Royal College of Paediatrics and Child Health

SPIN Module curriculum in

Paediatric Cardiology

SPIN Version 2
Approved for use from 1 October 2020

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Section 1

Introduction and purpose

Introduction to SPIN modules

Special Interest (SPIN) modules are the additional training/experience a Paediatrician completes so that they can be the local lead and part of the clinical network, providing for children and

the SPIN purpose statement.

Trainees, Consultants and others providing expert care will be able to seek training in an area of special interest or in aspect(s) of sub-specialty care. This will involve training, assessment and

The SPIN can be completed before or after CCT. It should be feasible to complete the SPIN in no more than 12 months full-time training. SPIN training does not have to be completed within

people with heart diseases, and be able to initiate emergency medical management, such as prostaglandin E1/E2 (prostin) infusion in a neonate with duct dependent defect or diuretics and

Paediatric and Neonatal colleagues in optimising cardiac support, and escalating the care to the Paediatric Cardiologist at Level 1 Centre or Level 2 Centre. The PECs need to be aware of their own limitations and work closely with Paediatric Cardiologists to manage clinical situations and seek

Requirements to undertake this SPIN module

Applicant requirements

This SPIN module is available to General Paediatric trainees and post-CCT Paediatricians with an

the requirements of the SPIN curriculum.

Clinicians who are interested in undertaking this SPIN module should approach their Head

posts would be available and request support in undertaking this extra training. SPIN applicants are required to demonstrate that they have support of their Training Programme Director and have an appropriate Educational and Clinical Supervisor in place. Further guidance for post-CCT applicants is available on the RCPCH website.

Applicants with relevant recent experience may use some retrospective evidence towards their SPIN module in some cases. Please see the applicant guidance at www.rcpch.ac.uk/spin for more details on how to apply to undertake a SPIN module.

Training duration

SPIN training should be feasible within 12 months for full-time clinicians, or pro-rata for Less Than Full Time (LTFT) clinicians. It is expected that to achieve the necessary Learning Outcomes, a clinician will need to train in the following clinical settings:

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A suitable training centre is one which is currently approved for higher specialist training (see sub-specialist training section of the RCPCH website for more detail).

In order to enhance knowledge and understanding in congenital heart diseases and echocardiography, it is recommended that the clinician should undertake a Paediatric Echocardiography course and a morphology course in congenital heart disease either before or soon after starting the placement for SPIN training programme. It is also expected that during their SPIN training, clinicians should make progress towards obtaining the Congenital Heart

Imaging (EACVI) or a recognised equivalent accreditation, and they should be encouraged to

contribution to workforce planning in regions where limited approved SPIN modules are available. For example, smaller sub-specialties such as Nephrology, Immunology & Infectious Diseases (IID) or Paediatric Cardiology are only available in a limited number of Deaneries/LETBs. In order for applications utilising OOP to be considered by the RCPCH, both Deaneries/LETBs must agree and

Cardiology SPIN training is sought after among trainees and quite popular SPIN offered by the RCPCH. However, there are limited places available in Paediatric Cardiology dedicated for Cardiology SPIN training. Some trainees who are interested in Cardiology SPIN are sometimes

RCPCH support Less Than Full Time (LTFT) trainees to undertake SPIN training in Paediatric Cardiology. LTFT trainees will need a longer time in the SPIN training post commiserate with the percentage of whole time equivalent they are doing.

Ensuring fairness and supporting diversity

The RCPCH has a duty under the Equality Act 2010 to ensure that its curriculum and assessments do not discriminate on the grounds of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and belief, sex or sexual orientation.

Care has been taken when authoring the SPIN module curricula to ensure as far as is reasonable and practicable, that the requirements for those undertaking the module do not unnecessarily discriminate against any person on the basis of these characteristics, in line with the requirements of the Act.

The RCPCH seeks to address issues of equality, diversity and fairness during the development of SPIN curriculum in a range of ways, including:

- Curriculum content to be authored, implemented and reviewed by a diverse range of individuals. Equality and diversity data is gathered regularly for clinicians involved in the work of the RCPCH Education and Training division.
- Undertaking careful consideration of the Learning Outcomes and Key Capabilities to ensure that there is a clear rationale for any mandatory content, and thus there are no unnecessary barriers to access or achievement. Beyond these mandatory requirements, the assessment

  the individual trainee.
-

  to sign-off, identifying any possible barriers and ensuring these are appropriately addressed.
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Quality assurance and continual improvement

Ensuring quality in delivery

A robust quality assurance and improvement framework is required to support an effective curriculum and Assessment Strategy. The purpose of this is to promote the improving quality of the trainee experience, and to ensure that the curriculum content, delivery, assessment and implementation is monitored and reviewed in a planned, systematic and appropriate manner.

SPIN module review and revision

service need. Reviews are led by the SPIN Lead (usually the relevant RCPCH CSAC), who will report to the ETQC requesting any changes required. Where necessary, a SPIN can be updated

Updated SPIN curricula will be published, making clear what amendments have been made on each occasion, using the version tracking table at the front of each document. Where this amendment relates to a Key (mandatory) Capability, the ETQC will issue guidance for trainees currently undertaking the SPIN module, noting any implications of the amendment and whether they are required to meet the new criteria. Amendments will only be made where a clear rationale exists for doing so, and every effort will be made to minimise any negative impact on the trainee.

"Having an appointment with my doctors [children's] with the one from the new hospital [adults'] helps and we can go on a visit before" **RCPCH &Us**

For people with heart conditions, we might be seeing doctors for our whole lives. It can be really scary thinking that the doctor, nurses, receptionists and everyone you have grown up with in your

transition, like lots of appointments with both sets of doctors (old and new), virtual tours, phone calls and visits so you get used to it, and that you start talking about it really early so a few years before you have to move.

to explain to us or our families, and to remind us regularly when you see us as it is easy to forget or lose the information when there are lots of other things going on. Thinking about all of us as

"the best doctor is someone like you, kind, funny, happy and listens to me and my family" **RCPCH &Us**

Thank you for doing this course to be the best doctor

Questions to think about:

1. What ways will you help everyone to talk with you on their own in the way that is right for them?
2. What local and national charities do you know that help families dealing with heart conditions or mental health?
3. How will you get to know about me and my family and make the space about me, rather than the illness?

Thank you to children, young people and families from the RCPCH &Us network for sharing their ideas and views used in this section.

Section 2

Paediatric Cardiology Care

How to use the RCPCH SPIN curriculum

This curriculum provides a framework for training, articulating the standard required to achieve the SPIN module and progress as indicated within the purpose statement. The curriculum ensures the quality and consistency of training and assessment, and encourages the pursuit of excellence in all aspects of clinical and wider practice. It must be referred to throughout training, as the clinician records evidence demonstrating their developing skills and knowledge.

The curriculum should be used to help design training programmes locally, that ensure all clinicians undertaking SPIN training can develop the necessary skills and knowledge, in a variety

Development Plan.

The curriculum comprises a number of Learning Outcomes, which specify the standard that clinicians must demonstrate to attain this SPIN module. They are encouraged to consider innovative ways of demonstrating how they have met the Learning Outcome.

1. Manages a child with cardiovascular collapse in neonates and infants, differentiating from cardiac and non-cardiac causes based on timing of presentation and identifying duct dependent cardiac disease and initiation of Prostaglandin E treatment. Appropriately escalates or refers to a Paediatric Cardiologist for further intervention or evaluation. Demonstrates awareness of the limitations of echocardiography.

2. Manages/supports management of a cyanotic infant by undertaking clinical assessment and transthoracic echocardiogram to diagnose or rule out a duct dependent congenital heart condition and appropriately refers to Paediatric Cardiologists, if there is a need for intervention/ surgery.

3. Manages neonates with PPHN (Persistent Pulmonary Hypertension of the newborn) and advises the Paediatric/Neonatal team, assesses the differential diagnoses, considers cardiac and non-cardiac causes and escalates treatment after discussion with the specialists.

4. Manages children and young people who are critically ill with haemodynamic disturbance and differentiating non-cardiac causes such as sepsis, hypovolaemia or cardiac causes secondary to cardiac failure, cardiac tamponade and hypotension caused by cardiac arrhythmia.

Diagnoses a range of acquired cardiac conditions in children and young people with clinical assessment and basic non-invasive cardiac investigations, such as echocardiography, 12 lead ECG, ambulatory ECG, and exercise testing. Initiates management for acquired heart conditions and escalates, as necessary.	GPC 2, 3, 4

Key Capabilities

Recognises common arrhythmias in children and young people, undertakes basic non-invasive cardiac investigations and initiates/advises colleagues on emergency treatment as well as prophylactic treatment; escalates care to the Paediatric Cardiologist for further investigation and management.	GPC 2, 3, 4
Recognises common types of cardiomyopathy in children and young people with clinical assessment and transthoracic echocardiogram; initiates emergency management and escalates care to the Paediatric Cardiologist for further management.	GPC 2, 3
Diagnoses and manages Kawasaki disease with clinical assessment and transthoracic echocardiogram, advises and supports colleagues, including follow up and escalates care to the Paediatric Cardiologist and/or Rheumatologist), as necessary.	GPC 2, 3
Undertakes assessment of cardiac function with clinical review and transthoracic echocardiogram in children and young people with primary non-cardiac conditions and advises colleagues on management.	GPC 2, 3

Ilustrations

1. Diagnoses and manages a neonate or infant with supraventricular tachycardia, including medical or electrical cardioversion and long term medical management.

2. Diagnoses and manages an older child with supraventricular tachycardia, including recognising Wolf-Parkinson-White syndrome, with medical or electrical cardioversion and escalates care to the Paediatric Cardiologist for further investigation and management.

3. cardioversion as per APLS/NLS guidelines and discuss with Paediatric Cardiologist, as necessary.

4. Recognises broad complex tachycardia in a child or young person (on 12 lead ECG, ECG monitor or Holter/event recorder), initiates emergency management based on clinical

5. Recognises different degrees of heart block in an infant or a child, undertakes basic investigations and escalates care to the Paediatric Cardiologist, as necessary.

6. Diagnoses dilated cardiomyopathy with clinical assessment and transthoracic

specialists, including Paediatric Cardiologist, Paediatric Intensive Care and Anaesthetic colleagues.

7. Diagnoses hypertrophic cardiomyopathy on clinical and echocardiography assessment, initiates emergency management, including provides advice on exercise/activity and escalates to the Paediatric Cardiologist for further investigations and management.

8. transthoracic echocardiogram and escalates to the Paediatric Cardiologist.

9. Manages/supports immediate and long term management of a child or young person with Kawasaki disease, including clinical, ECG and transthoracic echocardiographic assessment of cardiac function, coronary and ischaemic consequences; escalates to the Paediatric Cardiologist, as necessary.

10. Undertakes assessment of cardiac function in a child and young person with sepsis and

11. Undertakes assessment of cardiac function in a child and young person with hypertension due to renal or other causes and advises on management.

SPIN Learning Outcome 4

Undertakes, interprets and reports on a range of basic non-invasive cardiac investigations in neonates, children and young people, including basic transthoracic echocardiogram, 12 lead ECG, Holter ECG and exercise tolerance testing.	GPC 2, 3, 4, 5

Key Capabilities

3.
according to the age and clinical presentation, and advises/organises further investigation, if necessary.

4.
a child or young person, including pre-excitation, long QTc and Brugada syndrome and arranges further investigation/escalates care to the Paediatric Cardiologist, as necessary.

5. Undertakes/reports on 24 hour Holter on a child or young person with heart block and escalates care to the Paediatric Cardiologist, as necessary.

6. Undertakes or reports on 24 hour Holter on a child or young person to diagnose or rule out a tachyarrhythmia, understanding the limitation of this in picking up episodic events.

7. Undertakes/reports on a ECG event recording of a child or young person to diagnose or rule out a tachyarrhythmia, understanding the limitation of this in picking up episodic events.

8.
protocol) on a child or young person.

9. Supervises/reports on a 6-minute walk test on a child or young person with an underlying congenital or acquired cardiac condition.

SPIN Learning Outcome 5

Assesses and manages children and young people with palpitations, chest pain, syncope, POTS or vasovagal and symptoms; undertakes appropriate investigations, as necessary, to diagnose or exclude an underlying cardiac condition and provides appropriate support.	GPC 2, 3, 4, 5, 6, 8

Key Capabilities

Assesses and manages children and young people with palpitations, undertaking appropriate investigations to diagnose or exclude a cardiac condition or arrhythmia; advises appropriately on management of individual episodes based on associated symptoms and most likely underlying cause.	GPC 2 ,3, 8
Assesses and manages children and young people with syncope, undertaking appropriate investigations, if necessary, including conducting a tilt test and demonstrating understanding of its limitations.	GPC 2, 3, 8
Assesses and manages children and young people with chest pains, undertaking appropriate investigations, if necessary, based on any associated symptoms and signs.	GPC 2, 3, 8

Ilustrations

1. Manages a child or young person with acute onset palpitations, undertaking appropriate investigations to diagnose or rule out a car

SPIN Learning Outcome 6

Leads in providing and co-ordinating care for children and young people with heart conditions with other professionals, such as Paediatric Cardiologists, General Practitioners, Community Paediatricians, Neonatal and Paediatric Intensivists, Paediatric sub-specialists, fetal medicine team, Clinical Psychologists and Allied Health Care Professionals (e.g. dietician, physiotherapist, occupational therapist, etc) to provide care, near to their home.	GPC 2, 3, 4, 5, 6, 8

Key Capabilities

Provides appropriate advice to children and young people with congenital heart disease and/or their parents/carers on other relevant aspects of their health and lifestyle, including transitioning to adult congenital cardiology services.	GPC 2, 3, 4
Provides advice to acute paediatric staff, A&E colleagues, neonatal and paediatric intensivists, paediatric sub-specialists, and community paediatric colleagues about children and young people with an underlying cardiac condition.	GPC 2, 3, 8
Provides basic advice to surgical and dental colleagues, undertaking non-cardiac intervention in children and young people with an underlying cardiac condition.	GPC 2, 3, 8
Provides support to fetal medicine team when congenital heart defect is suspected on antenatal scans and provides antenatal counselling from a with fetal cardiologist and obstetrician to put perinatal management plan in place for antenatally diagnosed complex cases.	GPC 2, 3, 5, 6, 8

Ilustrations

1. Demonstrates a good understanding of the risk of and current guidelines on body art, such as tattoo and piercing in a young person with congenital heart disease and advises them and/or parents/carers accordingly.

2. Advises a child or young person with congenital heart disease on other aspects of health, such as dental care, sports/exercise, safe sex/contraception etc.

Section 3

Assessment Strategy

How to assess the Paediatric Cardiology SPIN

The Assessment Strategy for this SPIN module is aligned with the RCPCH Progress Programme of Assessment, utilising a range of different formative and summative assessment tools.

The Programme of Assessment comprises a wide range of assessment tools which must be

are knowledge, skills and capability-based, capturing a wide range of evidence which can be

Outcomes. The assessments also provide clinicians with the opportunity to obtain developmental

Assessment blueprint

This table suggests assessment tools which may be used to assess the Key Capabilities for these Learning Outcomes.

This is not an exhaustive list, and clinicians are permitted to use other methods within the RCPCH Assessment Strategy to demonstrate achievement of the Learning Outcome, where they can demonstrate these are suitable.

Key Capabilities	Assessment / Supervised Learning Event suggestions									
	Paediatric Mini Clinical Evaluation (ePaed Mini-CEX)	Paediatric Case-based Discussion(ePaed CbD)	Directly Observed Procedure / Assessment of Performance (DOP/AoP)	Acute Care Assessment Tool (ACAT)	Discussion of Correspondence (DOC)	Clinical Leadership Assessment Skills (LEADER)	Handover Assessment Tool (HAT)	Paediatric Multi Source Feedback (ePaed MSF)	Paediatric Carers for Children Feedback (Paed CCF)	Other
Undertakes assessment of children and young people, including neonates, who are suspected to have a congenital heart condition by clinical presentation.										
Recognises or excludes a cardiac condition in most situations by transthoracic echocardiography and/or 12 lead ECG, and takes a lead in the initial discussion of the diagnosis with the parents or carers, including the child or young person if appropriate, using the available parent information resources.										
Initiates and advises on emergency management duct dependent congenital heart condition; recognises the need for escalation to a specialist paediatric cardiac centre and liaises with Paediatric Cardiologist, Anaesthetist, paediatric intensive care and transport colleagues, as necessary.										

Key Capabilities	Assessment / Supervised Learning Event suggestions									
	Paediatric Mini Clinical Evaluation (ePaed Mini-CEX)	Paediatric Case-based Discussion(ePaed CbD)	Directly Observed Procedure / Assessment of Performance (DOP/AoP)	Acute Care Assessment Tool (ACAT)	Discussion of Correspondence (DOC)	Clinical Leadership Assessment Skills (LEADER)	Handover Assessment Tool (HAT)	Paediatric Multi Source Feedback (ePaed MSF)	Paediatric Carers for Children Feedback (Paed CCF)	Other
Recognises that certain congenital heart conditions cannot always be excluded by transthoracic echocardiogram and depending on clinical presentation/suspicion seeks advice from/refers such a child and young person to Paediatric Cardiologist for further assessment or investigations, such as trans-oesophageal echocardiogram or CT angiogram.										
Recognises and assesses children and young people with infective endocarditis and provide advice regarding prevention of infective endocarditis.										
Carries out cardiac evaluation in children and young people with features of a genetic condition/ syndrome.										
Monitors an infant, child or young person diagnosed with a left to right shunt lesion for development of heart failure, initiating medical management and escalating care to the Paediatric Cardiologist, as necessary.										
Monitors an infant, child or young person diagnosed with cyanotic congenital heart disease for development or worsening of cyanosis, initiating medical management and escalating care to the Paediatric Cardiologist, as necessary.										
Monitors a child or young person with congenital heart disease for development of arrhythmias, pre or post intervention; recognises that some congenital heart diseases are more prone for development of arrhythmias and escalates care to the Paediatric Cardiologist, as necessary.										
Monitors a child or young person with congenital heart disease for progression of disease and escalates care to the Paediatric Cardiologist, as necessary.										
Monitors a child or young person with congenital heart disease post-surgery or intervention, as agreed with Paediatric Cardiologist and undertakes clinical assessment and/or non-invasive investigations, demonstrating a good understanding of the parameters needed to be monitored and the possible complications to look out for.										

Key Capabilities	Assessment / Supervised Learning Event suggestions									
	Paediatric Mini Clinical Evaluation (ePaed Mini-CEX)	Paediatric Case-based Discussion(ePaed CbD)	Directly Observed Procedure / Assessment of Performance (DOP/AoP)	Acute Care Assessment Tool (ACAT)	Discussion of Correspondence (DOC)	Clinical Leadership Assessment Skills (LEADER)	Handover Assessment Tool (HAT)	Paediatric Multi Source Feedback (ePaed MSF)	Paediatric Carers for Children	

Key Capabilities	Assessment / Supervised Learning Event suggestions									
	Paediatric Mini Clinical Evaluation (ePaed Mini-CEX)	Paediatric Case-based Discussion(ePaed CbD)	Directly Observed Procedure /							

Appendices

Appendix B: Criteria for SPIN delivery

The following requirements should be met when designing a training programme for a SPIN module. Adherence to these criteria will help ensure the clinician will have the necessary support and access to experiences which they will require in order to successfully complete this SPIN module. These criteria are framed against the standards set out in Excellence by Design: standards for post graduate curricula (GMC 2017).

Programme of assessment	
• The site has adequate levels of Educational Supervisors. Consultants with either General Paediatric or Sub Specialty expertise can be matched to the requirements of the trainee. It is important that Educational supervisors can provide supervision and have the required remission to facilitate this, i.e. 1 PA per week per 4 trainees. • Supervision must ensure patient safety. Support for trainers and supervisors must be available within the Trust.	**CSAC specific requirements:** • N/A
Quality assurance and improvement	
• The post will allow the trainee to participate • The post will allow the trainee to actively engage with the teaching, assessing and • The post will allow opportunity for the trainee to engage in research activities.	**CSAC specific requirements:** • Opportunities to complete a clinical audit or service evaluation and possible.