

Paediatric Intensive Care Medicine

Level 3

Paediatrics Sub-specialty Syllabus

Version 1

Approved by the GMC for implementation from 1st August 2018

This document outlines the syllabus to be used by doctors completing completing Level 3 Paediatric Intensive Care Medicine training in the United Kingdom training in the United Kingdom (UK). It accompanies the RCPCH Progress curriculum and assessment strategy.

This is Version 1.0. As the document is updated, version numbers will be changed, and content changes noted in the table below.

Version number	Date issued	Summary of changes

Introduction



This syllabus supports the completion of the RCPCH Progress curriculum, and should be used in conjunction with the curriculum document.

The purpose of the curriculum is to train doctors to acquire a detailed knowledge and understanding of health and illness in babies, children and young people. The curriculum provides a framework for training, articulating the standard required to work at Consultant level, and at key progression points during their training, as well as encouraging the pursuit of excellence in all aspects of clinical and wider practice.

The curriculum comprises of Learning Outcomes which specify the standard that trainees must demonstrate as they progress through training and ultimately attain a Certificate of Completion of Training (CCT). The syllabi support the curriculum by providing further instructions and guidance as to how the Learning Outcomes can be achieved and demonstrated.

Using the Syllabus

Paediatric trainees are required to demonstrate achievement of generic and sub-specialty or General Paediatric Learning Outcomes throughout their training period.

For all level 1 and level 2 trainees, there are 11 generic paediatric Learning Outcomes for each level. At level 3, there are a further 11 generic paediatric Learning Outcomes for all trainees, and several additional Learning Outcomes in either General Paediatrics or the GRID sub-specialty the trainee has been appointed into.

This syllabus contains 5 interlinked elements, as outlined in figure 1 which illustrates how each element elaborates on the previous one.

Elements of the Syllabus

The **Introductory Statement** sets the scene for what makes a Paediatric Intensive Care Physician.

The **Learning Outcomes** are stated at the beginning of each section. These are the outcomes which the trainee must demonstrate they have met to be awarded their Certificate of Completion of Training (CCT) in Paediatrics. Progress towards achievement of the Learning Outcomes is reviewed annually at the Annual Review of Competence Progression (ARCP).

Each Learning Outcome is mapped to the General Medical Council (GMC) Generic Professional Capabilities framework. Each trainee must achieve all the Generic Professional Capabilities to meet the minimum regulatory standards for satisfactory completion of training.

The **Key Capabilities** are mandatory capabilities which must be evidenced by the trainee, in their ePortfolio, to meet the Learning Outcome. Key Capabilities are therefore also mapped to the GMC Generic Professional Capabilities framework.

The **Illustrations** are examples of evidence and give the range of clinical contexts that the trainee may use to support their achievement of the Key Capabilities. These are intended to provide a prompt to the trainee and trainer as to how the overall outcomes might be achieved. They are not intended to be exhaustive, and excellent trainees may produce a broader portfolio or include evidence that demonstrates deeper learning. It is not expected that trainees provide ePortfolio evidence against every individual illustration (or a set quota); the aim of assessment is to provide evidence against every Key Capability.

The **Assessment Grid** indicates suggested assessment methods, which may be used to demonstrate the Key Capabilities. Trainees may use differing assessment methods to demonstrate each capability (as indicated in each Assessment Grid), but there must be evidence of the trainee having achieved all Key Capabilities.

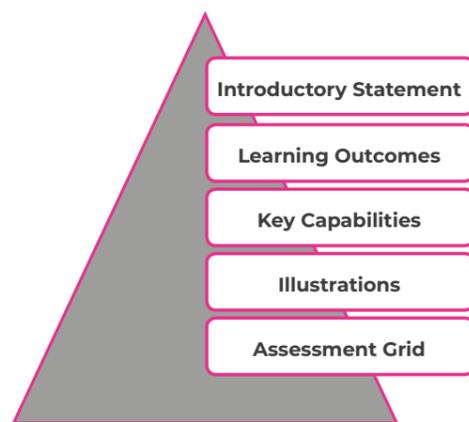


Figure 1: The 5 elements of the syllabus

Using the Syllabus with ePortfolio

Recording evidence in the ePortfolio to demonstrate progression against the learning outcomes and key capabilities can be done from any assessment or event in the ePortfolio.

At the end of any event or assessment, there is an opportunity to add tags, documents and comments. Expanding this by clicking “show more” will enable you to link your assessment to the curriculum items, where you will find the learning outcomes for each domain, key capabilities and example illustrations.

Trainees will therefore be able to track their progress in fulfilling the mandatory learning outcomes and key capabilities.



Paediatric Intensive Care Medicine Introductory Statement

Introductory Statement

The Paediatric Intensive Care Physician (PICP) is a doctor from a paediatric, intensive care or anaesthetic background who resuscitates, stabilises, transfers and treats critically ill and injured children. They identify those children who need intensive care support and are skilled at the procedures and techniques necessary to deliver that support. They are highly skilled at directing, leading and coordinating both medical and surgical resuscitation, and can prioritise and respond to new and urgent clinical situations.

The PICP treats children with a wide range of life-threatening pathologies within the emergency, transfer and intensive care settings. They interact with, coordinate, educate and supervise all members of the multi-professional Intensive Care Team, understanding the unique interaction of the Intensive Care Unit with every component of the hospital. They work in difficult and challenging environments within the emergency, transfer and intensive care settings. The PICP also coordinates and delivers appropriate care in the setting of a major incident.

PICM Sub-specialty Recognition within Intensive Care Medicine

Paediatric Intensive Care Medicine (PICM) has been approved by the GMC as a sub-specialty of Intensive Care Medicine. The Faculty of Intensive Care Medicine (FICM) sets the training requirements for adult Intensive Care Medicine (ICM). Trainees engaged in a Single or Dual CCT in ICM can undertake sub-specialty accreditation in PICM via the Grid Training Programme.

Single ICM CCT trainees incorporate the PICM training into the exiting programme, which requires no extension of training time. Trainees undertaking Dual CCTs in ICM and a partner specialty (e.g. Anaesthesia) may also wish to apply for the PICM Sub-specialty Programme. Undertaking Dual CCTs and sub-specialty recognition, however, will result in a significantly prolonged period of training with an additional 24 months required.

The full details of how PICM can be incorporated into the ICM training programme can be found within the FICM's ICM CCT curriculum, available to download below.

https://www.ficm.ac.uk/sites/default/files/cct_in_icm_part_i_-_handbook_2017_v2.3.1.pdf

Sub-specialty Learning Outcomes

Sub-specialty Learning Outcomes		GMC Generic Professional Capabilities
1.	Recognises, assesses and manages the full range of both medical and surgical paediatric conditions requiring intensive care support, including the management of safeguarding issues within this environment.	GPC 3, 5, 6, 7
2.	Assumes the role of Intensive Care Team Leader and liaises with hospital and community specialist teams, effectively managing and coordinating patient flow, staffing, safety and quality in the context of a busy Paediatric Intensive Care Unit (PICU).	GPC 3, 5, 6
3.	Resuscitates, stabilises, and transfers critically ill children, performing the high-level clinical and technical skills and procedures necessary to carry this out in the paediatric intensive care, emergency and transport environments.	GPC 3
4.	Performs high-level technical skills and procedures utilising the appropriate medications necessary for managing critically ill children, and troubleshoots appropriately.	GPC 3
5.	Supports and communicates with families when their child is extremely unwell, dying or has died.	GPC 3, 5, 6, 9

Sub-specialty Learning Outcome 1

Recognises, assesses and manages the full range of both medical and surgical paediatric conditions requiring intensive care support, including the management of safeguarding issues within this environment.	GPC 3, 5, 6, 7
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Key Capabilities

Manages critically ill children with the full range of paediatric conditions, including pre- and post-operative patients (e.g. neonatal surgery, cardiothoracic surgery and neurosurgery patients), critically ill cardiac patients, and both accidental and non-accidental trauma patients, with particular consideration of safeguarding issues.	GPC 3, 5, 6, 7
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Illustrations

1.	Manages all aspects of upper airway obstruction.
2.	ICU management of upper and lower respiratory tract infections (RTIs).
3.	ICU management of respiratory failure (in particular, acute asthma and sickle chest).
4.	ICU management of cardiovascular collapse, applying the benefits of ventilation.
5.	ICU management of hypotension and heart failure.
6.	ICU management of a child in shock with appropriate use of vasoactive drugs as required.
7.	Ability to manage a child with fluid- and inotrope-resistant shock.
8.	ICU management of anaphylaxis.
9.	ICU management of multi-organ dysfunction, with knowledge of the risks and outcomes.
10.	ICU management of the systemic inflammatory response.
11.	ICU management of acute infections including meningitis.
12.	ICU management of acute respiratory distress syndrome (ARDS).
13.	ICU management of occult infection.
14.	ICU management of necrotising fasciitis.

15.	ICU management of hypoglycaemia, including quantifying the glucose requirement.
16.	ICU management of hyperglycaemia safely and effectively.
17.	ICU management of hyperthermia and rhabdomyolysis.
18.	ICU management of hyperkalaemia and the underlying causes and risks.
19.	ICU management of raised ammonia, recognising an inborn error of metabolism.
20.	ICU management of metabolic disease.
21.	ICU management of liver failure, recognising the indications for liver transplantation.
22.	ICU management of an extremely high white cell count and tumour lysis syndrome.
23.	ICU management of oncological conditions presenting to the PICU.
24.	ICU management of immunodeficient states.
25.	ICU management of haematological disorders (e.g. sickle cell disease).
26.	ICU management of neuromuscular problems, including diagnosis, treatment and support.
27.	ICU management of peripheral weakness after critical illness.
28.	ICU management of obesity and its impact on the critically ill patient.
29.	ICU management of reduced level of consciousness.
30.	ICU management of acute neurological emergencies including status epilepticus.
31.	ICU management of diabetic ketoacidosis (DKA) and associated cerebral oedema.
32.	ICU management of acute hydrocephalus.
33.	Appropriately identifies and manages diabetes insipidus.
34.	ICU management of endocrine abnormalities.
35.	ICU management of hepatorenal syndrome.
36.	ICU management of the major post-operative conditions (e.g. spinal, airway and neonatal).
37.	ICU management of the major postoperative risks.
38.	ICU management of venous and arterial thromboses.
39.	ICU management of postoperative nutrition and the associated risks.
40.	Applies knowledge of the coagulation profile and manages appropriately.
41.	ICU management of the neurosurgical patient.
42.	ICU management of necrotising enterocolitis (NEC), tracheoesophageal fistula (TOF) and congenital diaphragmatic hernia (CDH).
43.	ICU management and investigation of a child with suspected poisoning.

44.	ICU management and investigation of a child with non-traumatic physical injuries.
45.	ICU management of serious occult injury in any child with suggestive history.
46.	ICU management of a child with traumatic and non-traumatic head injury.
46.	Coordinates a multi-disciplinary team, including the police, to investigate safeguarding concerns.
48.	Produces a report and presents evidence related to a safeguarding case.
49.	Identifies and treats life-threatening injuries using a structured approach.
50.	ICU management of a child with polytrauma, including primary and secondary surveys.
51.	Manages and institutes cervical spine immobilisation in any at-risk child
52.	Manages acute burn injury and complications (e.g. airway).
53.	Manages acute drowning and complications.
54.	Manages hanging injury and resulting cerebral injury.
55.	Manages acute spinal injury.
56.	Manages carbon monoxide and cyanide poisonings.
57.	ICU management of most commonly injected or ingested poisons.
58.	ICU management of pressure wounds.
59.	Manages longer-term complications of severe trauma.
60.	Manages problems following the successful resuscitation of a patient.
61.	ICU management of the 'blue baby', including advising on the need for prostin.
62.	ICU management of congenital heart disease.
63.	Applies knowledge of pharmacology and the therapeutic use of commonly used cardiovascular agents in the ICU.
64.	ICU management of the post-cardiac bypass/hypothermia/circulatory arrest.
65.	Initiates and monitors the use of anti-hypertensives.
66.	Manages acute and chronic pulmonary hypertension.
67.	ICU management of myocarditis.
68.	Applies the principles of cardiac transplantation, understanding the outcomes.
69.	Applies knowledge of the principles and application of extracorporeal membrane oxygenation (ECMO).

Sub-specialty Learning Outcome 2

Assumes the role of Intensive Care Team Leader and liaises with hospital and community specialist teams, effectively managing and coordinating patient flow, staffing, safety and quality in the context of a busy Paediatric Intensive Care Unit (PICU).	GPC 3, 5, 6
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Key Capabilities

Is proficient in the management of the Intensive Care Team and Unit, working with the Intensive Care Team in the management of all patients, including the complex, long-term patient.	GPC 3, 5, 6
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Illustrations

1.	Engages with the multiple specialists involved with clinical patient management and prioritises management goals appropriately for each patient.
2.	Debriefs and supports the Paediatric Intensive Care (PIC) team after a significant event or major incident.
3.	Responds to threats to patient safety in the intensive care environment.
4.	Manages conflict involving staff and families.
5.	Engages in and applies audit, quality improvement (QI) projects and research within the intensive care environment.
6.	Prioritises, organises and manages the Intensive Care and Transport Teams when there are multiple, conflicting pulls on resources.
7.	Co-ordinates and leads care of the long-term/recurrent attender with multiple needs.
8.	Assists, troubleshoots and initialises long-term ventilation management where appropriate.

Sub-specialty Learning Outcome 3

Resuscitates, stabilises, and transfers critically ill children, performing the high-level clinical and technical skills and procedures necessary to carry this out in the paediatric intensive care, emergency and transport environments.	GPC 3
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Key Capabilities

Is proficient in the resuscitation, stabilisation and transportation of critically ill children (inter-hospital and intra-hospital).	GPC 3
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Illustrations

1.	Performs CPR and leads a resuscitation team.
2.	Applies the principles of temporary pacing and the different modes used.
3.	Recognises and manages the various cardiac rhythms.
4.	Assesses, advises and supports referral teams via telephone/remotely.
5.	Transfers a critically ill child safely within and between hospitals.
6.	Leads a team and integrates with a referral team, providing appropriate feedback following the transport.
7.	Hand ventilates a child with severe respiratory compromise.
8.	Stabilises and appropriately transfers a child with polytrauma.
9.	Prioritises and manages time-critical injuries.
10.	Responds to changes in vital physiological functions during transfer.
11.	Ensures all major injuries are stabilised prior to transfer.
12.	Troubleshoots transport equipment failure.
13.	Recognises and minimises transport risks.

Sub-specialty Learning Outcome 4

Performs high-level technical skills and procedures utilising the appropriate medications necessary for managing critically ill children, and troubleshoots appropriately.	GPC 3
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Key Capabilities

Is proficient in the use of different anaesthetic agents, sedatives, muscle relaxants and analgesia, and has acquired expertise in airway management, vascular access and monitoring skills.	GPC 2, 5, 6
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Illustrations

1.	Uses anaesthetic agents, sedatives, analgesics and muscle relaxants.
2.	Recognises a child requiring airway intervention.
3.	Safely gives general anaesthesia to Anaesthetic Assessment of Competence (ASA) 1-2 patients with spontaneous respirations for uncomplicated surgeries in the supine position.
4.	Performs a rapid sequence induction for ASA 1-2 patients and failed intubation.
5.	Provides perioperative care to ASA 1E-2E patients requiring uncomplicated emergency surgery.
6.	Monitors a child for level of anaesthesia and degree of muscle relaxation.
7.	Applies the principles of and manages regional anaesthesia.
8.	Intubates with c-spine control.
9.	Manages the airway of a child with airway obstruction (e.g. due to mediastinal mass).
10.	Manages the unanticipated difficult airway safely until help arrives.
11.	Safely employs sedation for procedures during which a child is stable and awake.
12.	Applies knowledge of anaesthetic agents that increase intracranial pressure.
13.	Applies the principles of wide-bore vascular access for rapid fluid resuscitation.
14.	Applies the principles of cardiac monitoring.
15.	Completes Basic Anaesthetic Training Competencies (a minimum 6-month post in Anaesthetics).

Sub-specialty Learning Outcome 5

Supports and communicates with families when their child is extremely unwell, dying or has died.	GPC 3, 5, 6, 9
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Key Capabilities

Is proficient in the management of children with life-limiting conditions and their families within the intensive care environment and beyond.	GPC 3, 5, 6
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Illustrations

1.	Considers and uses support mechanisms for difficult end-of-life decisions in critically ill children (i.e. ethics, second opinions, mediation and the law).
2.	Institutes a holistic approach to planning for children with life-limiting illness.
3.	Manages the different cultural and religious influences on the dying child.
4.	Manages the withdrawal of ICU support in a child.
5.	Assesses brain stem function, understanding the legal constraints.
6.	Facilitates organ donation as a routine part of end-of-life care (i.e. referral to donation services) and manages donation after brain and circulatory death.
7.	Supports a family during the death of their child and through bereavement.
8.	Manages the gathering of pre- and post-mortem specimens for diagnosis.

Assessment Grid

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 trainees 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
Manages critically ill children with the full range of paediatric conditions, including pre- and post-operative patients (e.g. neonatal surgery, cardiothoracic surgery and neurosurgery patients), critically ill cardiac patients, and both accidental and non-accidental trauma patients, with particular consideration of safeguarding issues.	✓	✓								
Is proficient in the management of the Intensive Care Team and Unit, working with the Intensive Care Team in the management of all patients, including the complex, long-term patient.	✓	✓	✓	✓		✓	✓	✓		
Is proficient in the resuscitation, stabilisation and transportation of critically ill children (inter-hospital and intra-hospital).	✓	✓	✓	✓		✓		✓		Completion of RCPCH PICM Intercollegiate sub-specialty advisory committee (ISAC) Transport Passport Competencies.
Is proficient in the use of different anaesthetic agents, sedatives, muscle relaxants and analgesia, and has acquired expertise in airway management, vascular access and monitoring skills.	✓	✓	✓	✓		✓		✓		Basic Anaesthetic Competencies completed in a 6-month (minimum) anaesthetic post.
Is proficient in the management of children with life-limiting conditions and their families within the intensive care environment and beyond.	✓	✓	✓	✓		✓		✓		

