



**FACULTY OF  
PAEDIATRICS**

ROYAL COLLEGE OF  
PHYSICIANS OF IRELAND

HIGHER SPECIALIST TRAINING IN

# PAEDIATRIC CARDIOLOGY



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## Introduction

Paediatric Cardiology is the specialty concerned with diseases of the heart in the growing and developing individual. Paediatric cardiologists investigate and treat patients with congenital or acquired heart disease, diseases of cardiac rhythm and conduction, and disturbances of cardiac and circulatory function. The specialty provides a service from foetal life through childhood into adulthood. There is close liaison with paediatrics and its sub-specialties, and with cardiothoracic surgery, adult cardiology, obstetrics, radiology and pathology.

The specialty is well-suited to those who like dealing with the presenting emergency problems in neonates and infants, while working in close contact with the families to achieve rapid improvement and/or cure in most of their patients and to see them through to adulthood. Many of the clinical scenarios faced by paediatric cardiologists require a high level biopsychosocial approach.

Paediatric cardiology is an academic as well as clinical specialty and the paediatric cardiologist has a major role in the education of students, doctors, primary health care specialists, nurses and paramedical personnel. There are great opportunities for developing clinical and technical skills as well as research.

## Aims

Upon satisfactory completion of specialist training in Paediatric Cardiology, the doctor will be **competent** to undertake comprehensive medical practice in that specialty in a **professional** manner, unsupervised and independently and/or within a team, in keeping with the needs of the healthcare system.

**Competencies**, at a level consistent with practice in the specialty of Paediatric Cardiology, will include the following:

- Patient care that is appropriate, effective and compassionate dealing with health problems and health promotion.
- Medical knowledge in the basic biomedical, behavioural and clinical sciences, medical ethics and medical jurisprudence and application of such knowledge in patient care.
- Interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professionals, the scientific community and the public.
- Appraisal and utilisation of new scientific knowledge to update and continuously improve clinical practice.
- The ability to function as a supervisor, trainer and teacher in relation to colleagues, medical students and other health professionals.
- Capability to be a scholar, contributing to development and research in the field of Paediatric Cardiology.
- Professionalism.
- Knowledge of public health and health policy issues: awareness and responsiveness in the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, the practice of cost-effective health care, health economics and resource allocations.
- Ability to understand health care and identify and carry out system-based improvement of care.

## Duration & Organisation of Training

The duration of HST in Paediatrics Cardiology is five years, (one year of General Paediatrics/Neonatology (six months each) and four years of Paediatric Cardiology). Up to a maximum of one year's credit **may** be awarded for a pre-approved period of out of clinical programme experience (OCPE). Trainees must spend the first three years of training in clinical posts in Ireland before undertaking any period out of clinical programme experience (OCPE) and credit cannot be allocated retrospectively. This period of time can only be accredited if it is in a clinical post or a clinical fellowship abroad, a clinical lecture post or a research post in Ireland or abroad. The research post can only receive credit if it includes a clinical component to maintain and further develop clinical skills. Training will take place mostly in Our Lady's Children's Hospital, Crumlin but trainees are expected to attend the neonatal ICU in maternity hospitals as well as specialty clinics and fetal clinics.

### In-Patient Responsibilities:

The trainee will be expected to have direct supervisory responsibilities for Paediatric Cardiology in-patients. This will require at least three personal ward rounds per week and supervising the activities of the more junior members of the clinical team at other times. An additional ward round with a consultant each week is also expected for educational experience.

### Out-Patient Responsibilities:

The trainee is expected to have personal responsibility for the assessment and review of Paediatric Cardiology out-patients with a minimum of at least one consultant led Paediatric Cardiology clinic per week. New patient referrals should be assessed by the trainee independently but access to consultant opinion/supervision as necessary during the clinic is an essential requirement. Ward follow-ups are an important part of Paediatric Cardiology training particularly for the purposes of on-going care commitment by the trainee.

## **Generic Components**

**This chapter covers the generic components which are relevant to HST trainees within the Faculty of Paediatrics but with varying degrees of relevance and appropriateness, depending on the specialty.**

**As such, this chapter needs to be viewed as an appropriate guide of the level of knowledge and skills required from all HST trainees with differing application levels in practice.**

## Good Professional Practice

**Objective:** Trainees must appreciate that medical professionalism is a core element of being a good doctor and that good medical practice is based on a relationship of trust between the profession and society, in which doctors are expected to meet the highest standards of professional practice and behaviour.

**Medical Council Domains of Good Professional Practice:** Relating to Patients, Communication and Interpersonal Skills, Professionalism, Patient Safety and Quality of Patient Care.

### KNOWLEDGE

#### Effective Communication

- How to listen to patients and colleagues
- The principles of open disclosure
- Knowledge and understanding of valid consent
- Teamwork
- Continuity of care

#### Ethics

- Respect for autonomy and shared decision making
- How to enable children and their family to make their own decisions about their health care
- How to place the patient at the centre of care
- How to protect and properly use sensitive and private patient information in accordance with data protection legislation and how to maintain confidentiality
- The judicious sharing of information with other healthcare professionals where necessary for care following Medical Council Guidelines
- Maintaining competence and assuring quality of medical practice
- How to work within ethical and legal guideline when providing clinical care, carrying research and dealing with end of life issues

#### Honesty, openness and transparency (mistakes and near misses)

- Preventing and managing near misses and adverse events.
- When and how to report a near miss or adverse event
- Incident reporting; root cause and system analysis
- Understanding and learning from errors
- Understanding and managing clinical risk
- Managing complaints
- Following open disclosure practices
- Knowledge of national policy and National Guidelines on Open Disclosure

#### Raising concerns about patient safety

- Safe working practice, role of procedures and protocols in optimal practice
- The importance of standardising practice through the use of checklists, and being vigilant
- Safe healthcare systems and provision of a safe working environment
- Awareness of the multiple factors involved in failures
- Knowledge and understanding of Reason's Swiss cheese model
- Understanding how and why systems break down and why errors are made
- Health care errors and system failures
- Human and economic costs in system failures
- The important of informing a person of authority of systems or service structures that may lead to unsafe practices which may put patients, yourself or other colleagues at risk
- Awareness of the Irish Medical Councils policy on raising concerns about safety in the environment in which you work



**SKILLS**

- Effective communication with patients, parents, guardians and colleagues
- Co-operation and collaboration with colleagues to achieve safe and effective quality patient care
- Being an effective team player
- Ethical and legal decision making skills
- Minimising errors during invasive procedures by developing and adhering to best-practice guidelines for safe surgery
- Minimising medication errors by practicing safe prescribing principles
- Ability to learn from errors and near misses to prevent future errors
- Managing errors and near-misses
- Using relevant information from complaints, incident reports, litigation and quality improvement reports in order to control risks
- Managing complaints
- Using the Open Disclosure Process Algorithm

**ASSESSMENT & LEARNING METHODS**

- Consultant feedback at annual assessment
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): prioritisation of patient safety in practice
- RCPI HST Leadership in Clinical Practice
- RCPI Ethics programmes
- Medical Council Guide to Professional Conduct and Ethics
- Reflective learning around ethical dilemmas encountered in clinical practice
- Quality improvement methodology course - recommended

## Infection Control

**Objective:** To be able to appropriately manage infections and risk factors for infection at an institutional level, including the prevention of cross-infections and hospital acquired infection

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care; Management (including Self-Management).

### KNOWLEDGE

#### Within a consultation

- The principles of infection control as defined by the HIQA
- How to minimise the risk of cross-infection during a patient encounter by adhering to best practice guidelines available, including the 5 Moments for Hand Hygiene guidelines
- The principles of preventing infection in high risk groups e.g. managing antibiotic use to prevent *Clostridium difficile*
- Knowledge and understanding of the local antibiotic prescribing policy
- Awareness of infections of concern, e.g. MRSA, *Clostridium difficile*
- Best practice in isolation precautions
- When and how to notify relevant authorities in the case of notifiable infectious disease
- Understanding the increased risk of infection to patients in surgery or during an invasive procedure and adhering to guidelines for minimising infection in such cases
- The guidelines for needle-stick injury prevention and management

#### During an outbreak

- Guidelines for minimising infection in the wider community in cases of communicable diseases and how to seek expert opinion or guidance from infection control specialists where necessary
- Hospital policy/seeking guidance from occupational health professional regarding the need to stay off work/restrict duties when experiencing infections the onward transmission of which might impact on the health of others

### SKILLS

- Practicing aseptic techniques and hand hygiene
- Following local and national guidelines for infection control and management
- Prescribing antibiotics according to antibiotic guidelines
- Encouraging staff, patients and relatives to observe infection control principles
- Communicating effectively with patients regarding treatment and measures recommended to prevent re-infection or spread
- Collaborating with infection control colleagues to manage more complex or uncommon types of infection including those requiring isolation e.g. transplant cases, immunocompromised host
- In the case of infectious diseases requiring disclosure:
  - Working knowledge of those infections requiring notification
  - Undertaking notification promptly
  - Collaborating with external agencies regarding reporting, investigating and management of notifiable diseases
  - Enlisting / requiring patients' involvement in solving their health problems, providing information and education
  - Utilising and valuing contributions of health education and disease prevention and infection control to health in a community

**ASSESSMENT & LEARNING METHODS**

- Consultant feedback at annual assessment
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): practicing aseptic techniques as appropriate to the case and setting, investigating and managing infection, prescribing antibiotics according to guidelines
- Completion of infection control induction in the workplace
- Personal Protective Equipment Training Course (In hospital)

## Self-Care and Maintaining Well-Being

### Objectives:

1. To ensure that trainees understand how their personal histories and current personal lives, as well as their values, attitudes, and biases affect their care of patients so that they can use their emotional responses in patient care to their patients' benefit
2. To ensure that trainees care for themselves physically and emotionally, and seek opportunities for enhancing their self-awareness and personal growth

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care, Relating to Patients, Communication and Interpersonal Skills, Collaboration and Teamwork, Management (including self-management).

### KNOWLEDGE

- Self-awareness including preferences and biases
- Personal psychological strengths and limitations
- Understand how personality characteristics, such as need for approval, judgemental tendencies, needs for perfection and control etc., affect relationships with patients and others
- Knowledge of core beliefs, ideals, and personal philosophies of life, and how these relate to own goals in medicine
- Know how family-of-origin, race, class, religion and gender issues have shaped own attitudes and abilities to discuss these issues with patients
- Understand the difference between feelings of sympathy and feelings of empathy
- Know the factors between a doctor and patient that enhance or interfere with abilities to experience and convey empathy
- Understanding of own attitudes toward uncertainty and risk taking and own need for reassurance
- How own relationships with certain patients can reflect attitudes toward paternalism, autonomy, benevolence, non-maleficence and justice
- Recognise own feelings in straightforward and complex patient-doctor interactions
- Recognising the symptoms of stress and burn out

### SKILLS

- Exhibiting empathy and showing consideration for all patients, their impairments and attitudes irrespective of cultural and other differences
- Ability to create boundaries with patients that allow for therapeutic alliance
- Challenge authority appropriately from a firm sense of own values and integrity and respond appropriately to situations that involve abuse, unethical behaviour and coercion
- Recognise own limits and seek appropriate support and consultation
- Work collaboratively and effectively with colleagues and other members of health care teams
- Manage effectively commitments to work and personal lives, taking the time to nurture important relationship and oneself
- Ability to recognise when falling behind and adjusting accordingly
- Demonstrating the ability to cope with changing circumstances, variable demand, being prepared to re-prioritise and ask for help
- Utilising a non-judgemental approach to patient's problem
- Recognise the warning signs of emotional ill-health in self and others and be able to ask for appropriate help
- Commitment to lifelong process of developing and fostering self-awareness, personal growth and well being
- Be open to receiving feedback from others as to how attitudes and behaviours are affecting their care of patients and their interactions with others
- Holding realistic expectations of own and of others' performance, time-conscious, punctual
- Valuing the breadth and depth of experience that can be accessed by associating with professional colleagues

**ASSESSMENT & LEARNING METHODS**

- On-going supervision
- RCPI Ethics programmes
- Wellness Matters Course (Mandatory)
- RCPI HST Leadership in Clinical Practice course

## Communication in Clinical and Professional Setting

**Objective:** To demonstrate the ability to communicate effectively and sensitively with patients, their relatives, carers and with professional colleagues in different situations.

**Medical Council Domains of Good Professional Practice:** Relating to Patients; Communication and Interpersonal Skills.

### KNOWLEDGE

#### Within a consultation

- How to effectively listen and attend to patients, parents and guardians
- How to structure an interview to obtain/convey information; identify concerns, expectations and priorities; promote understanding, reach conclusions and use age appropriate language.
- How to empower the patient, and/or parent, and encourage self-management

#### Difficult circumstances

- Understanding of potential areas for difficulty and awkward situations
- How to negotiate cultural, language barriers, dealing with sensory or psychological and/or intellectual impairments and how to deal with challenging or aggressive behaviour
- Knowing how and when to break bad news
- How to communicate essential information where difficulties exist, how to appropriately utilise the assistance of interpreters, chaperones, and relatives.
- How to deal with anger and frustration in self and others
- Selecting appropriate environment; seeking assistance, making and taking time

#### Dealing with professional colleagues and others

- How to communicate with doctors and other members of the healthcare team
- How to provide a concise, written, verbal, or electronic, problem-orientated statement of facts and opinions
- The legal context of status of records and reports, of data protection confidentiality
- Freedom of Information (FOI) issues
- Understanding of the importance of legible, accessible, records to continuity of care
- Knowing when urgent contact becomes necessary and the appropriate place for verbal, telephone, electronic, or written communication
- Recognition of roles and skills of other health professionals
- Awareness of own abilities/limitations and when to seek help or give assistance, advice to others; when to delegate responsibility and when to refer

#### Maintaining continuity of care

- Understanding the relevance of continuity of care to outcome, within and between phases of healthcare management
- The importance of completion of tasks and documentation, e.g. before handover to another team, department, specialty, including identifying outstanding issues and uncertainties
- Knowledge of the required attitudes, skills and behaviours which facilitate continuity of care including, being available and contactable, alerting others to avoid potential confusion or misunderstanding through communications failure

**Giving explanations**

- The importance of possessing the facts, and of recognising uncertainty and conflicting evidence on which decisions have to be based
- How to secure and retain attention avoiding distraction
- Understanding how children and their guardians receive information best, the relative value of the spoken, written, visual means of communication, use of reinforcement to assist retention
- Knowledge of the risks of information overload
- Tailoring the communication of information to the level of understanding of the recipient
- Strategies to achieve the level of understanding necessary to gain co-operation and partnership; compliance, informed choice, acceptance of opinion, advice, recommendation

**Responding to complaints**

- Value of hearing and dealing with complaints promptly; the appropriate level, the procedures (departmental and institutional); sources of advice, and assistance available
- The importance of obtaining and recording accurate and full information, seeking confirmation from multiple sources
- Knowledge of how to establish facts, identify issues and respond quickly and appropriately to a complaint received

**SKILLS**

- Ability to appropriately elicit facts, using a mix of open and closed-ended questions
- Using “active listening” techniques such as nodding and eye contact
- Giving information clearly, avoiding jargon, confirming understanding, ability to encourage co-operation, compliance; obtaining informed consent
- Showing consideration and respect for other’s culture, opinions, patient’s right to be informed and make choices
- Respecting another’s right to opinions and to accept or reject advice
- Valuing perspectives of others contributing to management decisions
- Conflict resolution
- Dealing with complaints
- Communicating decisions in a clear and thoughtful manner
- Presentation skills
- Maintaining (legible) records
- Being available, contactable, time-conscious
- Setting realistic objectives, identifying and prioritising outstanding problems
- Using language, literature (e.g. leaflets) diagrams, educational aids and resources appropriately
- Establish facts, identify issues and respond quickly and appropriately to a complaint received
- Accepting responsibility, involving others, and consulting appropriately
- Obtaining informed consent
- Discussing informed consent
- Giving and receiving feedback

**ASSESSMENT & LEARNING METHODS**

- Mastering Communication course (Year 1)
- Consultant feedback at annual assessment
  - Workplace based assessment e.g. Mini-CEX, DOPS, CBD
  - Educational supervisor’s reports on observed performance (in the workplace): communication with others e.g. at handover. ward rounds, multidisciplinary team members
- Presentations
- RCPI Ethics programmes
- RCPI HST Leadership in Clinical Practice Course

## Leadership

**Objective:** To have the knowledge, skills and attitudes to act in a leadership role and work with colleagues to plan, deliver and develop services for improved patient care and service delivery.

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care; Communication and Interpersonal Skill; Collaboration and Teamwork; Management (including Self-Management); Scholarship.

### KNOWLEDGE

#### Personal qualities of leaders

- Knowledge of what leadership is in the context of the healthcare system appropriate to training level
- The importance of good communication in teams and the role of human interactions on effectiveness and patient safety

#### Working with others

- Awareness of own personal style and other styles and their impact on team performance
- The importance of good communication in teams and the role of human interactions on effectiveness and patient safety

#### Managing services

- The structure and function of Irish health care system
- Awareness of the challenges of managing in healthcare
  - Role of governance
  - Clinical directors
- Knowledge of planning and design of services
- Knowledge and understanding of the financing of the health service
  - Knowledge of how to prepare a budget
  - Defining value
  - Managing resources
- Knowledge and understanding of the importance of human factors in service delivery
  - How to manage staff training, development and education
- Managing performance
  - How to perform staff appraisal and deal effectively with poor staff performance
  - How to rewards and incentivise staff for quality and efficiency

#### Setting direction

- The external and internal drivers setting the context for change
- Knowledge of systems and resource management that guide service development
- How to make decisions using evidence-based medicine and performance measures
- How to evaluate the impact of change on health outcomes through ongoing service evaluation



**SKILLS**

- Effective communication with patients, families and colleagues
- Co-operation and collaboration with others; patients, service users, carers colleagues within and across systems
- Being an effective team player
- Ability to manage resources and people
- Managing performance and performance indicators

**Demonstrating personal qualities**

- Efficiently and effectively managing one-self and one's time especially when faced with challenging situations
- Continues personal and professional development through scholarship and further training and education where appropriate
- Acting with integrity and honesty with all people at all times
- Developing networks to expand knowledge and sphere of influence
- Building and maintaining key relationships
- Adapting style to work with different people and different situations
- Contributing to the planning and design of services

**ASSESSMENT & LEARNING METHODS**

- Mastering Communication course (Year 1)
- RCPI HST Leadership in Clinical Practice (Year 3 – 5)
- Consultant feedback at annual assessment
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): on management and leadership skills
- Involvement in hospital committees where possible e.g. Division of Medicine, Drugs and Therapeutics, Infection Control etc.

## Quality Improvement

**Objective:** To demonstrate the ability to identify areas for improvement and implement basic quality improvement skills and knowledge to improve patient safety and quality in the healthcare system.

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care; Communication and Interpersonal Skills; Collaboration and Teamwork; Management; Relating to Patients; Professionalism

### KNOWLEDGE

#### Personal qualities of leaders

- The importance of prioritising the patient and patient safety in all clinical activities and interactions

#### Managing services

- Knowledge of systems design and the role of microsystems
- Understanding of human factors and culture on patient safety and quality

#### Improving services

- How to ensure patient safety by adopting and incorporating a patient safety culture
- How to critically evaluate where services can be improved by measuring performance, and acting to improve quality standards where possible
- How to encourage a culture of improvement and innovation

#### Setting direction

- How to create a 'burning platform' and motivate other healthcare professionals to work together within quality improvement
- Knowledge of the wider healthcare system direction and how that may impact local organisations

### SKILLS

- Improvement approach to all problems or issues
- Engaging colleagues, patients and the wider system to identify issues and implement improvements
- Use of quality improvement methodologies, tools and techniques within every day practice
- Ensuring patient safety by adopting and incorporating a patient safety culture
- Critically evaluating where services can be improved by measuring performance, and acting to raise standards where possible
- Encouraging a culture of improvement and innovation

#### Demonstrating personal qualities

- Encouraging contributions and involvement from others including patients, carers, members of the multidisciplinary team and the wider community
- Considering process and system design, contributing to the planning and design of services

### ASSESSMENT & LEARNING METHODS

- RCPI HST Leadership in Clinical Practice
- Consultant feedback at annual assessment
- Involvement in hospital committees where possible e.g. Division of Medicine, Drugs and Therapeutics, Infection Control etc.

## Scholarship

**Objective:** To develop skills in personal/professional development, teaching, educational supervision and research

**Medical Council Domains of Good Professional Practice:** Scholarship

### KNOWLEDGE

#### Teaching, educational supervision and assessment

- Principles of adult learning, teaching and learning methods available and strategies
- Educational principles directing assessment methods including, formative vs. summative methods
- The value of regular appraisal / assessment in informing training process
- How to set effective educational objectives and map benefits to learner
- Design and delivery of an effective teaching event, both small and large group
- Use of appropriate technology / materials

#### Research, methodology and critical evaluation

- Designing and resourcing a research project
- Research methodology, valid statistical analysis, writing and publishing papers
- Ethical considerations and obtaining ethical approval
- Reviewing literature, framing questions, designing a project capable of providing an answer
- How to write results and conclusions, writing and/or presenting a paper
- How to present data in a clear, honest and critical fashion

#### Audit

- Basis for developing evidence-based medicine, kinds of evidence, evaluation; methodologies of clinical trials
- Sources from which useful data for audit can be obtained, the methods of collection, handling data, the audit cycle
- Means of determining best practice, preparing protocols, guidelines, evaluating their performance
- The importance of re-audit

### SKILLS

- Bed-side undergraduate and post graduate teaching
- Developing and delivering lectures
- Carrying out research in an ethical and professional manner
- Performing an audit
- Presentation and writing skills – remaining impartial and objective
- Adequate preparation, timekeeping
- Using technology / materials

### ASSESSMENT & LEARNING METHODS

- Health Research (online) – An Introduction
- Effective Teaching and Supervising Skills course (online) - recommended
- Educational Assessment Skills course - recommended
- Performing audit (online) course –mandatory
- Health Research Methods for Clinicians - recommended

## Management

**Objective:** To understand the organisation, regulation and structures of the health services, nationally and locally, and to be competent in the use and management of information on health and health services, to develop personal effectiveness and the skills applicable to the management of staff and activities within a healthcare team.

**Medical Council Domains of Good Professional Practice:** Management.

### KNOWLEDGE

#### Health service structure, management and organisation

- The administrative structure of the Irish Health Service, services provided in Ireland and their funding and how to engage with these for best results
- Department of Health, HSE and hospital management structures and systems
- The national regulatory bodies, health agencies and patient representative groups
- Understanding the need for business plans, annual hospital budgets, the relationship between the hospital and PCCC

#### The provision and use of information in order to regulate and improve service provision

- Methods of collecting, analysing and presenting information relevant to the health of a population and the apportionment of healthcare resources
- The common ways in which data is presented, knowing of the sources which can provide information relevant to national or to local services and publications available

#### Maintaining medical knowledge with a view to delivering effective clinical care

- Understanding the contribution that current, accurate knowledge can make to establishing clinical effectiveness, best practice and treatment protocols
- Knowledge of sources providing updates, literature reviews and digests

#### Delegation skills, empowerment and conflict management

- How to assess and develop personal effectiveness, improve negotiating, influencing and leadership skills
- How to manage time efficiently, deal with pressure and stress
- How to motivate others and operate within a multidisciplinary team

### SKILLS

- Chairing, organising and participating in effective meetings
- Managing risks
- Managing time
- Delegating tasks effectively
- Managing conflicts
- Exploring, directing and pursuing a project, negotiating through the relevant departments at an appropriate level
- Ability to achieve results through an understanding of the organisation and its operation
- Ability to seek / locate information in order to define an issue needing attention e.g. to provide data relevant to a proposal for change, establishing a priority, obtaining resources
- Ability to make use of information, use IT, undertake searches and obtain aggregated data, to critically evaluate proposals for change e.g. innovative treatments, new technologies
- Ability to adjust to change, apply management, negotiating skills to manage change
- Appropriately using management techniques and seeking to improve these skills and personal effectiveness

**ASSESSMENT & LEARNING METHODS**

- Mastering Communication course
- Performing Audit online course
- RCPI HST Leadership in Clinical Practice
- Annual audit
- Consultant feedback on management and leadership skills
- Involvement in hospital committees

## Standards of Care

**Objective:** To be able to consistently and effectively assess and treat patients' problems

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care; Relating to Patients; Communication and Interpersonal Skills; Collaboration and Teamwork: Management (including Self-Management); Clinical Skills.

### KNOWLEDGE

#### Diagnosing Patients

- How to carry out appropriate history taking
- How to appropriately examine a patient
- How to make a differential diagnosis

#### Investigation, indications, risks, cost-effectiveness

- The pathophysiological basis of the investigation
- Understand the clinical significance of reference ranges, positive and negative predictive value and potential risks of inappropriate tests
- The procedures for commonly used investigations, common or/and serious risks
- Understanding of the sensitivity and specificity of results, artefacts, PPV and NPV
- Understanding significance, interpreting and explaining results of investigations
- Logical approach in choosing, sequencing and prioritising investigations

#### Treatment and management of disease

- Natural history of diseases
- Quality of life concepts
- How to accurately assess patient's needs, prescribe, arrange treatment, recognise and deal with reactions / side effects
- How to set realistic therapeutic goals, to utilise rehabilitation services, and use palliative care approach appropriately
- Recognising that illness (especially chronic and/or incapacity) has an impact on relationships and family, having financial as well as social effects

#### Disease prevention and health education

- Screening for disease: methods, advantages and limitations
- Health promotion and support agencies; means of providing sources of information for patients
- Risk factors, preventive measures, and change strategies applicable to smoking, alcohol, drug abuse, and lifestyle
- Disease notification; methods of collection and sources of data

#### Notes, records, correspondence

- Functions of medical records, their value as an accurate up-to-date commentary and source of data
- An understanding of the need and appropriate use of problem-orientated discharge notes, letters, more detailed case reports, concise out-patient reports and focused reviews
- Appreciating the importance of up-to-date, easily available, accurate information, and the need for communicating promptly e.g. with primary care

#### Prioritising, resourcing and decision taking

- How to prioritise demands, respond to patients' needs and sequence urgent tasks
- Establishing (clinical) priorities e.g. for investigations, intervention; how to set realistic goals; understanding the need to allocate sufficient time, knowing when to seek help
- Understanding the need to complete tasks, reach a conclusion, make a decision, and take action within allocated time
- Knowing how and when to conclude

**Handover**

- Know what are the essential requirements to run an effective handover meeting
  - Sufficient and accurate patients information
  - Adequate time
  - Clear roles and leadership
  - Adequate IT
- Know how to prioritise patient safety
  - Identify most clinically unstable patients
  - Use ISBAR (Identify, Situation, Background, Assessment, Recommendations)
  - Proper identification of tasks and follow-ups required
  - Contingency plans in place
- Know how to focus the team on actions
  - Tasks are prioritised
  - Plans for further care are put in place
  - Unstable patients are reviewed

**Relevance of professional bodies**

- Understanding the relevance to practice of standards of care set down by recognised professional bodies – the Medical Council, Medical Colleges and their Faculties, and the additional support available from professional organisations e.g. IMO, Medical Defence Organisations and from the various specialist and learned societies

**SKILLS**

- Taking and analysing a clinical history and performing a reliable and appropriate examination, arriving at a diagnosis and a differential diagnosis
- Liaising, discussing and negotiating effectively with those undertaking the investigation
- Selecting investigations carefully and appropriately, considering (patients') needs, risks, value and cost effectiveness
- Appropriately selecting treatment and management of disease
- Discussing, planning and delivering care appropriate to patient's needs and wishes
- Preventing disease using the appropriate channels and providing appropriate health education and promotion
- Collating evidence, summarising, recognising when objective has been met
- Screening
- Working effectively with others including
  - Effective listening
  - Ability to articulate and deliver instructions
  - Encourage questions and openness
  - Leadership skills
- Ability to prioritise
- Ability to delegate effectively
- Ability to advise on and promote lifestyle change, stopping smoking, control of alcohol intake, exercise and nutrition
- Ability to assess and explain risk, encourage positive behaviours e.g. immunisation and preventive measures
- Involve patients' in solving their health problems, by providing information and education
- Availing of support provided by voluntary agencies and patient support groups, as well as expert services e.g. detoxification / psychiatric services
- Act in accordance with, up to date standards on palliative care needs assessment
- Valuing contributions of health education and disease prevention to health in a community
- Compile accurate and appropriate detailed medical notes and care reports including the results of examinations, investigations, procedures performed, sufficient to provide an accurate, detailed account of the diagnostic and management process and outcome, providing concise, informative progress reports (both written and oral)
- Transfer information in an appropriate and timely manner

- Maintaining legible records in line with the Guide to Professional Conduct and Ethics for Registered Medical Practitioners in Ireland
- Actively engaging with professional/representative/specialist bodies

#### **ASSESSMENT & LEARNING METHODS**

- Consultant feedback
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace)
- Audit
- Medical Council Guide to Professional Conduct and Ethics



## Dealing with & Managing Acutely Ill Patients in Appropriate Specialties

**Objectives:** To be able to assess and initiate management of patients presenting as emergencies, and to appropriately communicate the diagnosis and prognosis. Trainees should be able to recognise the critically ill and immediately assess and resuscitate if necessary, formulate a differential diagnosis, treat and/or refer as appropriate, elect relevant investigations and accurately interpret reports.

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care, Clinical Skills.

### KNOWLEDGE

#### Management of acutely ill patients with medical problems

- Presentation of potentially life-threatening problems
- Indications for urgent intervention, the additional information necessary to support action (e.g. results of investigations) and treatment protocols
- When to seek help, refer/transfer to another specialty
- APLS protocols
- Ethical and legal principles relevant to resuscitation and DNAR in line with National Consent Policy
- How to manage acute medical intake, receive and refer patients appropriately, interact efficiently and effectively with other members of the medical team, accept/undertake responsibility appropriately
- Management of overdose
- How to anticipate / recognise, assess and manage life-threatening emergencies, recognise significantly abnormal physiology e.g. dysrhythmia and provide the means to correct e.g. defibrillation
- How to convey essential information quickly to relevant personnel: maintaining legible up-to-date records documenting results of investigations, making lists of problems dealt with or remaining, identifying areas of uncertainty; ensuring safe handover

#### Managing the deteriorating patient

- How to categorise a patients' severity of illness using Early Warning Scores (EWS) guidelines
- How to perform an early detection of patient deterioration
- How to use a structured communication tool (ISBAR)
- How to promote an early medical review, prompted by specific trigger points
- How to use a definitive escalation plan

#### Discharge planning

- Knowledge of patient pathways
- How to distinguish between illness and disease, disability and dependency
- Understanding the potential impact of illness and impairment on activities of daily living, family relationships, status, independence, awareness of quality of life issues
- Role and skills of other members of the healthcare team, how to devise and deliver a care package
- The support available from other agencies e.g. specialist nurses, social workers, community care
- Principles of shared care with the general practitioner service
- Awareness of the pressures/dynamics within a family, the economic factors delaying discharge but recognise the limit to benefit derived from in-patient care

**SKILLS**

- BLS/APLS
- Dealing with common medical emergencies
- Interpreting blood results, ECG/Rhythm strips, chest X-Ray, CT brain
- Giving clear instructions to both medical and hospital staff
- Ordering relevant follow up investigations
- Discharge planning, including complex discharge
- Knowledge of HIPE (Hospital In-Patient Enquiry)
- Multidisciplinary team working
- Communication skills
- Delivering early, regular and on-going consultation with family members (with the patient's permission) and primary care physicians
- Remaining calm, delegating appropriately, ensuring good communication
- Attempting to meet patients'/ relatives' needs and concerns, respecting their views and right to be informed in accordance with Medical Council Guidelines
- Establishing liaison with family and community care, primary care, communicate / report to agencies involved
- Demonstrating awareness of the wide ranging effects of illness and the need to bridge the gap between hospital and home
- Categorising a patients' severity of illness
- Performing an early detection of patient deterioration
- Use of structured communication tools (e.g. ISBAR)

**ASSESSMENT & LEARNING METHODS**

- APLS course
- Record of on call experience
- Mini-CEX (acute setting)
- Case Based Discussion (CBD)
- Consultant feedback

## Therapeutics and Safe Prescribing

**Objective:** To progressively develop ability to prescribe, review and monitor appropriate therapeutic interventions relevant to clinical practice in specific specialities including non-pharmacological therapies and preventative care.

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care.

### KNOWLEDGE

- Pharmacology, therapeutics of treatments prescribed, choice of routes of administration, dosing schedules, compliance strategies; the objectives, risks and complications of treatment cost-effectiveness
- Indications, contraindications, side effects, drug interaction, dosage and route of administration of commonly used drugs
- Commonly prescribed medications
- Adverse drug reactions to commonly used drugs, including complementary medicines
- Identifying common prescribing hazards
- Identifying high risk medications
- Drugs requiring therapeutic drug monitoring and interpretation of results
- The effects of age, body size, organ dysfunction and concurrent illness or physiological state e.g. pregnancy on drug distribution and metabolism relevant to own practice
- Recognising the roles of regulatory agencies involved in drug use, monitoring and licensing e.g. IMB, and hospital formulary committees
- Procedure for monitoring, managing and reporting adverse drug reaction
- The role of The National Medicines Information Centre (NMIC) in promoting safe and efficient use of medicine
- Differentiating drug allergy from drug side effects
- Know the difference between an early and late drug allergy, and drug side-effects
- Good Clinical Practice guidelines for seeing and managing patients who are on clinical research trials
- Best practice in the pharmacological management of cancer pain
- The management of constipation in children receiving palliative care

### SKILLS

- Writing a prescription in line with guidelines
- Appropriately prescribing for children and pregnant adolescent
- Making appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function)
- Reviewing and revising patients' long term medications
- Anticipating and avoiding defined drug interactions, including complementary medicines
- Providing comprehensible explanations to the patient, and carers when relevant, for the use of medicines
- Being open to advice and input from other health professionals on prescribing
- Participating in adverse drug event reporting
- Take and record an accurate drug allergy history and history of previous side effects

**ASSESSMENT & LEARNING METHODS**

- Consultant feedback
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): prioritisation of patient safety in prescribing practice
- Guidance for health and social care providers - Principles of good practice in medication reconciliation (HIQA)

## Specialty Section

## Cardiovascular Collapse in Newborn/Infant

**Objective:** To be able to carry out specialist assessment and management of infants who present with cardiovascular collapse

### KNOWLEDGE

- Cardiac and non-cardiac causes of cardiovascular collapse
- Causes of cardiovascular collapse and likely diagnoses on the basis of the timing of presentation
- Natural history, anatomy, physiology and clinical features of cardiac disorders that cause collapse in infancy
- Physiology of duct dependent systemic circulation
- ECG, CXR and echocardiographic findings in congenital heart disease that presents with collapse in infancy
- Indications, limitations and risks of invasive and non-invasive investigation in infants that present with collapse
- Angiographic and haemodynamic findings at cardiac catheterisation in congenital heart disease that presents with collapse
- Indications and risks of catheter intervention and surgery in congenital heart disease that presents with collapse
- Impact of cardiovascular collapse on other organs

### SKILLS

- Identify cardiovascular collapse and carry out direct resuscitation, medical treatment and intensive care
- Interpret investigation results and appreciate their importance and limitations in reaching a diagnosis
- Use echocardiography to accurately diagnose abnormalities in cardiac structure or function
- Carry out further investigation either by non-invasive imaging or cardiac catheterisation when necessary
- Initiate prostaglandin E where appropriate and know how to monitor its effect and when to alter the dose administered
- Plan and coordinate surgery or catheter intervention where necessary
- Identify compromise to other organs secondary to collapse and refer to other specialties where necessary
- Provide advice to referring paediatricians in respect of emergency management before transfer to the cardiac centre
- Counsel parents about the underlying cause of the collapse and give a realistic prognosis
- Outline a treatment plan in terms understood by the parents
- Plan and participate in outpatient follow-up

**ASSESSMENT & LEARNING METHODS**

- Trainer's review of triage criteria for Telephone or Emergency Department referral
- Mini-CEX
  - Transfer management
  - Assessment on arrival
  - History taking
  - Clinical examination
  - Medical/surgical interventions
- DOPS
  - Echocardiography
  - Balloon septostomy
- Study day – neonatal cardiac emergencies

## Cardiac Failure in Infants and Children

**Objective:** To be able to carry out specialist assessment and treatment of infants who present with cardiovascular failure and plan surgery or other intervention when necessary

### KNOWLEDGE

- Physiology of cardiac failure caused by:
  - Pressure overload
  - Volume overload
  - Restriction to inflow
  - Reduced contractility
- Physiology of pulmonary oedema
- Cardiac failure at different ages, from newborn to adult life
- How to distinguish cardiac failure from other causes of increased respiratory effort
- Causes of cardiac failure and likely diagnoses based on timing of presentation
- Investigations findings in cardiac disorders that present with cardiac failure
- Angiographic and haemodynamic findings at cardiac catheterisation in congenital heart disease that presents with cardiac failure
- Indications, contraindications, action and side-effects of drug treatment for cardiac failure
- Indications and risks of catheter intervention and surgery in congenital heart disease that presents with cardiac failure

### SKILLS

- Identify cardiac failure in patients of all ages
- Interpret invasive and non-invasive investigations appreciate the importance and limitations of these investigations in diagnosing cardiac failure and elucidating its underlying cause
- Use echocardiography to diagnose abnormalities in cardiac structure or function
- Make an accurate anatomical and physiological diagnosis of the cause of cardiac failure on the basis of the clinical information and investigations
- Institute and monitor appropriate drug therapy
- Optimise nutrition and manage failure to thrive caused by cardiac failure
- Plan and coordinate surgery or catheter intervention where necessary
- Counsel parents about the underlying cause of the cardiac failure, give appropriate advice to parents where cardiac failure is anticipated and give a realistic prognosis
- Outline a treatment plan in terms understood by the parents
- Provide advice to referring paediatricians managing children with cardiac failure
- Consider the interaction of symptoms with the child's lifestyle and offer advice and support in terms of schooling and sporting activity
- Plan and participate in outpatient follow-up



**ASSESSMENT & LEARNING METHODS**

- Trainer's review of triage criteria for Telephone or Emergency Department referral
- Mini-CEX
  - Transfer management
  - Assessment on arrival
  - History taking
  - Clinical examination
- DOPS
  - Echocardiography
  - Balloon septostomy
- CBD
  - Review of OPD echo
  - Management plan
  - Medical/surgical and other interventions
- Study day – neonatal cardiac emergencies

## Cyanosis in the Newborn Period

**Objective:** To be able to carry out specialist assessment and treatment of cyanotic newborn infants and plan surgery or other intervention when necessary

### KNOWLEDGE

- Physiology of cyanosis :
  - Right heart obstruction with right to left shunting
  - Parallel circulation
  - Common mixing lesions
- Physiology of duct dependent pulmonary circulation
- Cardiac and non-cardiac causes of cyanosis in the newborn period
- Indications, limitations and risks of invasive and non-invasive investigation in newborns with cyanotic congenital heart disease
- Angiographic and haemodynamic findings at cardiac catheterisation in congenital heart disease that presents with cyanosis in the newborn period
- Indications and risks of catheter intervention and surgery in congenital heart disease that presents with cyanosis in the newborn period

### SKILLS

- Interpret invasive and non-invasive investigations and appreciate their importance and limitations in reaching a diagnosis
- Use echocardiography to accurately diagnose abnormalities in cardiac structure or function
- Make an accurate anatomical and physiological diagnosis on the basis of the clinical information and investigations
- Initiate prostaglandin E where appropriate and know how to monitor its effect and when to alter the dose administered
- Plan and coordinate surgery or catheter intervention where necessary
- Provide advice to referring paediatricians in respect of emergency management before transfer to the cardiac centre
- Plan and participate in outpatient follow-up

### ASSESSMENT & LEARNING METHODS

- CBD
  - Triage criteria cardiac
  - Triage criteria non-cardiac
  - Pre transfer management
  - Initial assessment
  - Management plan
- DOPS
  - Echocardiography
  - Balloon septostomy

## Cyanosis beyond the Newborn Period

**Objective:** To be able to carry out specialist assessment and treatment of cyanotic children presenting after the newborn period and plan surgical or other intervention where necessary

### KNOWLEDGE

- Cardiac and non-cardiac causes of cyanosis beyond the newborn period
- Indications, limitations and risks of invasive and non-invasive investigation of congenital heart disease presenting with cyanosis after the newborn period
- Angiographic and haemodynamic findings at cardiac catheterisation in congenital heart disease that presents with cyanosis after the newborn period
- Indications and risks of catheter intervention and surgery in congenital heart disease that presents with cyanosis after the newborn period

### SKILLS

- Interpret ECG, CXR and blood results and appreciate their importance and limitations in reaching a diagnosis
- Use echocardiography to accurately diagnose abnormalities in cardiac structure or function
- Identify where information is incomplete and plan further investigation either by non-invasive imaging or cardiac catheterisation
- Make an accurate anatomical and physiological diagnosis on the basis of the clinical information and investigations
- Identify when there is cyanosis coupled with cardiac failure and initiate medical treatment when necessary
- Plan and coordinate surgery or catheter intervention where necessary
- Counsel parents and give a realistic prognosis
- Outline a treatment plan in terms understood by the parents
- Provide advice to referring paediatricians in respect of management of children with cyanosis
- Offer advice and support in respect of schooling and sporting activity
- Plan and participate in outpatient follow-up

### ASSESSMENT & LEARNING METHODS

- Self-directed learning
- OPD prioritisation
- CBD
  - History
  - Clinical examination
  - Management plan
- DOPS
  - Echocardiography
- Study days – lesion specific e.g.
  - TGA
  - Fallot
  - Ebstein's
  - Pulmonary atresia
- Departmental weekly lectures

## Evaluation of an Infant/Child with a Cardiac Murmur

**Objective:** To be able to carry out specialist assessment and treatment of children with cardiac murmurs

### KNOWLEDGE

- Characteristic clinical features of all congenital cardiac defects
- Characteristic features of innocent murmurs

### SKILLS

- Discriminate innocent from pathological murmurs on examination
- Make a logical provisional diagnosis on the basis of physical examination
- Refine the diagnosis using ECG and CXR where appropriate
- Use echocardiography to accurately define cardiac structure and function
- Complete the assessment quickly in an outpatient setting
- Be able to confidently diagnose normality and explain the meaning of an innocent murmur

### ASSESSMENT & LEARNING METHODS

- CBD
  - Clinical examination
  - History taking
  - ECG criteria without Echo
- Mini CEX
  - ECG
  - Echo
- Out-patient clinic experience
- Study days – murmurs

## Evaluation of Children and Adolescents with Chest Pain, Palpitations or Syncope

**Objective:** To be able to carry out specialist assessment and treatment of children and adolescents with chest pain, palpitations, presyncope or syncope

### KNOWLEDGE

- Cardiac and non-cardiac causes of loss of consciousness
- Clinical features that discriminate between arrhythmias, vasovagal syncope and seizures in patients with loss of consciousness
- Clinical features of arrhythmia in patients with palpitations
- Causes and clinical features of chest pain in childhood
- Types of structural heart disease that present with chest pain, palpitations or syncope
- Indications for an exercise test, ambulatory ECG, cardiac event recorder and tilt-table test in the investigation of these conditions

### SKILLS

- Perform and interpret lead ECG that suggest the substrate for an arrhythmia
- Use ECG evidence of ischaemic heart disease and ventricular hypertrophy
- Use echocardiography to accurately define cardiac structure and function
- Make an appropriate plan for further investigation and follow-up
- Perform exercise test, ambulatory ECG, cardiac event recorder and tilt-table test
- Institute and monitor appropriate treatment for arrhythmias and vasovagal syncope
- Explain the plan for further investigation and the reasons for this line of investigation in terms understandable to the patient and parents
- Explain the likely diagnosis and its impact on lifestyle
- Provide reassurance to patients and parents where there is no organic cause for symptoms
- Refer appropriately to other specialties when a non-cardiac cause is likely
- Facilitate the involvement of adolescents in decision making

### ASSESSMENT & LEARNING METHODS

- OPD
- Lectures and study days – SCDY (Sudden Cardiac Death in the Young)
- CBD
  - History taking
  - Echo
  - ECG
  - Examination
- Mini CEX

## Acyanotic Congenital Heart Disease

**Objective:** To be able to carry out specialist assessment and treatment of children, adolescents with acyanotic congenital heart disease and plan surgical intervention where necessary

### KNOWLEDGE

- Embryology, detailed anatomy, physiology, epidemiology, natural history and genetic implications of all acyanotic congenital heart defects including:
  - Atrial septal defect
  - Ventricular septal defect
  - Atrioventricular septal defect
  - Patent arterial duct
  - Aortopulmonary septal defect
  - Coronary artery fistula
  - Pulmonary stenosis
  - Aortic stenosis
  - Coarctation of the aorta
  - Interrupted aortic arch
  - Hypoplastic left heart syndrome
- Impact of left to right shunts on pulmonary vascular resistance
- Clinical presentation and ongoing pathophysiological changes of all acyanotic congenital heart defects
- Surgical and catheter intervention treatment options for each lesion and the relative advantages and disadvantages of each approach, their success rates and complications
- Normal course of postoperative recovery after surgery for each type of acyanotic cardiac defect

### SKILLS

- Make a provisional diagnosis and discriminate between the various acyanotic defects on the basis of presentation, clinical findings, ECG and CXR
- Accurately diagnose all acyanotic defects using echocardiography and use echocardiography to define the detailed anatomy and physiological characteristics of the defect
- Perform TOE to define the anatomical and physiological details of acyanotic defects
- Identify where information is incomplete and plan further investigation either by non-invasive imaging or cardiac catheterisation
- Perform diagnostic cardiac catheterisation, obtaining all necessary anatomical and physiological information
- Make an accurate anatomical and physiological diagnosis on the basis of the clinical information and investigations
- Stabilise infants with prostaglandin E2 in duct dependent lesions
- Plan and coordinate appropriate medical management, catheter intervention and referral to surgery when necessary

**ASSESSMENT & LEARNING METHODS**

- CBD and Mini CEX
  - History
  - Examination
  - Chest X-ray
  - ECG
  - Echo
- Joint cardiac conference presentations to surgeons
- Study day – lesions as above

## Cyanotic Congenital Heart Disease

**Objective:** To be able to carry out specialist assessment and treatment of children, adolescents and adults with cyanotic congenital heart disease and plan surgical intervention where necessary

### KNOWLEDGE

- Embryology, detailed anatomy, physiology, epidemiology, natural history and genetic implications of all cyanotic congenital heart defects including:
  - Pulmonary atresia with intact ventricular septum
  - Pulmonary atresia with ventricular septal defect
  - Critical pulmonary stenosis
  - Tetralogy of Fallot
  - Absent pulmonary valve syndrome
  - Transposition of the great arteries with intact ventricular septum
  - Transposition of the great arteries with ventricular septal defect
  - Double outlet right ventricle
  - Common arterial trunk
  - Total anomalous pulmonary venous connection
  - Univentricular atrioventricular connection
  - Complex congenital heart disease associated with abnormalities of cardiac position and situs
- Clinical presentation all cyanotic congenital heart defects and the long term complications of cyanosis
- Surgical and catheter intervention treatment options, success rates and complications for each lesion and the relative advantages and disadvantages of each approach
- Normal course of postoperative recovery after surgery for each type of cyanotic cardiac defect



**SKILLS**

- Make a provisional diagnosis and discriminate between the various cyanotic defects on the basis of presentation, clinical findings, ECG
- Use echocardiography to accurately diagnose cyanotic defects and to define the detailed anatomy and physiological characteristics of the defect
- Perform TOE to define the anatomical and physiological details of cyanotic defects
- Identify where information is incomplete and plan further investigation either by non-invasive imaging or cardiac catheterisation
- Perform diagnostic cardiac catheterisation, obtaining all necessary anatomical and physiological information
- Provide emergency treatment for cyanotic spells
- Stabilise infants with prostaglandin E in duct dependent lesions
- Make an accurate anatomical and physiological diagnosis on the basis of the clinical information and investigations
- Plan and coordinate appropriate medical management, catheter intervention and surgery when necessary
- Counsel parents when cyanotic congenital heart disease has been diagnosed, explaining the anatomy, giving a realistic prognosis, explaining likely symptoms and outlining a management plan
- Offer advice and support in respect of schooling and sporting activity
- Communicate effectively with paediatric cardiology nursing staff, physiotherapists, dieticians, intensivists, surgeons and anaesthetists in coordinating management
- Plan and participate in outpatient follow-up
- Recognise the wider management issues in children with complex cyanotic defects or syndromes and cooperate with other specialties

**ASSESSMENT & LEARNING METHODS**

- CBD and Mini CEX
  - History
  - Examination
  - Chest X-ray
  - ECG
  - Echo
- Joint cardiac conference presentations to surgeons
- Study day – lesions as above

## Pulmonary Hypertension

**Objective:** To diagnose pulmonary hypertension (PH) and to understand management of PH

### KNOWLEDGE

- Physical signs
- Basic electrocardiography
- Principles of cardiovascular physiology
- Significance of PH in context of CHD, and in its absence
- Current therapies including lung transplantation

### SKILLS

- Make a competent physical examination
- Interpret ECG to diagnose PH
- Interpret echocardiogram to diagnose PH
- Interpret cardiac catheterisation data to diagnose PH
- Be capable of integrating information from various investigations

### ASSESSMENT & LEARNING METHODS

- CBD
  - History taking
  - Clinical examination
  - Chest X ray
  - ECG
  - Echo
- Mini CEX
  - CXR
  - ECG
  - Echo
- Study day – pulmonary hypertension

## Cardiovascular Abnormalities in Neonatal Intensive Care

**Objective:** To be able to carry out specialist assessment and advise on the treatment of cardiovascular problems commonly arising in the context of neonatal intensive care

### KNOWLEDGE

- Physiology of transitional circulation
- Pathophysiology, clinical manifestations, echocardiographic features and treatment of persistent pulmonary hypertension of the newborn
- Pathophysiology, clinical manifestations and echocardiographic features of patent arterial duct in the preterm child
- Indications and contraindications for medical and surgical treatment of patent arterial duct in the preterm child

### SKILLS

- Differentiate PPHN from congenital heart disease using echocardiography
- Use echocardiography to exclude duct dependent systemic and pulmonary circulation when assessing an infant with a patent arterial duct
- Identify congenital heart disease in premature and low birth weight infants and make a management plan, including appropriate timing of surgery
- Identify basic neonatal care and how sepsis, lung disease, neurological problems and genetic issues influence cardiac management

### ASSESSMENT & LEARNING METHODS

- Rounds in NNICU with cardiologist
- Mini CEX
- CBD
- DOPS

## Cardiovascular Evaluation of Children with Genetic Disorders and Syndromes

**Objective:** To be able to carry out specialist cardiac assessment and treatment of children with genetic disorders and syndromes

### KNOWLEDGE

- Cardiac abnormalities found in common genetic disorders and syndromes including:
  - Down's syndrome
  - Trisomy 18
  - Trisomy 13
  - 22q11 deletion (DiGeorge)
  - Turner's syndrome
  - Noonan's syndrome
  - William's syndrome
  - Alagille's syndrome
  - Marfan's syndrome
  - CHARGE association
  - VACTERL association
  - Storage diseases
  - Neuromuscular diseases
  - Mitochondrial cytopathies
  - Hyperlipidaemias
  - Long QT syndrome
- Prognosis of genetic syndromes and their associated cardiac disorders
- When the need to offer foetal cardiology review for future pregnancies

### SKILLS

- Recognise the importance of the genetics and paediatric team in coordinating overall management
- Recognise the impact of other features of the genetic disorder or syndrome on cardiac management
- Be willing to discuss the possibility of recurrence of the cardiac disorder in subsequent children but recognise the boundaries of expertise in paediatric cardiology
- Discuss wider issues involving genetics with sensitivity when planning intervention or surgery for congenital heart disease with parents

### ASSESSMENT & LEARNING METHODS

- CBD
  - History taking
  - Clinical examination
  - Chest X ray
  - ECG
  - Echo
- Mini CEX
  - CXR
  - ECG
  - Echo
- Cardiac genetics specialty OPD

## Fontan Circulation

**Objective:** To be able to carry out specialist assessment, treatment and surgical referral of children, adolescents and adults who require or have a cavopulmonary circulation

### KNOWLEDGE

- Physiology of the Fontan circulation
- Anatomical and physiological requirements necessary for a child to tolerate a cavopulmonary circulation
- Various surgical procedures used to create a Fontan
- Complications of a Fontan circulation
- How to manage a Fontan circulation in the postoperative period

### SKILLS

- Recognise when a biventricular repair cannot be achieved and palliation with a cavopulmonary circulation is appropriate
- Interpret clinical information and the results of non-invasive and invasive investigations to determine whether a cavopulmonary circulation is possible and the appropriate timing of surgery
- Recognise a failing Fontan circulation
- Evaluate the cause of inappropriately low oxygen saturation after a cavopulmonary circulation
- Recognise the additional stress on parents where their child cannot undergo corrective surgery
- Appreciate the need for continuity of care

### ASSESSMENT & LEARNING METHODS

- CBD
  - History taking
  - Clinical examination
  - MRI
  - ECG
  - Echo
- DOPS
  - Catheter
  - MRI
  - ECG
  - Echo
- Study day – Fontan circulation

## Inflammatory Cardiovascular Disease

**Objective:** To be able to carry out specialist assessment and treatment of children with rheumatic fever, rheumatic heart disease, Kawasaki disease and other inflammatory diseases affecting the cardiovascular system

### KNOWLEDGE

- Pathology and natural history of rheumatic fever, Kawasaki disease and collagen vascular disease affecting the cardiovascular system
- Cardiac and non-cardiac manifestations of these disorders
- Echocardiographic features of these disorders
- Current recommendations:
  - for investigation and treatment of acute and chronic Kawasaki disease
  - for drug therapy for acute rheumatic fever and the long term sequelae of acute rheumatic fever

### SKILLS

- Recognise the clinical features of Kawasaki disease and carry out echocardiographic examination of the coronary arteries
- Advise on acute and long-term treatment for Kawasaki disease and arrange an appropriate programme of follow up
- Consider the indications and contraindications to performing coronary angiography in children
- Advise on acute treatment for rheumatic fever and recognise the indications for surgery or intervention in rheumatic heart disease
- Be able to identify the presence and severity of rheumatic heart disease on echocardiography
- Advise on and implement primary and secondary prevention measures in rheumatic fever
- Cooperate with other specialties in investigating collagen vascular diseases with cardiovascular involvement
- Coordinate joint care with the general paediatric team

### ASSESSMENT & LEARNING METHODS

- CBD
  - History taking
  - Clinical examination
- DOPS
  - Echo
- Lectures and study day – Kawasaki

## Cardiomyopathy and Myocarditis

**Objective:** To be able to carry out specialist assessment and treatment of children with cardiomyopathy and myocarditis

### KNOWLEDGE

- Physiology, pathology, natural history, prognosis and clinical features of dilated, hypertrophic and restrictive cardiomyopathy
- Physiology, pathology, natural history, prognosis and clinical features of myocarditis
- Genetics of hypertrophic cardiomyopathy
- Indications for medical and surgical treatment in cardiomyopathy
- Forms of circulatory support (LVAD, ECMO)
- Role of cardiac transplantation in end-stage cardiomyopathy

### SKILLS

- Recognise features in a history that suggest myocarditis
- Echocardiographic evaluation of a child with myocarditis or cardiomyopathy, including an assessment of the coronary arteries
- Manage cardiac failure and low cardiac output caused by myocarditis or cardiomyopathy
- Involve the genetics team where appropriate
- Involve parents in decision making in planning management for end-stage cardiomyopathy
- Provide the family with a realistic prognosis
- Consider other aspects of disorders underlying the cardiomyopathy or other organs affected in planning for treatment in end-stage cardiomyopathy

### ASSESSMENT & LEARNING METHODS

- CBD
  - History taking
  - Clinical examination
  - MRI
  - ECG
  - Echo
- Mini CEX
- Study day – cardiomyopathy and myocarditis

## Prevention and Management of Infective Endocarditis

**Objective:** To be able to carry out specialist assessment and treatment of children with infective endocarditis and to be able to provide advice in respect of prevention of endocarditis

### KNOWLEDGE

- Epidemiology, pathophysiology, clinical manifestations, anatomical features, course and prognosis of various types of infective endocarditis
- Cardiac lesions with the highest risk of endocarditis
- Diagnosing infective endocarditis: blood cultures, inflammatory markers, transthoracic and transoesophageal echocardiography
- Antibiotic regimens for endocarditis treatment in children
- Alterations in the advice on endocarditis prophylaxis and the evidence behind this practice

### SKILLS

- Identify the extracardiac manifestations of endocarditis
- Interpret blood results and recognise echocardiographic manifestations of endocarditis and appreciate their importance and limitations in reaching a diagnosis
- Integrate clinical and laboratory findings to plan appropriate management
- Plan surgical management in patients with acute valvar insufficiency secondary to endocarditis
- Provide patient education in respect of antibiotic prophylaxis
- Provide support to paediatricians investigating pyrexia of unknown origin

### ASSESSMENT & LEARNING METHODS

- CBD with ID specialty
- CBD with dental specialty



## Cardiac Evaluation of a Child with Stridor

**Objective:** To be able to carry out specialist cardiac assessment of children with stridor and referral for cardiac surgery where necessary

### KNOWLEDGE

- Embryology, anatomy and natural history of vascular rings and slings and their association with lung pathology
- Signs of vascular rings and slings:
  - on CXR and barium swallow
  - on angiographic and MRI
- Surgical options for release of rings and slings
- The need to cooperate with thoracic surgeons in children with associated lung abnormalities

### SKILLS

- Perform echocardiography to identify the presence of vascular rings and slings and know its limitations
- Refer for additional testing such as bronchoscopy or MRI and interpret the results of these investigations
- Perform angiography to define aortic and pulmonary artery anatomy where MRI is not available
- Plan appropriate surgery for release of vascular rings or slings
- Discuss the causes of stridor with parents, offering reassurance where appropriate

### ASSESSMENT & LEARNING METHODS

- DOPS
  - History taking
  - Clinical examination
  - CXR
  - MRI/CT
  - Barium swallow
- CBD – airway management with thoracic surgeon
- Attend and present at MDTs

## Detection and Management of Foetal Cardiac Abnormalities

**Objective:** To be able to advise on appropriate referral for foetal cardiac evaluation and to be able to advise parents on the timing and the limitations of antenatal diagnosis

### KNOWLEDGE

- Indications and limitations of foetal cardiac assessment
- Associations between foetal cardiac abnormality and genetic abnormalities

### SKILLS

- Identify common congenital heart defects and abnormal cardiac function in the foetus
- Recognise foetal tachyarrhythmias and foetal heart block using M mode or Doppler echocardiography
- Appreciate the importance of providing a realistic view of outcome when helping parents to make decisions in respect of the pregnancy

### ASSESSMENT & LEARNING METHODS

- Foetal clinics
- DOPS – echo
- Study day – foetal cardiac abnormalities

## Adolescent and Adult Congenital Heart Disease

**Objective:** To be able to carry out basic assessment and treatment of adolescents and adults with congenital heart disease

### KNOWLEDGE

- Natural history of congenital heart disease into adolescence and adult life
- Problems associated with un-operated and the long-term sequelae of surgery for congenital heart disease
- Implications of operated and un-operated congenital heart disease for contraception and pregnancy
- Cardiovascular contraindications to pregnancy
- The common rhythm disturbances in adult congenital heart disease and the treatment options

### SKILLS

- Realise when the need for assessment during pregnancy by the foetal cardiology service
- Carry out transthoracic and transoesophageal echocardiography in adolescent and adult patients
- The indications for non-invasive and invasive investigation in the adolescent and adult age group
- Arrange for a smooth transition from the paediatric to the adult congenital service
- Philosophy of transition and distinguish it from transfer and the key components of a transitional care programme and the differences between the cultures of paediatric and adult healthcare services including the role of the adult physician
- Identify the need for genetic counselling

### ASSESSMENT & LEARNING METHODS

- CBD
  - History taking
  - Examinations
  - Echo
  - ECG
  - MRI
- OPD attendance

## Arrhythmias

**Objective:** To be able to carry out assessment and treatment of children and adult congenital heart disease patients with arrhythmias

### KNOWLEDGE

- Natural history of types of arrhythmia found in foetal life, infancy, childhood, adolescence and in adults with congenital heart disease
- Mechanisms involved in the genesis of cardiac arrhythmias
- Structural heart disease and types of cardiac surgery associated with abnormalities in cardiac rhythm
- Genetic disorders associated with cardiac rhythm disturbance
- Causes, natural history and management of atrioventricular block
- Characteristic ECG findings in all forms of tachyarrhythmia and bradyarrhythmia
- Classification, mechanism of action, interactions, side effects, contraindications and clinical use of antiarrhythmic drugs in paediatric patients
- Indications for permanent pacing, the types of cardiac pacing and the indications for each type of pacing in paediatric patients
- Indications for DC cardioversion
- Indications, limitations and risks of an invasive electrophysiology study and radiofrequency ablation

### SKILLS

- Take a history in a patient with palpitations and decide whether an arrhythmia is likely
- Form an appropriate plan of further investigation in a patient with suspected arrhythmias
- Recognise and manage SVT from foetal to adult life
- Identify the type of arrhythmia present from an event captured on ECG
- The indications for exercise testing, ambulatory monitoring, cardiac event recorders, implantable loop recorders, invasive electrophysiology study, radiofrequency ablation and implantable cardiac defibrillators
- Process 24 hour tapes, including review and interpretation of the full record
- Carry out exercise tests and interpret the results
- Perform and interpret an ECG taken during an adenosine challenge
- Perform and interpret an ECG from atrial epicardial wires in the postoperative patient
- Interpret the results from cardiac event recorders, implantable loop recorders and pacemaker telemetry
- Manage temporary pacing, including the use of epicardial wires in the postoperative cardiac patient
- Select appropriate drug treatment for tachyarrhythmias
- Perform vagal manoeuvres, overdrive pacing and DC cardioversion in the treatment of tachyarrhythmias
- Explain arrhythmias and their associated risks to patients and their parents
- Offer appropriate management options to the patient and family
- Provide advice in respect of sports and exercise

**ASSESSMENT & LEARNING METHODS**

- History taking
- Clinical examination
- ECG
- Echo
- CBD
- Mini CEX
- Study days and lectures

## Paediatric Cardiac and Cardiopulmonary Transplantation

**Objective:** To recognise when heart or heart-lung transplantation is indicated, to refer appropriately to a transplant centre and to provide local follow-up after transplantation

### KNOWLEDGE

- Indications and contraindications for cardiac transplantation
- Recipient evaluation
- Immunology and immunosuppression involved in cardiac transplantation
- Effects and side effects of immunosuppressive drugs used following cardiac transplantation
- Problems of infection, immunoproliferative disease, coronary arteriopathy and rejection following cardiac transplantation

### SKILLS

- Realistically counsel the parents of children with terminal cardiac disorders about the possibility of cardiac transplantation, the prospects of success and the long-term outlook following transplantation
- Recognise potential clinical signs of cardiac graft rejection
- Communicate effectively with the transplant centre to plan further investigation
- Be aware of the ethical and legal issues in respect of donor selection and management and organ procurement
- Refer appropriately to the transplant centre
- Appropriately refer in cases of possible graft rejection

### ASSESSMENT & LEARNING METHODS

- CBD and Mini CEX
  - History
  - Clinical examination
  - ECG
  - Echo
- Transplant clinic attendance
- Liaisons with transplant CNS

## Nutrition and Growth in Congenital Heart Disease

**Objective:** To recognise when heart or heart-lung transplantation is indicated, to refer appropriately to a transplant centre and to provide local follow-up after transplantation

### KNOWLEDGE

- Causes of growth failure in congenital heart disease
- Indications for parenteral nutrition
- How to reintroduce feeds after necrotising enterocolitis or other bowel damage
- Causes of chylothorax and when to introduce a medium chain triglyceride diet

### SKILLS

- Recognise failure to thrive and be able to identify cardiac and non-cardiac causes
- Manage fluid and caloric intake in children with cardiovascular disease and after cardiac surgery
- Identify iron deficiency in patients with cyanotic congenital heart disease
- Identify when failure to thrive has not responded to optimising nutrition and decide on appropriate timing for surgical intervention in congenital heart disease patients
- Be aware of the complications of parenteral nutrition
- Provide information to parents about feeding regimes

### ASSESSMENT & LEARNING METHODS

- CBD
  - OPD assessment
  - Ward management
  - Liaisons with CNS and dietician
- Study day – nutrition

## Assessment of Children Prior to Cardiac Surgery

**Objective:** To be able to carry out specialist assessment of children requiring cardiac surgery and to plan the nature and timing of cardiac surgery in conjunction with the paediatric cardiac surgery team

### KNOWLEDGE

- Principles of cardiopulmonary bypass and the risks involved
- Risks and benefits of various types of pump and non-pump surgery
- Factors that place a child at increased risk from cardiac surgery
- Role of play specialists and psychologists in preparing children for cardiac surgery
- Technical limitations of surgery

### SKILLS

- Take account of the cardiac status and non-cardiac pathology in selecting the most appropriate timing for surgery
- Present relevant details of the cardiac condition and the results of investigations to the cardiac surgeons to reach a joint plan on surgery

### ASSESSMENT & LEARNING METHODS

- Present at JCC
- Study day – surgical presentations



**Assessment of Children with Cardiac Disease Prior to Non-Cardiac surgery**

**Objective:** To be able to carry out specialist assessment of children with cardiac disease prior to non-cardiac surgery. Advise on fitness for such surgery and any precautions or cardiac treatment required

**KNOWLEDGE**

- Cardiac disorders associated with a higher risk for general anaesthesia
- Role of play specialists and psychologists in preparing children for surgery
- When the need to inform the anaesthetist and surgeon of the cardiac status and any particular precautions required
- Importance of chronic antibiotic therapy in selecting appropriate antibiotic prophylaxis

**SKILLS**

- Take relevant history and perform an appropriate examination, noting in particular any change in cardiac status
- Select patients who require further investigation by ECG, CXR or echocardiography
- Determine the physiology of the cardiac abnormality and the cardiac reserve using ECG, CXR and echocardiography
- Identify patients who are at increased risk from anaesthesia and recommend appropriate precautions
- Recommend an appropriate fluid regime and how cardiac drugs are to be administered in the perioperative period
- Answer questions from patients and their parents about the impact of their cardiac condition on the safety of anaesthesia and surgery

**ASSESSMENT & LEARNING METHODS**

- OPD assessments
  - History
  - Examinations
  - ECG
  - Echo
- CBD
- Study days

## Management of Critically Ill Children with Cardiovascular Compromise

**Objective:** To be able to carry out assessment and treatment of children who are critically ill with severe haemodynamic disturbance

### KNOWLEDGE

- The principles of oxygen supply and demand
- The factors controlling cardiac output
- Compensatory mechanisms maintaining cardiovascular homeostasis
- Common causes of haemodynamic instability during childhood and know how to differentiate sepsis, hypovolaemia, cardiac failure, cardiac tamponade and hypotension secondary to cardiac rhythm disturbances

### SKILLS

- Recognise the clinical signs of low cardiac output and the clinical signs of progression to shock
- Recognise the biochemical markers of low cardiac output
- Use echocardiography to assist in determining the cause of haemodynamic instability
- Appropriately use fluid administration and inotropic support to optimise cardiac output and tissue oxygen delivery
- Initiate intensive care support for children with haemodynamic instability

### ASSESSMENT & LEARNING METHODS

- ICU rounds including ICU team and cardiology
- Study days

## Investigations and Procedures

**Objective:** To be able to carry out and interpret these investigations and procedures

### KNOWLEDGE

#### ECG

- Age-related changes in ECG wave forms
- Rhythm
- Hypertrophy
- Ischaemic injury and infarction on ECG
- Ambulatory ECG
- Exercise Testing and Cardiac Event Recording
- Adenosine ECG taken during an challenge
- Diagnose the mechanism of an arrhythmia based on the result of the adenosine challenge

#### Chest X-Ray

- Principles of radiation protection
- Classical abnormalities in cardiac silhouette produced by congenital heart defects
- The characteristic CXR appearances of high and low pulmonary blood flow (oedema, vascular, hypertension)

#### Tilt Testing

- Principles of tilt testing
- Indications for tilt testing and methodology

#### DC Cardioversion

- Indications for synchronised and unsynchronised DC cardioversion
- Safety precautions necessary for protection of patients and staff during DC cardioversion

#### Basic Cardiac Pacing

- Electrophysiology and cardiac anatomy relevant to pacing
- Principles of monitoring, interrogating and programming pacemakers

#### Pericardiocentesis

- Indications for pericardiocentesis

#### Balloon Atrial Septostomy

- Indications for balloon atrial septostomy
- Risks of BAS

#### Transthoracic Echocardiography

- The physics of echocardiography, colour Doppler and spectral Doppler
- Factors determining image quality and resolution
- Echocardiographic characteristics of all congenital heart defects

#### Transoesophageal Echocardiography

- Indications for and risks of Transoesophageal Echocardiography
- Appearance of congenital cardiac defects

#### Cardiac Catheterisation

- Indications for diagnostic cardiac catheterisation
- Indications for occlusion of patent arterial duct, balloon pulmonary valvoplasty, balloon aortic valvoplasty, pulmonary artery angioplasty, recoarctation angioplasty

**Cardiac MRI and Thoracic CT**

- Indications and contraindications for cardiac MRI and CT of the thorax
- Fundamentals and limitations of MR image acquisition
- Limitations of non-invasive imaging

**Radiation Use and Safety**

- Define the physics and hazards of ionising radiation to patients and staff
- Factors that affect radiation exposure

**SKILLS**

- Carry out and interpret a 12 lead ECG in all age groups
- Interpret a CXR to assist diagnosis and assessment of cardiac disease at all ages including using information on the CXR to assist in making an anatomical and physiological diagnosis in congenital heart disease
- Interpret tilt table tests in evaluating patients with syncope including resuscitating a child during a tilt table test
- Perform elective and emergency DC cardioversion including selecting an appropriate energy for DC cardioversion for different arrhythmias at different ages. Carry out DC cardioversion as part of emergency resuscitation
- Select an appropriate energy for DC cardioversion for different arrhythmias at different ages
- Carry out DC cardioversion as part of emergency resuscitation
- Perform independently all of the above procedures and investigations
- Perform temporary pacing and acquire basic skills in pacemaker monitoring. Carry out single and dual chamber pacing using epicardial wires in postoperative patients
- Carry out overdrive pacing to treat tachyarrhythmias
- Perform pericardiocentesis safely and effectively
- Assist in balloon atrial septostomy safely and effectively including performing transthoracic echocardiography to guide balloon atrial septostomy
- Perform echocardiography in all ages from newborn to adult to diagnose and assess all forms of congenital and acquired heart disease including the echocardiographic characteristics of all congenital heart defects and how to assess the physiology of shunting defects Interpret the results of diagnostic cardiac catheterisation in children and adults with cardiac disease
- Perform echocardiography in all ages from newborn to adult to diagnose and assess all forms of congenital and acquired heart disease including the echocardiographic characteristics of all congenital heart defects and how to assess the physiology of shunting defects Interpret the results of diagnostic cardiac catheterisation in children and adults with cardiac disease
- Interpret clinical information and the results of non-invasive investigations to decide what information must be acquired by cardiac catheterisation
- Interpret basic MR and CT images of the heart and great vessels, recognising when expert help is required
- Use radiation equipment appropriately and safely for the diagnosis, assessment and treatment of patients with cardiac disease according to the national radiation protection guidelines
- Be able to operate radiation equipment safely and effectively including having successfully completed a period of practical supervised training in the use of radiation equipment

**ASSESSMENT & LEARNING METHODS**

- DOPS for all relevant procedures/investigations
- Mini CEX

## Documentation of Minimum Requirements for Training

- These are the minimum number of cases you are asked to document as part of your training. It is recommended you seek opportunities to attain a higher level of exposure as part of your self-directed learning and development of expertise.
- You should expect the demands of your post to exceed the minimum required number of cases documented for training.
- If you are having difficulty meeting a particular requirement, please contact your speciality coordinator.

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
<b>Section 1 - Training Plan</b>				
<b>Personal Goals Plan</b> (Copy of agreed Training Plan for your current training year signed by both Trainee & Trainer)	Required	1	Training Post	Personal Goals Form
<b>On Call Rota</b>	Required	1	Training Post	Clinical Activities
<b>Section 2 - Training Activities</b>				
<b>Outpatient Clinics</b>				Clinics
Paediatric cardiology clinics (minimum 1 per week)	Required	40	Year of Training	
Specialty Clinics:	Required	1	Year of Training	
CMP	Required	6	Year of Training	
Adult congenital cardiology	Required	20	Year of Training	
Transplant clinic	Required	6	Year of Training	
PHT	Required	2	Year of Training	
ACHD	Required	20	Year of Training	
Genetics (SCDY)	Required	6	Year of Training	
NNICU visits	Required	20	Year of Training	
Fetal clinics	Required	20	Year of Training	

Curriculum Requirement	Required/ Desirable	Minimum Requirement	Reporting Period	Form Name
<b>Ward Rounds/Consultations</b>				Clinical Activities
Consultant led (minimum 1 per week)	Required	40	Year of Training	
SpR led (1 per week)	Required	40	Year of Training	
Consultations	Required	40	Year of Training	
<b>Emergencies/Complicated Cases</b>	Desirable	6	Year of Training	Cases
<b>Procedures/Practical Skills/Surgical Skills</b>				Procedures, Skills & DOPS
12 Lead ECG	Required	50	Year of Training	
Ambulatory ECG, Exercise Testing and Cardiac Event Recording	Required	30	Year of Training	
ECG with Adenosine Challenge	Required	5	Year of Training	
Chest X-Ray	Required	30	Year of Training	
Tilt Testing	Required	1	Year of Training	
DC Cardioversion	Required	5	Year of Training	
Basic Cardiac Pacing	Required	2	Year of Training	
Pericardiocentesis	Required	2	Year of Training	
Balloon Atrial Septostomy	Required	1	Year of Training	
Transthoracic Echocardiography	Required	300	Year of Training	
Transoesophageal Echocardiography	Required	20	Year of Training	
Cardiac Catheterisation	Required	30	Year of Training	
Cardiac MRI and Thoracic CT	Required	30	Year of Training	
Fetal Cardiology	Required	20	Year of Training	

Curriculum Requirement	Required/ Desirable	Minimum Requirement	Reporting Period	Form Name
Specialist Imaging	Required	20	Year of Training	
Cardiac Pacing and Electrophysiology	Required	10	Year of Training	
<b>Additional/Special Experience Gained</b> (sub-specialty experience)	Desirable	1	Training Programme	Cases
<b>Relatively Unusual Cases</b>	Desirable	20	Training Programme	Cases
<b>ICU</b>	Required	30	Training Programme	Cases
<b>Chronic Cases/Long term care</b>	Desirable	5	Training Programme	Cases
<b>Management Experience</b>	Desirable	1	Training Programme	Management Experience
<b>Section 3 - Educational Activities</b>				
<b>Mandatory Courses</b>				Teaching Attendance
APLS	Required	1	Training Programme	
Childhood Development Disorders	Required	1	Training Programme	
Ethics: Foundation	Required	1	Training Programme	
Ethics for Paediatrics	Required	1	Training Programme	
HST Leadership in Clinical Practice	Required	1	Training Programme	
Informing families of their child's disability (online)	Required	1	Training Programme	
Mastering Communications (Year 1)	Required	1	Training Programme	
NRP Neonatal Resuscitation Course	Required	1	Training Programme	
Performing Audit	Required	1	Training Programme	
STABLE	Required	1	Training Programme	
Wellness Matters	Required	1	Training Programme	

Curriculum Requirement	Required/ Desirable	Minimum Requirement	Reporting Period	Form Name
<b>Non – Mandatory Courses</b>	Desirable	1	Training Programme	Teaching Attendance
<b>Study days</b> (attend minimum of 6 per year)	Required	6	Year of Training	Teaching Attendance
<b>Participation at In-house activities</b> minimum of 1 per month from the categories below:				Attendance at Hospital Based Learning
Grand Rounds	Required	10	Year of Training	
Journal Clubs	Required	10	Year of Training	
MDT meetings	Required	30	Year of Training	
Seminars	Required	1	Year of Training	
Lectures	Required	1	Year of Training	
<b>Delivery of Teaching</b>				
Lecture	Required	4	Year of Training	
Tutorial	Required	4	Year of Training	
Bedside teaching	Required	4	Year of Training	
<b>Research</b>	Desirable	1	Training Programme	Research Activities
<b>Audit activities and Reporting</b> (1 audit per year to either start or complete, Quality Improvement (QI) projects can be uploaded against audit)	Required	1	Year of Training	Audit & QI
<b>Publications</b>	Desirable	1	Year of Training	Additional Professional Experience
<b>Presentations</b> (minimum of 1 oral or poster presentation per year)	Required	1	Year of Training	Additional Professional Experience
<b>National/International meetings</b> (minimum attend 1 per year)	Required	1	Year of Training	Additional Professional Experience



<b>Curriculum Requirement</b>	<b>Required/ Desirable</b>	<b>Minimum Requirement</b>	<b>Reporting Period</b>	<b>Form Name</b>
<b>Additional Qualifications</b>	Desirable	1	Training Programme	Additional Professional Experience
<b>Committee Attendance</b>	Desirable	1	Training Programme	Additional Professional Experience

<b>Section 4 - Assessments</b>				
<b>DOPS</b>				Procedures, Skills & DOPS
Ambulatory ECG, Exercise Testing and Cardiac Event Recording	Required	1	Year of Training	
ECG with Adenosine Challenge	Required	1	Year of Training	
Chest X-Ray	Required	1	Year of Training	
Tilt Testing	Required	1	Year of Training	
DC Cardioversion	Required	1	Year of Training	
Basic Cardiac Pacing	Required	1	Year of Training	
Pericardiocentesis	Required	1	Year of Training	
Balloon Atrial Septostomy	Required	1	Year of Training	
Transthoracic Echocardiography	Required	1	Year of Training	
Transoesophageal Echocardiography	Required	1	Year of Training	
Cardiac Catheterisation	Required	1	Year of Training	
Cardiac MRI and Thoracic CT	Required	1	Year of Training	
Specialist Imaging	Required	1	Year of Training	
Cardiac Pacing and Electrophysiology	Required	1	Year of Training	
<b>CBD</b>	Required	4	Year of Training	Case Based Discussion
<b>Mini-CEX</b>	Required	2	Year of Training	Mini CEX
<b>Quarterly Assessments/End-of-Post Assessments</b>	Required	3	Year of Training	Quarterly Assessments/End-of-Post Assessments
<b>End of Year Evaluation</b>	Required	1	Year of Training	End of Year Evaluation

