

# Cardiac cath labs

## Stabilisation after COVID-19

Escalation

**STABILISATION**

Recalibration

Get  
started ▶

# Cardiac catheter labs (CCL)

Stabilisation after COVID-19

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# Cardiac catheter labs (CCL)

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### DEFINITION

For the purposes of cardiac cath lab planning, the stabilisation phase can be defined as the gradual reintroduction of planned, time critical, elective work in addition to the ongoing urgent and emergency work which has continued throughout the escalation phase of the COVID response.

SEE PROPOSED  
WEEKLY WORK  
PATTERNS  
(ELECTIVE /  
NON ELECTIVE)

### AIMS / OBJECTIVES

- Establish, execute, and measure a safe workflow for the treatment of inpatients and elective outpatients attending from home
- Set a target of 20-30 per cent of pre-COVID daily activity by 30 June 2020

SEE KEY  
METRICS OF  
SUCCESS

## INTRODUCTION AND SCOPE

Guy's and St. Thomas' NHS Foundation Trust (GSTT) is gradually exiting the [Escalation Phase](#) of the COVID response and entering the [Stabilisation Phase](#) during which the gradual reintroduction of planned cardiac care is intended for cardiovascular clinics and the GSTT catheter laboratories.

The rate of reintroduction of services will be determined by the operational restrictions needed to protect patients and staff while providing the safest possible care.

# POLICY DESIGN PRINCIPLES

The overriding principles governing the Stabilisation Phase pathway design are:

## PRINCIPLES OF DESIGN

1

Protection of patients and staff is the key concern in defining the operational pathway. (PPE, [page 18](#))

2

Patients must spend the shortest possible time in hospital in order to receive their care.

3

Where possible prior to an intervention, COVID-status should be defined to try to distinguish between “COVID-unlikely” and “COVID-likely or confirmed”. (Cohorting, [page 9](#))

4

Where possible, separate physical pathways should exist according to likely COVID status. (Zoning, [page 11](#))

5

24/7 interventional cardiology and arrhythmia emergency care should be available.

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## Stabilisation after COVID-19

### Key criteria

## What does success look like?

#### Policy objectives

- Improve patient pathway through the catheter labs
- Reduce patient cross infection
- Protect staff

#### Monitoring methods

- Review Labyrinth data
- 7-day post procedure questionnaire
- Staff sickness records

#### Assurance

- Patient on table by 8:30 am
- 30 minutes between procedure end and patient on table
- Procedures end before 16:00
- Cancellations
- Emergency / urgent procedures
- Any COVID symptoms
- Procedural complications
- Swab status (if done)
- Each discipline to review staff sickness and document any sickness due to COVID

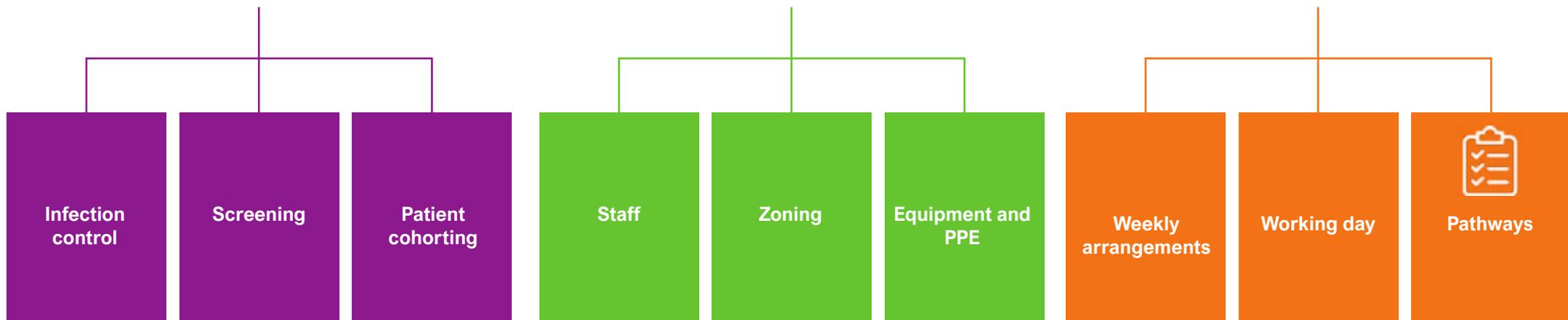
To assess the success of this policy there are several key matrix criteria that will be viewed. This matrix will be preliminary and will be reviewed weekly. There will be three groups reviewing the data. Each group will have a lead (*right*). Data will be provided to the group at the M&M meeting. Timetables will be arranged so that all staff groups can attend (doctors, management, nursing, physiology, portering, radiography, ward).

#### Review groups

**Scheduling** Mark O'Neill and Brian Clapp  
**Wards** Una Buckley  
**Catheter lab** Matt Wright

# Cardiac catheter labs (CCL)

## Stabilisation after COVID-19



# Cardiac catheter labs (CCL)

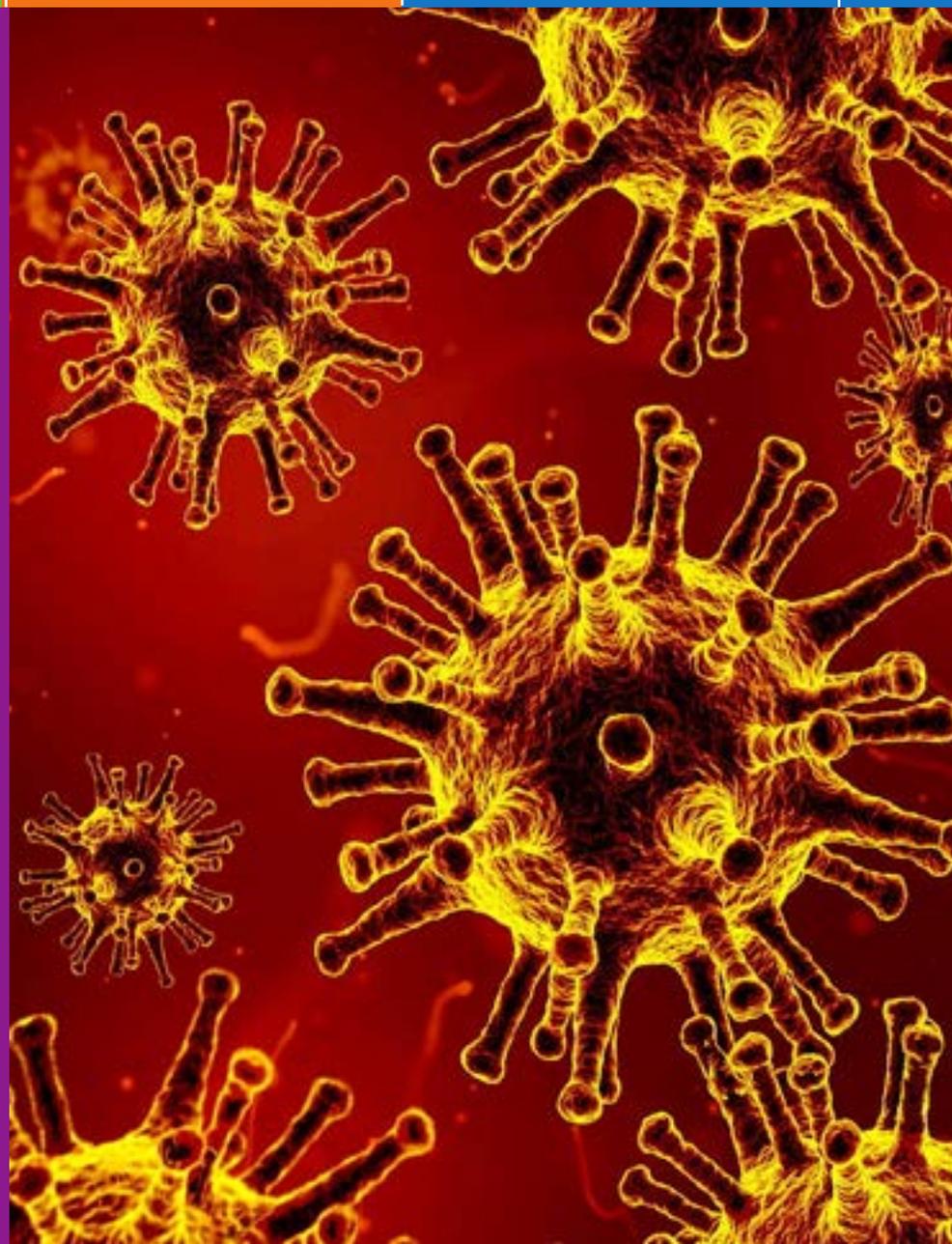
## Stabilisation after COVID-19



## INFECTION CONTROL SCREENING AND COHORTING

The infection control policy for GSTT is a key enabler for a return to planned elective activity as well as informing the appropriate pathway development for delivery of emergency and urgent work alongside that planned elective activity.

- Infection control advice is liable to be modified as more is learned about COVID and as the population and in-hospital prevalence of infection changes.
- Irrespective of how low the risk of COVID infection may be, there remains a risk of transmission and appropriate PPE must be worn regardless of swab results.
- With regard to patient screening for COVID, current PCR based tests are excellent for detecting active viral infection but have not been designed for use in asymptomatic patients, who if positive could be about to become symptomatic, have had COVID recently but not infectious, or be a false positive test.
- There is a requirement for pre-hospital screening. The current recommended pathway for planned elective admissions is:
  - 14 day isolation period for patient and household pre-admission
  - screening swab approximately 48 hours prior to admission
  - symptom check at hospital entry



# Cardiac catheter labs (CCL)

## Stabilisation after COVID-19



## SCREENING

### Recommendations for cath lab cases

Emergency setting	General anaesthesia	Planned care	Inter hospital treat and transfer
<p>In the emergency setting, it would be inappropriate to delay treatment while awaiting COVID swab results.</p> <p><b>All emergency cases are treated as potentially COVID positive and will follow the Amber pathway</b> (ie status unknown or suspected positive).</p>	<p>Planned elective care outpatients and current inpatients should have a COVID swab within 48 hours of a general anaesthetic procedure and <b>irrespective of swab result, should be treated on the Amber pathway</b> given aerosol-generating nature of endotracheal intubation, with appropriate FFP3 level PPE.</p> <p>As per the <a href="#">previous page</a>, planned elective care general anaesthesia patients should self-isolate for 14 days prior to intervention and have a swab performed 48 hours prior to admission with preassessment and appropriate blood work.</p>	<p><i>Elective outpatient day case and overnight stay</i></p> <p>Telephone screening by means of a nurse led questionnaire will be performed in all planned elective care patients and 14 days of self-isolation advised.</p> <p>If the patient remains free of symptoms up to 48 hours prior to the planned procedure, they will attend for COVID swabs and bloods 48 hours prior to admission.</p> <ul style="list-style-type: none"><li>o If swab negative, procedure takes place as planned on Day 0.</li><li>o If swab positive, procedure is deferred for at least 14 days, if clinically safe to do so.</li></ul>	<p>Local inpatient screening should take place in the referring hospital (clinical assessment, blood work [WCC, CRP] and COVID swab).</p> <p>The patient will not be accepted for transfer unless screening has been performed or unless the procedure is required as an emergency.</p> <p>If the patient is to be admitted to GSTT before a treat and transfer intervention, a swab result within the 48 hours prior to the procedure must be available</p> <p>If the patient is to be admitted to GSTT following a treat and transfer intervention, and discharge is intended more than 48 hours since the most recent COVID swab, a repeat swab should be sent before discharge.</p>

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## COHORTING patients

Patients will be cohorted into the following colour coded groups according to COVID status for the purposes of ensuring the correct patient pathway is followed between the labs and wards. Inpatients with a negative swab are to be kept physically separate from outpatients due to a higher risk due to being in hospital.

**RED**  
PATIENTS

Patients are confirmed COVID positive on a recent swab (within last 14 days) with no intervening negative swab.

Recovery location

**CATH LAB**

**AMBER**  
PATIENTS

COVID status is unknown or the patient is suspected to have COVID on clinical assessment. This includes patients who have not self-isolated for the last 14 days, do not have a negative swab result within 48-72 hours or are treat and transfer patients without COVID swab status within 48 hours. **All emergency cases are assumed to be AMBER and will be treated in Lab 3.**

**RECOVERY**

**GREEN**  
PATIENTS

**Inpatients without symptoms and COVID negative swab within 48-72 hours**

**CLDU**

**PURPLE**  
PATIENTS

**Outpatients who have completed isolation for 14 days and COVID negative swab within 48 hours.**

**EVAN JONES**

# Cardiac catheter labs (CCL)

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## SAFE SITE

EAST WING, 4TH FLOOR

COVID can be spread by physical contact between members of staff, patients and contaminated surfaces.

While cleanliness has always been a priority in cath lab function, an enhanced level of attention to risk of virus transmission has mandated changes in the physical environment and interaction between its users.

The principles governing the repurposing of the cath lab environment are in accordance with Trust Infection Control advice and the decision criteria, outlined in this document.

## Staff use of the environment

- 1 • Blue scrubs will be used throughout the cath labs and 4th floor.
- 2 • Only one person at a time in the male changing room and two at a time in the female changing room because of social distancing and space constraints.
- 3 • Operational labs can only be entered during working hours by staff directly involved in the patient pathway for that period. This includes cleaning staff.
- 4 • Ad hoc meetings will not be scheduled to take place in the lab control rooms.
- 5 • The team brief will take place in the lab each morning rather than the control room.
- 6 • Restocking takes place outside of working hours. Deliveries are no longer accepted in the lab.
- 7 • Patient handover in and out of the department will take place at the entrance / exit to the labs for green patients.
- 8 • For COVID negative inpatients, the handover and wound inspection will be carried out in CLDU.

## Supporting Information

# Cardiac catheter labs (CCL)

## Stabilisation after COVID-19



### ZONING According to COVID status

There are three distinct zones for patients coming to the lab to reflect COVID status.

- Red
- Amber
- Green



The area between CDLU and corridor junctions is considered to have a small risk of cross contamination. To reduce the risk of cross contamination, this section of the corridor should have minimal clutter and corridors be kept clear.

## ZONES

### RED

- All red cases will remain on the 4th floor until ready for discharge or return to their designated ward.
- Lab 3 is in the red zone. If more there are more than two red patients in the department at any time, lab 2 will be used as a holding area.
- The red area starts at the lab 3 double doors, and will be clearly marked by signs to recovery. Only practitioners responsible for patient care of red patients should enter the red areas. There are no bathroom facilities on the 4th floor for red or amber patients. These patients will use disposable cardboard facilities.
- All amber patients from Lab 3 are recovered in Recovery and will be kept diagonally apart to allow maximum physical separation.

### AMBER

- The amber zone has been nominated as lab 3, recovery. Labs 1 and 4 can be used for amber patients once all purple patients have been treated.
- There are 4 trolleys in the amber zone for patients and a donning/doffing station.
- The CLDU is to be use for the lowest infective risk inpatients (swab negative).

### GREEN

- The green zone recovery area is CLDU. These patients have access to the toilet in the green zone.
- There are 4 trolleys in the green zone for patients and a donning/doffing zone.

### PURPLE

- Lab 1 is to be used for purple intervention / structural procedures. Once all purple patients have been treated, first green then amber patients preferentially will be treated.
- Lab 4 is to be used for purple CRM; once all purple patients have been treated, first green then amber patients preferentially will be treated.
- All control rooms are green zones. Entrance / exit sites between zones are clearly labelled.
- During working hours, after all purple patients have been treated, amber patients can be treated in Labs 1 and 4.

# Cardiac catheter labs (CCL)

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## EQUIPMENT Essential multiuser equipment

In order to minimise the risk of nosocomial infection, there will be no exchange of equipment between zones of different colour except in the case of urgent clinical need. All multiuser equipment must be cleaner before and after each use by the individual user.

### CRASH TROLLEYS

Each area has a dedicated crash trolley which will be checked by the lab nurse. The defibrillator will be checked by the physiologist. If the crash trolley is used this should be wiped down with Clinell wipes according to the trust cleaning protocol for *Clostridium difficile* (also known as *C. difficile* or *C. diff*).

### COMPUTERS

Computers should be cleaned with Clinell wipes before and after use by the staff member using the equipment. It is the responsibility of all members of staff to minimise the infection risk of their immediate working environment.

### ECHO MACHINES

Each lab has a dedicated echo machine which will remain inside their designated labs. A hand-held echo machine is available in Recovery and CLDU for emergency use. The echo machines will never leave their designated environment and should be cleaned before and after use by the echo operator according to defined echo protocol (green Clinell wipes). Echo machines must not be removed from EW4 for the purposes of scanning ward-based patients. The ECG and standalone probes will not be used for point-of-care echo in the interests of infection control.

# Cardiac catheter labs (CCL)

## Stabilisation after COVID-19



PPE

### Protection in the cath labs

#### Scrubs

- Blue and purple scrubs will be worn within the cath lab suite on EW4.
- Within each cath lab, blue scrubs alone will be worn by all members of staff.
- Blue scrubs will not be worn outside EW4 unless specifically permitted by Trust infection control policy and determined by scrub supply during the Stabilisation Phase response.

#### Donning and doffing PPE

- Donning zones are outside each lab and are monitored by an HCA.
- Posters on the correct and appropriate use of PPE are above each station.
- Staff members will have identifying stickers for their role which should be worn: anaesthetist, consultant, doctor, nurse, physiologist, radiographer.
- Separate doffing zones are outside each lab and are monitored by an HCA.
- Action cards will be visible to guide safe donning and doffing of PPE.
- For reusable PPE (eg visors), staff will clean the equipment both before and after use.

#### Lead aprons

- At the start of the day each staff member will identify appropriate lead protection for themselves and use only that protection throughout the day.
- Once chosen, the lead will remain in the lab either being worn or on mobile racks. Leads will not be worn in the corridors or recovery areas.
- Leads will be cleaned with Clinell Wipes between each case inside the Lab on the racks and replaced on the corridor racks at the end of the working day.
- Lead protection for the Crash Call team are clearly labelled on racks outside lab 3. The HCA will be able to help the crash team with choosing appropriate leads.



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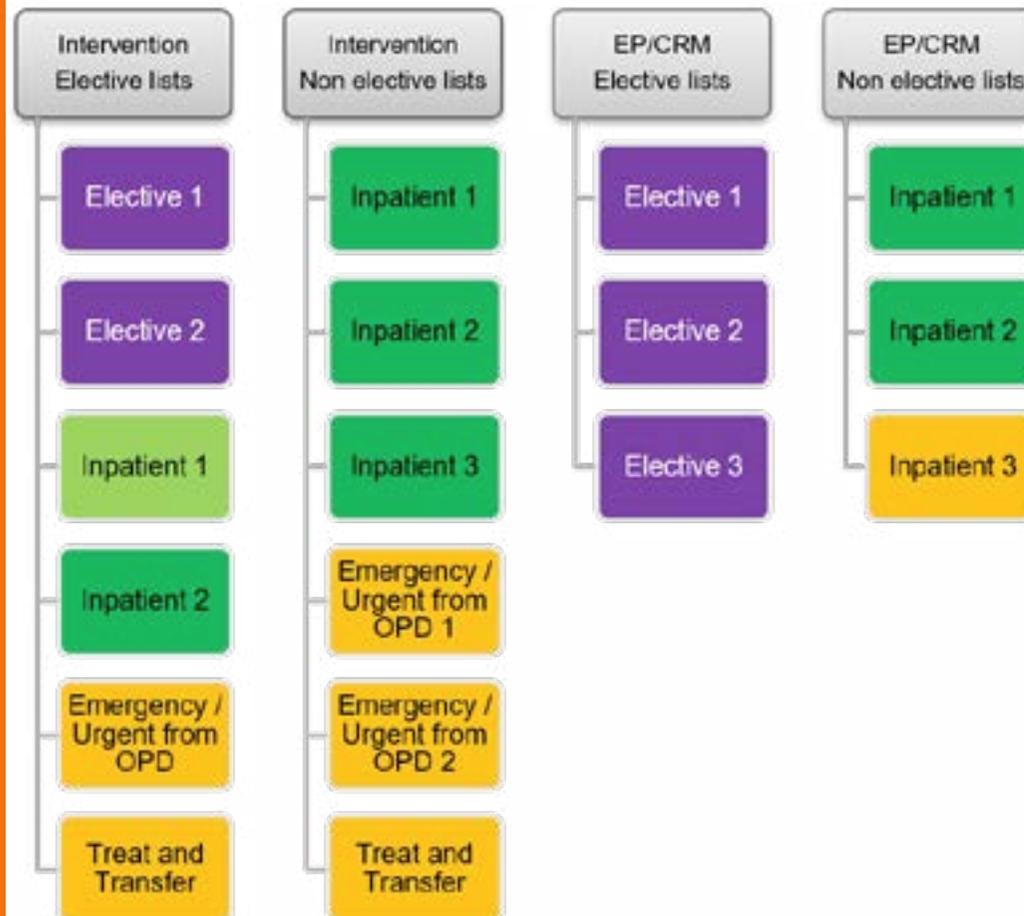
### WEEKLY OPTIMISING THE LABS

The proposed work pattern is designed to accommodate a gradual return to elective activity after a prolonged period of inactivity during the escalation phase of the COVID response. This pattern is likely to change with time and according to the lessons learned during the Stabilisation Phase. Data regarding catheter lab usage, and emergency work will be collected and reviewed to inform expansion or contraction of elective work according to Trust instruction, COVID pandemic status and clinical need.

- Planned care elective lists will take place on **Monday, Wednesday and Friday only**.
- Urgent and inpatient work will take place preferentially on Tuesday and Thursday.
- Emergency and ad hoc inpatient work will take place according to need and appropriate space availability.
- Swab-negative inpatients (green) are to be done after the planned elective care purple patients in Labs 1 and 4.
- When a Lab is out of commission, this will be discussed between the scheduling team and Cath lab team to decide the best course of action.

### Proposed weekly list composition

#### Elective and non elective



### Patient information

PATIENT  
ADMISSION  
LETTER

PATIENT PRE  
ASSESSMENT  
QUESTIONNAIRE

PATIENT HANDOUT:  
COVID SWABS

# Cardiac catheter labs (CCL)

## Stabilisation after COVID-19



### DAILY OPTIMISING THE WORKING DAY

- 08:00 Start team brief
- 08:30 Knife to skin
- 16:00 Last case to finish by 4pm  
This will allow for a 4 hour mandated recovery for sedation patients and facilitate same day discharge.
- A formal, minuted debrief will occur after the last case has left the lab to reflect and evaluate the day.
- A lesson of the day / week will be discussed to imbed new processes. These will be decided by the cath lab group.
- The entire team will attend, with representatives from Evan Jones and recovery.
- Each staff group will coordinate their own membership to achieve these goals
- Action cards are available for physiology, nursing, medical staff and radiographers.

### Team brief

- Attendance at a comprehensive 8:00 am team brief is mandatory to ensure the cath lab plan for the day is clear and understood.
- In addition to standard patient-specific information, the team brief will confirm the planned list, patient order, confirmation of patient pathway and recovery (red, amber, green, purple).
- Confirmation of staff understanding of their roles, expectations and needs
- Discussion of learning from the previous debrief
- Following the team brief, the cath lab coordinator will phone Evan Jones to take a verbal handover of the first two patients (CRM, intervention).
- The coordinator (nurse or physiologist) will ensure that the white board is up to date for the day's work.

**DOWNLOAD**

**Team brief SOP / template**

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## PATHWAYS Operational workflows

New working patterns mean refreshed operational workflows:

### Elective outpatient pathway

[SOP](#)

[Staff roles](#)

### Inpatient pathway

[SOP](#)

[Staff roles](#)

### Treat and transfer

[SOP](#)

## STAFFING REQUIREMENTS

### During normal working hours (per lab)

	Lab	Recovery		Control room
Nursing	2	1	1	1
Radiography	1			
Physiology	1			1
Medical	2			

### During on call working hours

	Lab	Recovery	CLDU	Control room
Nursing	1	1	1	1
Radiography	1			
Physiology	1			
Medical	1			

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### POST PROCEDURE CHEST X-RAYS

- Daily lab schedule to be shared one day in advance with Radiology General radiology supt. (Valandis.Kostas@gstt.nhs.uk) highlighting patients who will need a post-procedure chest x-ray and approximate timing
- On day of procedure at noon - Coordinator to call Val if any delays or cancellations to devices list
- At the end of the case, Consultant or SpR to do EPR request stating Covid status
- If Red pathway patient, a third staff member will assist with transfer
- At nurse handover- 4 hour post procedure x-ray timings given to ward nurse/our porter/HCA assistant
- Ward nurse to send for porter at agreed time.
- Before leaving ward/ recover phone main X- ray on 85404
- Ward nurse /and or HCA to escort patient to X-ray 1st floor Lambeth wing via 1st floor.
- The patient will immediately be escorted into x-ray and CXR performed.
- All staff return patient to ward/recovery area
- X-ray checked by SPR/reg.
- Patient can go home when medically fit for discharge.
- Any cancellations of planned device implants that have been pre-alerted to Radiology (via email, the day prior to the procedure- Valandis.Kostas@gstt.nhs.uk, to be phoned through to 85484 (Val Kostas)

# Resource list

## Trust action cards

## Cath lab action cards

[Consultants](#)

[Echo machine cleaning](#)

[Labyrinth data entry](#)

[PAMI](#)

[PPE](#)

[GA / Intervention / PPM and EP](#)

[Post procedure chest X-ray](#)

[Radiographers](#)

[Radiography](#)

[SpRs](#)

[TOE with and without GA](#)

## Pictorial action cards

[Inpatient pathway](#)

[porter / registrars / recovery](#)

## Arrest

[Procedure and guidance / pictorial](#)

## Patient information

[Admission letter](#)

[Swab handouts](#)

[Pre assessment questionnaire](#)

## Pathways

Elective - [SOP](#) and [staff roles](#)

Inpatient - [SOP](#) and [staff roles](#)

Treat and transfer - [SOP](#)

## Templates

[Daily scheduling form](#)

[End of day review](#)

[Team brief](#)

