JRCPTB

Joint Royal Colleges of Physicians Training Board

Rough Guide to Implementation Cardiology 2022 Curriculum

Guidance for training programme directors, supervisors and trainees

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ROYAL COLLEGE of PHYSICIANS of EDINBURGH

ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF GLASGOW

Royal College of Physicians

Contents

Introduction

This guide for Cardiology is to help training programme directors (TPDs), supervisors, trainees and others with the practicalities of implementing the new curriculum. It is intended to supplement rather than replace the curriculum document itself. The curriculum, ARCP decision aid and this guide are available on the JRCPTB website.

The Rough Guide has been put together by members of the Cardiology SAC with additional help from many external stakeholders especially trainees. It is intended to be a 'living document' and we value feedback via curriculum@jrcptb.org.uk.

An application has been made to change the name of the specialty General Internal Medicine to Internal Medicine. Until the name change has been approved in law, the specialty will be referred to as General Internal Medicine and the curriculum as General Internal Medicine/Internal Medicine stage 2 in the group 1 curricula documents.

What is different about the 2022 Cardiology curriculum?

Background

There have been two major drives to the need for change. Firstly the move away from the 'tick-box' approach associated with the current competency-based curricula to the holistic assessment of high level learning outcomes. The new curriculum has a relatively small number of 'capabilities in practice' (CIPs) which are based on the concept of entrustable professional activities (EPAs). Secondly, the GMC has mandated that all postgraduate curricula must incorporate the essential generic capabilities required by all doctors as defined in the Generic Professional Capabilities (GPC) framework.

All JRCPTB specialties identified as group 1 will dual train in General Internal Medicine (GIM)/Internal Medicine (IM) and the IM learning outcomes have been embedded in the new Cardiology curriculum. This curriculum will train doctors that are specialists with generalist skills to manage the acute unselected take and care of acutely ill patients.

Specialty specific changes

1. Modular specialist areas have been rationalised into five coherent pathways aligned to service need. In the current curriculum advanced training included small interchangeable modules which were allocated points and trainees could combine to make up three-four units. Trainees will train in one themed for service area in years three to five alongside continued general cardiology and GIM/IM training. For academic trainees, appropriate timetabling will facilitate integration of this training with academic research and capability-based clinical assessment. Previously academic training was allocated points and trainees did not undertake advanced training to the same degree as other trainees so this change will ensure parity.

2. There is a new requirement for all trainees to contribute to pre-pregnancy counselling and pregnancy management as part of themed for service training. This was only required by doctors undertaking Adult Congenital Heart Disease (ACHD) advanced training in the current curriculum and is considered to be an outdated model. Feedback from the consultation was that need all specialists need the skills to manage pregnant patients.

3. The curriculum will no longer require all trainees to be competent in diagnostic angiography and this will only be required for those undertaking advanced coronary intervention training. All trainees competent to perform diagnostic angiography under direct supervision. This reflects service and patient needs.

4. In addition to the Echocardiography Curriculum Delivery Tool referenced in the current curriculum, further curriculum tools will be provided to help trainees to demonstrate competency in echocardiography, device interrogation and implantation. They have been listed in the evidence of progress section of the curriculum alongside methods of assessment.

Duration of training

Cardiology and GIM/IM higher specialty training will usually be completed in five years of full-time training. There will be options for those trainees who demonstrate exceptionally rapid development and acquisition of capabilities to complete training sooner than the indicative time. There may also be trainees who develop more slowly and will require an extension of training as indicated in the Reference Guide for Postgraduate Specialty Training in the UK (The Gold Guide).

The 2022 Cardiology curriculum

The purpose of the Cardiology curriculum is to produce doctors with the generic professional and specialty specific capabilities needed to manage adult patients presenting with the full range of acute and chronic cardiovascular symptoms and conditions. Doctors in training will learn in a variety of settings using a range of methods, including workplace-based experiential learning, formal postgraduate teaching and simulation-based education.

By the end of their final year of higher specialty training, the trainee will receive a dual CCT in Cardiology and General Internal Medicine.

Capabilities in Practice (CiPs)

The Cardiology capabilities in practice (CiPs) describe the professional tasks or work within the scope of cardiovascular medicine. Five core cardiology CiPs describe the essential tasks which must be entrusted to all cardiologists. There are additional cardiology CiPs in each of the five themed areas such that each trainee will be expected to demonstrate capability in

one specialist area of cardiology practice as required by service need at consultant appointment. These are in addition to the six generic CiPs and eight Internal Medicine clinical CiPs described within the IM curriculum. Service needs often require a complex balance of skills at consultant level especially in expanding areas of practice so some flexibility is explained within the five specialty areas of practice. Additionally it must be noted that appropriately appointed academic trainees could train in any of the specialist areas with individualised adjustment in their training.

The **generic CiPs** cover the universal requirements of all specialties as described in the GPC framework. The generic CiPs are common across all physicianly specialties. Assessment of the generic CiPs will be underpinned by the GPC descriptors. Satisfactory sign off will indicate that there are no concerns.

The **clinical CiPs** describe the capabilities required for Internal Medicine. The **specialty CiPs** describe the professional tasks or work within the scope of Cardiology. These include additional cardiology CiPs in five themed areas. Trainees will need to meet one of the **themed for service specialty CiPs**.

Each CiP has a set of descriptors associated with that activity or task. Descriptors are intended to help trainees and trainers recognise the minimum level of knowledge, skills and attitudes which should be demonstrated for an entrustment decision to be made.

By the completion of training and award of CCT, the doctor must demonstrate that they are capable of unsupervised practice (level 4) in all clinical and specialty CiPs.

Capabilities in practice (CiPs)

Generic CiPs

1. Able to successfully function within NHS organisational and management systems
2. Able to deal with ethical and legal issues related to clinical practice
3. Communicates effectively and is able to share decision making, while maintaining appropriate situational awareness, professional behaviour and professional judgement
4. Is focussed on patient safety and delivers effective quality improvement in patient care
5. Carrying out research and managing data appropriately
6. Acting as a clinical teacher and clinical supervisor to be assessed by DOPS

Internal Medicine Clinical CiPs

1. Managing an acute unselected take
2. Managing the acute care of patients within a medical specialty service
3. Providing continuity of care to medical inpatients, including management of comorbidities and cognitive impairment
4. Managing patients in an outpatient clinic, ambulatory or community setting, including management of long term conditions
5. Managing medical problems inpatients in other specialties and special cases
6. Managing a multi-disciplinary team including effective discharge planning

7. Delivering effective resuscitation and managing the acutely deteriorating patient
8. Managing end of life and applying palliative care skills

Specialty CiPs

1. Coronary disease and Intervention: Manage coronary artery disease and associated conditions
2. Imaging: Management of valvular heart disease, aortopathy and cardiac tumours
3. Electrophysiology and Devices: Management of cardiac arrhythmias and cardiac implantable electronic devices
4. Adult Congenital Heart Disease: Management of adult congenital heart disease and heart disease in pregnancy
5. Heart Failure: Managing disorders of the heart muscle, pericardium and pulmonary vasculature

Specialty CiPs (themed for service)

Trainees will undertake **one** of the following higher level outcomes themed to service needs.

1. Lead a Coronary Intervention service
2. Lead a Cardiac Imaging service
3. Lead an Arrhythmia Management service
4. Lead an Adult Congenital Heart Disease service
5. Lead a Heart Failure service

Evidence of capability

The curriculum describes the evidence that can be used by the educational supervisor to make a judgement of the trainee's capability (please see the CiPs tables and the assessment blueprint). The educational supervisor will make a holistic judgement based on the evidence provided, particularly the feedback from clinical supervisors and the multi-disciplinary team. The list of possible evidence shown for each CiP is not exhaustive and other evidence may be equally valid.

Presentations and Conditions

The curriculum provides guidance on the presentations and conditions which form the clinical context in which the capabilities are demonstrated. The presentation and conditions listed are either common or serious and trainees will be expected to know about these but they will not need to be signed off for individual items.

Practical Procedures

The curriculum and ARCP decision aid list the practical procedures required and the minimum level of competency. Once a trainee is competent to perform a procedure

unsupervised (as evidenced by summative DOPS) there is no requirement for further assessment. It is a matter of professional insight and probity that a trainee should maintain their competency by carrying out the procedure when the opportunity arises. If a trainee has not performed a particular procedure for some time and no longer feels confident or competent to carry it out, then they should seek further training with appropriate supervision. Trainers should have ongoing conversation with trainees about procedural competence and this should be documented.

Assessment: What is required from trainees and trainers?

Introduction

Decisions about a trainee's competence progression will be based on an assessment of how they are achieving their CiPs. For the generic CiPs it will be a straightforward statement as to whether they are operating at, above, or below level expected for the current year of training. For the IM clinical and specialty CiPs there will be a judgement made at what level of supervision they require (i.e. unsupervised or with direct or indirect supervision). For each of these CiP there is a level that is to be achieved at the end of each year in order for a standard outcome to be achieved at the Annual Review of Competence Progression (ARCP). The levels expected are given in the grid below and in the ARCP decision aid.

What the trainee needs to do

The requirements for an appropriate number of supervised learning events (SLEs) and workplace based assessments (WPBAs) are documented in the ARCP decision aid (see ARCP section below). SLEs and formative DOPS are not pass/fail summative assessments but should be seen by both trainer and trainee as learning opportunities for a trainee to have one to one teaching and receive helpful and supportive feedback from an experienced senior doctor. Trainees should therefore be seeking to have SLEs performed as often as practical. They also must continue to attend and document their teaching sessions and must continue to reflect (and record that reflection) on teaching sessions, clinical incidents and any other situations that would aid their professional development. They should record how many clinics they have attended and how many patients they have been involved with on the Acute Unselected Take in the summary of clinical activity form.

Each trainee must ensure that they have acquired multi-source feedback (MSF) on their performance each year and that this feedback has been discussed with their Educational Supervisor (ES) and prompted appropriate reflection. They also need to ensure that they have received a minimum of four reports from consultants who are familiar with their work and who will contribute to the Multiple Consultant Report (MCR). Each consultant contributing to the MCR will give an advisory statement about the level at which they assess the trainee to be functioning for each clinical CiP.

As the ARCP approaches, trainees need to arrange to see their ES to facilitate preparation of the ES report (ESR). They will have to self-assess the level at which they feel they are operating at for each CiP. In an analogous fashion to the MSF, this self- assessment allows

the ES to see if the trainee's views are in accord with those of the trainers and will give an idea of the trainee's level of insight.

Interaction between trainer and trainee

Regular interaction between trainees and their trainers is critical to the trainee's development and progress through the programme. Trainees will need to engage with their clinical and educational supervisors.

At the beginning of the academic year there should be a meeting with the ES to map out a training plan for the year. This should include;

- how to meet the training requirements of the programme, addressing each CiP separately
- a plan for taking the examination when appropriate
- a discussion about which resources are available to help with the programme
- develop a set of SMART Personal Development Plans (PDPs) for the training year
- a plan for using study leave
- use of the various assessment/development tools

The trainee should also meet with the clinical supervisor (CS), who may be the same person as the ES, to discuss the opportunities in the current placement including;

- develop a PDP including SMART objectives for the placement
- access to clinics and how to meet the learning objectives
- expectations for medical on-call
- expectations for inpatient experience
- expectations to gain experience in end-of-life care

Depending on local arrangements there should be regular meetings (we recommend approximately one hour most weeks) for personalised, professional development discussions which will include;

- writing and updating the PDP
- reviewing reflections and SLEs
- reviewing MCR and other feedback
- discussing leadership development
- discussing the trainee's development as a physician and career goals
- discussing things that went well or things that went not so well

Self-assessment

Trainees are required to undertake a self-assessment of their progress with the curriculum and in particular the CiPs. This is not a 'one-off' event but should be a continuous process from induction to the completion of the programme and is particularly important to have been updated ahead of the writing of the ES report and subsequent ARCP. Self-assessment for each of the CiPs should be recorded against the curriculum on the trainee's ePortfolio account.

The purpose of asking trainees to undertake this activity is:

- To guide trainees in completing what is required of them by the curriculum and helping to maintain focus of their own development. To initiate the process it is important that the induction meeting with a trainee's ES reviews how the trainee will use the opportunities of the coming academic year to best advantage in meeting the needs of the programme. It will allow them to reflect on how to tailor development to their own needs, over-and-above the strict requirements laid out in the curriculum
- To guide the ES and the ARCP panel as to how the trainee considers they have demonstrated the requirements of the curriculum as set out in the Decision Aid and where this evidence may be found in the trainee's portfolio. This will help the ARCP panel make a more informed judgement as to the trainee's progress and reduce the issuing of outcome 5s as a result of evidence not being available or found by the panel

What the Educational Supervisor (ES) needs to do

The educational supervisor and trainee should meet beforehand to plan what evidence will need to be obtained. This can be used by the ES to write an important and substantial ES report (ESR).

The ESR will be the central piece of evidence considered by the ARCP Panel when assessing whether the trainee has attained the required standard as set out in the Decision Aid. As such, both time and planning will need to be given to writing it; this process will need to start at the beginning of the training year.

Educational Supervisor Report (ESR)

The ESR should be written ahead of the ARCP and discussed between the supervisor and the trainee before the ARCP, with any aspects likely to result in a non-standard outcome at ARCP made clear. This conversation should be documented. The report documents the entrustment decisions made by the supervisor for all the CiPs set out in the curriculum. The decisions should be based on evidence gathered across the training year as planned at the Induction Meeting with the trainee and modified through subsequent, regular, professional development meetings. The evidence should be gathered from several sources as appropriate for the particular CiP.

In completing the ESR, assessments are made for each **generic CiP** using the following anchor statements:

Below expectations for this year of training; may not meet the requirements for critical progression point
Meeting expectations for this year of training; expected to progress to next stage of training
Above expectations for this year of training; expected to progress to next stage of training

Comments must be made, as a minimum, for any rating of below expectation. It is good practice to narrate all decisions. The narration should include;

- Source of the evidence and its context, outlining contradicting evidence if appropriate
- Examples (of statements)
- Direction for future development/improvement

For the **IM clinical** and **specialty CiPs**, the ES makes a judgement using the levels of entrustment in the table below.

Level 1: Entrusted to observe only – no provision of clinical care
Level 2: Entrusted to act with direct supervision: The trainee may provide clinical care, but the supervising physician is physically within the hospital or other site of patient care and is immediately available if required to provide direct bedside supervision
Level 3: Entrusted to act with indirect supervision: The trainee may provide clinical care when the supervising physician is not physically present within the hospital or other site of patient care, but is available by means of telephone and/or electronic media to provide advice, and can attend at the bedside if required to provide direct supervision
Level 4: Entrusted to act unsupervised

Only the ES makes entrustment decisions. Detailed comments must be given to support entrustment decisions that are below the level expected. As above, it is good practice to provide a narrative for all ratings given.

Important Points

- Plan the evidence strategy from the beginning of the training year
- Write the report in good time ahead of the ARCP
- Discuss the ESR with the trainee before the ARCP
- Give specific, examples and directive narration for each entrustment decision

Types of Evidence

Local Faculty Groups (LFG)

This type of group has been recommended in training previously but is not universally implemented. If available this should be a group of senior clinicians (medical and non-medical) who get together to discuss trainees' progress. The purpose is not only to make an assessment of an individual trainee but also to determine and plan on-going training. It is recommended again as an optimal way of providing information about trainees' progress.

The LFG set-up will depend on the circumstances of the organisation. In smaller units the LFG make include all the physicians; while in larger units there may be several LFGs, each in a different department. In all circumstances, as a minimum, an LFG must be able to

consider, direct and report on the performance of trainees in the acute medicine/on-call setting.

The LFG should meet regularly to consider the progress of each trainee and identify training needs, putting in place direction as to how these needs are to be met. This should be documented and communicated to trainee's Educational Supervisor and hence to the trainee. A mechanism for this to happen should be established.

Multi-Source Feedback (MSF)

The MSF provides feedback on the trainee that covers areas such as communication and team working. It closely aligns to the Generic CiPs. Feedback should be discussed with the trainee. If a repeat MSF is required it should be undertaken in the subsequent placement.

Multiple Consultant Report (MCR)

The MCR captures the views of consultant (and other senior staff) based on observation of a trainee's performance in practice. The MCR feedback gives valuable insight into how well the trainee is performing, highlighting areas of excellence and areas of support required.

The ***minimum*** number of MCRs considered necessary is four per training year

Consultant supervisors completing the MCR will use the global anchor statements [meets, below or above expectations] to give feedback on areas of clinical practice. If it is not possible for an individual to give a rating for one or more area they should record 'not observed'. Comments must be made, as a minimum, for any rating of below expectation. It is good practice to narrate all decisions. The narration should include:

- Source of the evidence and its context, outlining contradicting evidence if appropriate
- Examples (of statements)
- Direction for future development/improvement

Supervised Learning Events

Acute Care Assessment Tool (ACAT)

The ACAT is used to provide feedback on a trainee's performance when undertaking acute care, particularly the acute medical take. Its main focus is on multi- tasking, prioritisation and organisational skills. It should not be used to produce a "multiple Case Based Discussion". Each ACAT should cover the care of a minimum of five patients.

Case based Discussion (CbD)

This tool is designed to provide feedback on discussions around elements of the care of a particular patient. This can include elements of the particular case and the general management of the condition. It is a good vehicle to discuss management decisions.

Mini-Clinical Evaluation (mini-CEX)

This tool is designed to allow feedback on the directly observed management of a patient and can focus on the whole case or particular aspects.

Workplace-Based Assessments

Direct Observation of Procedural Skill (DOPS)

This tool is designed to give feedback and assessment for trainees on how they have undertaken a procedural skill. This may be in a simulated or real environment. Formative DOPS may be undertaken as many times as the trainee and supervisor feel is necessary. A trainee can be signed off as able to perform a procedure unsupervised using the summative DOPS.

Teaching Observation (TO)

The TO form is designed to provide structured, formative feedback to trainees on their competences at teaching. The TO form can be based on any instance of formalised teaching by the trainee which has been observed by the assessor. The process should be trainee-led (identifying appropriate teaching sessions and assessors).

Quality Improvement Project Assessment Tool (QIPAT)

The QIPAT is designed to assess a trainee's competence in completing a quality improvement project. The QIPAT can be based on a review of quality improvement documentation or on a presentation of the quality improvement project at a meeting. If possible, the trainee should be assessed on the quality improvement project by more than one assessor.

Guidance on how to assess QI skills and behaviours has been developed by the Academy of Medical Royal Colleges and is available via this link.

Curriculum Tools

- Emergency Echo curriculum tool
- Transthoracic Echo curriculum tool or BSE accreditation
- CT curriculum tool or level 1 accreditation
- Basic device interrogation curriculum tool
- Pacemaker implantation curriculum tool*
- Complex Device implantation curriculum tool*
- EP Ablation Curriculum tool*

*Advanced arrhythmia trainees only

Emergency Echo Curriculum Tool (may be substituted for Focused Echo in Emergency Life Support qualification)

The first stage of echo competency expected to be completed within the first few months of training. Assesses ability to perform a basic echo to assess left ventricular function, pericardial effusion and gross valvular and right heart abnormalities.

Echo Curriculum Tool (may be substituted for full British Society of Echocardiography accreditation)

Documents ability to safely perform and report echocardiograms across the full range of adult cardiac pathology. Required by the end of the second year of cardiology speciality training.

Basic Device Interrogation Curriculum Tool
Documents capability in safely interrogating and performing simple programming changes in implanted devices as assessed through skills lab and clinical experience

BSE eLearning module
The BSE eLearning module complements experiential learning early in training and completion by end of ST4 is expected. Designed to be formative rather than summative, trainees can resit this module as often as they wish during this year. A certificate of satisfactory completion should be uploaded on to ePortfolio. BSE accreditation in adult transthoracic echocardiography can be used in place of DOPS assessments. Details of the processes required for BSE accreditation are available at www.bsecho.org.

Examination

European Examination in Core Cardiology (EECC)
The SAC in conjunction with the British Cardiovascular Society, the European Cardiac Society and the UEMS-Cardiac Section developed the European Examination in Core Cardiology (EECC) which is the summative knowledge based assessment for Cardiology. The aim of this assessment is to assess a trainee's understanding of the necessary knowledge components of the core cardiovascular medicine curriculum to a level appropriate for a newly appointed consultant. A satisfactory performance in the examination is expected during core training, usually in ST5, and satisfactory performance is mandatory before attainment of the CCT. Trainees who fail to achieve the required standard in the examination in ST5 will not be prevented from proceeding to ST6 and ST7 provided their other elements of performance are judged adequate at the ARCP. Information about the EECC including guidance for candidates, is available on the BCS website www.bcs.com.

Reflection

Undertaking regular reflection is an important part of trainee development towards becoming a self-directed professional learner. Through reflection a trainee should develop SMART learning objectives related to the situation discussed. These should be subsequently incorporated into their PDP. Reflections are also useful to develop 'self-knowledge' to help trainees deal with challenging situations.

It is important to reflect on situations that went well in addition to those that went not so well. Trainees should be encouraged to reflect on their learning opportunities and not just clinical events

Suggested evidence for each CiP

The suggested evidence to inform entrustment decisions is listed for each CiP in the curriculum and ePortfolio. However, it is critical that trainers appreciate that trainees do not

need to present every piece of evidence listed and the list is not exhaustive and other evidence may be equally valid.

Induction Meeting with ES: Planning the training year

Writing the ESR essentially starts with the induction meeting with the trainee at which the training year should be planned. The induction meeting between the ES and the trainee is pivotal to the success of the training year. It is the beginning of the training relationship between the two and needs both preparation and time. The induction meeting should be recorded formally in the trainee's ePortfolio. The meeting should be pre-planned and undertaken in a private setting where both can concentrate on the planning of the training year. This is also a time for ES and trainee to start to get to know each other.

Ahead of the meeting review:

- Review Transfers of Information on the trainee
- Review previous ES, ARCP etc. reports if available
- Agree with the placement CSs how other support meetings will be arranged. Including;
    - Arrangements for LFGs or equivalent
    - Arrangements for professional development meetings

At the meeting the following need to be considered:

- Review the placements for the year
- Review the training year elements of the generic educational work schedule or its equivalent
- Construct the personalised educational work schedule for the year or its equivalent
- Construct the annual PDP and relevant training courses
- Discuss the trainee's career plans and help facilitate these
- Discuss the use of reflection and assess how the trainee uses reflection and dynamic PDPs
- Discuss the teaching programme
- Discuss procedural simulation
- Discuss procedural skill consolidation
- Discuss arrangements for LTFT training if appropriate
- Plan additional meetings including the professional development meetings and the interaction with the placement CSs
- Planning of SLEs and WPBA
- Arrangements for MSF
- Review the ARCP decision aid
- Arrangements for Interim Review of Competence Progression (IRCP)
- Arrangements for ARCP and the writing and discussion of the ESR
- Pastoral support
- Arrangements for reporting of concerns
- Plan study leave

At the end of the meeting the trainee should have a clear plan for providing the evidence needed by the ES to make the required entrustment decisions.

Important Points

- Prepare for the meeting
- Make sure that knowledge of the curriculum is up-to-date
- Set up a plan for the training year

Induction Meeting with Clinical Supervisor (CS)

The trainee should also have an induction meeting with their placement CS (who may also be their ES). The meeting should be pre-planned and undertaken in a private setting where both can concentrate on the planning of the placement. This is also a time for CS and trainee to start to get to know each other.

Ahead of the meeting review the following should be considered;

- Review Transfers of Information on the trainee
- Review previous ES, ARCP etc. reports if available
- Arrangements for LFGs or equivalent

The following areas will need to be discussed, some of which will reinforce areas already covered by the ES but in the setting of the particular placement:

- Review the training placement elements of the generic educational work schedule or its equivalent
- Construct the personalized educational work schedule for the placement or its equivalent
- Construct the set of placement-level SMART objectives in the PDP
- Discuss the use of reflection and assess how the trainee uses reflection and dynamic PDPs
- Discuss procedural skill consolidation
- Discuss arrangements for LTFT training if appropriate
- Plan additional meetings including professional development meetings and the interaction with the placement CSs (depending on whether the ES or CS will be undertaking these)
- Arrangements for MSF
- Review the ARCP decision aid
- Pastoral support
- Arrangements for reporting of concerns
- Plan study leave

Professional Development Meetings

Trainers and trainees need to meet regularly across the training year. The GMC recommend an hour per week is made available for this activity. While it is not expected or possible for it to be an hour every week, the time not used for these meetings can be used to participate in LFG and ARCPs etc.

These meetings are important and should cover the following areas. This list is not exhaustive. Meet away from the clinical area regularly to:

- Discuss cases
- Provide feedback
- Monitor progress of learning objectives
- Discuss reflections
- Provide careers advice
- Monitor and update the trainee's PDP
- Record meeting key discussion points and outcomes using the Educational Meeting form on the ePortfolio
- Record progress against the CiPs by updating the comments in the CiP section of the portfolio (this will make writing the ESR at the end of the year much easier)
- Provide support around other issues that the trainee may be encountering

Transition arrangements for trainees already in programme

The GMC's policy statement on the transition of learners to a new curriculum sets out the requirements for doctors in training who are working towards a CCT to move to the most recent GMC approved curriculum and programme of assessment. The transition should be completed as soon as it is feasibly possible, taking account of patient and trainee safety whilst also balancing the needs of the service.

Trainees in cardiology who started training in that specialty alone prior to August 2021 will not be mandated to transfer from single to dual CCT training programmes but should be strongly encouraged to do so. Trainees appointed to dual Cardiology and GIM training in 2020 should not drop GIM; only those in more advanced training may be supported in moving to single accreditation and this must have the approval of the Postgraduate Dean. Please see the **joint statement by the JRCPTB and Cardiology SAC**.

Guidance for trainees transferring to the new curriculum:

- Transition should ideally be at the point at which a trainee progresses into the next training grade/level. Transfer will be to the 2022 curricula for Cardiology and GIM/IM stage 2.
- Educational supervisors should agree individual transition plans with their trainees, with training programme directors providing guidance for this. The educational supervisor and trainee should review the new curriculum learning outcomes - 'capabilities in practice' - and identify any gaps that need to be addressed. This 'gap analysis' will help deaneries to tailor the training programme to ensure the trainee encounters

relevant learning experiences. Any additional training time and change to the CCT date should be agreed by the first ARCP.

- A gap analysis form should be completed on the ePortfolio to facilitate and record the curriculum transfer and gap analysis discussion.
- Trainees will not be required to re-link or transfer evidence from the previous curriculum and should start using the new curriculum in their ePortfolio account.

Annual Review of Competence Progression (ARCP)

Introduction

The ARCP is a procedure for assessing competence annually in all medical trainees across the UK. It is owned by the four Statutory Education Bodies (Health Education England, NHS Education for Scotland, Health Education and Improvement Wales and Northern Ireland Medical & Dental Training Agency) and governed by the regulations in the Gold Guide. The JRCPTB can therefore not alter the way in which an ARCP is run but can provide guidance for trainees and trainers in preparing for it and guide panel members on interpretation of both curricular requirements and the decision aid when determining ARCP outcomes. Although receiving a non-standard ARCP outcome (i.e. anything but an outcome 1 or 6) should not be seen as failure, we know that many trainees are anxious about such an outcome and everything possible should be done to ensure that no trainee inappropriately receives a non-standard outcome.

The ARCP gives the final summative judgement about whether the trainee can progress into the subsequent year of training (or successfully complete training if in the final year). The panel will review the ePortfolio (especially the ES report) in conjunction with the decision aid for the appropriate year. The panel must assure itself that the ES has made the appropriate entrustment decisions for each CiP and that they are evidence based and defensible. The panel must also review the record of trainee experience to ensure that each trainee has completed (or is on track to complete over ensuing years) the various learning experiences mandated in the curriculum.

Cardiology training and the ARCP

The change from the tick-box style competencies to the high-level Capabilities in Practice (CiPs) will have a major impact on how trainees are assessed and how they will progress through their ARCPs. It is vital we avoid an increase in trainees failing to achieve a standard ARCP outcome by helping trainees and trainers to prepare for the ARCPs and by stressing to ARCP panels the basis of their assessment. ARCP panel members must ask the question: "Overall, on reviewing the ePortfolio, including the Educational Supervisor report, the Multiple Consultant Reports, the Multi-Source Feedback and (if necessary) other information such as workplace based assessments, reflection etc, is there evidence to suggest that this trainee is safe and capable of progressing to the next stage of training?"

Relationship with Educational Supervisor (ES)

It is vital that the trainee and the ES develop a close working relationship and meet up as soon as possible after the start of training. At that meeting, the ES should discuss how the various curriculum requirements will be met and how evidence will be recorded to ensure that it can be demonstrated that the Capabilities in Practice have been achieved at the appropriate level. This meeting should also result in the production of a Personal Development Plan (PDP) consisting of a number of SMART objectives that the trainee should seek to achieve during that training year. The trainee should meet up with their ES on a number of other occasions during the training year so that the ES can be reassured that appropriate evidence is being accumulated to facilitate production of a valid ES report towards the end of the year and guide the trainee as to further evidence that might be required.

Clinical supervisor (CS)

The trainee should have a Clinical Supervisor for each attachment and once again the trainee should meet up with the CS at the start of the attachment. Similar discussions should be held with the CS as have been held with the ES and once again, a PDP with SMART objectives should be constructed for each attachment. At the end of the attachment, the CS should be well placed to complete a Multiple Consultant Report (MCR). The CS should also document the progress that the trainee has made towards completing all the objectives of the PDP.

The trainee should provide a MCR from each designated CS as they are best placed to provide such a report but in addition should approach other consultants with whom they have had a significant clinical interaction and ask them also to provide a MCR. Throughout the attachment the trainee should be having SLEs completed by both consultants and more senior trainees. The number of SLEs demanded by the decision aid should be regarded as an absolute minimum and additional ones should be sought because

- Although they are formative, not summative assessments, they do provide additional evidence to show that a trainee is acquiring clinical (and generic) capabilities
- They may give the trainee the opportunity to have additional one to one clinical teaching from a senior colleague
- They allow the excuse for trainees to receive targeted and constructive feedback from a senior colleague.

Completing reports

When completing reports, all consultants should do more than just tick a box and make some generic comment such as “good trainee”. It is important that they make meaningful comments about why they have assigned that particular level of performance/behaviour to that particular trainee. In doing this, the descriptors assigned to each CiP should be especially useful as an *aide-memoire*. They should specifically not be used as a tick list that requires a comment for each descriptor but should just allow the senior doctor completing the report to reflect on what comments would be helpful to the ES for completion of their report and to the ARCP panel in determining whether the trainee can progress to the next

year of training. Constructive comments are also of course valued by the trainee. It is very helpful if the trainee can have constructive comments if they are progressing along the "normal" trajectory and especially if they are exceeding expectations either globally or in certain areas. If a trainee is performing below expectations then it is absolutely mandatory that meaningful, insightful and precise comments are provided.

ARCP preparation

As the ARCP approaches, it is essential that the trainee reviews their ePortfolio and ensures that all requisite information is available in a logical and accessible format. In particular they should ensure that:

- All appropriate certificates have been uploaded to the personal library and are clearly signposted
- An appropriate amount of reflection has been documented
- As a bare minimum (see comments above), the requisite number of SLEs (as demanded by the annual decision aid) has been completed and recorded in the ePortfolio
- MSF has been completed and the results released by the ES. It is critical that appropriate discussion/reflection has occurred and been recorded in response to the MSF
- MCR has been completed by each CS and additional ones have been completed by any supervisor with whom the trainee has had significant clinical/educational interaction
- The trainee has self-rated themselves for each CiP on the curriculum page
- The SMART objectives documented in their PDP have either been achieved fully and the evidence for that achievement has been clearly documented. If any objectives of the PDP have not been fully achieved, then the reasons for that have been clearly documented and evidenced.
- An appointment has been made with their ES to discuss the annual ES report that will inform the ARCP panel

The ES should review the portfolio to ensure that all the above requirements have been met and record a final rating for each CiP on the curriculum page. The ES should meet up with the trainee to discuss the ESR so that there are no surprises.

The ARCP

At the ARCP, the panel should review the ePortfolio and in particular it should focus on the ESR report but also review the MCRs, the MSF, the PDPs and reflection. It should also reassure itself that all the mandatory courses and exams have been attended/passed. If members of the panel have any concerns that the trainee under review is not eligible for a standard outcome (outcome 1 or outcome 6) then they should examine more detail in the ePortfolio and review more of the SLEs and other subsidiary information.

Cardiology 2022 ARCP Decision Aid

This decision aid provides guidance on the requirement to be achieved for a satisfactory ARCP outcome at the end of each training year. The training requirements for GIM/IM stage 2 are set out in the GIM/IMS2 ARCP decision aid . The ARCP decision aids are available on the JRCPTB website https://www.jrcptb.org.uk/training-certification/arcp-decision-aids

Evidence / requirement	Notes	Year 1 (ST4)	Year 2 (ST5)	Year 3 (ST6)	Year 4 (ST7)	Year 5 (ST8)
Educational supervisor (ES) report	Indicative one per year to cover the training year since last ARCP (up to the date of the current ARCP)	Confirms meeting or exceeding expectations and no concerns	Confirms meeting or exceeding expectations and no concerns	Confirms meeting or exceeding expectations and no concerns	Confirms meeting or exceeding expectations and no concerns	Confirms will meet all requirements needed to complete training
Generic capabilities in practice (CiPs)	Mapped to Generic Professional Capabilities (GPC) framework and assessed using global ratings. Trainees should record self-rating to facilitate discussion with ES. ES report will record rating for each generic CiP	ES to confirm trainee meets expectations for level of training	ES to confirm trainee meets expectations for level of training	ES to confirm trainee meets expectations for level of training	ES to confirm trainee meets expectations for level of training	ES to confirm trainee meets expectations for completion of training
Specialty capabilities in practice (CiPs)	See grid below of levels expected for each year of training. Trainees must complete self-rating to	ES to confirm trainee is performing at or above the level	ES to confirm trainee is performing at or above the level	ES to confirm trainee is performing at or above the level	ES to confirm trainee is performing at or above the level	ES to confirm level 4 in all CiPs by end of training

Evidence / requirement	Notes	Year 1 (ST4)	Year 2 (ST5)	Year 3 (ST6)	Year 4 (ST7)	Year 5 (ST8)
	facilitate discussion with ES. ES report will confirm entrustment level for each CiP	expected for all CiPs	expected for all CiPs	expected for all CiPs	expected for all CiPs	
Multiple consultant report (MCR)	Each MCR is completed by a consultant who has supervised the trainee's clinical work. The ES should not complete an MCR for their own trainee	4-6	4-6	4-6	4-6	4-6
Multi-source feedback (MSF)	Indicative minimum of 12 raters including 3 consultants and a mixture of other staff (medical and non-medical). MSF report must be released by the ES and feedback discussed with the trainee before the ARCP. If significant concerns are raised then arrangements should be made for a repeat MSF	1	1	1	1	
Supervised learning events (SLEs):	Indicative minimum number to be carried out by consultants. Trainees	3 ACATs	3 ACATs	3 ACATs	2 ACATs	2 ACATs

Evidence / requirement	Notes	Year 1 (ST4)	Year 2 (ST5)	Year 3 (ST6)	Year 4 (ST7)	Year 5 (ST8)
Acute care assessment tool (ACAT)	are encouraged to undertake more and supervisors may require additional SLEs if concerns are identified. Each ACAT must include a minimum of 5 cases. ACATs should be used to demonstrate global assessment of trainee's performance on take or presenting new patients on ward rounds, encompassing both individual cases and overall performance (eg prioritisation, working with the team). It is not for comment on the management of individual cases	(Acute Medical or Cardiac take)	(Acute Medical or Cardiac take)	(Acute Medical or Cardiac take)	(Acute Medical or Cardiac take)	(Acute Medical or Cardiac take)
Supervised Learning Events (SLEs): Case-based discussion (CbD)	Indicative minimum number to be carried out by consultants. Trainees are encouraged to undertake more and supervisors may require	5CbD or mini-CEX	5 CbD or mini-CEX	5 CbD or mini-CEX	5 CbD or mini-CEX	5 CbD or mini-CEX

Evidence / requirement	Notes	Year 1 (ST4)	Year 2 (ST5)	Year 3 (ST6)	Year 4 (ST7)	Year 5 (ST8)
and/or mini-clinical evaluation exercise (mini-CEX)	additional SLEs if concerns are identified. SLEs should be undertaken throughout the training year by a range of assessors. Structured feedback should be given to aid the trainee's personal development and reflected on by the trainee					
Direct Observation of Procedural Skills (DOPS)	See table of procedures below	4-6	4-6	4-6	4-6	4-6
European Examination in Core Cardiology (EECC)						Passed
Advanced life support (ALS)		Valid	Valid	Valid	Valid	Valid
Radiation Protection Certificate					Valid	Valid
Core echocardiography	BSE accreditation or completion of		Completed			

Evidence / requirement	Notes	Year 1 (ST4)	Year 2 (ST5)	Year 3 (ST6)	Year 4 (ST7)	Year 5 (ST8)
	Transthoracic Echo curriculum tool					
Patient Survey (PS)				1		1
Quality improvement (QI) and audit	Project to be assessed with quality improvement project tool (QIPAT)			1 completed Audit or Quality Improvement Project		2nd completed Audit or Quality Improvement Project
Teaching skills	To be assessed with Teaching Observation (TO) tool	Evidence of participation in teaching with evaluation (TO)	Evidence of participation in teaching	Evidence of participation in teaching	Evidence of participation in teaching	Evidence of participation in teaching with evaluation (TO)

Practical procedural skills

Trainees must be able to outline the indications for the procedures listed in the table below and recognise the importance of valid consent, aseptic technique, safe use of analgesia and local anaesthesia, minimisation of patient discomfort, and requesting for help when appropriate. For all practical procedures the trainee must be able to appreciate and recognise complications and respond appropriately if they arise, including calling for help from colleagues in other specialties when necessary.

When a trainee has been signed off as being able to perform a procedure independently they are not required to have any further assessment (DOPS) of that procedure unless they or their educational supervisor think that this is required (in line with standard professional conduct).

Procedures to be maintained as competent to perform unsupervised throughout training:

- Central Venous line insertion
- Arterial Line insertion
- DCCV

Core Procedures – minimum level of competence expected at ARCP

Procedure	ST4	ST5	ST6	ST7	ST8
Emergency echo	Competent to perform unsupervised	Maintain	Maintain	Maintain	Maintain
Transthoracic echo	Able to perform under direct supervision	Competent to perform unsupervised	Maintain	Maintain	Maintain
Temporary pacing wire	Skills lab trained or supervised practice	Able to perform under direct supervision	Able to perform under direct supervision	Competent to perform unsupervised	Maintain

Procedure	ST4	ST5	ST6	ST7	ST8
Permanent Pacemaker	Skills lab trained or supervised practice	Able to perform under direct supervision	Able to perform under direct supervision*	Able to perform under direct supervision	Able to perform under direct supervision
Diagnostic Angiography	Skills lab trained or supervised practice	Able to perform under direct supervision	Able to perform under direct supervision**	Able to perform under direct supervision	Able to perform under direct supervision
Pericardiocentesis	Skills lab trained or supervised practice	Able to perform under direct supervision	Able to perform under direct supervision	Able to perform under direct supervision	Competent to perform unsupervised
Emergency device interrogation	Skills lab trained or supervised practice	Able to perform under direct supervision	Competent to perform unsupervised	Maintain	Maintain

Special Considerations for Advanced Training:

* Permanent pacemaker, competent to perform with limited supervision required to enter year 4 if in advanced arrhythmia training

** Diagnostic Angiography, competent to perform with limited supervision required to enter year 4 if in advanced coronary intervention training

Procedures – Advanced training

Theme for service	Procedure	ST6	ST7	ST8
Lead an Arrhythmia Management service	**Permanent Pacemaker**	Able to perform with limited supervision	Able to perform with limited supervision	Competent to perform unsupervised
Lead a Coronary Intervention service	**Diagnostic Angiography**	Able to perform with limited supervision	Able to perform with limited supervision	Competent to perform unsupervised

Outline grid of levels expected for Cardiology specialty capabilities in practice (CiPs)

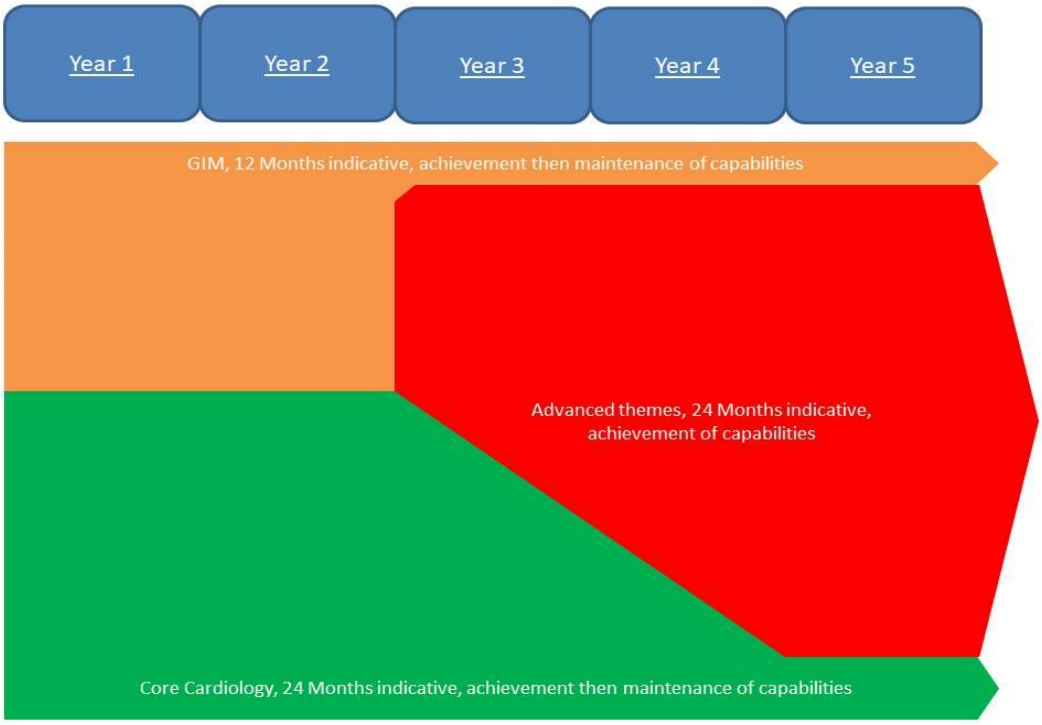
Levels to be achieved by the end of each training year for specialty CiPs

Level descriptors
Level 1: Entrusted to observe only – no clinical care
Level 2: Entrusted to act with direct supervision
Level 3: Entrusted to act with indirect supervision
Level 4: Entrusted to act unsupervised

Specialty CiP	ST4	ST5	ST6	ST7	ST8	CRITICAL PROGRESSION POINT
1. Coronary disease and Intervention: Manage coronary artery disease and associated conditions	**2**	**2**	**3**	**3**	**4**	
2. Imaging: Management of valvular heart disease, aortopathy and cardiac tumours	**2**	**2**	**3**	**3**	**4**	
3. Electrophysiology and Devices: Management of cardiac arrhythmias and cardiac implantable electronic devices	**2**	**2**	**3**	**3**	**4**	
4. Adult Congenital Heart Disease: Management of adult congenital heart disease and heart disease in pregnancy	**2**	**2**	**3**	**3**	**4**	
5. Heart Failure: Managing disorders of the heart muscle, pericardium and pulmonary vasculature	**2**	**2**	**3**	**3**	**4**	
• Advanced theme CiP	N/A	N/A	**2**	**2**	**4**	

Training programme

The cardiology curriculum will be delivered alongside GIM/IM stage 2 training over an indicative five years. During this period trainees will blend GIM/IM, core cardiology and advanced themes for service training. The core cardiology capabilities are organised in five themes with a concentration on the competencies required to deliver safe emergency care at the outset of training building up through elective and strategic skills. Trainees will be required to acquire capabilities in one of the five themes to an advanced level. Training in the advanced theme will commence in the third year of training and run alongside continued GIM/IM and core cardiology training until completion of training.



Example of an integrated GIM/IM training programme

ST4	ST5	ST6	ST7	ST8
12 months Cardiology	6 months Cardiology	12 months Cardiology	12 months Cardiology	9 months Cardiology
	6 months IM			3 months IM
				or
				11 months Cardiology
1 AUT / month		*1 AUT / month*	1 AUT / month	1 month full AIM immersion
or		*or*	or	
2 weeks AMU		*2 weeks AMU*	2 weeks AMU	

Advanced Themes

At the outset of training cardiologists will be appointed with the possibility of pursuing any of the five advanced themes. Advanced training will begin in the third year of Cardiology/IM stage 2 and trainees will need to demonstrate they have met the levels expected for completion of year 2 in all areas. In order to continue their chosen area trainees will need to demonstrate aptitude which may include requirements over and above those for satisfactory progression of trainees pursuing other advanced themes.

Coronary disease and intervention:

All CCT holders will be capable in managing acute and chronic presentations and manifestations of coronary artery disease and associated conditions. Specific competencies will be acquired in investigating potential ischaemic presentations, managing the acute episode, optimising medication and lifestyle for symptomatic and prognostic benefit and liaising with rehabilitation, primary and intermediate care. All trainees will have experience of invasive angiography and be skilled in the referral for, and management of, patients around the time of Percutaneous Coronary Intervention.

To enter advanced training in coronary intervention trainees will be competent to perform diagnostic angiography with limited supervision.

Advanced intervention trainees will develop capabilities in the performance of Percutaneous Coronary Intervention in elective, emergent and ST elevation Myocardial Infarction patients. Skills will be gained in radial and femoral access and adjunctive techniques, CCT holders will make balanced judgements on the relative benefits of medical therapy, percutaneous and surgical revascularisation. On completion of this advanced theme CCT holders will be skilled in the selection of patients for, and performance of, Percutaneous Coronary Intervention including participation in the primary Percutaneous Coronary Intervention rota.

Imaging:

All CCT holders will be capable in the assessment of structural heart disease through imaging techniques. Competencies will be required in the evaluation of presentations consistent with structural heart disease through clinical assessment and appropriate use and interpretation of imaging techniques. In patients with established diagnosis of structural heart disease and associated conditions all trainees will be required to plan follow up, and where appropriate, arrange onward referral communicating and sharing decision making with the patient. Trainees will appreciate the contribution of inherited conditions.

Competency in transthoracic echo will be required by all trainees with an expectation that emergency echo can be safely delivered by six months and full competence documented on entry to advanced training. All trainees will have

experience of CT coronary angiography and have contributed to reports under supervision by CCT. All trainees will have a working knowledge of the practicalities, indications, risks and limitations of nuclear imaging of the heart and cardiac MRI.

Advanced imaging trainees will develop the expertise to lead and teach in at least one modality and the ability to deliver service in a second. They will be able to advise on the relevant merits of other modalities they do not themselves offer to recommend onward referral.

Electrophysiology and Devices:

All CCT holders will have the knowledge and skills manage acute arrhythmia presentations as well as manage patients with ongoing arrhythmias or at arrhythmic risk in the in-patient, elective and outpatient settings. Trainees will be assessed on their ability to evaluate symptoms and risk then formulate and communicate treatment recommendations.

All CCT holders will be competent in selecting and interpreting appropriate ECG based investigations. Competence will be required in selecting patients for referral for cardiac implantable electronic devices as well as identifying and instigating treatment for common complications, all trainees will have experience of attending and contributing to arrhythmia multidisciplinary team meetings.

All trainees will have basic competency in implantable device interrogation and programming will acquire this skill before entering advanced training. All CCT holders will be competent in DC cardioversion, temporary wire insertion and have experience of permanent pacemaker implantation. They will have attended the electrophysiology/device lab to observe and discuss a range of commonly performed diagnostic, ablation and implant procedures.

Advanced electrophysiology and devices trainees will be able to lead an arrhythmia referral and device follow up service and have competency to implant permanent pacemakers. They will lead arrhythmia/device multidisciplinary team meetings and provide arrhythmia input to inherited cardiac condition multidisciplinary teams, CCT holders with arrhythmia specialisation will be able to lead and teach a service in at least one of electrophysiological ablation or complex device implantation with extensive experience of both.

Adult Congenital Heart Disease:

All CCT holders will have the specialist expertise to recognise the signs and symptoms of Adult Congenital Heart Disease, request appropriate investigations, instigate initial care for new and acute presentations and liaise with experts to plan ongoing care. They will develop knowledge and skills to counsel cardiac patients regarding risks of pregnancy and liaise with midwives, obstetricians and cardiology pregnancy specialists to plan and deliver care.

Advanced Adult Congenital Heart Disease trainees will be able to lead an Adult Congenital Heart Disease service in surgical or non-surgical centres with advanced knowledge and skills to coordinate the management of Adult Congenital Heart Disease. Trainees will be capable of interpreting results of investigations in Adult Congenital Heart Disease including multimodality imaging, cardiac catheter data and cardiopulmonary exercise testing. They will lead multidisciplinary meetings involving surgeons, cardiac anaesthetists, obstetricians, Inherited Cardiac Conditions/genetics and imaging specialists. CCT holders will understand the process of transition and transfer from paediatric to adult services.

Advanced Adult Congenital Heart Disease trainees will acquire the skills and knowledge to contribute at consultant level to a pregnancy cardiology service.

Adult Congenital Heart Disease specialised CCT holders will be required to diagnose and manage the long term sequelae of native, repaired and palliated Adult Congenital Heart Disease lesions.

Heart Failure:

All CCT holders will be competent to assess patients with presentations suggestive of heart failure, myocardial disease, pericardial disease and pulmonary hypertension. They will be able provide initial assessment and advice on patients with, or at risk of, cardiac complications of oncological disease and treatment. Trainees will develop the skills and knowledge to investigate and treat heart failure syndromes participating in multidisciplinary team meetings, requesting appropriate investigations. They will be skilled at creating treatment plan with patients integrating involvement of primary, intermediate and palliative care, cardiac rehabilitation and specialist services. They will liaise appropriately with other medical and cardiology sub-specialities and to plan and deliver care.

Advanced Heart Failure trainees will have particular skills to lead an integrated heart failure service involving primary care, community services, hospital-based care and delivery of, or referral to, tertiary and quaternary services. They will be capable in managing heart failure syndromes, myocardial disease, pericardial disease, pulmonary hypertension and cardio oncology. CCT holders in this advanced theme will have extensive knowledge of transplant and pulmonary hypertension tertiary and quaternary services. It is anticipated many heart failure specialists will have additional expertise in areas such as advanced ICC, device management, imaging modalities or quaternary services such as transplant or pulmonary hypertension. These will not be required to achieve CCT and are likely to require a period of post CCT training.

Training resources links

JRCPTB webpage for Cardiology
British Cardiovascular Society

Glossary of abbreviations

ACAT	Acute Care Assessment Tool
ALS	Advanced Life Support
ARCP	Annual Review of Competence Progression
CiP	Capabilities in Practice
CbD	Case-based Discussion
CCT	Certificate of Completion of Training
CS	Clinical Supervisor
DOPS	Direct Observation of Procedural Skills
EECC	European Examination in Core Cardiology
EPA	Entrustable Professional Activity
ES	Educational Supervisor
GPC	Generic Professional Capabilities
GMC	General Medical Council
JRCPTB	Joint Royal Colleges of Physicians Training Board
MCR	Multiple Consultant Report
Mini CEX	Mini Clinical Evaluation Exercise
MSF	Multi-Source Feedback
NTN	National Training Number
PDP	Professional Development Plan
PS	Patient Survey
SLE	Supervised Learning Event
WPBA	Workplace Based Assessment

JRCPTB

Joint Royal Colleges of Physicians Training Board

ROYAL COLLEGE *of* PHYSICIANS *of* EDINBURGH

ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF GLASGOW

Royal College of Physicians