

# Paediatric Neurology

Sub-Specialty Syllabus

**Version 3**

Approved by the GMC for implementation from 1 August 2023

This document outlines the syllabus to be used by doctors completing Paediatric Neurology training in the United Kingdom (UK). It accompanies the RCPCH Progress+ curriculum and Assessment Strategy.

This is Version 3. 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                                                                                                                                                   |
|----------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Version 2      | September 2021 | Document reviewed as part of the Shape of Paediatrics Training review.<br><br>'Using the Syllabus with ePortfolio' (page 5) updated.                                 |
| Version 3      | August 2023    | Updated from Progress to Progress+.<br><br>Using the syllabus (page 3) updated: reference to Level 1, 2 and 3 removed and replaced with Core and Specialty training. |
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# Introduction



This syllabus supports the completion of the RCPCH Progress+ curriculum and should be used with the curriculum document and Assessment Strategy.

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, through 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 Learning Outcomes specifying the standard trainees must demonstrate to progress in training and attain a Certificate of Completion of Training (CCT). The syllabi supports the curriculum by providing further instructions and guidance on how the Learning Outcomes can be achieved and demonstrated.

In the context of clinical training and service the term “babies, children and young people” is a common term used by those working in paediatric and child health areas to mean any of those instances in context with clinical training or service. Therefore, in relation to the assessment, the trainee needs to achieve the capabilities for either a baby, child or young person.

## 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 core trainees (ST1 – 4), there are 11 generic paediatric Learning Outcomes. For specialty training (ST5 – 7), there are a further 11 generic paediatric Learning Outcomes and several additional Learning Outcomes in either General Paediatrics or the sub-specialty to which the trainee has been appointed.

This syllabus contains five 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 Neurology doctor.

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.

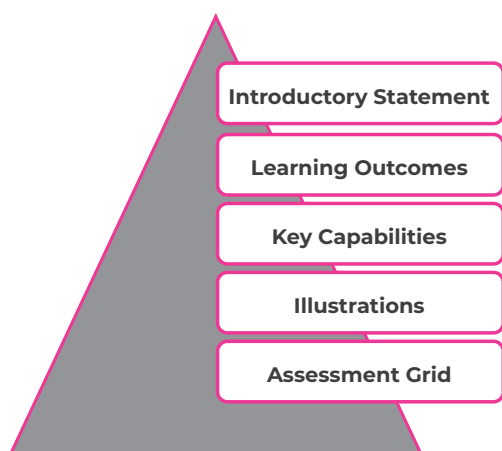


Figure 1: The five elements of the syllabus

## Using the Syllabus with ePortfolio

The ePortfolio is used to demonstrate a trainee's progression using assessments, development logs and reflections. Events should be linked to the Progress+ curriculum specifically against the key capabilities at the appropriate level.

Further guidance on using the ePortfolio is available on our website: <https://www.rcpch.ac.uk/resources/rcpch-eportfolio-guidance-doctors>



# Paediatric Neurology

## Introductory Statement



A Paediatric Neurologist is a doctor who has knowledge and understanding of disorders of the nervous system that affect babies, children and young people. They need to have expertise in conditions including; the epilepsies, movement disorders, cerebrovascular disease, neuromuscular disorders, neuro-genetic, inflammatory and demyelinating disorders, neonatal neurology, acquired brain injury and neurorehabilitation. There is an increasing range of neurological disorders that are amenable to more effective and innovative management and 'personalised medicine' approaches.

In addition, Paediatric Neurologists have generic expertise in neuroimaging, genetics (molecular) medicine and neurosurgical disorders. Some will sub-specialise and work largely or exclusively in this field. Paediatric Neurologists are usually based in a regional neuroscience centre providing tertiary and secondary level services working in out-patient and hospital settings.

In the acute setting they manage a wide spectrum of disorders and provide shared care management of patients on Paediatric Intensive Care Units (PICU), Neonatal Intensive Care Units (NICU) and those undergoing neurosurgery. They provide specialist support advice to paediatric specialty colleagues. They advise on diagnosis and ongoing management of chronic and complex disease.

Paediatric Neurologists work particularly closely with Neurodisability paediatricians, Neurosurgeons, Neurophysiologists, Neuropsychiatrists, Neuroradiologists and Neurogeneticists.

# Sub-specialty Learning Outcomes

| Specialty Learning Outcomes |                                                                                                                                                                                                                                                                                                            | GMC Generic Professional Capabilities |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 1.                          | Recognises, assesses and manages the full range of paediatric neurological conditions, including acute neurological disorders with common and uncommon presentations, anticipating possible pitfalls and complications, while recognising and managing high-risk situations.                               | GPC 1, 3, 4, 5                        |
| 2.                          | Coordinates urgent and complex clinical management, including the provision of non-acute clinic services and ward-based neurogenetic, neuroradiological or neurophysiological multidisciplinary meetings; completes appropriate onward referrals and discharges; and communicates clearly with colleagues. | GPC 1, 3, 4, 5                        |
| 3.                          | Promotes the neurological and developmental health of a child and young person with a neurological disorder.                                                                                                                                                                                               | GPC 1, 4, 5, 6, 7, 8, 9               |
| 4.                          | Assumes the role of paediatric neurological team leader and takes responsibility for this area of service.                                                                                                                                                                                                 | GPC 1, 5, 6, 8                        |
| 5.                          | Practises safe child neurology, including when prescribing medication and initiates and completes a quality improvement project applicable to child neurology.                                                                                                                                             | GPC 1, 5, 6, 9                        |
| 6.                          | Keeps up to date and engages in, supports and stimulates research in child neurology.                                                                                                                                                                                                                      | GPC 9                                 |

# Specialty Learning Outcome 1

|                                                                                                                                                                                                                                                                                     |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <p>Recognises, assesses and manages the full range of paediatric neurological conditions, including acute neurological disorders with common and uncommon presentations, anticipating possible pitfalls and complications, while recognising and managing high-risk situations.</p> | <p>GPC 1, 3, 4, 5</p> |
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## Key Capabilities

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| <p>Assesses and manages children presenting with acute and sub-acute neurological emergencies from birth through to adulthood, including chronic developmental disorders and age-specific neurological syndromes, through the application of the understanding of neurogenetic, neuroradiological and neurophysiological techniques, in relation to:</p> <ul style="list-style-type: none"> <li>• Epilepsies in the newborn, infancy, childhood and adolescence</li> <li>• Neonatal neurology</li> <li>• Cerebrovascular disorders</li> <li>• Neuromuscular disorders</li> <li>• Inflammatory and demyelinating disorders</li> <li>• Neurodegenerative and neurometabolic disorders</li> <li>• Movement disorders, including cerebral palsy</li> <li>• Neuropsychiatric and neuropsychological disorders and medically unexplained neurological syndromes</li> <li>• Neurorehabilitation and acquired brain injury</li> <li>• Headaches and disorders of raised intracranial pressure</li> <li>• Neuro-oncology</li> </ul> | <p>GPC 1, 3, 5, 7</p>       |
| <p>Carries out a wide range of routine, complex and challenging paediatric neurological assessments and investigations appropriately and consistently, based on the history and examination, the probability, costs and the risk–benefit ratio.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>GPC 1, 3, 4, 5, 6, 7</p> |



## Illustrations

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Recognises acutely presenting neurological disorders, eg encephalopathy, paralysis, seizures (including status epilepticus and status dystonicus), central nervous system (CNS) infection, traumatic brain injury, stroke and raised intracranial pressure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2. | Investigates and manages a wide range of childhood neurological disorders, including genetic and developmental malformations of the nervous system from neurometabolic, neurodegenerative, vascular, neuroinflammatory, toxic and traumatic causes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3. | Recognises the neurological disorders that may present with a critical illness and require ICU management and the neurological complications that may occur in patients admitted to ICU with non-neurological disorders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 4. | Demonstrates understanding of normal neurological development patterns and their variants.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 5. | Demonstrates skills in the assessment of a child or young person with a possible movement disorder. Recognises normal variants and differential diagnoses in babies, children and young people and formulates strategies for investigation and management.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6. | Constructs clear management strategies for a child or young person with a complex movement disorder, including relevant potential medical, surgical, physical and psychological therapies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7. | Demonstrates an understanding of the impact of associated learning and behavioural problems in a child or young person with a neurological disorder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 8. | Liaises effectively with hospital and community specialist teams who manage paediatric neurology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 9. | Demonstrates knowledge and understanding of the following essential specialty branches of children's neurosciences: <ul style="list-style-type: none"> <li>• Neurogenetics</li> <li>• Neuroradiology</li> <li>• Neurophysiology</li> <li>• Headache and disorders of raised intracranial pressure</li> <li>• Acute brain and spinal injury</li> <li>• Epilepsies in the newborn, infancy, childhood and adolescence</li> <li>• Neonatal neurology</li> <li>• Cerebrovascular disorders</li> <li>• Neuromuscular disorders</li> <li>• Neurodegenerative and neurometabolic disorders</li> <li>• Movement disorders, including cerebral palsy</li> <li>• Neuropsychiatric and neuropsychological disorders and medically unexplained syndromes</li> <li>• Neurorehabilitation, including after acquired brain and spinal injury</li> <li>• Neuro-oncology</li> </ul> |

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| 10. | Recognises the common false positive results of investigations in a healthy child that may present to a neurologist, eg imaging, biochemical investigations, electroencephalography (EEG), electroretinography (ERG), visual evoked potentials (VEP), brainstem auditory evoked potentials (BAEP), somatosensory evoked potential (SSEP), central motor conduction time (CMCT), electromyography (EMG), nerve conduction velocity (NCV), single-fibre electromyography (SFEMG) and other neurophysiological techniques. |
| 11. | Recognises disorders which require neurosurgical management and evaluates the suitability for surgical treatment, in collaboration with neurosurgical colleagues.                                                                                                                                                                                                                                                                                                                                                       |
| 12. | Demonstrates understanding of the peri-operative management of children or young people undergoing neurosurgical procedures, including the diagnosis and management of common complications.                                                                                                                                                                                                                                                                                                                            |
| 13. | Investigates and manages a child or young person on the ICU following cardiac arrest or severe hypoxic ischaemic encephalopathy (eg near drowning), including conducting and interpreting brainstem death testing.                                                                                                                                                                                                                                                                                                      |
| 14. | Recognises the clinical features and understands the investigation and management of children and young people with CNS tumours, including the late effects of treatment.                                                                                                                                                                                                                                                                                                                                               |
| 15. | Supports the neurological management of a child or young person with a posterior fossa tumour. Demonstrates knowledge of the risks of surgery, the management of complications, including posterior fossa syndrome and neurorehabilitation goals.                                                                                                                                                                                                                                                                       |
| 16. | Demonstrates knowledge of the international classification of headache disorders in children or young people, applying this to support diagnosis and management in the outpatient setting.                                                                                                                                                                                                                                                                                                                              |
| 17. | Recognises the clinical features and understands the investigation and management of neurological disorders typically presenting in adults but that may occur in children or young adults, eg multiple sclerosis (MS), parkinsonism, amyotrophic lateral sclerosis (ALS) and paraneoplastic disorders.                                                                                                                                                                                                                  |
| 18. | Recognises the symptoms and signs of inherited white matter disorders and familiar with their magnetic resonance imaging (MRI) characteristics and classification.                                                                                                                                                                                                                                                                                                                                                      |
| 19. | Demonstrates understanding of the potential results of whole genome sequencing and discusses these with families, including the relevance of polymorphisms, variants of unknown significance and likely pathogenic mutations.                                                                                                                                                                                                                                                                                           |
| 20. | Coordinates the care of a young adult with Duchenne muscular dystrophy transitioning to adult services. Understands the risk of associated health problems and strategies for their management, including respiratory, cardiac and postural management. Formulates an individual care plan to support emotional, social and physical well-being.                                                                                                                                                                        |

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| 21. | <p>Demonstrates knowledge of potential management therapies in development for neurological disorders, for example:</p> <ul style="list-style-type: none"> <li>• Immunomodulation for acute and chronic neuroinflammatory disorders</li> <li>• Gene therapies, relevant therapeutic research studies and treatment programmes for neuromuscular disorders, such as spinal muscular atrophy and Duchenne muscular dystrophy</li> <li>• Deep brain stimulation for movement disorders</li> <li>• Acute stroke management in childhood</li> </ul> |
| 22. | <p>Recognises the complications of acute spinal cord injury and familiar with their management, including autonomic dysfunction, neuropathic bladder and bowel disorders.</p>                                                                                                                                                                                                                                                                                                                                                                  |
| 23. | <p>Recognises and manages neuropathic bladder and bowel disorders to prevent complications (eg chronic renal failure associated with a neuropathic bladder), by establishing a programme of clean intermittent catheterisation.</p>                                                                                                                                                                                                                                                                                                            |
| 24. | <p>Describes the role of neurogenetics in patient stratification, precision medicine and counselling for management and treatment options (eg specific medication known to benefit specific neurogenetic conditions), opting to employ neurosurgical techniques for intractable epilepsy.</p>                                                                                                                                                                                                                                                  |
| 25. | <p>Differentiates between the epilepsies, movement disorders and parasomnias.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 26. | <p>Manages patients with a wide range of childhood epilepsies and discusses the risks and benefits of specific antiepileptic drug treatments. Recognises the role of non-pharmacological treatments, such as the ketogenic diet and vagal nerve stimulation and the criteria for referral for epilepsy surgery.</p>                                                                                                                                                                                                                            |
| 27. | <p>Evaluates and manages children and young people with sleep disorders, eg night terrors, sleep-disordered breathing, nocturnal epilepsies, narcolepsy and restless legs syndrome (RLS).</p>                                                                                                                                                                                                                                                                                                                                                  |
| 28. | <p>Evaluates a teenager with medically unexplained symptoms by discriminating functional and organic symptoms and signs. Discusses the likely diagnosis with the young person and their family and formulates a strategy for management involving the multidisciplinary team (MDT).</p>                                                                                                                                                                                                                                                        |

# Specialty Learning Outcome 2

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| Coordinates urgent and complex clinical management, including the provision of non-acute clinic services and ward-based neurogenetic, neuroradiological or neurophysiological multidisciplinary meetings; completes appropriate onward referrals and discharges; and communicates clearly with colleagues. | GPC 1, 3, 4, 5 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|

## Key Capabilities

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| Considers the full range of treatment and management options available, including new and innovative therapies, relevant to paediatric neurology.                                                                                                                                                                                                                                                                                                                                                                                                  | GPC 3, 5             |
| Demonstrates skills in the management of all aspects of acute neurological disorders presenting to district general and regional centres. Recognises when management is required in a regional neuroscience unit, paediatric intensive care or a high dependency unit (HDU) setting, eg status epilepticus; status dystonicus, chorea and myoclonus; coma and acute disturbances of consciousness; traumatic brain injury; childhood stroke, metabolic and immune-mediated neuroinflammatory encephalopathy and infectious causes of encephalitis. | GPC 1, 3, 4, 5, 6, 7 |
| Coordinates, supervises and performs urgent or complex clinical management, including the provision of non-acute clinic services and multidisciplinary meetings (eg ward-based multidisciplinary team [MDT], neurogenetics MDT, neuroradiology MDT and neurophysiology MDT meetings). Completes appropriate onward referrals and discharges and communicate clearly with colleagues.                                                                                                                                                               | GPC 1, 3, 5, 6, 7    |
| Describes and utilises genetic investigations in the diagnosis of neurological disorders, including knowledge of how to utilise and interpret the results of next generation sequencing (NGS) and utilises and interprets neuroradiological and neurophysiological investigations in the assessment and ongoing management of children and young people with neurological and neurosurgical disorders.                                                                                                                                             | GPC 1, 3, 5, 6, 7    |
| Describes the role of neuroimaging in the clinical diagnostic and management plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | GPC 5                |
| Describes the role of neurophysiological investigations in the clinical diagnostic and management plan.                                                                                                                                                                                                                                                                                                                                                                                                                                            | GPC 5                |

## Illustrations

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Assesses indication(s) for urgent or elective neuroimaging with and without general anaesthesia and obtains informed consent for the procedure in discussion with clinical colleagues.                                                                                                                                                                                                                                                      |
| 2.  | Determines indication for an EEG with and without sleep in the urgent or elective clinical setting, in discussion with clinical colleagues.                                                                                                                                                                                                                                                                                                 |
| 3.  | Evaluates indications for EEG video telemetry (VT) and the relative urgencies.                                                                                                                                                                                                                                                                                                                                                              |
| 4.  | Considers the role of neurogenetic testing in the provision of personalised neurological management and counselling, in discussion with clinical colleagues.                                                                                                                                                                                                                                                                                |
| 5.  | Applies knowledge of anaesthetic, cardiac and respiratory risks for specific neurological disorders.                                                                                                                                                                                                                                                                                                                                        |
| 6.  | Interprets normal and abnormal intracranial pressure recordings and recognises the factors that influence it.                                                                                                                                                                                                                                                                                                                               |
| 7.  | Requests, interprets, acts on and communicates the significance of normal and abnormal neuroimaging within a multidisciplinary setting, including neurosurgical emergencies requiring emergency and out-of-hours neuroimaging interpretation.                                                                                                                                                                                               |
| 8.  | Requests, interprets, acts on and communicates the results of neurophysiological investigations, such as EEG, sleep EEG, video telemetry, electromyography, nerve conduction studies (NCS), electroretinography, visual evoked potentials, brainstem auditory evoked potentials, somatosensory evoked potential, central motor conduction time, transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS). |
| 9.  | Recognises the multisystem nature of many of the neurological disorders.                                                                                                                                                                                                                                                                                                                                                                    |
| 10. | Demonstrates understanding of the pathophysiology, presentation, diagnosis, management, prognosis and outcome of neurological disorders, including those outlined in other specialty programmes, eg neurological complications of cardiac, renal, haematological, endocrine, ENT, rheumatological, infectious, endocrine and dermatological diseases.                                                                                       |

# Specialty Learning Outcome 3

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|--------------------------------------------------------------------------------------------------------------|----------------------------|
| Promotes the neurological and developmental health of a child and young person with a neurological disorder. | GPC<br>1, 4, 5, 6, 7, 8, 9 |
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## Key Capabilities

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| Demonstrates understanding of the impact of having a disabled child in the family, including those with life-limiting disorders. Leads multidisciplinary discussions and coordinates multi-professional care for and management of children or young people with neurological disorders. | GPC 3, 4    |
| Identifies and manages risks of safeguarding issues in children or young people with complex neurological disorders, including those relating to the patient, family and wider society.                                                                                                  | GPC 3, 4, 7 |

## Illustrations

|    |                                                                                                                                                                                                                                                |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Applies interventions to prevent blindness through appropriate management and surveillance of hydrocephalus and other causes of raised intracranial pressure in collaboration with ophthalmic, neuroradiological and neurosurgical colleagues. |
| 2. | Recognises the multisystem nature of many of the neurological disorders.                                                                                                                                                                       |
| 3. | Ensures immunisations are up to date in children and young people with long-standing neurological disorders and in siblings of patients with neurological disorders.                                                                           |

# Specialty Learning Outcome 4

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|------------------------------------------------------------------------------------------------------------|----------------|
| Assumes the role of paediatric neurological team leader and takes responsibility for this area of service. | GPC 1, 5, 6, 8 |
|------------------------------------------------------------------------------------------------------------|----------------|

## Key Capabilities

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Leads an MDT and applies communication skills in a range of environments and situations with children, young people and families in challenging circumstances and communicates effectively with external agencies, including when authorising legal documents and child protection reports. | GPC 3, 5, 7 |
| Performs the full range of clinical investigations and procedures relevant to forming a diagnosis in paediatric neurology, including appropriately coordinating the skills of other health professionals when required.                                                                     | GPC 3       |
| Anticipates the need for transition from paediatric services to adult services and plans accordingly.                                                                                                                                                                                       | GPC 1, 4, 5 |

## Illustrations

|    |                                                                                                                                                                                           |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Leads in coordinating a regional case review and strategy planning meeting for a child or young person following acute brain injury secondary to encephalitis.                            |
| 2. | Provides sub-specialist input into the MDT in the assessment, investigation and management of a child or young person with a possible inflicted head and/or spinal injury.                |
| 3. | Identifies factitious neurological diseases, eg salt poisoning, medication overdose or non-compliance.                                                                                    |
| 4. | Coordinates a MDT meeting between paediatric intensive care, palliative care services and family or carers regarding withdrawal of care.                                                  |
| 5. | Liaises effectively with the regional hospital and community specialist teams to ensure safety and timely assessment for children or young people with a range of neurological disorders. |
| 6. | Liaises with other professionals to organise specialist investigations in another institution, eg positron emission tomography (PET) imaging for complex epilepsy.                        |
| 7. | Contributes to a national patient group meeting for a patient with a rare disease.                                                                                                        |

# Specialty Learning Outcome 5

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| Practises safe child neurology, including when prescribing medication and initiates and completes a quality improvement project applicable to child neurology. | GPC 1, 5, 6, 9 |
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## Key Capabilities

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Investigates, reports and resolves risks to patients, including communication with patients and families or carers. Evaluates safety mechanisms across a range of healthcare settings, applying a reflective approach to self and team performance. | GPC 5, 6 |
| Identifies quality improvement opportunities, supervises healthcare professionals in relation to improvement projects and leads and facilitates reflective evaluation.                                                                              | GPC 6    |

## Illustrations

|    |                                                                                                                                                                               |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Effectively manages and coordinates patient flow, staffing, safety and quality in the context of a busy paediatric neurology department.                                      |
| 2. | Demonstrates participation in a serious case review.                                                                                                                          |
| 3. | Participates in regular mortality meetings, eg for a child who has experienced sudden unexpected death in epilepsy (SUDEP).                                                   |
| 4. | Initiates a quality improvement project for routine investigations, eg a survey of cost-effectiveness or how the results influence management or cause inconvenience or harm. |



# Specialty Learning Outcome 6

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| Keeps up to date and engages in, supports and stimulates research in child neurology. | GPC 9 |
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## Key Capabilities

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| Demonstrates independent development and revision of guidelines and procedures to improve service delivery, centred around current clinical research and evidence-based healthcare. | GPC 9 |
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## Illustrations

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|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Completes a higher degree qualification, eg MSc or PhD.                                                                                                                                                                                          |
| 2. | Publishes in a peer-reviewed journal.                                                                                                                                                                                                            |
| 3. | Participates in a clinical trial.                                                                                                                                                                                                                |
| 4. | Participates in a British Paediatric Neurology Association (BPNA) National Clinical Research Network project to implement a guideline, undertake an audit, participate in a Delphi exercise or estimate the incidence of a disease or condition. |

# 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 |                                        |                                                                   |                                   |                                    |                                                |                                |                                        |                                                    |       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Paediatric Mini Clinical Evaluation (Mini-CEX)     | Paediatric Case-based Discussion (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 (MSF) | Paediatric Carers for Children Feedback (Paed CCF) | Other |
| <p>Assesses and manages children presenting with acute and sub-acute neurological emergencies from birth through to adulthood, including chronic developmental disorders and age-specific neurological syndromes, through the application of the understanding of neurogenetic, neuroradiological and neurophysiological techniques, in relation to:</p> <ul style="list-style-type: none"> <li>• Epilepsies in the newborn, infancy, childhood and adolescence</li> <li>• Neonatal neurology</li> <li>• Cerebrovascular disorders</li> <li>• Neuromuscular disorders</li> <li>• Inflammatory and demyelinating disorders</li> <li>• Neurodegenerative and neurometabolic disorders</li> <li>• Movement disorders, including cerebral palsy</li> <li>• Neuropsychiatric and neuropsychological disorders and medically unexplained neurological syndromes</li> <li>• Neurorehabilitation and acquired brain injury</li> <li>• Headaches and disorders of raised intracranial pressure</li> <li>• Neuro-oncology</li> </ul> | ✓                                                  | ✓                                      | ✓                                                                 | ✓                                 |                                    |                                                |                                | ✓                                      |                                                    |       |
| <p>Carries out a wide range of routine, complex and challenging paediatric neurological assessments and investigations appropriately and consistently, based on the history and examination, the probability, costs and the risk-benefit ratio.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ✓                                                  | ✓                                      |                                                                   |                                   |                                    |                                                |                                | ✓                                      |                                                    |       |
| <p>Considers the full range of treatment and management options available, including new and innovative therapies, relevant to paediatric neurology.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓                                                  | ✓                                      |                                                                   |                                   |                                    |                                                |                                | ✓                                      |                                                    |       |

| Key Capabilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Assessment / Supervised Learning Event suggestions |                                                    |                                        |                                |                                                |                                    |                                   |                                                                   |                                        |                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------|--------------------------------|------------------------------------------------|------------------------------------|-----------------------------------|-------------------------------------------------------------------|----------------------------------------|------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Other                                              | Paediatric Carers for Children Feedback (Paed CCF) | Paediatric Multi Source Feedback (MSF) | Handover Assessment Tool (HAT) | Clinical Leadership Assessment Skills (LEADER) | Discussion of Correspondence (DOC) | Acute Care Assessment Tool (ACAT) | Directly Observed Procedure / Assessment of Performance (DOP/AOP) | Paediatric Case-based Discussion (CBD) | Paediatric Mini Clinical Evaluation (Mini-CEX) |
| Demonstrates skills in the management of all aspects of acute neurological disorders presenting to district general and regional centres. Recognises when management is required in a regional neuroscience unit, paediatric intensive care or a high dependency unit (HDU) setting, eg status epilepticus; status dystonicus, chorea and myoclonus; coma and acute disturbances of consciousness; traumatic brain injury; childhood stroke, metabolic and immune-mediated neuroinflammatory encephalopathy and infectious causes of encephalitis. |                                                    |                                                    | ✓                                      |                                |                                                |                                    |                                   | ✓                                                                 | ✓                                      | ✓                                              |
| Coordinates, supervises and performs urgent or complex clinical management, including the provision of non-acute clinic services and multidisciplinary meetings (eg ward-based multidisciplinary team [MDT], neurogenetics MDT, neuroradiology MDT and neurophysiology MDT meetings). Completes appropriate onward referrals and discharges and communicate clearly with colleagues.                                                                                                                                                               |                                                    |                                                    |                                        |                                |                                                |                                    |                                   | ✓                                                                 | ✓                                      | ✓                                              |
| Describes and utilises genetic investigations in the diagnosis of neurological disorders, including knowledge of how to utilise and interpret the results of next generation sequencing (NGS) and utilises and interprets neuroradiological and neurophysiological investigations in the assessment and ongoing management of children or young people with neurological and neurosurgical disorders.                                                                                                                                              |                                                    | ✓                                                  |                                        |                                |                                                |                                    |                                   | ✓                                                                 | ✓                                      | ✓                                              |
| Describes the role of neuroimaging in the clinical diagnostic and management plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                    |                                                    |                                        |                                |                                                |                                    |                                   | ✓                                                                 | ✓                                      | ✓                                              |
| Describes the role of neurophysiological investigations in the clinical diagnostic and management plan.                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                    |                                                    | ✓                                      |                                |                                                |                                    |                                   | ✓                                                                 | ✓                                      | ✓                                              |
| Demonstrates understanding of the impact of having a disabled child in the family, including those with life-limiting disorders. Leads multidisciplinary discussions and coordinates multi-professional care for and management of children or young people with neurological disorders.                                                                                                                                                                                                                                                           |                                                    | ✓                                                  | ✓                                      |                                | ✓                                              |                                    |                                   | ✓                                                                 | ✓                                      | ✓                                              |

| Key Capabilities                                                                                                                                                                                                                                                                           | Assessment / Supervised Learning Event suggestions |                                        |                                                                   |                                   |                                    |                                                |                                |                                        |                                                    |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------|-------------------------------------------------------------------|-----------------------------------|------------------------------------|------------------------------------------------|--------------------------------|----------------------------------------|----------------------------------------------------|-------|
|                                                                                                                                                                                                                                                                                            | Paediatric Mini Clinical Evaluation (Mini-CEX)     | Paediatric Case-based Discussion (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 (MSF) | Paediatric Carers for Children Feedback (Paed CCF) | Other |
| Identifies and manages risks of safeguarding issues in children or young people with complex neurological disorders, including those relating to the patient, family and wider society.                                                                                                    | ✓                                                  | ✓                                      |                                                                   |                                   | ✓                                  |                                                |                                | ✓                                      | ✓                                                  |       |
| Leads a MDT and applies communication skills in a range of environments and situations with children, young people and families in challenging circumstances and communicates effectively with external agencies, including when authorising legal documents and child protection reports. | ✓                                                  | ✓                                      |                                                                   |                                   |                                    | ✓                                              |                                | ✓                                      |                                                    |       |
| Performs the full range of clinical investigations and procedures relevant to forming a diagnosis in paediatric neurology, including appropriately coordinating the skills of other health professionals when required.                                                                    | ✓                                                  | ✓                                      | ✓                                                                 |                                   |                                    |                                                |                                | ✓                                      |                                                    |       |
| Anticipates the need for transition from paediatric services to adult services and plans accordingly.                                                                                                                                                                                      | ✓                                                  | ✓                                      |                                                                   |                                   | ✓                                  |                                                |                                | ✓                                      |                                                    |       |
| Investigates, reports and resolves risks to patients, including communication with patients and families or carers. Evaluates safety mechanisms across a range of healthcare settings, applying a reflective approach to self and team performance.                                        | ✓                                                  | ✓                                      |                                                                   |                                   |                                    | ✓                                              |                                | ✓                                      |                                                    |       |
| Identifies quality improvement opportunities, supervises healthcare professionals in relation to improvement projects and leads and facilitates reflective evaluation.                                                                                                                     | ✓                                                  | ✓                                      |                                                                   |                                   |                                    | ✓                                              |                                |                                        |                                                    |       |
| Demonstrates independent development and revision of guidelines and procedures to improve service delivery, centred around current clinical research and evidence-based healthcare.                                                                                                        | ✓                                                  | ✓                                      |                                                                   |                                   |                                    | ✓                                              |                                |                                        |                                                    |       |

