TAP
THEATRES ANAESTHESIA PERIOPERATIVE MEDICINE

COVID-19

St Thomas' Main Theatres

Quick Reference Handbook

Guy's and St Thomas' NHS Foundation Trust

Theatres, Anaesthetics and Perioperative Medicine

TAP Theatres QRH - Contents

TAP Theatres QRH - Contents

T1-1: Aerosol Generating Procedures

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

Action Card (v1-2)

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

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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Action Card (v1-0)

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: Doffing 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 travell 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
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Action Card (v1-0)
March 2020

Action Card (v1-0)

T1-5: Cath-lab procedures for a confirmed COVID-19 patient

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**
2. ➲ 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
3. **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*)
4. **Don PPE (see *Action Card 8a: PPE with FFP3*)**
5. **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)*)
6. **Call EW6 ICU team if patient critically ill**
7. **Perform post-procedure actions:**
   ➲ Patient to remain in Cath-Lab until destination is available
   ➲ SNP 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*)
8. **Doff PPE (see *Action Card 8a: PPE with FFP3* or *Action Card 8b: PPE for suspected COVID-19*)**
9. **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

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Action Card (v1-0)

T1-6: Cath-lab procedures for a suspected COVID-19 patient

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**
2. ➲ 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*)
3. **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*
4. **Don PPE (see *Action Card 8a: PPE with FFP3* or *Action Card 8b: PPE for suspected COVID-19*)**
5. **Perform procedure**

   ➲ Other than PPE there are no modifications to usual practice during the procedure
6. **Take a throat swab for COVID-19 screening**
7. **Perform *Post-procedure Actions***
8. **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

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Action Card (v1-0)
March 2020

Action Card (v1-0)

T2-1: Donning PPE for a COVID-19 patient in theatre

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

IN CLEAN ROOM

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

Equipment:

- 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

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Action Card (v1-0)

T2-2: Doffing PPE for a COVID-19 patient in theatre

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 doffiing**
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

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Action Card (v1-0)
March 2020

Action Card (v1-1)

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

IN CLEAN ROOM

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)

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Action Card (v1-1)
March 2020

Action Card (v1-1)

T3-2: Intubation of a COVID-19 patient

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

1. **Receive patient on trolley**
   - ➲ Check HME filters at both ends of breathing circuit and Yankauer sucker available
   - ➲ Check patient positioning, monitoring, and room ergonomics are suitable for intubation
   - ➲ Check landmarks for front of neck airway and mark cricothyroid membrane
2. **Check IV access adequate and functional then connect IV fluids**
3. **Pre-oxygenate for at least 5 minutes with tight seal on mask**
   - ➲ Consider 5cmH_2O PEEP
4. **Apply cricoid pressure if appropriate, then give RSI drugs**
   - ➲ if hypoxia low pressure/low volume mask ventilation (two handed technique)
5. **Turn oxygen off before removing mask**
   - ➲ Perform *Plan A: Primary intubation*
6. **If intubation successful:**
   - ➲ Perform *post-intubation actions*
7. **If laryngoscopy difficult:**
   - ➲ Insert iGel and ventilate
   - ➲ Perform *Plan B: Secondary Intubation*
   - ➲ If successful perform *post-intubation actions*
8. **If cannot ventilate via iGel:**
   - ➲ Perform *Plan C: Mask ventilation*
9. **If cannot mask ventilate:**
   - ➲ Perform *Plan D: Front of neck airway*
   - ➲ Perform *post-intubation actions*

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 5cmH_2O 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

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Action Card (v1-1)
March 2020

Action Card (v1-0)

T3-3: Extubation of a COVID-19 patient

Objective: Extubation of a suspected COVID-19 patient whilst minimising aersolisation 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**
   - ➲ Positon 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 Yankaeur 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_tO_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
- Yankaeur sucker
- Syringe to deflate tube cuff
- Intubation equipment for emergency use

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Action Card (v1-0)
March 2020

T3-4: Scrub preparation for surgery in a paediatric COVID-19 patient

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 Princinples*)
   - ➲ 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

Clearn 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

THIS DOCUMENT UNDERWENT FAST-TRACKED APPROVAL AT DIRECTORATE LEVEL FOR COVID-19 RESPONSE

Action Card (v1-1)

T3-5: MErIT Team Procedures

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

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 cmH_2O
  - PEEP ≥ 10 cmH_2O
  - Driving pressure (Pinsp - PEEP) ≤ 15cmH_2O
  - Tidal volume 6ml/kg ideal body weight
- Allow permissive hypercapnia

Target Values
- SpO_2 > 90%
- pH > 7.2

Ideal Body Weight Formula
- Male: 50 + (0.91 × [height in cm – 152.4])
- Female: 45.5 + (0.91 × [height in cm – 152.4])

If difficulty achieving target values early discussion with CRT consultant for escalation to SRF or ECMO teams

THIS DOCUMENT UNDERWENT FAST-TRACKED APPROVAL AT DIRECTORATE LEVEL FOR **COVID-19** RESPONSE

Action Card (v1-0)

T4-1: Internal ward-to-ward transfer of a patient with confirmed COVID-19

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. **Check assisting teams ready for transfer**
5. **Prepare staff to accompany patient**
   - ➲ Staff require PPE including FFP3 mask
   - ➲ Place patient notes in a sealed plastic bag for collection by transfer team
6. **Don PPE (see *Action Card 8a: PPE with FFP3*)**
7. **Prepare for departure**
   - ➲ Apply surgical mask to patient
   - ➲ Collect patient notes in a sealed bag
   - ➲ Check consumables e.g. oxygen supplies, pump batteries, monitoring
8. **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
9. **Perform *Actions on Arrival***
10. **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

THIS DOCUMENT UNDERWENT FAST-TRACKED APPROVAL AT DIRECTORATE LEVEL FOR COVID-19 RESPONSE

Action Card (v1-0)

T4-2: Internal ward-to-ward transfer of a patient with suspected COVID-19

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

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Action Card (v1-0)
March 2020

Action Card (v1-0)

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

THIS DOCUMENT UNDERWENT FAST-TRACKED APPROVAL AT DIRECTORATE LEVEL FOR **COVID-19** RESPONSE

Action Card (v1-0)
March 2020

Action Card (v1-0)

T4-4: Internal transfer of a patient with suspected 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. **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

THIS DOCUMENT UNDERWENT FAST-TRACKED APPROVAL AT DIRECTORATE LEVEL FOR **COVID-19** RESPONSE

Action Card (v1-0)
March 2020

Action Card (v1-0)

T4-5: Portable imaging for a suspected or confirmed COVID-19 patient

Objective: Safe use of portable imaging for suspected or confirmed .

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

THIS DOCUMENT UNDERWENT FAST-TRACKED APPROVAL AT DIRECTORATE LEVEL FOR **COVID-19** RESPONSE

Action Card (v1-0)
March 2020

Action Card (v1-0)

T4-6: Internal Guy's to St Thomas' transfer of a patient with confirmed COVID-19

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.

1. **Check receiving ward at STH with HCID consultant**
2. **Call Guy's SNP**
   - ➲ Notify of patient details
   - ➲ Notify of departing ward at Guy's
   - ➲ Check receiving ward at STH
   - ➲ Agree time window to perform the transfer
3. **Prepare team**
   - ➲ SNP, transferring paramedics, two ward staff
   - ➲ Prepare patient notes in a sealed plastic bag for collection by transfer team
   - ➲ Prepare equipment: PPE, spills kit, two waste bags, alcohol gel
4. **Brief all team members (see *transfer team roles*)**
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**
   - ➲ Position staff according to role (see *transfer team roles*)
   - ➲ If any spills occur, one member of team must remain with spill and alert SNP
8. **Perform *Actions on Departure***
9. **Doff PPE (see *Action Card 8a: PPE with FFP3*)**

General Principles

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

Transfer 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*)

Action Card (v1-1)

T5-2: Daily checks and maintenance for a Drager anaesthetic machine

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.

1. **Ensure all staff in your room are wearing FFP3 PPE (see *T2-1: Donning PPE for a COVID-19 patient in theatre)***
2. **Check the patient is stable enough for you to proceed and a doctor is available**
3. **Prepare a buddy to assist you**
   - ➲ Check you both have a copy of this card
   - ➲ Allocate roles for the procedure (see *Roles for Switching Machines*)
   - ➲ Read through the steps on the card together before you begin
4. **Prepare the new Drager Primus anaesthetic machine on the side of the bed opposite the ventilator**
   - ➲ Check self-tests have been successfully completed
   - ➲ Check the new breathing circuit, including the HME filters at both patient and machine end
   - ➲ Connect a test-lung to the new breathing circuit
5. **Prepare the settings on the new machine**
   - ➲ The 'old machine' person confirms the ventilation mode; 'new machine' person selects on their machine and turns it on
   - ➲ The 'old machine' person confirms each setting, starting from the left with O_2
   - ➲ The 'new machine' person sets their machine and performs a read-back after every value
6. **Check the test-lung is ventilating then disconnect it**
7. **Perform the following steps in order to switch machines:**
   - ➲ Switch the old ventilator to standby
   - ➲ Occlude the tracheal tube with a clamp in inspiration if possible
   - ➲ Disconnect the old expiratory limb at the machine end; the HME stays on the CIRCUIT
   - ➲ Disconnect the tracheal tube and immediately connect the new machine circuit
   - ➲ Unclamp the tracheal tube
8. **Check the patient is ventilating appropriately**
9. **Perform *Post-procedure actions***

Roles for Switching Machines

Old machine role:
- Collect a new CO_2 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 CO_2 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

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Action Card (v1-1)
March 2020