

# **Congenital Cardiac Surgery Curriculum Purpose Statement**

## **Purpose statement**

### **Proposal for August 2019**

The purpose statement addresses the requirements of the General Medical Council's Excellence by Design: standards for postgraduate curricula<sup>1</sup> (theme 1) and the Shape of Training Review. It sets out patient and service needs, scope of practice and the level of performance expected of doctors in training.

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#### **1. Purpose statement for Congenital Cardiac Surgery**

##### **1.1 The curriculum scope of practice, service, patient and population needs**

The purpose of the curriculum for Congenital Cardiac Surgery is to produce, at certification, competent doctors, able to deliver excellent outcomes for patients as consultant congenital cardiac surgeons in the UK. The curriculum will provide consultant surgeons with the generic professional and specialty-specific knowledge needed to manage patients presenting with the full range of acute and elective congenital cardiac surgical conditions. The curriculum will cover the principles and exposure to the operative management of all congenital cardiac pathologies. Practical experience in the operative management of basic and intermediate conditions is included in the curriculum. It is recognised that for the complex congenital operations first surgeon experience will be gained as a consultant whilst being appropriately mentored. Senior trainees will be entrusted to undertake the role of the congenital cardiac surgery registrar during training and will be qualified at certification to apply for consultant posts in congenital cardiac surgery in the United Kingdom or Republic of Ireland.

Patient safety and competent practice are both essential and the curriculum has been designed so that the learning experience itself should not affect patient safety. Patient safety is the first

priority of training demonstrated through safety-critical content, expected levels of performance, critical progression points, required breadth of experience and levels of trainer supervision needed for safe and professional practice. Upon satisfactory completion of training programmes, we expect trainees to be able to work safely and competently in the defined area of practice and to be able to manage or mitigate relevant risks effectively. A feature of the curriculum is that it promotes and encourages excellence through the setting of high-level outcomes, supervision levels for excellence, and tailored assessment and feedback, allowing trainees to progress at their own rate.

## **1.2 Shape of training review**

The Shape of Training (SoT) review<sup>2</sup> provides an opportunity to reform postgraduate training to produce a workforce fit for the needs of patients, producing a doctor who is more patient focused, more general and has more flexibility in career structure. The congenital cardiac surgery curriculum meets the main recommendations of SoT as shown below.

1. *Takes account of and describes how the proposal will better support the needs of patients and service providers:*

Congenital cardiac surgery is a specialised area of cardiothoracic surgery separate to surgery for acquired cardiac or thoracic pathologies.

Following the Bristol enquiry and the Kennedy Report there was a clear recommendation for specialisation of children's heart surgery. The subsequent Paediatric & Congenital Cardiac Services Review (PCCS review) produced specific recommendations for the provision of congenital cardiac surgery which can only be met through specific training and regulation of the surgeons involved. It was stated that congenital cardiac surgeons need to be 'trained in paediatric (cardiac) surgery'.

In 2013 in recognition of the need to train and produce dedicated congenital cardiac surgeons the GMC approved sub-speciality recognition of congenital cardiac surgery.

Currently there are approximately 3000 open heart procedures on children per year in UK. These are undertaken in 11 designated specialised congenital cardiac surgical centres. Due to advances made in paediatric cardiac surgical and medical care over 80% of patients born with congenital heart disease (CHD) now survive to adulthood. It is predicted that by 2020 the majority of patients with CHD will be over 18 years of age. There is evidence that surgical outcomes for adults with CHD are better when they are operated on by paediatric trained heart surgeons than by non-specialised heart surgeons.

With the increase in the number of adults with CHD it is likely that patients with CHD will present with cardiovascular pathology separate to their congenital pathology such as ischaemic heart disease or thoracic pathology. There will also be times when patients with CHD present as an unplanned or emergency admission to a non CHD cardiothoracic centre requiring immediate intervention before transfer. A core knowledge of CHD is therefore fundamental for the cardiac or thoracic consultant dealing with acquired intrathoracic pathologies.

The curriculum in congenital cardiac surgery includes all aspects of neonatal, infant and paediatric cardiac surgery as well as surgery for adult congenital heart disease. The syllabus covers all emergency and elective conditions as well as transplantation, mechanical circulatory support and

hybrid technology. In addition, the syllabus covers an understanding of specific medical, physiological, technical and legal aspects of working with children.

The curriculum has been developed in consultation with stakeholders, including trainees, trainers, employers, lay representatives and other groups, ensuring the development of a curriculum that is fair, flexible, non-discriminatory, fit for purpose today with the capacity to evolve in future iterations in response to changing needs of patients.

2. *Ensures that the proposed curriculum to CCT equips doctors with the generic skills to participate in the acute unselected take and to provide continuity of care thereafter:*

The curriculum aims to produce congenital cardiac surgeons with both the generic knowledge and clinical skills to treat patients with CHD in both elective and emergency settings. Trainees pursuing a career in congenital cardiac surgery will spend a minimum of 2 years as a senior trainee in designated CHD centres specialising in the operative and non-operative management of paediatric and adult CHD patients, including the management of emergencies and the provision of mechanical circulatory support.

3. *Where appropriate describes how the proposal would better support the delivery of care in the community:*

CHD surgery is managed in specialised tertiary surgical centres. For CHD patients presenting with non CHD intrathoracic pathology they may be managed remotely but in discussion with the specialised tertiary surgical centre.

4. *Describes how the proposal will support a more flexible approach to training:*

Entry into the sub speciality training and curriculum will be at a senior level after the intercollegiate exam and following a competitive selection process in the latter part of phase 2. Trainees will already have followed the cardiac curriculum to this point. If for any reason they are unable to continue, trainees will be able to pursue the general cardiothoracic curriculum as some of the skills gained in the sub speciality curriculum would be transferrable.

The curriculum describes clinical Capabilities in Practice (CiPs) shared with other specialties in surgery supporting flexibility for trainees to move between the specialties in line with the recommendations set out in the GMC's report to the four UK governments<sup>3</sup>. The CiPs include the Generic Professional Capabilities (GPCs) common to all medical specialties, facilitating transferability of learning outcomes across other related specialties and disciplines. This flexible approach with acquisition of transferable capabilities will allow training in specialty to adapt to current and future patient and workforce needs as well as to changes in surgery with the advent of new treatments and technologies.

5. *Describes the role that credentialing will play in delivering the specialist and sub-specialist components of the curriculum: NA*

### **1.3 The high-level outcomes of specialty**

The curriculum is outcomes-based, specifying the high-level generic, shared and specialty-specific capabilities that must be demonstrated to complete training. There is a greater focus on the generic professional capabilities common to all doctors.

### *1.3.1 Capabilities in Practice*

The high-level outcomes of the curriculum are expressed as Capabilities in Practice (CiPs). The 9 shared plus 3 specialty-specific CiPs describe the professional tasks or work within the scope of specialty. These are:

- 1) Manages an out-patient clinic
- 2) Manages the unselected emergency take
- 3) Manages ward rounds and the ongoing care of inpatients
- 4) Manages an operating list
- 5) Manages a multi-disciplinary meeting
- 6) Leads, delivers and assesses patient safety and quality improvement
- 7) Performs as a supervising clinician
- 8) Contributes to and assesses clinical research
- 9) Works effectively in the Health Service

In addition to these, the sub specialty specific cardiac capabilities in practice in surgery are:

- 1) Able to manage patients within the intensive care and high dependency settings
- 2) Able to initiate and manage prolonged mechanical circulatory support (ECMO / ECLS)
- 3) Able to assess surgical outcomes at a personal and unit level, and is able to respond or adapt practice, where appropriate, without compromising patient care

By the completion of training and certification, the trainee must demonstrate that they are capable of unsupervised practice in all CiPs.

### *1.3.2 Generic Professional Capabilities*

Embedded within each CiP are the full range Generic Professional Capabilities (GPCs) which describe the professional responsibilities of all doctors in keeping with Good Medical Practice.

These attributes are common, minimum and generic standards expected of all medical practitioners achieving certification or its equivalent. The GPCs have equal weight in the training

and assessment of clinical capabilities and responsibilities in the training programme. The nine domains of the GPC framework are:

1. Professional knowledge
2. Professional skills
3. Professional values and behaviours
4. Health promotion and illness prevention
5. Leadership and team-working
6. Patient safety and quality improvement
7. Safeguarding vulnerable groups
8. Education and training
9. Research and scholarship

### 1.3.3 Supervision levels

The assessment of CiPs draws on the holistic judgement of Clinical Supervisors by ascribing the supervision level required by the trainee to undertake each CiP to the standard of certification. The level of supervision will change in line with the trainee's progression, consistent with safe and effective care for the patient. Typically, there should be a gradual reduction in the level of supervision required and an increase in the complexity of cases managed until the level of competence for independent practice is acquired. The supervision levels are:

<b>Level I</b>	Able to observe only
<b>Level II</b>	Able to act with direct supervision:  a) supervisor present throughout b) supervisor present for part
<b>Level III</b>	Able to act with indirect supervision
<b>Level IV</b>	Able to act unsupervised
<b>Level V</b>	Demonstrates performance to a level well beyond that expected of a day one consultant

Phase 1 of training will be completed when the appropriate level of competency (as defined in 1.4 below) has been achieved in each CiP, and a trainee will be eligible for certification when level IV has been achieved. Level V indicates excellence.

### 1.3.4 Descriptors

Each CiP contains key descriptors associated with the clinical activity or task and all the GPC descriptors. The descriptors are intended to help trainees and trainers recognise the level of

knowledge, skills and professional behaviours which must be demonstrated for independent practice. All descriptors will be taken in to account when carrying out assessment and they will be used by Clinical Supervisors to highlight where trainees achieve excellence at a faster rate and when targeted training is necessary in the manner of an exception report. They, therefore, provide the basis for specific, constructive feedback to the trainee. The CiPs will also provide trainees with a self-assessment, providing an opportunity to show insight and actively engage in the feedback discussion.

#### **1.4. Progression through training:**

CHD is a subspecialty of Cardiothoracic surgery and the phase 1 and initial part of phase 2 will follow the general cardiothoracic curriculum as outlined below.

Trainees will enter cardiothoracic specialty training via a national selection process at either ST3, or through the ST1 run-through programme. Trainees will learn in a variety of settings using a range of methods, including workplace-based experiential learning in a variety of environments, formal postgraduate teaching, simulation based education and through self-directed learning.

Specialty training is outcome-based rather than time-based. However, it will normally be completed in an indicative time of 7 years (3 years phase 1 and 4 years phase 2) for those entering run through training at ST1 or 6 years for uncoupled trainees entering at ST3 (2 years in phase 1 and 4 years in phase 2). Trainees pursuing a congenital subspecialty will be selected through a national selection process following success in the Intercollegiate Specialty Board Exam in Cardiothoracic Surgery, which most trainees will take after 2 years in Phase 2 of Cardiothoracic training. Successful applicants to CHD subspecialty training will undertake an indicative of 2 years training in CHD with a critical progression point at the end of CHD training, satisfaction of which would lead to ARCP6 and the ability to apply to be entered onto the specialist register as a Cardiothoracic Surgeon with a subspecialty of Congenital Cardiac Surgery.

There will be options for those trainees who demonstrate exceptionally rapid development and acquisition of capabilities to complete training more rapidly than the current indicative time of 7 years. There may also be a small number of trainees who develop more slowly and will require an extension of training in line the Reference Guide for Postgraduate Specialty Training in the UK (the Gold Guide<sup>4</sup>).

Trainees who choose less than full time training (LTFT) will have the indicative training time extended pro-rata in accordance with the Gold Guide. LTFT trainees will perform both elective and out of hours duties pro rata throughout the time of LTFT.

The programme will be divided into 2 phases -

- Phase 1 will take an indicative time of 3 years to complete for run through trainees and 2 years for uncoupled trainees during which trainees will gain many of the GPCs and the knowledge, clinical and technical skills in both cardiac and thoracic surgery, as defined in the CiPs and syllabus. At the end of Phase 1 there is a critical progression point for Phase 2 entry, assessed at the Annual Review of Competence Progression (ARCP),

where trainees will demonstrate competencies in knowledge, clinical skills and professional behaviours commensurate with the CiPs and defined syllabus.

- Phase 2: The initial 2 years of phase 2 will follow the general cardiothoracic curriculum. For the final 2 years of phase 2 trainees wishing to pursue the subspecialty in CHD will apply for a national 2 year training post in CHD surgery. This will follow successful completion of the Intercollegiate Specialty Board Exam in cardiothoracic surgery. The 2 year CHD posts will be in centres approved for CHD training by SAC and usually compromise 1 year in each of 2 collaborative training units (total indicative time in Phase 2 will be 4 years).

In this outcomes-based curriculum, some trainees may reach the end of Phase 2 in less than the indicative time. Trainees who have successfully completed the 2 year national training programme in CHD will be eligible for recommendation to enter the specialist register with sub speciality accreditation in congenital cardiac surgery. Trainees who do not meet the requirements of Phase 2 within four years may require an extension of training time in accordance with the Gold Guide.

#### 1.4.1 Critical Progression points

Indicative levels of supervision are indicated for the end of phase 1. The Capabilities in Practice levels detailed at completion of phase 2 are for sub speciality trainees in relation to CHD.

Excellence will be recognised by:

- achievement of Level V in any of the Capabilities in Practice
- exceeding the supervision level expected for the end of Phase 1
- achievement of a supervision level at an earlier stage than would normally be expected
- recognition of particularly good performance in any of the descriptors within a Capability in Practice

<b>Capability in practice (shared)</b>	<b>Supervision level (end of phase 1)</b>	<b>Supervision level (end of phase 2)</b>
1. Manages an out-patient clinic	Level II	Level IV
2. Manages the unselected emergency take	Level III	Level IV
3. Manages ward rounds and the ongoing care of inpatients	Level III	Level IV
4. Manages an operating list	Level II	Level III
5. Manages a multi-disciplinary meeting	Level II	Level IV
6. Leads, delivers and assesses patient safety and quality improvement	Level II	Level IV
7. Performs as a supervising clinician	Level I	Level III
8. Contributes to and assesses clinical research	Level III	Level IV
9. Able to work effectively in the Health Service	Level III	Level IV

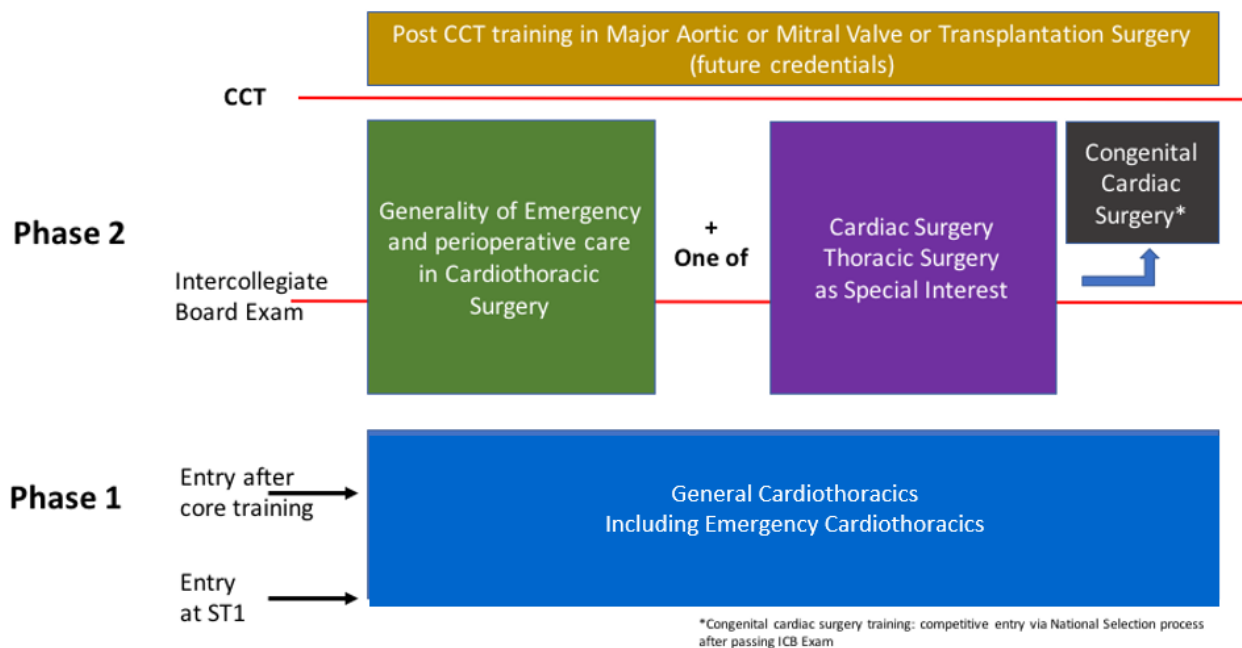
<b>Capability in practice (specialty-specific)</b>	<b>Supervision level (end of phase 1)</b>	<b>Supervision level (end of phase 2)</b>
Able to manage patients within the intensive care and high dependency settings in both cardiac and thoracic surgery	Level III	Level IV
Able to appropriately initiate and manage prolonged mechanical circulatory support (ECMO / ECLS) for respiratory and or cardiac indications in children and adults	Level II	Level IV
Able to assess surgical outcomes of both cardiac and thoracic surgery at a personal and unit level, and is able to respond or adapt practice, where appropriate, without compromising patient care	Level II	Level IV

#### *1.4.2 Training Pathway*

The training pathway for Cardiothoracic Surgery is shown in Figure 1

Figure 1: Training pathway for Cardiothoracic Surgery. \* Congenital Cardiac surgery can be entered via a national selection process after a successful pass in the Intercollegiate Board Exam in Cardiothoracic Surgery (with a special interest in Cardiac Surgery declared in the exam).





### 1.4.3 Proposed place of Credentialing in Training/Post-training

Credentialing is defined as a process which provides formal accreditation of competencies (which include knowledge, skills and performance) in a defined area of practice, at a level that provides confidence that the individual is fit to practise in that area (GMC).<sup>5</sup>

Credentialing will be particularly relevant for surgeons who work in niche areas of medical practice that are not covered by existing standards for training and in new and emerging areas of medical practice.

The SAC is enthusiastic about working with the GMC to introduce a process of credentialing to enhance medical regulation and patient protection by:

- providing a framework of standards and accreditation in areas where regulation is limited or absent
- providing patients and employers with information about doctors' particular capabilities and current areas of competence
- providing better recognition of doctors' capabilities to support:
  - improvements in workforce flexibility and professional mobility
  - the new architecture for postgraduate medical education
- providing recognition of the capabilities of cardiac and thoracic surgeons to assure the public, service providers and employers that they have met and are maintaining UK standards in their field
- developing detailed frameworks, standards, assessment processes and proposals for quality assurance

Areas within the specialty which could be considered suitable for credentialing:

Congenital Cardiac surgery:

- Surgery for single ventricle pathology
- surgery for complex transposition of the great arteries
- paediatric thoracic transplantation including use of ventricular assist devices

## References

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