COVID-19
St Thomas’ Main Theatres
Quick Reference Handbook
# TAP Theatres QRH - Contents

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## General Policies

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## Personal Protective Equipment

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## Procedures

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## Patient Transfers

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**
## Critical Care Procedures

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**Objective:** To define aerosol generating procedures that require maximal PPE. To be used in conjunction with ACTION CARD 8a: Personal Protective Equipment with FFP3 Mask/T2-1: Donning PPE for a COVID-19 Patient in Theatre

### Agreed list of Aerosol Generating Procedures

**Procedure List**
- Intubation, extubation, and related procedures such as manual ventilation and open suctioning
- Tracheotomy/tracheostomy procedures (insertion/open suctioning, removal)
- Bronchoscopy
- Surgical procedures on the upper and lower respiratory tract only involving high-speed devices
- Some dental procedures (such as high-speed devices)
- Non-invasive ventilation (NIV) such as Bi-level Positive Airway Pressure (BIPAP) and Continuous Positive Airway Pressure (CPAP) ventilation
- High-frequency Oscillating Ventilation (HFOV)
- High-flow Nasal Oxygen (HFNO), also called High-flow Nasal Cannula
- Induction of sputum

**Notes**
- Fit-tested FFP3 masks are only required for those conducting the procedures listed above, or for any staff who must also be in the room during the procedure
- Administration of medication via nebulisation is **not** an AGP
- Where AGPs are medically necessary, they should be undertaken in a negative-pressure room if available, or in a single room with the door closed
- If AGPs are undertaken in the patient’s own room the room should be decontaminated 20 minutes after the procedure has ended
- Dentistry and post-mortem procedures are being dealt with separately
**T1-2: Surgical Procedures for a COVID-19 Patient**

**Objective:** To co-ordinate teams and allow sufficient preparation, allowing safe conduct of a surgical procedure for both patient and staff

1. **Check the consultant anaesthetist is aware of the booking**
   - Priority consultant weekdays 0800 - 1700, otherwise contact on-call consultant

2. **Check critical care team is aware of the booking**

3. **Prepare teams**
   - Assemble all team members
   - Check PPE requirements with all team members (see General Principles)
   - Perform WHO team brief
   - Theatre Co-ordinator and consultant anaesthetist to confirm theatre allocation
   - If long operation, identify a relief team
   - Prompt staff to take comfort breaks before donning PPE

4. **Prepare theatre**
   - Apply infection control notices to theatre doors
   - Prepare empty bins dedicated for used PPE in both theatre and sluice
   - Check supplies of alcohol gel, sterilising equipment, and Clinell wipes
   - Check anaesthetic machine and drug/fluid stock levels

5. **Don PPE appropriate to role and risk (see T2-1: Donning PPE for a COVID-19 Patient)**

6. **Confirm consultant anaesthetist is ready then send for patient**
   - Call security/porters and Essentia to clear route to theatre
   - Call ward and instruct to keep notes at origin

7. **Induce anaesthesia in theatre (see T3-1: Preparing for intubation of a COVID-19 Patient and T3-2: Intubation of a COVID-19 Patient)**
   - Start a 20 minute timer

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**General Principles**

- Elective surgery should be postponed until the patient has recovered
- Decision to proceed must involve consultant surgeon, consultant anaesthetist, infection control, and HCID team
- On arrival the patient must be transferred directly into the allocated theatre
  - Bypass the anaesthetic room; this must remain clean during the procedure
  - If there has been contamination or spills on transfer, routes used may not be used for 30 minutes
- Only essential people should be in theatre during the procedure; a runner should be stationed in the anaesthetic room
  - All staff involved must be trained in safe PPE use
  - If possible, the surgical team should not enter theatre until 20 minutes post-intubation
- PPE for surgical team:
  - If AGP (see T1-1: Aerosol Generating Procedures) or if required to enter within 20 minutes of intubation FFP3 PPE must be worn
  - If no AGP and can wait 20 minutes, gown, gloves, and surgical facemask must be worn

**Useful Contacts**

**Infectious Diseases Teams**
- HCID Consultant: 0963
- HCID Registrar: 0962
- CRT Registrar: 0610
- ID Registrar: 07827 841972
- Virology Consultant: via switchboard

**Theatres**
- Anaesthetic Consultant: via switchboard or CLW
- Anaesthetic Registrar: 0153
- Theatre Co-ordinator: 0191

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This document underwent fast-tracked approval at directorate level for COVID-19 response

March 2020
**T1-3: Post-operative Procedures for a COVID-19 Patient**

**Objective:** To co-ordinate teams allowing safe conduct of a surgical procedure for both patient and staff

1. **Perform sign-out per usual practice**
2. **Check if patient can be extubated**
   - If yes:
     - Staff not wearing FFP3 PPE must doff PPE and leave theatre (see T2-2: Donning PPE)
     - Perform extubation (see T3-3: Extubation of a COVID-19 patient)
     - Patient must be recovered in theatre
   - If no:
     - Call CRT registrar, HCID team, and Infection Control teams
     - Prepare for transfer to critical care area (see T4-1 for principles of transfer)
3. **Start a 20 minute timer**
4. **Prepare specimens for transfer**
   - Check specimens are double-bagged and labelled
   - Use a dedicated specimen box or cooler
   - Send specimens directly to laboratory
5. **Scan documentation to EPR then safely dispose of paper records**
6. **Check timer**
   - Staff may doff PPE 20 minutes after the last AGP (see T2-2: Doffing PPE)
7. **Request disinfection of theatre (see theatre disinfection protocol)**
   - After disinfection:
     - Check surgical stock
     - Check anaesthetic stock

**General Principles**
- Extubation is an aerosol generating procedure (see T1-1: Aerosol Generating Procedures)
  - Only essential staff should be present at extubation
  - All staff require PPE appropriate to AGP (see T2-1: Donning PPE)
- Transferring post-operative patients is complex
  - Awake patients must wear a Hudson mask and surgical facemask during transfer
  - Routes the patient will travel along may not be used during and for 30 minutes after transfer
  - Security/porters and Essentia will assist with securing routes

**Useful Contacts**

**Infectious Diseases Teams**
- HCID Consultant: 0963
- HCID Registrar: 0962
- CRT Registrar: 0610
- ID Registrar: 07827 841972
- Virology Consultant: via switchboard

**Theatres**
- Anaesthetic Consultant: via switchboard or CLW
- Anaesthetic Registrar: 0153
- Theatre Co-ordinator: 0191
Objective: Safe transfer of a patient with confirmed COVID-19, who needs an emergency or urgent procedure in the Cath-lab, whilst minimising risk to the patient, staff, and the hospital environment.

1. Assemble team members
   - Plan procedure (see general principles)
   - Brief all team members on PPE requirements
   - Check sample-handling procedures (see Action Card 10: Sample Collection)
   - Order all required tests on EPR
   - Confirm a bed is available in an isolation area post-procedure

2. Confirm with sending team when ready to receive patient
   - Inform the sending team to consult T4-3: Internal transfer of a patient with confirmed COVID-19 for a procedure
   - Inform the sending team of the destination and route (see General Principles)

3. Don PPE (see Action Card 8a: PPE with FFP3)

4. Perform procedure
   - Other than PPE there are no modifications to usual practice during the procedure
   - Defer chest X-ray until admission if possible, otherwise request portable X-Ray (see T4-5: Portable imaging for a suspected or confirmed COVID-19 patient)
   - Call blood gas technician if ABG samples are required and quarantine machine pending decontamination (see Action Card 13: Taking Arterial Blood Gas in suspected Coronavirus)

5. Call EW6 ICU team if patient critically ill

6. Perform post-procedure actions:
   - Patient to remain in Cath-Lab until destination is available
   - SNPs to arrange transfer (see T4-3: Internal transfer of a patient with confirmed COVID-19 for a procedure)
   - Waste disposal (see Action Card 5: Waste Management)

7. Doff PPE (see Action Card 8a: PPE with FFP3 or Action Card 8b: PPE for suspected COVID-19)

8. Call rapid response team for room decontamination (see Action Card 9: Environmental Cleaning)

General Principles
- Patient will have undergone initial assessment in the Emergency Department or by London Ambulance Service
- Requirement for procedure must be confirmed with Cardiovascular Directorate Management team and SNP
- All staff will require PPE (see Action Card 8a: PPE with FFP3)
- Minimise entries and exits from the room; prepare all equipment in advance
  - Prepare food and water for patient as necessary
  - DO NOT take stethoscopes, mobile phones, computers, pens, paper, or other equipment into the patient room
- Specimens must be hand-delivered; inform CSR that samples are confirmed COVID-19 (see Action Card 10: Sample Collection)

Treatment Locations:
- Coronary interventions: Cath-Lab 1
- Arrhythmias: Cath-Lab 4

Transfer Route:
- The patient must be escorted along a secure route via the East Wing lift block
- Transfer directly into the designated Cath-Lab if at all possible
- If there is any delay, the patient must wait in the Cath-Lab Day Unit

Staffing Requirements
- Only essential staff should be in the room with the patient; plan for on-call staffing requirements to minimise exposure
- All staff must be trained in PPE and fit-tested
- Team should comprise: 1 x Consultant, 1 x Physiologist, 1 x Radiographer, 1 x Clean-room nurse, 1 x Hot-room nurse
- Out-of-hours the clean room nurse will be from the CCU team

Useful Contacts
- SNP: 1165
- Blood Gas technician: 1364

This document underwent fast-tracked approval at Directorate level for COVID-19 response

Action Card (v1-0)
March 2020
Objective: Safe transfer of a patient with suspected COVID-19, who needs an emergency or urgent procedure in the Cath-lab, whilst minimising risk to the patient, staff, and the hospital environment.

1. Assemble team members
   - Risk assess PPE requirements based on likelihood of aerosol generating procedures (see T1-1: Aerosol Generating Procedures)
   - Plan procedure (see general principles)
   - Brief all team members on PPE requirements (see PPE requirements)
   - Check sample-handling procedures (see Action Card 10: Sample Collection)

2. Check with sending team when ready to receive patient
   - Inform the sending team to consult T4-4: Internal transfer of a patient with suspected COVID-19 for a procedure

3. Don PPE (see Action Card 8a: PPE with FFP3 or Action Card 8b: PPE for suspected COVID-19)

4. Perform procedure
   - Other than PPE there are no modifications to usual practice during the procedure

5. Take a throat swab for COVID-19 screening

6. Perform Post-procedure Actions

7. Doff PPE (see Action Card 8a: PPE with FFP3 or Action Card 8b: PPE for suspected COVID-19)

General Principles
- Patient will have undergone initial assessment in the Emergency Department or by London Ambulance Service
- Requirement for procedure must be confirmed with Cardiovascular Directorate Management team

Treatment Locations:
- Coronary interventions: Cath-Lab 1
- Arrhythmias: Cath-Lab 4

PPE Requirements
If NO aerosol generating procedure planned
- The receiving team must be wearing PPE including surgical mask (see Action Card 8b: Suspected COVID-19 PPE)

If aerosol generating procedure IS planned
- The receiving team must be wearing PPE including FFP3 mask (see Action Card 8a: PPE with FFP3)

Post-procedure Actions
- Transfer patient to an isolation room pending screening swab results
- Call rapid response team for environmental clean
**Objective:** Safe donning of PPE for a COVID+ confirmed or suspected patient requiring aerosol generating procedure(s) in theatre (see T1-1: Aerosol Generating Procedures)

### Preparation

1. Prepare a ‘buddy’ to assist donning
2. Prepare PPE per PPE equipment list
3. Remove personal items e.g. ID badge, mobile phone, keys, pens
4. Don theatre shoes
5. Check if X-Ray required and don a lead apron under PPE if needed
6. Don gown
   - Do not tie the inside tie of the gown
7. Remove glasses if worn
8. Don FFP3 mask
   - Put on glasses if worn
   - Check arms of glasses are on top of mask straps
9. Put on theatre hat
10. Put on face shield
11. Put on non-sterile gloves
   - Tuck gown cuffs under gloves
   - Put on sterile gloves if required for procedure
   - Apply two strips of duct tape around the end of your gloves
12. Check PPE with buddy
   - Gloves covering cuffs
   - Mask correctly applied
   - Face covered by face-shield
   - Gown closed behind

### PPE Equipment List

- Long-sleeved waterproof gown
- Fit-tested FFP3 mask
- Non-sterile gloves
- Sterile gloves (if required for procedure)
- Face shield
- Four strips of duct tape
- Theatre cap
- Theatre shoes (NOT personal footwear)
- A lead apron is required if X-Ray is required during the case
Objective: Safe doffing of PPE for a COVID+ confirmed or suspected patient after operative intervention in theatre

First stage
IN HOT ROOM

1. Prepare a ‘buddy’ to assist doffing
2. Prepare a suitable container to discard used PPE into
3. Undo gown tie at the hip then loosen neck fastening
   ➡ Do not reach behind you, do not touch your neck or the inside of the gown
4. Peel off gown and gloves together
   ➡ Roll the gown inside-out
   ➡ Place the gown and gloves into the bin
5. Perform hand hygiene with alcohol gel
6. Move to warm room

Second stage
IN WARM ROOM

7. Perform hand hygiene with alcohol gel
8. Prepare a suitable container to discard used PPE into
9. Remove face shield by grasping the strap behind your head
10. Remove theatre hat
11. Request buddy to remove your glasses if worn
    ➡ Buddy must be wearing gloves
    ➡ Buddy must clean the glasses with an alcohol wipe
12. Remove mask
    ➡ Buddy may put your clean glasses back on
13. Step out of your hot-room shoes into a clear pair
14. Perform hand-hygiene to the elbows

Doffing Principles
- Brief with your buddy before starting the process
- Allow enough time to remove equipment and do not rush
- Discard contaminated single-use equipment straight into an appropriate bin
- Do not stuff contaminated materials into the bin
- If there are any doubts about contamination during doffing check with your buddy
  and perform meticulous hand hygiene
- Consider a ‘Hibiscrub’ shower after doffing

THIS DOCUMENT UNDERWENT FAST-TRACKED APPROVAL AT DIRECTORATE LEVEL FOR COVID-19 RESPONSE
T3-1: Preparation for intubation of a COVID-19 patient

Objective: Preparation of equipment and staff for intubation of a suspected COVID-19 patient. To be used in conjunction with T2-1: Donning Personal Protective Equipment for a COVID-19 patient in theatre

Pre-intubation

1. Assemble team in clean room
   - Perform team introductions
   - Three hot-room team roles: intubator, airway assistant, drug administration/monitoring
   - Clean-room team roles: runner/donning buddy

2. Prepare for intubation
   - Request COVID airway supplies trolley
   - Check intubation equipment list
   - Prepare airway equipment and rescue devices on a metal trolley
   - Assemble breathing system prior to intubation
   - Plan for airway difficulty and brief team (see T3-2: Intubation of a COVID-19 patient)

3. Check for patient allergies

4. Remove personal items e.g. mobile phone, ID badge, keys from pockets

5. Don and check PPE equipment

6. Move to hot room
   - Take ONLY the metal trolley into the hot room
   - Any additional equipment will be handed through by the runner

Intubation Equipment List

Intubation Equipment:
- Appropriately sized tracheal tube with subglottic suction
- Airtraq and screen or I-view videolaryngoscope
- Direct laryngoscope
- Bougie and stylet
- Tube tie
- Syringe
- Cuff manometer

Breathing Circuit:
- DO NOT USE High Flow Nasal Oxygenation
- Inline suction system
- Tracheal tube clamp
- Mainstream capnograph preferred; side stream on clean-side if no alternative
- If anaesthetic machine is being used:
  - HME filters at both patient and machine ends of circuit
  - DO NOT USE side-stream gas analyser where mainstream capnograph available
  - DO NOT use a Waters Circuit
- If no anaesthetic machine is available:
  - Waters Circuit with HME filter between patient and APL will be necessary
  - Place HME filters at the patient end of the circuit, and at the ventilator if possible

Drugs and IV access:
- Induction drugs for RSI
- Emergency drugs e.g. vasopressors
- Maintenance drugs and equipment e.g. propofol and pumps
- IV cannula, dressing, tourniquet with spares immediately available in clean room

Rescue Devices:
- Alternative supraglottic airways in a range of sizes
- Prepare an Aintree Intubating Catheter, an Ambu-scope Slim and a monitor in the clean room, but do not take it in to the hot room until needed at Plan B: Secondary Intubation
- Marker pen
- Emergency front of neck airway kit (scalpel, bougie, tube)
Objective: Intubation of a suspected COVID-19 patient minimising risk to staff. Only essential staff should enter the room with the patient. To be used in conjunction with T2-1: Donning Personal Protective Equipment for a COVID-19 patient in theatre

Intubation

IN HOT ROOM

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
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<tbody>
<tr>
<td>1</td>
<td>Receive patient on trolley</td>
</tr>
<tr>
<td></td>
<td>.DTO Check HME filters at both ends of breathing circuit and Yankauer sucker available</td>
</tr>
<tr>
<td></td>
<td>DTO Check patient positioning, monitoring, and room ergonomics are suitable for intubation</td>
</tr>
<tr>
<td></td>
<td>DTO Check landmarks for front of neck airway and mark cricothyroid membrane</td>
</tr>
<tr>
<td>2</td>
<td>Check IV access adequate and functional then connect IV fluids</td>
</tr>
<tr>
<td>3</td>
<td>Pre-oxygenate for at least 5 minutes with tight seal on mask</td>
</tr>
<tr>
<td></td>
<td>DTO Consider 5cmH2O PEEP</td>
</tr>
<tr>
<td>4</td>
<td>Apply cricoid pressure if appropriate, then give RSI drugs</td>
</tr>
<tr>
<td></td>
<td>DTO if hypoxia low pressure/low volume mask ventilation (two handed technique)</td>
</tr>
<tr>
<td>5</td>
<td>Turn oxygen off before removing mask</td>
</tr>
<tr>
<td></td>
<td>DTO Perform Plan A: Primary intubation</td>
</tr>
<tr>
<td>6</td>
<td>If intubation successful:</td>
</tr>
<tr>
<td></td>
<td>DTO Perform post-intubation actions</td>
</tr>
<tr>
<td>7</td>
<td>If laryngoscopy difficult:</td>
</tr>
<tr>
<td></td>
<td>DTO Insert iGel and ventilate</td>
</tr>
<tr>
<td></td>
<td>DTO Perform Plan B: Secondary Intubation</td>
</tr>
<tr>
<td></td>
<td>DTO If successful perform post-intubation actions</td>
</tr>
<tr>
<td>8</td>
<td>If cannot ventilate via iGel:</td>
</tr>
<tr>
<td></td>
<td>DTO Perform Plan C: Mask ventilation</td>
</tr>
<tr>
<td>9</td>
<td>If cannot mask ventilate:</td>
</tr>
<tr>
<td></td>
<td>DTO Perform Plan D: Front of neck airway</td>
</tr>
<tr>
<td></td>
<td>DTO Perform post-intubation actions</td>
</tr>
</tbody>
</table>

Airway Plans

Plan A: Primary Intubation
- Laryngoscopy with Airtraq and screen or i-view videolaryngoscope preferred
- Direct laryngoscopy if this is the most familiar technique

Plan B: Secondary Intubation
- Request Ambu-scope Slim and Aintree Intubating Catheter from clean room:
  - Load Aintree Intubating Catheter on to Ambu-scope
  - Insert Aintree Intubating Catheter via iGel using Ambu-scope
  - Remove Ambu-scope and iGel; leave Aintree Intubating Catheter in trachea
  - Intubate over Aintree Intubating Catheter
  - Remove Aintree Intubating Catheter

Plan C: Mask Ventilation
- Low pressure/low volume mask ventilation
- Two-handed technique to maintain seal

Plan D: Front of Neck Airway
- Scalpel (size 10 blade)
- Bougie
- Size 6.0 tracheal tube

Post-intubation Actions
- Connect breathing circuit HME, inline suction, and mainstream capnograph
- Inflate cuff BEFORE ventilation
- Turn oxygen on
- Confirm capnography
- Secure tracheal tube with tie and note tube depth
- Start sedation/anaesthesia
- Check tracheal tube cuff pressure; must be at least 5cmH2O above inspiratory pressure to minimise leak
- If the circuit must be disconnected occlude the tracheal tube with a clamp before detaching, and leave the filter on the patient side
- Clean anaesthetic machine and breathing circuit with ‘Clinell’ wipe
- Clean patient’s face, neck, hair, and hands with soap and water
- DO NOT LEAVE HOT ROOM until 20 minutes have elapsed post-intubation
- Consider inserting NG tube and/or central venous access

Post-intubation Actions

This document underwent fast-tracked approval at Directorate level for COVID-19 response

Action Card (v1-1)
March 2020

TAP THEATRES ANAESTHESIA PERIOPERATIVE MEDICINE

Action Card (v1-1)
Objective: Extubation of a suspected COVID-19 patient whilst minimising aerosolisation of virus particles. Only those essential to care should be present. PPE required per T2-1: Donning Personal Protective Equipment for a COVID-19 patient in theatre.

**Extubation**

**IN HOT ROOM**

1. Check whether to extubate on theatre table or bed (see Location Risk Assessment)

2. Prepare patient for extubation
   - Position table/bed so that all staff are behind patient
   - Sit patient upright and place an inco-pad on the patient's chest
   - Administer sugammadex
   - Begin pre-oxygenation

3. Prepare equipment (see Minimum Equipment List)

4. Clear airway of secretions
   - Careful oral suction with Yankauer sucker
   - Tracheal suction with inline suction system

5. Perform final pre-extubation checks
   - Check train-of-four > 0.9 and establish self-ventilation
   - Check E\(\text{O}_2\) > 0.9
   - Fully open APL value

6. Stop anaesthetic agent(s)

7. Untie tube tie and maintain control of tracheal tube

8. Prepare team for extubation process
   - Check patient can obey commands
   - Deflate cuff at the point of extubation then remove tube to inco-pad
   - Apply anaesthetic facemark immediately
   - Apply Hudson mask AND surgical mask once airway confirmed and coughing subsided

9. Observe patient for at least five minutes prior to transfer

**Location Risk Assessment**

Consideration must be given to extubation on theatre table or bed

- If extubating on theatre table then a transfer post-extubation will be required. Take care to maintain distance from the airway when this happens. It may be appropriate to keep the patient sitting upright on the theatre table for a longer period than normal to ensure the airway is clear and there will be no further coughing.
- If extubating on bed then a transfer prior to extubation will be required. If the patient is already self-ventilating then it will not be possible to clamp the tube and disconnect the breathing circuit during the transfer. Extra care MUST be taken to avoid accidental disconnection or extubation during the transfer.

**Minimum Equipment List**

- Oropharyngeal airway
- Anaesthetic facemask
- Hudson mask
- Surgical facemask
- iGel
- Yankauer sucker
- Syringe to deflate tube cuff
- Intubation equipment for emergency use
Objective: Preparation of equipment and staff for operative intervention in a COVID-19 patient. To be used in conjunction with T2-1: Donning PPE for a COVID-19 patient in theatre

1. Prepare team before sending for patient
   - Check PPE requirements with all team members (see General Principles)
   - Perform WHO team brief
   - Assign scrub team roles (see Scrub Team Roles)
   - Check infection control notices have been placed on theatre doors
   - Check sufficient PPE is available in REEF theatres
   - Prepare PPE in anaesthetic room
   - Check which surgical kits are needed

2. Prepare surgical kits and equipment in preparation area as usual
   - Prepare only kits that were specified at briefing
   - Kits that may (but not certainly) be required can be left in the anaesthetic room

3. Remove personal items e.g. mobile phone, ID badge, keys from pockets

4. Check if X-Ray will be required for case
   - Don a lead gown if required

5. Don and check PPE equipment (see E2-1: Donning PPE for a COVID-19 Patient)
   - Do NOT enter theatre until signalled by anaesthetic team

Scrub Team Roles

- **Hot room:**
  - Scrub nurse
  - Runner

- **Clean Room:**
  - PPE buddy
  - Runner

- **PPE for surgical team:**
  - If AGP (see T1-1: Aerosol Generating Procedures) or if required to enter within 20 minutes of intubation FFP3 PPE must be worn
  - If no AGP and can wait 20 minutes, gown, gloves, and surgical facemask must be worn
Objective: Airway management, ventilation, and transfer of a COVID-19 patient. To be used in conjunction with PPE guidelines (Action Card 8a: PPE with FFP3 Mask/T2-1: Donning PPE in Theatre), T3-1: Preparation for intubation, and T3-2: Intubation of a COVID-19 patient

1. Prepare for intubation (see Preparation)
   - Don and check PPE for aerosol generating procedure
   - Collect T2-1: Preparation for Intubation of COVID-19 patient and follow steps
   - Collect T2-2: Intubation of COVID-19 patient
   - Prepare a Waters Circuit with HME filter between patient and APL valve
   - Attach mainstream capnograph on clean side of Waters Circuit
   - Prepare mechanical ventilator
   - Prepare a tracheal tube clamp

2. Perform intubation per action card
   - Check tube position with Waters Circuit and capnograph
   - Apply clamp to tracheal tube then disconnect the circuit above the HME filter
   - Connect the mechanical ventilator and unclamp the tracheal tube
   - Start mechanical ventilation using recommended ventilation strategy for ARDS

3. Check cardiovascular stability
   - Give vasopressors early to avoid excessive fluid challenges after initial resuscitation phase

4. Check blood gas

5. Prepare for transfer
   - Call CRT consultant to determine transfer destination
   - Check consumables prior to departure
   - Tape breathing circuit joins
   - Avoid secondary transfers e.g. to radiology en-route to ICU

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Preparation

- Essential team members in room only
- Intubation is an aerosol generating procedure, so PPE with an FFP3 mask is required for all known or suspected COVID-19 patients per Action Card 8a: PPE with FFP3 facemask (or Action Card 8c: Failed fit testing - PPE if required)
- Intubation in ED should take place in Resus 3 if possible, as this is a negative pressure room
  - ED patients with respiratory symptoms will generally be cohort in Majors 3 as this is also a negative pressure room
- The MErIT team have the final say in the location of intubation if difficulty is predicted
  - Aim to minimise transfers by moving directly to ICU for intubation if ED is unsuitable

Recommended Ventilation Strategy for ARDS

- Pressure controlled ventilation (BIPAP)
  - Pinsp ≤ 30 cmH₂O
  - PEEP ≥ 10 cmH₂O
  - Driving pressure (Pinsp - PEEP) ≤ 15cmH₂O
  - Tidal volume 6ml/kg ideal body weight
  - Allow permissive hypercapnia

Target Values

- SpO₂ > 90%
- pH > 7.2

Ideal Body Weight Formula

- Male: 50 + (0.91 x [height in cm − 152.4])
- Female: 45.5 + (0.91 x [height in cm − 152.4])

If difficulty achieving target values early discussion with CRT consultant for escalation to SRF or ECMO teams
Objective: Safe transfer of a patient with confirmed COVID-19, minimising risk to the patient, staff, and the hospital environment.

1. Check with clinical team that transfer is essential
2. Call destination ward to ensure they are ready to receive
   - Agree arrival time window with receiving team
   - Inform the receiving team how the patient will be moved (bed, trolley, chair)
3. Call SNP to co-ordinate assisting teams
4. Prepare staff to accompany patient
   - Staff require PPE including FFP3 mask
   - Place patient notes in a sealed plastic bag for collection by transfer team
5. Don PPE (see Action Card 8a: PPE with FFP3)
6. Prepare for departure
   - Apply surgical mask to patient
   - Collect patient notes in a sealed bag
   - Check consumables e.g. oxygen supplies, pump batteries, monitoring
7. Perform transfer of patient
   - Senior nurse or security person to walk 2m ahead of patient
   - If any spills occur, one member of team must remain with spill and alert SNP
8. Perform Actions on Arrival
9. Doff PPE (see Action Card 8a: PPE with FFP3)

Actions on Arrival
- The receiving team must be wearing PPE including FFP3 mask (see Action Card 8a: PPE with FFP3)
- If the patient has been transferred on a bed, leave them on this bed
- If the patient has been transferred on a trolley or chair, this must be decontaminated using Clinell wipes THEN 1% hypochlorite wipes prior to removal from ward
- Cleaning team must be wearing single-layer PPE

Useful Contacts
- SNP: 1165
Objective: Safe transfer of a patient with suspected COVID-19, minimising risk to the patient, staff, and the hospital environment.

1. Check with clinical team that transfer is essential
2. Call destination ward
   - Agree arrival time window with receiving team
   - Inform the receiving team how the patient will be moved (bed, trolley, chair)
3. Prepare two members of staff to accompany patient
   - Staff require PPE including surgical mask
   - Place patient notes in a sealed plastic bag for collection by transfer team
4. Don PPE (see Action Card 8b: Suspected COVID-19 PPE)
5. Prepare for departure
   - Apply surgical mask to patient
   - Collect patient notes in a sealed bag
   - Check consumables e.g. oxygen supplies, pump batteries, monitoring
6. Perform transfer of patient
   - If any spills occur, one member of team must remain with spill and alert SNP
7. Perform Actions on Arrival
8. Doff PPE (see Action Card 8b: Suspected COVID-19 PPE)

Actions on Arrival
- The receiving team must be wearing PPE including surgical mask (see Action Card 8b: Suspected COVID-19 PPE)
- Bed, trolley or chair must be decontaminated using Clinell wipes THEN 1% hypochlorite wipes prior to removal from ward
- Cleaning team must be wearing single-layer PPE

Useful Contacts
- SNP: 1165
T4-3: Internal transfer of a patient with confirmed COVID-19 for a procedure

Objective: Safe transfer of a patient with confirmed COVID-19, minimising risk to the patient, staff, and the hospital environment.

1. Confirm with clinical team procedure is essential
2. Call destination to ensure they are ready to receive
   - Confirm COVID-19 status receiving team
   - Agree arrival time window with receiving team
   - Inform the receiving team how the patient will be moved (bed, trolley, chair)
3. Call SNP to co-ordinate assisting teams
4. Confirm assisting teams ready for transfer
5. Identify staff to accompany patient
   - Staff require PPE including FFP3 mask
6. Don PPE (see Action Card 8a: PPE with FFP3)
7. Prepare for departure
   - Apply surgical mask to patient
   - Check consumables e.g. oxygen supplies, pump batteries, monitoring
   - DO NOT take patient notes
8. Transfer patient
   - Senior nurse or security person to walk 2m ahead of patient
   - If any spills occur, one member of team must remain with spill and alert SNP
9. Perform Actions on Arrival
10. Doff PPE (see Action Card 8a: PPE with FFP3)
11. Perform Post-procedure actions when appropriate

General Principles
- If transferring for imaging, patient MUST be able to transfer in chair
  - If unable, contact radiology to request portable X-Ray (See T4-5: Portable Imaging for a patient with suspected or confirmed COVID-19)
- The patient MUST NOT be left in a waiting room with other patients
  - The patient should be transferred directly into the procedure room
  - The patient must return to the ward immediately on completion of the procedure
  - DO NOT take patient notes

Actions on Arrival
- The receiving team must be wearing PPE including FFP3 mask (see Action Card 8a: PPE with FFP3)

Post-procedure Actions
- Clean all surfaces in contact with the patient using Clinell wipes THEN 1% hypochlorite wipes prior to removal from ward
  - Cleaning team must be wearing single-layer PPE
  - If in theatres/endoscopy, call rapid response team for environmental clean

Useful Contacts
- SNP: 1165

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These actions are in line with the General Principles and Actions on Arrival, and are designed to minimise risk to the patient, staff, and the hospital environment.
Objective: Safe transfer of a patient with confirmed COVID-19, minimising risk to the patient, staff, and the hospital environment.

1. Check with clinical team that procedure is essential
2. Call destination to ensure they are ready to receive
   - Check COVID-19 status with receiving team
   - Agree arrival time window with receiving team
   - Inform the receiving team how the patient will be moved (bed, trolley, chair)
   - Check whether an aerosol generating procedure is planned
3. Prepare two members of staff to accompany patient
   - Staff require PPE including surgical mask
4. Don PPE (see Action Card 8b: Suspected COVID-19 PPE)
5. Prepare for departure
   - Apply surgical mask to patient
   - Check consumables e.g. oxygen supplies, pump batteries, monitoring
   - DO NOT take patient notes
6. Perform transfer of patient
   - Senior nurse or security person to walk 2m ahead of patient
   - If any spills occur, one member of team must remain with spill and alert SNP
   - DO NOT take patient notes
7. Perform Actions on Arrival
8. Doff PPE (see Action Card 8a: PPE with FFP3/Action Card 8b: Suspected COVID-19 PPE)
9. Perform Post-procedure actions when appropriate

General Principles
- If transferring for imaging, patient MUST be able to transfer in chair
  - If unable, contact radiology to request portable X-Ray (See T4-5: Portable Imaging for a patient with suspected COVID-19)
- The patient MUST NOT be left in a waiting room with other patients
  - The patient should be transferred directly into the procedure room
  - The patient must return to the ward immediately on completion of the procedure
  - DO NOT take patient notes

Actions on Arrival
If NO aerosol generating procedure planned
- The receiving team must be wearing PPE including surgical mask (see Action Card 8b: Suspected COVID-19 PPE)
If aerosol generating procedure IS planned
- The receiving team must be wearing PPE including FFP3 mask (see Action Card 8a: PPE with FFP3)

Post-procedure Actions
- Clean all surfaces in contact with the patient using Clinell wipes THEN 1% hypochlorite wipes prior to removal from ward
  - Cleaning team must be wearing single-layer PPE
  - If in theatres/endoscopy, call rapid response team for environmental clean

Useful Contacts
- SNP: 1165
Objective: Safe use of portable imaging for suspected or confirmed COVID-19 patient.

1. Check with clinical team that imaging is essential
2. Check that patient is unable to be transferred to X-Ray in chair
3. Call radiographer on-call
   - Notify of COVID-19 status
   - Agree time window to perform the imaging
4. Prepare an assistant and a receiver (see X-Ray roles)
5. Don X-Ray gown
6. Don PPE over X-Ray gown (see Action Card 8a: PPE with FFP3 or Action Card 8b: Suspected COVID-19 PPE)
7. Perform X-Ray using an AMX machine (see X-Ray roles)
   - No cassette covers are required
8. Perform Post-procedure actions
9. Assistant to pass decontaminated cassette to receiver
10. Radiographer to doff PPE (see Action Card 8a: PPE with FFP3/Action Card 8b: Suspected COVID-19 PPE)
11. Assistant to doff PPE (see Action Card 8a: PPE with FFP3/Action Card 8b: Suspected COVID-19 PPE)

General Principles

If COVID-19 suspected
- The radiographer and assistant must be wearing PPE including surgical mask (see Action Card 8b: Suspected COVID-19 PPE)
- The receiver requires only clean gloves

If COVID-19 confirmed
- The radiographer and assistant must be wearing PPE including FFP3 mask (see Action Card 8a: PPE with FFP3)
- The receiver requires only clean gloves

X-Ray Roles

Assistant:
- bring a cassette and lead screen into the patient’s room
- hold the door open for the radiographer
- position the cassette
- decontamination of cassette

Radiographer:
- bring AMX machine into the patient’s room
- position the X-Ray tube
- confirm cassette position is appropriate

Receiver:
- collect decontaminated cassette from assistant post-procedure

Post-procedure Actions

- Clean surfaces of AMX machine using Clinell wipes THEN 1% hypochlorite wipes prior to removal from room
- Decontaminate the cassette:
  - wipe using Clinell wipes THEN 1% hypochlorite wipes prior to removal from room
Objective: Safe transfer of a non-ICU patient with confirmed COVID-19, minimising risk to the patient, staff, and the hospital environment. This process is activated after discussion between the patient’s clinical team and the HCID consultant.

General Principles

- The transferring ambulance will wait in the Guy’s car park, while the crew will attend the ward then don PPE

Transmission team roles

SNP:
- Call BEARS and arrange an ambulance crewed by PPE-trained team
- Provide spills kit to ward staff
- Follow transfer at distance of at least two metres
- Carry waste bags, alcohol gel
- Safe disposal of waste bags post-transfer

Paramedics:
- Load patient into ambulance
- Perform transfer to STH

Ward staff 1:
- Carry spills kit during transfer
- Observe patient

Ward staff 2:
- Walk two metres ahead of patient
- Guide team along agreed route
- Open doors

Actions on Departure

- Guy’s SNP to call STH SNP and confirm departure
- Place waste bags in safe position for doffing process
- Ward staff to confirm decontamination of patient room (see Action Card 9: Environmental cleaning)
### Objective: Drager Primus anaesthetic machines require a daily check to ensure it functions correctly. The patient must be switched to a new ventilator. This process requires two people in FFP3 PPE, as it is potentially aerosol generating.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>❶</td>
<td>Ensure all staff in your room are wearing FFP3 PPE (see T2-1: Donning PPE for a COVID-19 patient in theatre)</td>
</tr>
<tr>
<td>❷</td>
<td>Check the patient is stable enough for you to proceed and a doctor is available</td>
</tr>
<tr>
<td>❷</td>
<td>Prepare a buddy to assist you</td>
</tr>
<tr>
<td></td>
<td>- Check you both have a copy of this card</td>
</tr>
<tr>
<td></td>
<td>- Allocate roles for the procedure (see Roles for Switching Machines)</td>
</tr>
<tr>
<td></td>
<td>- Read through the steps on the card together before you begin</td>
</tr>
<tr>
<td>❸</td>
<td>Prepare the new Drager Primus anaesthetic machine on the side of the bed opposite the ventilator</td>
</tr>
<tr>
<td></td>
<td>- Check self-tests have been successfully completed</td>
</tr>
<tr>
<td></td>
<td>- Check the new breathing circuit, including the HME filters at both patient and machine end</td>
</tr>
<tr>
<td></td>
<td>- Connect a test-lung to the new breathing circuit</td>
</tr>
<tr>
<td>❹</td>
<td>Prepare the settings on the new machine</td>
</tr>
<tr>
<td></td>
<td>- The 'old machine' person confirms the ventilation mode; 'new machine' person selects on their machine and turns it on</td>
</tr>
<tr>
<td></td>
<td>- The 'old machine' person confirms each setting, starting from the left with O₂</td>
</tr>
<tr>
<td></td>
<td>- The 'new machine' person sets their machine and performs a read-back after every value</td>
</tr>
<tr>
<td>❼</td>
<td>Check the test-lung is ventilating then disconnect it</td>
</tr>
<tr>
<td>❽</td>
<td>Perform the following steps in order to switch machines:</td>
</tr>
<tr>
<td></td>
<td>- Switch the old ventilator to standby</td>
</tr>
<tr>
<td></td>
<td>- Occlude the tracheal tube with a clamp in inspiration if possible</td>
</tr>
<tr>
<td></td>
<td>- Disconnect the old expiratory limb at the machine end; the HME stays on the CIRCUIT</td>
</tr>
<tr>
<td></td>
<td>- Disconnect the tracheal tube and immediately connect the new machine circuit</td>
</tr>
<tr>
<td></td>
<td>- Unclamp the tracheal tube</td>
</tr>
<tr>
<td>❾</td>
<td>Check the patient is ventilating appropriately</td>
</tr>
<tr>
<td>❿</td>
<td>Perform Post-procedure actions</td>
</tr>
</tbody>
</table>

### Roles for Switching Machines

**Old machine role:**
- Collect a new CO₂ absorber canister
- Collect paper towels
- Collect Clinell wipes
- Collect a waste bag and ties
- Stand by the old ventilator to which the patient is already connected
- You will: operate the old machine and clean it after the switch

**New machine role:**
- Collect a tracheal tube clamp
- Collect a test-lung
- Stand by the new ventilator to which the patient will be connected
- You will: prepare and operate the new machine, clamp the tube, switch the circuits, and release the clamp

### Post-procedure actions

The old machine must be cleaned and checked before returning to service:
- Connect the expiratory limb of the old circuit to the Y-piece to form a loop
- Turn the old machine off (fully powered-down)
- Fully disconnect the old circuit from the machine then put it in the waste bag
- Perform the block-inspection:
  - Collect the block key
  - Open the block unit by pressing the grey button below the APL valve
  - Undo the three screws using the block key and open the lid
  - Remove the rubber container and empty any water into your waste bag
  - Dry the inside of the well using paper towels, then put them in your waste bag
  - Replace the rubber container
  - Close the lid and redo the three screws
  - Close the block unit
- Replace the CO₂ absorber canister and put the old one in your waste bag
- Check the sampling-line water trap and replace if needed
- Seal your waste bag
- Clean the old machine with Clinell wipes then clean your gloves with alcohol gel
- Prepare the machine for use (see T5-1: Setting up a Drager Anaesthetic Machine for a new patient)
- This machine can now be used as a ‘new’ machine