. Mapleson C bag and mask system connected and checked.
    f. HME filter attached between mask and Mapleson mask connector
    g. Guedel oral airway of appropriate size.
    h. iGEL4 unopened
    i. Nasogastric tube and Magill's forceps
5. POD Staff: Sufficient pod staff must be available to obtain medication for re-intubation urgently
6. PPE: Waterproof gown, gloves N95 mask, goggles double gloves
7. EXTUBATION: As per current ICU policy.
    a. Extubate to Hudson mask at 6L flow.
    b. Aim for saturations >90%. Titrate oxygen flow down to nasal cannula as soon as possible
    c. Once nasal cannula in situ, place a surgical facemask on patient to prevent droplet spread
8. DISPOSAL: of all airway equipment immediately into sealed clinical waste bins
9. EXIT: Staff to remain in the room PPE for 30 mins post extubation. No staff allowed in room for 30 mins unless the patient needs re-intubation or there is another emergency. Doff PPE as per current protocols

Failed Extubation

1. Supply supplemental oxygen via Non-rebreather mask up to 15L/min as required

2. Intubation drugs and equipment brought into room on silver procedure trolley

3. Follow Covid19 Intubation guidelines

Tracheostomy

1. Tracheostomy is aerosol generating and a significant risk to staff. Tracheostomy should be done later in the curse of the illness as the viral load may be lessened
2. Percutaneous tracheostomy in ICU bed space is preferred if anatomically feasible
3. PAPR should be used by operator and bronchoscopist

Ventilator Management-Specific Issues

Ventilator Circuit Change

The Clinical Respiratory Technologists will be responsible for this change of circuit assisted by bedside Nursing Staff.

The Fisher & Paykel 950A81 Adult ventilator Dual Heated Circuit change out times are to be extended to 14 days to reduce the potential exposure of aerosolisation of virus from the airways and tubing.

The Vadi Heated expiratory Bacterial/Viral Filter will be changed along with the Aerogen Nebuliser, Closed inline suction and ETC02 line.

Equipment required for complete circuit change

   a. F&P 950A81 Adult ventilator Dual Heated Circuit
   b. Hamilton Flow Sensor
   c. Vadi expiratory Bacterial/Viral Filter
   d. New Aerogen Nebuliser
   e. New Halyard Closed inline suction kit
   f. ETCO2 line
   g. 1 Litre bag Sterile Water
   h. Hamilton T1 with coaxial circuit and Dar Bacterial/Viral Filter attached to Flow Sensor.

2. Plug Hamilton T1 to Blue Electrical outlet. Attach White Oxygen Hose to Pendant O2 outlet. Set the identical Mode and settings that the patient is on. Check with bedside nurse that this is correct settings.
3. Pre oxygenate the patient via the Hamilton S1 on 100% prior to change over.
4. **The Technologist will inform the bedside nurse when to press the "Activate Standby" button and will clamp the ETT at end inspiration**
5. Disconnect the old ETCO2 from the S1 circuit Flow sensor keeping the closed inline suction still attached to ETT and connect to the T1 Dar Filter.

6. Activate the Start Ventilation button on the Hamilton T1 and then release the tubing clamp from ETT. Watch that the patient is safely transitioned over to the T1 and maintaining Vt, MV, HR, B/P, O2 Sats.
7. The Clinical Technologist will then dismantle the old dirty circuit carefully disposing of contaminated circuitry in yellow clinical waste bin paying careful attention to self – contamination.
8. After replacing new circuit and performing pre functional checks Tightness, Flow Sensor, O2 Sensor Calibration, a new Aerogen nebuliser, Closed inline suction, and ETCO2 Line are added.
9. The Clinical Technologist will Clamp the ETT and place the Hamilton T1 into Standby. He will then disconnect the closed inline suction from the ETT wrapping it in a blue absorbent pad. At the same time the bedside Nurse will reconnect the new circuit to ETT and re start the S1 ventilator and reconnect ETCO2 to monitor. Simultaneously the Clinical Technologist will unclamp the ETT and check patient ventilation.
10. The Clinical Technologist will dismantle the Hamilton T1 circuitry and Exhalation valve and dispose into yellow clinical waste bin. He will then two-step clean the Transport ventilator with appropriate disinfectant prior to handing the unit to assistant after exiting the negative pressure room for a further wipe down.

Halyard Closed Suction System Change Procedure

This is a two person Procedure to prevent potential aerosolisation of virus from airways and tubing.

1. Staff
    a. Assistant: Nurse at head of bed
    b. Operator: Nurse at side of bed
2. Equipment
    a. Collect a new Halyard closed inline suction system and assemble with a new ETCO2 line ready to be repositioned.
    b. Tubing clamp
    c. Blue absorbent pad
3. Procedure
    a. Pre Oxygenate patient on 100% O2.
    b. Place Blue absorbent pad below the dirty inline suction catheter to be removed and wrapped up to prevent splashing.
    c. **The Operator clamps the ETT at end inspiration**.
    d. The Assistant then presses the Ventilator Standby button at the instruction of the supervisor
    e. The operator carefully removes the old closed inline suction and ETCO2 covering it with the blue pad and then attaches new closed inline suction to the ETT and new ETCO2 to the Hamilton Flow Sensor at the end of the vent tubing.
    f. The assistant connects the new end tidal co2 line to the attach to monitor and restarts the ventilator after the operator unclamps the ETT.
    g. Re Attach suction tubing to closed inline suction ready for use
4. Dispose of old Closed Suction system in yellow clinical waste bin.

Prone Positioning

Please refer to the ICU Prone positioning protocol on the FSH ICU hub under "Useful Clinical Policies" tab

Physiotherapy and Ventilated Patients with COVID-19

1. Staff
    a. Follow recommendations for staff exempt from reviewing this patient cohort
    b. The more experienced staff will be allocated to review this patient cohort
    c. Minimise the number of staff reviewing the patient
    d. No Student Physiotherapists to review the patient
    e. Review Metavision and record observations prior to entering the room
2. The patient is not to mobilise out of the room

3. Avoid taking equipment in to the room (including stethoscopes, portable oxygen, monitoring and exercise equipment, and files, notes and pens)

4. No nebulisation, including no Sputum Induction

5. Airway Clearance techniques (ACTs): ACTs only if indicated i.e. excessive or retained secretions are impairing gas exchange, and are not adequately cleared independently by the patient, or with airway suction alone (in the intubated patient).
    a. Intubated patients:
        i. Do not disconnect the patient from the ventilator–i.e. no Manual Hyperinflation
        ii. Use only Ventilator Hyperinflation (VHI) for recruitment
        iii. Use VHI and manual techniques (positioning, percussion, vibrations) for sputum mobilisation
        iv. Closed Suction System only
    b. Non-Intubated Patients
        i. Do not use airway suction, or airway clearance devices such as PEP, in non-intubated patients

Emergency Response Attendance for a Potential COVID-19 patient

FSH MET Response

Please see FSH MET response document at:

https://fsh-healthpoint.hdwa.health.wa.gov.au/workingatfsh/emergencyprocedures/Documents/COVID-19/COVID-19%20MET%20Response%20Plan%20FSH.pdf

Cardio-Pulmonary Resuscitation Guidance (Wards and ICU)

Survival after hypoxic cardiac arrest due to pneumonia is likely to be extremely low. In the event of a cardiac arrest on the ward or in ICU it is essential to minimise exposure of staff as CPR is a considered aerosol generating procedure and is associated with increased risk of viral transmission.

The clinical need of the patient does not supersede the need to for all staff to donn appropriate PPE prior to beginning to care for the patient. Any delays in entry to room due to need to don PPE are accepted and justified in the light of the likely poor prognosis.

1. Full Aerosol Generating Procedure (AGP) Personal Protective Equipment (PPE) must be worn by all members of the resuscitation/emergency team before entering the room. Sets of AGP PPE must be available on the resuscitation trolley (or where resuscitation equipment is being stored) to be readily available.

2. No chest compressions or airway procedures such as those detailed below should be undertaken without full AGP PPE equipment (N95 or P2 mask, disposable gown, cap x 1, face shield x 1, goggle x 1) MUST be worn by all staff present during the cardiac arrest.

3. Staff present in the room should be minimised with clear allocation of roles.

4. Defibrillate shockable rhythms rapidly - the early restoration of circulation may prevent the need for airway and ventilatory support. Local guidance must be followed about equipment entering the area.

5. Perform continuous chest compressions as per Advanced Life Support guidance

6. First responder management of the airway :

    a. If a LMA is available this should be used in the first instance if experienced in insertion
    b. If no LMA available, then proceed with apnoeic oxygenation using the HM with non-rebreathing bag. Ensure the airway is opened with a jaw thrust or chin lift.
    c. Avoiding bag mask ventilation if possible.

7. Once skilled help has arrived, the Mapleson C circuit with a HME filter fitted +/- plastic sheet fitted (see below) should be used to continue apnoeic oxygenation. A two-handed technique to create a tight seal should be employed. The adjustable pressure valve should be fully open.

8. Consider early intubation if the decision for ongoing resuscitation is made.

9. Call for ICU emergency intubation equipment kit

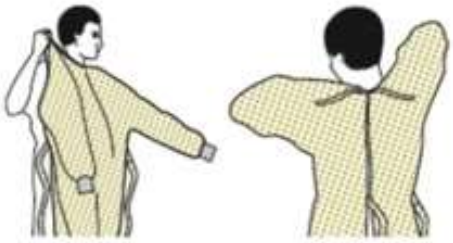
Appendix 1 Section 1-Personal Protective Equipment Procedures

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit

3b. Put on head covering after goggles

4. GLOVES

- Extend to cover wrist of isolation gown

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

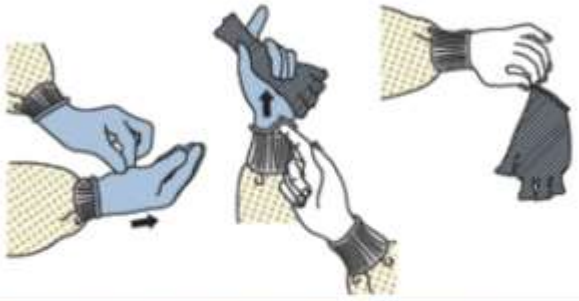
CDC

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container



2. GOGGLES OR FACE SHIELD (AFTER REMOVAL OF HEAD COVERING)

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

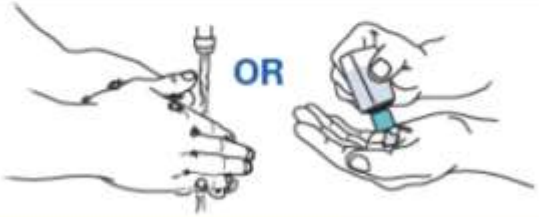
3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container

5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

CDC

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container

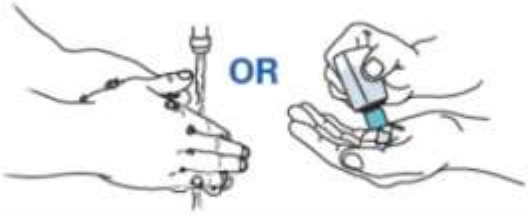
2. GOGGLES OR FACE SHIELD (AFTER REMOVAL OF HEAD COVERING)

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container

4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

CDC

PRINCIPLES OF FIT CHECKING

HOW TO DON AND FIT CHECK **P2** AND **N95** MASKS

A P2 and N95 mask offers protection from diseases spread by airborne transmission: February 2020

SEPARATE THE EDGES OF THE MASK TO FULLY OPEN IT

BEND THE NOSE WIRE TO FORM A GENTLE CURVE. THE NOSE WIRE REPRESENTS THE TOP OF THE MASK

HOLD THE MASK UPSIDE DOWN TO EXPOSE THE TWO HEADBANDS

USING YOUR INDEX FINGERS AND THUMBS, SEPARATE THE TWO HEADBANDS

WHILE HOLDING THE HEADBANDS CUP THE MASK UNDER YOUR CHIN

PULL HEADBANDS UP AND OVER YOUR HEAD

PLACE AND POSITION THE LOWER HEADBAND AT THE BASE OF YOUR NECK (UNDER YOUR EARS)

PLACE THE UPPER HEADBAND ON THE CROWN OF YOUR HEAD. THE BAND SHOULD RUN JUST ABOVE THE TOP OF YOUR EARS

GENTLY CONFORM/PRESS THE NOSEPIECE ACROSS THE BRIDGE OF YOUR NOSE BY PRESSING DOWN WITH FINGERS UNTIL THE FIT IS SNUG

CONTINUE TO ADJUST THE MASK UNTIL YOU FEEL YOU HAVE ACHIEVED A GOOD AND COMFORTABLE FACIAL FIT.

A 'fit check' must be performed each time a P2 / N95 mask is worn

GENTLY INHALE. WHEN YOU BREATHE IN THE MASK SHOULD DRAW IN SLIGHTLY TOWARD THE FACE AND COLLAPSE.

WHEN EXHALING THE MASK SHOULD FILL UP WITH AIR. IT IS IMPORTANT AT THIS STAGE TO CHECK THERE IS NO AIR LEAKAGE AROUND THE EDGES OF THE MASK.
CONTINUE ADJUSTING THE SEAL OF THE MASK IF NEEDED.

If you have not achieved a successful fit as instructed above it is important that you seek advice or have someone assist you with fitting and checking your mask.
An incorrectly fitted mask will not provide you with the intended level of protection from airborne infectious diseases.

Brands of P2 / N95 masks may have slight variation. Always refer to the manufacturer's instructions.

Adapted from the NSW Infection Control Resource Centre.

NSW GOVERNMENT | CLINICAL EXCELLENCE COMMISSION

Remove P2/N95 and perform hand hygiene.

Appendix 2- Section 1 Powered Air Purifying Respirator (PAPR): Guidelines for use

INDICATION

Powered Air Purifying Respirator use, both within ICU and the hospital, will be limited to the following settings:

(Procedures will only be performed on COVID pts after careful consideration)

- Tracheostomy (percutaneous or surgical)
  - Doctor 1 (Airway), Doctor 2 (Proceduralist), Doctor 3 (Drugs/Team Leader), Technician (Resp/Anaes), Nurse (Bedside/Theatre)
  - Runner outside with PPE and N95

- Bronchoscopy (in ICU)
  - Proceduralist, technician (Resp), Bedside nurse

- Known or predicted Difficult Airway COVID Intubation/reintubation
  - In ICU – Airway Doctor x2, Team Leader, Bedside Nurse (Runner N95 + PPE)
  - Outside Areas - COVID Intubation team – Doctor x3, Anaes Tech x1 (Runner N95 + PPE)
- ICU 14 day ventilator circuit change – Resp Tech, Bedside Nurse

DONNING

The patient Caregiver and an Assistant is needed for Donning and Doffing

Caregiver to wear theatre scrubs, closed footwear and remove all personal items, including jewellery, watches, pens, pagers and mobile phones, and ensure long hair is tied back.

DONNING SEQUENCE FOR USE WITH PAPR – CAREGIVER

- **Both staff members to perform hand hygiene using soap and water**
- Caregiver
  a. wear N95 mask and ensure snug fit
  b. Adjust headband of the Jupiter hood, to ensure firm but comfortable fit.
- Assistant - hold PAPR unit at the small of the back

- Caregiver - fasten the belt unit firmly around their waist; secure any loose straps by tucking into the belt
- Assistant
  a. connect the bottom end (pin end) of the hose to the outlet and lock into position
  b. turn on the PAPR unit – press and hold the on button for one second
  c. attach the PAPR hose to the hood, ensuring it clicks into the locked position.

- Caregiver - don Jupiter hood, pulling the inner jersey around their neck.
- Assistant - check hood and ensure the cape is sitting correctly over the shoulders.
- Caregiver - don long sleeved gown
- Assistant
    a. secure Velcro at back of neck and outer ties at the side of waist
    b. Check that gown covers the back including the hose, PAPR unit and cape
- Caregiver to perform hand hygiene and don two pairs of gloves over gown cuffs

DOFFING

Doffing of PPE is to be performed inside the patient room.

An **Assistant** is required to don PPE (Gown, P2 Mask, disposable full visor/goggles and gloves) and enter patient room to assist the caregiver

When removing PPE use slow and controlled movements.

Each piece of PPE, including PAPR hood, must be discarded directly into a clinical waste bin, as it is removed

DOFFING SEQUENCE FOR USE WITH PAPR - CAREGIVER

- **Caregiver - remove outer pair of gloves and discard in clinical waste bin in patient room**
    - Pinch the outside of glove at wrist end, peel off completely into a ball and hold in palm of other gloved hand. Slide a finger under remaining glove at wrist and peel remaining outer glove off until balled around the other and discard.
    - Perform hand hygiene with alcohol based hand rub over inner pair of gloves.
- **Assistant**
    - unfasten gown Velcro and ties on **Caregiver** gown and peel gown away from neck and shoulders
    - remove gloves, perform hand hygiene with Alcohol Hand Rub and don new gloves.
- **Caregiver**
    - using the inside of the gown pulls one arm at a time so that the gown arms are bunched at the wrists, keep arms extended and lean forward. Then gently roll the contaminated side of the gown inward and away from the body, into a small bundle and discard with the gloves
    - perform hand hygiene with Alcohol Rub and don new gloves.
- **Assistant**
    - Turn off the PAPR system – press and hold on/off button for 3 seconds
    - Detach the hose from hood
    - Hold the PAPR unit and **Caregiver** to undo the belt.
    - Place the PAPR unit and hose into a designated **'dirty'** container
    - **Grasp** the outside of the cape at the back and roll up towards the top of the shoulders to form a cuff
- **Caregiver**
    - Remove Hood - grasp it with both hands near the ears, bend forward at the waist, and pull hood slowly down and away from your head until it is at waist level and discard into clinical waste bin
    - remove gloves, perform hand hygiene with Alcohol Rub and put on fresh gloves

- Wipe outer surfaces of shoes with Oxivir wipes and discard in clinical waste bin
- remove gloves, perform hand hygiene with ABHR
- can exit the patient room
- Remove N95 mask in ante room and perform hand hygiene before exiting

- **Assistant**
  - remove gloves and perform hand hygiene with Alcohol Hand Rub and put fresh gloves on
  - cover the dirty container

DOFFING SEQUENCE FOR USE WITH PAPR - ASSISTANT

- Remove gloves and perform hand hygiene
- Remove gown and perform hand hygiene
- Remove full face visor and discard. Perform hand hygiene
- Exit patient room; remove N95 mask in ante room; perform hand hygiene

DISPOSAL OF THE PAPR UNIT

Staff member to put on PPE and collect the closed dirty container from patient room and transfer to the Respiratory ICU Workshop. An accompanying assistant to open doors and avoid touching of any surfaces during transport. Both members to perform hand hygiene after box delivery

Respiratory Technicians will clean the used PAPR Unit according to policy

The cleaned PAPR units will be placed in 'clean' boxes for re-use. They will be stored in the Respiratory Technicians' office/Workroom

Appendix 3-Section 1-Intubation Checklist

COVID-19 FSH ICU INTUBATION GUIDE

FIONA STANLEY hospital

	Doctor 1 AIRWAY	Doctor 2 TEAM LEADER/DRUGS	Bedside Nurse AIRWAY ASSISTANT	Senior Nurse RUNNER
1	☐ Confirm Airway Plan	☐ Prepare Drugs: RSI and emergency ☐ Confirm communication plan with runner	☐ Prepare COVID Intubation Tray ☐ Prepare sedation drugs	☐ Runner equipment present/ available ☐ Obtain 2x Clean trolleys for patient room ☐ Control entry/exit
2	☐ DON PPE	☐ BUDDY CHECK		REMAIN OUTSIDE
3	☐ Airway assessment ☐ Optimise patient position ☐ Pre-program ventilator ☐ Check circuit filter order correct	☐ Ensure working IV Access ☐ Fluid attached and running	☐ Monitoring check, including etCO2 ☐ Check suction ☐ Check CMAC screen & blade	Liaise with Doctor 2 Place one clean trolley just inside patient room Provide additional kit if required (Resus Trolley/Line Insertion Kit) Assist with donning and doffing
4	Pre O2: Mapleson with HME for 5 min Aim 6l/min – 8l/min oxygen flow	☐ Airway and drug plans reconfirmed		
5	Avoid mask ventilation, unless rescue oxygenation (Use 2 hand technique plus guedel)	Rapid Sequence Induction		
6	Do not ventilate until cuff up Use IGEL, if failed intubation	Confirm tube placement	Inflate cuff immediately with 10 ml Secure ETT with Tapes/Ties	
7	NGT insertion		Check cuff pressure	
8	Dispose outer set of gloves after instrumenting airway			
9	Insert Lines as required			
10	No other staff to enter for 30 mins			
11	Dispose single use equipment in Clinical waste bin. Bag non-disposable equipment for collection Doff PPE (with Buddy) in patient room, except N95 mask			

FSH ICU COVID INTUBATION TRAY

- ❒ CMAC SCREEN + BLADE (#3 FEMALE #4 MALE/OBESE PT)
- ❒ IGEL #4
- ❒ ETT WITH SUPRAGLOTTIC PORT (#7/8 FEMALE #8/9 MALE)
- ❒ BOUGIE
- ❒ 10 ML SYRINGE
- ❒ GUEDEL (2 SIZES)
- ❒ LUBRICANT SACHET
- ❒ TUBE TAPE/TIE
- ❒ VIRAL FILTER
- ❒ IN-LINE SUCTION
- ❒ NG TUBE 14FR
- ❒ MAGILLS FORCEPS
- ❒ TUBE CLAMP

DRUGS LIST

- ❒ Fentanyl 500mcg in 10 ml
- ❒ Propofol 200mg in 20ml
- ❒ Ketamine 200mg in 20ml
- ❒ Midazolam 10mg in 10ml
- ❒ Suxamethonium 200mg in 4 ml
- ❒ Rocuronium 200mg in 20ml
- ❒ Metaraminol 10mg in 20ml
- ❒ 2x 0.9% Saline Flush 20mls
- ❒ 500ml Gelofusin in pump giving set
- ❒ Sedation infusions (Propofol/Fentanyl)

CIRCUIT FILTER SEQUENCE

Appendix 4- Section 1 Line Insertion Equipment List

FSH ICU Runner Equipment List

(Remove from ICU Lines Trolley)

CVC Insertion

- Sterile Gowns x2 Pairs
- Sterile Gloves x2 Pairs
- ICU Procedure Pack
- 2% Chlorhexidine x1
- Saline 10ml x2
- 5 Lumen CVC
- Ultrasound Probe Cover x1
- 1% Lignocaine with Adrenaline 5ml x2
- Suture
- Microsuture Pack x1
- Chlorhexidine impregnated Tegaderm Dressing x1
- Intraflow Set x1
- Syringe 20ml x1 (for blood cultures)

Arterial Line Insertion

- Sterile Gloves x1 Pair
- 2% Chlorhexidine x1
- Arterial Line (Arrow 20G x1 ; Vygon 20G x1)
- Ultrasound probe Cover x1
- Suture
- Microsuture Pack x1??
- Saline 10ml x1
- 1% Lignocaine with Adrenaline 5ml x1
- Chlorhexidine impregnated Tegaderm Dressing
- Intraflow Set x1
- Hypodermic 25G needle x1
- Precision Guide 19G Drawing up Needle x1

Section 2-FSH ICU Operational Plan for COVID-19

Background

This document is a summary of key operational changes that will be required when the ICU begins to admit COVID-19-19 patients. This guidance only and is subject to change as information becomes available and is necessarily brief. This document should also be read in conjunction with **the "ICU Clinical Management Plan for COVID-19-19"** These documents will be placed on the ICU Hub

This document does not cover the high level executive decisions involved in planning during a pandemic which includes threshold to initiate surge response such as

1. Cancellation of elective surgery
2. Closure of other non-essential services within the Health service/system
3. Increasing staff numbers, medical and nurse staffing models and reallocation of roles within the hospital.
4. Triage protocols during an advanced pandemic phase

Staff Health

1. All staff who are at higher risk of COVID-19-19 and fit the exemption criteria as the WA Health RIDER Plan should communicate with their line manager as soon as possible in order to be exempted from caring for COVID-19-19 patients

2. A dedicated staff COVID-19 Clinic has been established for staff to discuss if they need testing or isolation
    a. A dedicated WA Health Staff COVID-19-19 Call Centre will operate from 8am to 8pm seven days a week.
    b. The call centre's dedicated freecall number is 1800 955 765 and is available for all WA health system staff (metropolitan and country) to call.
    c. If a staff member based in the metropolitan area meets the screening criteria, they will be booked into the nearest COVID-19 Clinic.

ICU Surge Bed Plan

SURGE PRINCIPLES

It is envisaged that the most ICU level patients will be maintained within ICU POD 1-4. Initially it may be possible separate COVID-19 versus non COVID-19 streams. PODS 1 and 2 will be non COVID-19 and PODS 3 and 4 will be COVID-19. Obviously there will be progression across ICU PODS to manage severe COVID-19 patients in all 4 contiguous ICU areas. The stepwise progression across ICU is given below. We may have to utilise PACU and CCU simultaneously when ICU surge is in progress. It is envisaged that clean non-COVID-19 HDU level patients will be moved to PACU to create space in PODs 1 and 2 for severe COVID-19 patients. Also CCU will initially be reserved for milder COVID-19 cases requiring HDU level care either as step down from ICU or direct admission. Clearly the acuity in both these outlying areas may need to increase. If COVID-19 positive patients

requiring ventilation need to be managed outside PODS 1-4 then the preference is to use the Operating Theatres where we can manage ventilated single organ respiratory failure COVID-19 patients in mini- pods of three patients in selected operating theatres.

BED FLOW SEQUENCE

1. All COVID-19-19 patients will be **cohorted in pod 4**

2. Aim to clear out POD 3 a soon as possible. Non-COVID-19-19 patients from pod 3 starting with the rooms nearest pod 4 (Rm 130 backwards) are to be moved to clean areas (Pod 1 or 2) as soon as possible in preparation to take new COVID-19-19 patients into pod 3

3. Pod 3 will begin to take patients

4. Once pod 3 and 4 are close to being filled then POD 2 should be cleared out ready to take COVID-19 patients. Transfer existing POD 2 patients to POD or if unable accommodate all POD 2 patients then PACU should be used to relocate appropriate HDU level lower acuity patients

5. Once pod 2 is full of COVID-19-19 pts , then non-COVID-19-19 pod 1 patients will be relocated to PACU (except burns)

6. Pod 1 will then take severe ventilated COVID-19 patients

7. CCU will initially be used for milder COVID-19 cases with other medical issues not requiring significant resp support or as step down post extubation from COVID-19 ICU initially
    a. The decision to open CCU to COVID-19-19 pts will rest with ICU HOS or the Duty Consultant in consultation with the Director of Clinical Services or the Medical Executive on-call.

    b. Initially utilise beds 144 to 149. These 6 rooms can be isolated from the rest of the CCU with the fire doors. Use of entire CCU may be needed

TABULATED BED AREAS

ZONE SEQUENCE	Bed spaces	Patient acuity/COVID-19 status	Number of Level 1 ICU beds ideal	Number of ICU beds at maximum capacity
ICU ZONES	**101-140**			
ICU POD 4	131-140	COVID-19+/high acuity	10	10
ICU POD 3	121-130	COVID-19+/high acuity	10	10
ICU POD2	111-120	COVID-19+/high acuity	10	10
ICU POD1	101-110	COVID-19+/high acuity	10	10
SubTotal			40	40
PACU ZONES				
PACU ICU Zone 1	1, 2, 3, 4, 5, 34, 35,36,37 procedure room	Prefer Non Covid Low Acuity Initally If Possible	10	15
PACU ICU Zone 2	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	Prefer Non Covid Low Acuity Initally If Possible	12	18
PACU ICU Zone 3	18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33	Prefer Non Covid Low Acuity Initally If Possible	15	21
SubTotal			37	54
OT ZONES				
OT 1	Theatres 9, 10, 11	Suitable for COVID as isolated	7	8
OT 2	Theatres 12, 13, 14, 15	Suitable for COVID as isolated	8	10

Total			15	18
CCU ZONES				
CCU Zone 1				
CCU Zone 2				
SubTotal				
Total				

PACU

Proposed escalation plan

Stage 1: accept surgical HDU level patients

Stage 2: expand to accept all HDU level patients medical and surgical

Stage 3: single organ failure non-COVID patients including invasive ventilation

Stage 4: single organ/simple COVID patients

Stage 5: no restrictions

Holding bay should be utilised as a combined holding bay/recovery area in the event that PACU and theatres 9-15 are filled. It would need monitors procured for this purpose.

To preserve surgical activity, POD 1 theatres should be preserved as long as possible. These contain our specialty (CTS and burns) and general emergency theatres (orthopaedic, plastics, ASU)

Ideally 31, 32 and 33 of previously proposed zone 1 would be filled last, to preserve thoroughfare of POD 1 cases to zone 2 and 3 of recovery. Consideration has been given to the two dirty utilities also (adjacent to 22 and 31). This creates 3 unequal sized zones in PACU, but this is immaterial in the long run.

Other areas

- As noted, holding bay can take 20 patients, but would need monitors and may be suitable for a step down unit down the track
- Theatres 1-8 can take 21 patients comfortable, with 29 at max capacity
- Endoscopy theatres 1-3 and bronchoscopy can take one patient each
- Interventional 1 and 2 would be awkward and probably unusable due to the location of the immobile table and C-arm.

Total additional is 45 (+8)

CCU

Initially CCU will be used for COVID positive patients that have either been discharged as step down requirement of for patients who are confirmed or suspected COVID positive that require HDU level support

Essential Notifications after Activation of ICU Bed Surge Plan

1. ICU HOS (or Duty ICU Consultant) and ICU NUM
2. Director of Clinical services
3. Service 2 Co-directors
4. HOOT/CAS (after hours)
5. Ward clerks to ensure beds are opened on Webpas and EBM.
6. CCU staff must be made aware when COVID-19 pts are in pod 4
7. Reception staff (as there will be changes in access to the unit) .
8. Security to remote lock courtyard doors to prevent airflow disturbances in pod 3 and 4
9. Huddle-handover: Inform ALL staff of suspected or confirmed COVID-19-19 patient and their patient bed numbers.

Preparation of ICU Rooms

1. Prior to patient admission and in addition to normal equipment required for a mechanically ventilated patient, ensure rooms have

    a. Droplet /Airborne precaution signage on the entry doors to the room/anteroom of rooms 121,122,139,140

    b. Centre of Disease Control (CDC) donning and doffing posters and an N95 fit testing poster in the ante chamber of the negative pressure room and on both sides of the door of a standard patient room
    .

    c. All interconnecting doors must be closed

    d. Adequate blue gowns, gloves, alcohol hand rub, N95 mask small and large, theatre caps, face mask/shield/googles

    e. Hillrom bed- requested by medical imagining who intend on using the x-ray pocket

    f. Yellow Clinical waste bins must be placed as instructed by IPM

    g. Ensure negative pressure settings have been checked in the bed space 121,122,139,140

2. ALL staff should be informed of any suspected or confirmed COVID-19-19 patient and their bed numbers. This includes attending medical, allied health and radiography and echo technical staff.

3. Alerts Signage and Access Restrictions

    a. Appropriate signage will be put up to limit access to the COVID-19-19 pods

    b. Doors between pods with COVID-19-19 patients and non-COVID-19 patients must be closed and appropriate signage put up on the door - ‘Clinical Staff Only’;

    c. Visitors and treating specialities should be directed to pod 2 entrance adjacent to CT scanner

d. NO THOROUGHFARE through COVID-19 and non-COVID-19 areas of the ICU to the rest of the unit unless in emergency
e. Ensure signage in the family waiting room directing them to the designate entrance for visitors of COVID-19 and non-COVID-19 areas.

Nurse Staffing Profile during Surge

Allocate a pod leader to pod 4.

Depending of staffing levels and activity in the unit, this may be in addition to other pod leader and deputy pod leader roles.

Ideally all ventilated patients will be 1:1 with pod leaders and deputy pod leaders in each pod. This may need reviewing on a full pandemic phase

Staff breaks and relief will be in accordance with agreed guidelines-please discuss with ICU operational team

Medical Staffing

Duty C Consultant

The C consultant is now rostered on 7 days a week including PH.

There is an evening C consultant ON CALL (NC, paid on call 1800-0800) for extra clinical workload that can't be managed by the N1 or the N3 consultant. This person should learn about the Covid activities in ICU.

When there is a Covid patient referral in the evening- first point of call still the evening P1/P3 Consultant, whoever on for outside.

The C Consultant has vital roles which include:

- Take all Covid/ Non-Covid referrals

- Attend Covid triage meeting at 11:00 am daily at ED handover room

- Awareness of all the ICU patients' locations, esp PACU/ CCU

- First point of opinion for PACU/ CCU outliers

- JMO allocation, see medical staff Daily List

- Liaise with coordinator about admitting capacity and ventilators availability

- Weekend C consultant helps with clinical decision-making process if P1/ P3 consultants are busy

Consultant Sick Cover

D shift- you may perform non-clinical duties off site if deemed more productive. However please be on standby for sick cover.

Sick consultant calls during the day- please try Reena/ Cam as they are now released from anaesthesia or try any D consultant.

Sick evening consultant calls- the NC consultant should be the first one to cover.

Staff Movement In/Out of Rooms

1. Only essential staff should be in the rooms at any one time to minimise staff exposure. These staff include
    a. Bedside nurse
    b. Medical staff: this will be either the ICU Consultant, visiting specialist or the Senior Registrar or the most experienced staff member in an emergency.
    c. Physiotherapist
    d. Radiographer or other imaging specialist

2. All staff entering the room must enter their names on a special register of caregivers attendance

Medical Imaging Devices

1. X-ray
    a. A dedicated COVID-19-19 ICU portable X-ray machine is stored in pod 4.

    b. Xrays will be undertaken in the patient bedspace. The transportable machine is to enter through the antechamber if the patient is in a negative pressure room.

2. Ultrasound
    a. A dedicated Sonosite and echo machine will be sourced for COVID-19 patients and will stay in pod 3 /4
    b. Use of a disposable transducer and cord sheaths is mandatory for all use

    c. The transducer must be sent for high level disinfection with the Trophon device if soiled. Please contact the respiratory technologists to process the probes

    d. Handheld US maybe used and stored and clened and tracked as per unit policy

3. All medical imaging devices and equipment must be surface cleaned and disinfected according to the recommended procedures following prior to removal from the room.
    a. Oxyvir TB wipes on control surfaces. DO NOT use on screen

Relaxing Precautions on COVID patients

There are currently no guidelines to clear patients of potemtial infectivity. Thery should remian under dropletm or airborne precautions

CT Transfers

Any CT imagaing is to be done in the CT scanner behind ICU. Please ensure all are aware of the COVID-19-19 status of the patient.

The most senior doctor transferring the patient should ensure proper use of PPE by all transporting staff (medical, nursing, porter).

A 'clean escort' must be used for all transfers to CT.Prior to transfer to CT minimise all patient, staff and visitor traffic in the corridor outside ICU.

An ENHANCED CLEAN work order needs to be log post CT scan.

Food Services

Non-essential staff should be restricted. All food and beverages are to be delivered by health care workers directly caring for the patient (i.e. the bedside nurse, pod leader).

Open and unopened food item and waste is to be discarded into general waste.

Bed Space Equipment Handling

Disposable, single-use patient care equipment should be used when possible and disposed of into appropriate waste streams after use.

Minimal stock of non-critical disposable items e.g. dressings to be stored in the bedspace. All items require disposal post discharge of the patient.

Patient charts and files are not to be taken into the bedspace. They are to be stored in either the ante chamber or on the PPE trolleys.

Environmental Cleaning Procedures

An ENCHANCED DISCHARGE CLEAN will need to be requested on patient discharge via Agility. This needs to be requested 30 minutes post the room being made vacant.

If a patient's results come back negative, then cleaning process reverts back to ILI management i.e. a Standard Clean.

Staff performing the bedspace cleaning will be required to wear the appropriate PPE- this includes the gown, glove and eye protection.

The bedside nurse will ensure that the cleaning staff are appropriately donning and doffing in accordance with the CDC guidelines.

The bedspace will have a daily clean by the cleaning staff. Additional damp dusting will be undertaken every 8 hours using Oxivir wipes.

Peroxide Nocospray or UV robotic cleaning may be used if available

Linen

All bedside linen is to go into a linen skip bin with a RED soluble liner. The bags are to be sealed prior to moving them out of the bedspace.

Waste Management

Standard precautions apply

Waste must be placed in an yellow clinical waste bin, for incineration. These can be ordered by POD 4 Cleaner.

All waste shall be bagged and securely sealed prior to exiting the patient room.

Visitor Policy

Please refer to current DoH Visitor Policy

Care of Deceased Patient

If there is a death, the mortuary must be notified that the patient is confirmed or suspected COVID-19-19. The HIC must be notified when time of death has been recorded. The patient is handled as per normal processes