

# Paediatric neurology - training guide 2019

## Training Services team

In 2018 the GMC (General Medical Council) approved a new syllabus for paediatric training, RCPCH Progress. This guide has been developed to help trainees achieve and evidence the specialty learning objectives (SLO) and key capabilities (KC) set out in the level 3 paediatric neurology syllabus.

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## **Background guidance for trainees and trainers**

- This paediatric neurology training guide has been developed to help trainees achieve

and evidence the specialty learning objectives (SLO) and key capabilities (KC) set out in the [level 3 paediatric neurology syllabus](#).

- It is intended for use alongside the [generic curriculum level 3 learning outcomes](#).
- It illustrates the roles and responsibilities of a consultant paediatric neurologist across the three core diagnostic (SLO 1, KC 1.1) and 11 sub-specialty areas (SLO 1, 1.2-1.12) together with examples of how a trainee could develop the knowledge, skills and experience to be able to perform these duties at the end of their training (SLO1-6). The relevant neurology SLOs and KCs are listed after each illustration within the 11 sub-specialty areas.
- The examples in this guide are suggestions, and trainees are not required or expected to provide individual evidence for each of these suggestions within their [ePortfolio](#). However, using these examples as prompts will help trainees ensure they are gaining the breadth and depth of experience and evidence, required to achieve the Paediatric Neurology SLOs.
- Trainees with a CCT (certificate of completion of training) on or before 15 September 2019 do not have to switch to RCPCH Progress.
- Trainees with a CCT date after 15 September are expected to work to the new curriculum including the level 3 paediatric neurology syllabus. Those who started 'grid' training before August 2018 should review their experience in each of the specialty learning outcome areas and prospectively collect evidence to support achievement of relevant SLO and KC in each diagnostic and sub-specialty area. Previous experience can be reviewed and documented in supervision reports.
- Trainees should discuss with their supervisor how best to acquire and evidence towards the SLO and KC within a programme. In some cases, this may require a trainee spending time in another neurology centre or attending special interest meetings and courses.

## Recording evidence on RCPCH ePortfolio

- Entries can be mapped to the three core diagnostic and 11 sub-specialty areas via the SLOs and KCs.
- You can link portfolio entries from one of the 14 programmes in the guide with another programme or to one of the more generic SLOs 2-6. For example, in the section on Movement Disorders, the activity "Discuss the long-term consequences and prognosis of MD on behaviour, learning and performance" could be linked to SLO 1, KC 1.8 and SLO 3, KC 1, or in the Neurorehabilitation section, the activity "Assess and manage children with suspected and confirmed spinal injury including those with autonomic dysreflexia" could be linked to SLO 1, KC 1.10 and SLO1, KC 2 or SLO 2, KC 2.
- While there is no mandatory number of entries, there are some suggestions regarding the depth and breadth of experience a consultant would need.
- Case logs and MDT (multidisciplinary team) attendance should be discussed with one's supervisor and can be captured as a development log or in a supervision meeting and linked to the most appropriate SLO and KC. For example, attendance at an epilepsy regional network meeting could be linked to SLO1, KC 1.2 and SLO 2, KC3 or if the main learning point was in relation to how to interpret EEG findings to SLO 1, KC 1.2 and SLO2, KC 6. Trainees are not expected to log each individual case or MDT.
- Trainees should choose the most appropriate [WBA \(workplace based assessment\)](#) to represent each SLO, KC and sub-specialty. As above, they may be cross referenced to another sub-specialty, one of the core diagnostic programmes or a more generic SLO

such as MDT working or a QI (quality improvement) project. For example, a case based discussion focused on the management of neonatal seizures may be linked to SLO 1, KC 1.3 ( neonatal neurology) and SLO1, KC 2 (epilepsies) or to neurogenetic investigations ( SLO1, KC 1.1)

- Other evidence such as clinical presentations / audit / service evaluation, clinics, meetings, specialty interest groups, courses, etc. can be captured as a curriculum entry or development log.

## RCPCH paediatric neurology syllabus

Specialty Learning Outcome (SLO)	Key Capability (KC)
<p>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</p>	<p>1.1 Assesses and manages children through to adulthood, including children through the application of the un... techniques, in relation to:</p> <ul style="list-style-type: none"> <li>• 1.2 Epilepsies in the new b</li> <li>• 1.3 Neonatal neurology</li> <li>• 1.4 Cerebrovascular disor</li> <li>• 1.5 Neuromuscular disorde</li> <li>• 1.6 Inflammatory and demy</li> <li>• 1.7 Neurodegenerative and</li> <li>• 1.8 Movement disorders, ir</li> <li>• 1.9 Neuropsychiatric and n</li> <li>• 1.10 Neurorehabilitation an</li> <li>• 1.11 Headaches and disor</li> <li>• 1.12 Neuro-oncology</li> </ul> <p>2. Carries out a wide range of ro... investigations appropriately and risk–benefit ratio.</p>
<p>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</p>	<p>1. Considers the full range of tre... therapies, relevant to paediatric</p> <p>2. Demonstrates skills in the mar... general and regional centres. Re... paediatric intensive care or a hig... chorea and myoclonus; coma an... metabolic and immune-mediated</p>

Specialty Learning Outcome (SLO)	Key Capability (KC)
<p>3. Coordinates, supervises and performs urgent or complex clinical management, including the provision of non-acute clinic services and multidisciplinary meetings (e.g. ward-based multidisciplinary team [MDT], neurogenetics MDT, neuroradiology MDT, and neurophysiology MDT meetings). Completes appropriate onward referrals and discharges, and communicate clearly with colleagues.</p>	
<p>4. Describes and uses genetic investigations in the diagnosis of neurological disorders, including knowledge of how to use and interpret the results of next generation sequencing (NGS), and uses and interprets neuroradiological and neurophysiological investigations in the assessment and ongoing management of children with neurological and neurosurgical disorders.</p>	
<p>5. Explains the role of neuroimaging in the clinical diagnostic and management plan.</p>	
<p>6. Describes the role of neurophysiological investigations in the clinical diagnostic and management plan.</p>	
<p>3. Promotes the neurological and developmental health of a child with a neurological disorder.</p>	<p>1. Demonstrates understanding of the clinical presentation and management of limiting disorders. Leads multidisciplinary management of, children with neurological disorders.</p> <p>2. Identifies and manages risks of those relating to child, family and community.</p>
<p>4. Assumes the role of paediatric neurological team leader and takes responsibility for this area of service.</p>	<p>1. Leads an MDT and applies core skills to support people and families in challenging situations when authorising legal documents.</p> <p>2. Performs the full range of clinical services in paediatric neurology, including appropriate referrals.</p>

Specialty Learning Outcome (SLO)	Key Capability (KC)
3. Anticipates the need for transition from paediatric services to adult services and plans accordingly.	
5. Practises safe child neurology, including when prescribing medication, and initiates and completes a quality improvement project applicable to child neurology.	1. Takes responsibility for investment in patients and families or carers. Engages in a reflective approach to self and team.
	2. Identifies quality improvement projects, and leads and facilitates them.
6. Keeps up to date and engages in, supports and stimulates research in child neurology.	1. Demonstrates independent development of research projects centred around current clinical requirements.

## Core diagnostic programmes

SLO 1 key capability 1.1 and 2; SLO 2, key capability 3-6

Three generic components of paediatric neurology training have been identified as encompassing skills and knowledge that are relevant to all the sub-specialty programmes within the paediatric neurology syllabus. Core programmes have been developed for neurophysiology, neuroradiology and neurogenetics.

There will be overlap with the requirements of the eleven sub-specialty programmes and many of the core skills may be acquired within the context of one of the sub-specialty areas.

## Core diagnostic programme: Neurophysiology

As a practising consultant paediatric neurologist, you will be expected to:

- Apply principles that underlie commonly used neurophysiology techniques (SLO 1, KC 1.1 and 2; SLO 2, KC 3, 4 and 6)
- Understand CNS pharmacology and the effect of various drug actions on neurophysiology recordings (SLO 1, KC 1.1, 1.2 and 2; SLO 2, KC 4 and 6)
- Appropriately use and interpret diagnostic EEG techniques in paediatric neurology practice, including invasive EEG techniques used to facilitate epilepsy surgery (SLO 1, KC 1.1, 1.2 and 2; SLO 2, KC 3, 4 and 6)
- Appropriately use and interpret peripheral neurophysiology studies (SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 3, 4 and 6)
- Appreciate the role of neurophysiology modalities used less frequently and indications for their use in paediatric neurology practice (including VEPs and ERGs) (SLO 1, KC

1.1, 1.7 and 2; SLO 2, KC 3, 4 and 6)

- Apply anatomical knowledge of the major subdivisions of the central and peripheral nervous systems (SLO 1, KC 1.1, 1.5, 1.10 and 2)
- Apply basic knowledge of nerve conduction including ion channel function (SLO 1, KC 1.1, 1.2, 1.5 and 2; SLO 2, KC 4 and 6)
- Apply basic knowledge of synaptic function (inhibitory and excitatory) and the neuromuscular junction (SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 4 and 6)
- Understand central nervous system neurotransmitters and drugs which modulate them (SLO 1, KC 1.1, 1.2; SLO 2, KC 4)
- Appreciate the mode of action of drugs affecting the central and peripheral nervous systems (SLO 1, KC 1.1, 1.2. and 1.5; SLO 2, KC 4)

Therefore, a consultant paediatric neurologist needs to be familiar with the following investigations and their uses.

### **Standard EEG**

- Indications and limitations of EEG as a diagnostic tool in a range of medical disorders
- Familiarity with EEG technology and equipment
- Neurophysiological basis of EEG signals and activation techniques
- Standard electrode nomenclature and standard montages used
- Recognise normal and non-epileptiform variants of EEG
- Artefacts in EEG recording
- Recognise EEG abnormalities (interictal and ictal) of focal and generalised epilepsies
- Role of EEG monitoring in PICU setting
- Neonatal EEG and evolution of maturational changes
- Write a factual report and give clinical conclusion in the end to referring physician with supervision

### **Video EEG telemetry and Ambulatory EEG**

- Indications for long-term EEG monitoring and the limitations of these techniques
- Role of video EEG in characterisation and classification of paroxysmal events
- Role of video EEG in pre-surgical evaluation of epilepsy
- Evaluate and interpret video recordings epileptic and non-epileptic seizures

### **Clinical Neurophysiology for Epilepsy Surgery**

- Role of scalp EEG in characterising and classifying seizures in pre-surgical assessment of epilepsy
- Limitations of scalp EEG in localising epileptogenic zone
- Strategies of multidisciplinary pre-surgical assessment for epilepsy surgery
- Be familiar with goals and risks of intracranial EEG monitoring (Subdural, Depth, Stereo EEG and Corticography), for precise localisation of seizure onset zone and functional mapping of eloquent cortex

### **Peripheral neurophysiology**

- Physiology of nerve conduction, neuromuscular transmission and excitation - contraction mechanisms in muscle
- Clinical presentation and pathophysiology of diseases of the peripheral nerves,

neuromuscular junction and muscles

- Anatomy of peripheral nerves and muscles regarding electrode placement and needle insertion
- Techniques for study of peripheral nerves including sensory, motor, and F wave studies, H reflex, repetitive nerve stimulation
- Techniques of electromyography including recognition of neurogenic and myopathic disorders

## **Neurophysiology programme: Evoked potentials**

### **Visual Evoked Potentials (VEP)**

- To understand the technical basis and methods of recording visual evoked potentials, appreciate when these tests may be used and the expected changes from normal in a variety of pathological conditions.

### **Electroretinogram (ERG)**

- To understand the physiological basis of the normal ERG, the technical aspects of its recording in children of all ages and its role in the investigation of neurological disorders.

### **Somatosensory Evoked Potentials (SSEP)**

- To understand the application in acute/ congenital spinal cord disorders and for spinal monitoring in scoliosis surgery.

### **Transcranial Magnetic Stimulation (TMS)**

- Functional motor pathway assessments and therapeutic TMS, neuromodulation following perinatal and acquired stroke; possible emergent therapeutic uses in epilepsy; depression and anorexia.

### **Polysomnography and Multiple Sleep Latency Tests**

- Classification and semiology of sleep disorders
- Normal EEG and polygraphic findings in sleep
- Indications for polysomnography and MSLT and the limitations of these techniques
- Stages sleep and recognition of features of common sleep disorders

## **Neurophysiology programme: Providing evidence to support completion of training**

SLO 1, KC 1.1 and 2; SLO 2, KC 3,4 and 6; SLO 4, KC 2; SLO 6, KC 1)

### **Key activities**

- Regular attendance at EEG/ neurophysiology MDT \*
- Participation in EEG reporting sessions
- Completion of assessments during training that focus on the neurophysiological aspects of diagnosis and management. (NB This could also form part of the training in other sub-specialty areas e.g. epilepsy or neuromuscular)

- Evidence of clinical presentation, audit or service evaluation where neurophysiology is the focus (NB this could cross link to sub-specialty training) (SLO 5, KC 2; SLO 6, KC 1)

### Other useful activities

- Participation in neurophysiology teaching sessions when available
- Completion of [Distance Learning Unit 0 Introduction to Paediatric Neurology](#)

Many units will have regular EEG meetings and trainees should endeavour to attend these when possible. In units where a regular on-site EEG meeting does not occur, evidence that the trainee has attended an EEG meeting off-site should be provided.

### RCPCH ePortfolio evidence

Choose the most appropriate assessments to reflect the capabilities you have achieved in your core neurophysiology training. Development log/ curriculum entries can be used to capture the other elements listed above. The entries can be linked to the most relevant paediatric neurology (SLOs) and key capabilities (KC) listed above. A portfolio entry may be linked to both neurophysiology (SLO 1, KC 1.1 and 2) and another sub-specialty area i.e. Epilepsy (SLO 1, KC 1.2)

## Core diagnostic programme: Neuroradiology

As a practising consultant paediatric neurologist you will be expected to:

- Understand the physical and technical principles behind commonly used imaging modalities - US, CT and MR, PET ( SLO 1, KC 1.1 and 2)
- Be familiar with the normal neuroanatomy of standard axial imaging (CT and MR) and sagittal and coronal MR ( SLO 1, KC 1.1 and 2)
- Can systematically describe CT and MR appearances ( SLO 1, KC 1.1 and 2)
- Be aware of common anatomical and developmental variants e.g. appearance of perivascular spaces, developmental venous anomalies ( SLO 1, KC 1.1 and 2)
- Know the normal myelination timetable as demonstrated on T2 and T1 MR ( SLO 1, KC 1.1, 1.3 and 2)
- Recognise the normal development of the cortex from fetal to post-natal life ( SLO 1, KC 1.1, 1.3 and 2)

### CT imaging

- Be aware of the strengths and limitation of CT and with the CT appearances of the following: (SLO 1, KC 1.1 and 2, SLO 2, KC 3,4 and 5;)
  - Cerebral oedema
  - Central and uncal herniation
  - Diffuse severe hypoxic - ischaemic injury - pattern reversal
  - Hydrocephalus - acute and chronic
  - Extradural haemorrhage
  - Subdural haemorrhage and appearances of inflicted brain injury
  - Intracranial infection
  - Abscess
  - Empyema
  - Bacterial meningitis



- Herpes encephalitis
- Tumours/SOL
- Dural sinus thrombosis

## MR imaging

- Be familiar with commonly used sequences - T1, T2, FLAIR, GRE, SWI, DWI and MRS. (SLO 1, KC 1.1 and 2, SLO 2, KC 3,4 and 5;)
- Be familiar with the appearances of the following: (SLO 1, KC 1.1 and 2, SLO 2, KC 3,4 and 5;)
- Malformations
  - Cortical malformations
    - Lissencephaly (including cobblestone)
    - Polymicrogyria
    - Hemimegalencephaly
    - Focal cortical dysplasia
  - Brainstem malformations
  - Cerebellar malformations
  - Chiari 1 and 2
  - Neural tube defects
- Neurocutaneous disorders
  - TS
  - NF1
- White matter disorders
  - PVL
  - ADEM/MS
  - Understand the concept of hypomyelination vs delayed myelination
  - Recognise classical MR phenotypes e.g.
    - X-ALD
    - MLD
    - VWM
    - PMD
    - Mitochondrial leukodystrophies
- Grey matter disorders
  - Mitochondrial eg
    - MELAS
    - POLG
    - Leighs
  - Neuronal ceroid lipofuscinoses
  - NBIA's
- Stroke
  - Arterial ischaemic stroke
  - Moya Moya
  - Carotid dissection
  - Sagittal sinus thrombosis
  - cavernoma
  - Normal MRA and MRV appearances
- Brain tumours
  - Medulloblastoma/ependymoma
  - Pilocytic astrocytoma

- Craniopharyngioma
- DNET
- Optic pathway glioma
- Spinal disorders
  - LETM
  - Intramedullary tumours
  - Extra medullary tumours
  - Syring
- Brain damage patterns
  - Neonatal HIE
  - PVL
  - Porencephaly
  - Multicystic encephalomalacia
  - Hydranencephaly
  - Hippocampal sclerosis
- CNS infection
  - Congenital infection especially CMV
  - HSE
  - Abscess
  - Meningitis
- Understand the role of Advanced Imaging techniques in the assessment and Management of Children with Neurological Disorders: ( SLO 1, KC 1.1 and 2, SLO 2, KC 3,4 and 5;)
  - 3T MR
  - fMR
  - PET/SPECT
- Be familiar with evolving MR modalities e.g. DTI, FA, MTI ( SLO 1, KC 1.1 and 2, SLO 2, KC 3,4 and 5;)

## **Neuroradiology: Providing evidence to support completion of training**

SLO 1 KC 1.1 and 2; SLO 2 KC 2,3,4, and 5

### **Key activities:**

- Regular attendance at neuroradiology MDT<sup>1</sup>
- Attendance at neuro-oncology MDT
- Completion of assessments during training that focus on radiological aspects of diagnosis and management (NB This could also form part of the training in other sub-specialty areas e.g. neuroinflammatory or cerebrovascular)
- Evidence of clinical presentation, audit or service evaluation where neuroimaging is the focus (NB this could cross link to sub-specialty training)

### **Other useful experience:**

- Attendance at UK Neurogenetics club meeting (SLO 2, KC 4 and 6, SLO 6, KC 1)
- Attendance at neuroradiology teaching sessions
- Completion of [Distance Learning Unit 0 Introduction to Paediatric Neurology](#)

### **RCPCH ePortfolio evidence**

This is probably the most critical element of the three core training programmes and your portfolio should reflect this. Choose the most appropriate assessments to reflect the capabilities you have achieved in your core neuroradiology training. Development log/curriculum entries can be used to capture the other elements listed above. The entries can be linked to the most relevant SLO and key capabilities listed for neuroradiology above. A portfolio entry may be linked to both neuroradiology (SLO 1 KC 1.1 and 2) and another subspecialty area i.e. acquired brain injury (SLO 1 KC 1.10).

## **Core diagnostic programme: Core genetics**

As a practising consultant paediatric neurologist you will be expected to be confident in discussing the following with patients: (SLO1, KC 1.1 and 2, SLO 2, KC 1, 3 and 4, SLO 5, KC 1)

- Basic patterns of inheritance – AR, AD, XL, mt
  - Concepts of variable expression, non-penetrance and age-related penetrance
  - Clarification of the term ‘sporadic’
  - New dominant mutations
  - Significance of consanguinity
  - Gonadal / somatic mosaicism
- Consent to genetic testing
- Testing landscape: – era of rapid change
  - Deciphering Developmental Disorders
  - Genome England/100k
  - Databases of sequence variation (eg, ExAc)
  - Absence of clinical utility of GWAS hits to-date, and lack of predictive value of such SNPs for ‘personalised medicine’
  - Methods of prenatal diagnosis: including PGD
- Genetic sequencing
  - Sanger sequencing
  - Exome sequencing
  - Whole genome sequencing
  - Panel sequencing
- Interpretation and further elucidation of sequencing results:
  - Incidental findings
  - Variants of unknown significance
- Interpretation of sequence variants based on:
  - Familial segregation / rarity / ethnicity / in silico prediction / previous association with disease / animal models / functional assays
  - Possibility of digenic inheritance
- Expansion of phenotypes (with Next Generation Sequencing) and impact on disease classification by phenotype or by genotype or pathway
- Gene / protein networks
- Increasing possibility of treatments

## **Neurogenetics: Providing evidence to support completion of training**

SLO 1 KC 1.1 and 2; SLO 2 KC 1,3, and 4

## Key activities

- Regular attendance at neurogenetics MDT<sup>2</sup>
- Attendance at joint clinics with clinical geneticist
- Completion of assessments during training that focus on genetic aspects of diagnosis and management
- Evidence of clinical presentation, audit or service evaluation where neurogenetics is the focus (NB this could cross link to sub-specialty training)

## Other useful activities

- Attendance at UK Neurogenetics club meeting (SLO1, KC 1.1, 1.7 and 2, SLO 2, KC 3,4 and 5)
- Completion of [Distance Learning Unit 1 Neurogenetics](#), which have been mapped to the above programme

## RCPCH ePortfolio evidence

Choose the most appropriate assessments to reflect the capabilities you have achieved in your core genetics training. The remainder may be development log/curriculum entries capturing the other elements listed above. The entries can be linked to the most relevant paediatric neurology specialty learning outcomes and key capabilities listed for neurogenetics above. A portfolio entry may be linked to both neurogenetics (SLO 1 KC 1.1 and 2) and another sub-specialty area i.e. neurodegenerative disease (SLO 1 KC 1.7)

## Acquired Brain Injury (ABI) and neurorehabilitation programme

As a practising consultant paediatric neurologist, you may have to undertake the following activities:

- The initial assessment, investigation and management of a child or adolescent presenting with severe traumatic and non-traumatic encephalopathy presenting via a major trauma centre with a neurosurgical ITU, through ER or acutely deteriorating on the ward. (SLO 1, KC 1.1, 1.10 and 2; SLO 2, KC 2, 3, 4,5 and 6; SLO 3, KC 1 and 2, SLO 4, KC 1 and 2)
- Participate in MD discussions regarding prognosis and withdrawal of treatment, including brain death assessment. Confidently liaise with critical care, ER, neurosurgical and palliative care teams ( SLO 2, KC 2 and 3, SLO 4 KC 1 and 2)
- Lead 'early' management and treatment of children/adolescents with ABI, including management of raised intracranial pressure, recognizing the role of neurosurgical intervention and pressure monitoring (SLO 1, KC 1.1, 1.10 and 2; SLO 2, KC 1, 2, 3, 5 and 6, SLO 3, KC 1 and 2, SLO 4 1,2 and 3)
- Use assessment tools and scales to evaluate impairments, disability and quality of life in a child/adolescent undergoing rehabilitation following ABI and appreciate the specific role of neuropsychiatric assessment. \*(SLO 1, KC 1.1, 1.10 and 2, SLO 3, KC 1, SLO 4, KC 1, 2 and 3)
- Provide medical input and lead multi-disciplinary goal planning meetings for children/adolescents with ABI. Can agree holistic goals for educational, social and

psychological well-being post discharge. Provide accurate verbal and written information to other agencies, updating information regularly as the child's needs changes.<sup>3</sup> (SLO 1, KC 1.1 and 1.10; SLO 2, KC 1, 2 and 3, SLO3, KC 1 and 2; SLO 4, KC 1 and 3; SLO 5, KC 1)

- Evaluate pre-existing cognitive, developmental, emotional, behavioural and social risk factors and their effect on prognosis and long-term outcome in children and adolescents with ABI. Recognise and manage delayed complications e.g. seizures, and headaches (SLO 1, KC 1.1, 1.10 and 2; SLO 2, KC 1, 2 and 3, SLO3, KC 1 and 2; SLO 4, KC 1 and 3; SLO 5, KC 1)
- Appreciate referral pathways and multidisciplinary services for children with rehabilitation needs. Engage other key professionals in co-ordinating rehabilitation and care packages, linking with tertiary and primary health care, adult services, education, psychology/psychiatry/CAMHS, social services and the voluntary sector.<sup>3</sup> (SLO 1, KC 1.1 and 1.10; SLO 2, KC 1, 2 and 3, SLO3, KC 1 and 2; SLO 4, KC 1 and 3; SLO 5, KC 1)
- Assess and manage children with suspected and confirmed spinal injury including those with autonomic dysreflexia. (SLO 1, KC 1.1, 1.10 and 2; SLO 2, KC 1, 2, 3, 5 and 6, SLO3, KC 1)
- Recognise the characteristics of inflicted traumatic brain injury and apply relevant safeguarding procedures Can draft reports for other agencies including social services and the police \*. (SLO 1, KC 1.1, 1.10 and 2; SLO 2, KC 2, 3, and 5, SLO3, KC 1 and 2)

## **Acquired Brain Injury (ABI) and neurorehabilitation: Providing evidence to support completion of training**

SLO 1, KC 1.1, 1.10 and 2; SLO 2, KC 1, 2, 3, 4,5, and 6, SLO3, KC 1 and 2; SLO 4, KC 1, 2 and 3; SLO 5, KC 1 and 2; SLO 6, KC 1

### **Key activities:**

- A case log of several patients with severe traumatic and non-traumatic encephalopathy cases which should include reflective case examples of the following:
  - Observations of brain death assessment
  - Treatment withdrawal discussions with families
  - Possible inflicted ABI
- Case log detailing early acute progress (i.e. from extubation onwards for 1 -2 weeks) of several children with severe ABIs
- Case log following the management of several children of different ages with a range of ABI through their rehabilitation journey
- Have experience of working in a supra-regional rehabilitation facility and MTC
- Attend MDTs relating to a child with ABI to observe interdisciplinary team working and goal setting
- Participate in, and lead complex discharge planning meetings for children undergoing neurorehabilitation
- Observe and reflect on neuropsychological assessments and preparation of educational advice
- Keep a case log of children of different ages with spinal cord "injury" of varying degrees – including myelitis, tumour, trauma, others

## Other useful activities:

- Spend time in a specialist spinal injuries unit (ideally paediatric but adult if necessary)
- Attend a Neurorehabilitation specialist interest meeting
- Undertake an audit or service evaluation that relates to children with ABI (SLO 5, KC 2; SLO 6, KC 1)
- Case report or presentation of child with ABI (SLO 5, KC 2; SLO 6, KC 1)
- Completion of [Distance Learning Unit 0 Introduction to Paediatric Neurology](#)

## RCPCH ePortfolio evidence

Choose the most appropriate WB assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to the management of acquired brain injury and neurorehabilitation, mapping them to one of the specific specialty learning outcomes and key capabilities across age ranges (SLO 1 KC 1.1) and acutely (SLO 2 KC 2). For example, one ABI case you follow may be used to evidence your understanding of the relevance of the neuroimaging findings (SLO 1, KC 1.10 and SLO2, KC 5), where another may evidence your ability to discuss possible withdrawal of care in a child with a severe brain injury ie SLO1, KC 1.10 and SLO 4, KC 1. Ensure that you capture the A portfolio entry may be linked to both neurorehabilitation (SLO 1 KC 1.10) and another core diagnostic or sub-specialty area i.e. cerebrovascular disorders (SLO 1 KC 1.4).

## Neonatal neurology programme

As a practising consultant paediatric neurologist, you may have to undertake the following activities:

- Neurological examination of the preterm and term infant. (SLO1, KC 1.1,1.3; SLO 2, KC 2)
- Assessment of an infant with acute profound and chronic partial hypoxic ischaemic brain injury and can discuss the mechanisms, patterns, timings and range of outcome. (SLO 1, KC 1.1,1.3; SLO 2, KC 3,5 and 6)
- Formulate a differential diagnosis and investigative plan for neonatal encephalopathy and its subsequent management. (SLO1, KC 1.1, 1.3; SLO 2, KC 1,2,3,4,5 and 6; SLO4, KC 2;)
- Use the ILAE classification for neonatal seizures, and can distinguish abnormal movements from epileptic seizures. (SLO 1, KC 1.2 and 1.3)
- Draw up a differential diagnosis and directed investigative plan for neonatal seizures. Can interpret investigations and develop a management plan for neonatal epilepsy syndromes (SLO 1, KC 1.1, 1.2, 1.3 and 2; SLO 2, KC 1,2,3,4,5 and 6; SLO 4, KC 2)
- Manage status epilepticus in new born infants at different gestational ages, recognizing patterns and nature of EEG and MR abnormalities, and advising on therapeutic choices. (SLO 1, KC 1.1, 1.2, 1.3 and 2; SLO 2, KC 1,2,3,4,5 and 6, SLO 4 KC 2)
- Understand the nature of arterial ischaemic stroke (AIS) and cerebral venous sinus thrombosis (CVST) presenting in neonates. Interpret investigations and formulate a management plan. (SLO 1, KC 1.1, 1.3 and 2; SLO 2, KC 1,2,3,4 and 5; SLO 4, KC 2)
- Assess and investigate infants with altered tone, both floppy and stiff. Formulate a differential diagnosis and strategy for management. (SLO 1, KC 1.1, 1.3 and 2; SLO 2, KC 1,2,3,4 5 and 6; SLO 4, KC 2)

- Examine infants with neural tube defects, provide guidance on key aspects of their management including co-morbidities affecting bladder and bowel (SLO 1, KC 1.1,1.3 and 2; SLO 2, KC 1,2,3,4 and 5; SLO 4, KC 2)
- Assess and provide advice on the management of infants with brain malformation and hydrocephalus, occurring at different stages of development, describing their aetiology, co-morbidities and outcomes (SLO 1, KC 1.1, 1.3 and 2; SLO 2, KC 1,2,3,4 and 5; SLO 4, KC 2)
- Contribute to multidisciplinary discussions on outcome and long-term prognosis in infants with severe neurological disorders, working with neonatal, palliative care, multidisciplinary colleagues and families to determine the best outcome for an individual infant which in some cases may be withdrawal/reorientation of care. Can communicate uncertainty of prognosis in certain disorders. ( SLO 1, KC 1.1, 1.3; SLO 2, KC 1,2 and 3; SLO 3, KC 1 and 2, SLO 4, KC 1 and 2, SLO 5, KC 1)

Provide neurological expertise to a fetal MDT with respect to neurological abnormalities recognised antenatally on neuroimaging both USS and MR, or through genetic testing. (SLO 1, KC 1.1, 1.3 and 2; SLO 2, KC 1,2,3,4 and 5; SLO 3, KC 1: SLO 4, KC 2)

## **Neonatal neurology: Providing evidence to support completion of training**

SLO 1, KC 1.1, 1.2, 1.3 and 2; SLO 2, KC 1, 2, 3, 4, 5, and 6, SLO3, KC 1 and 2; SLO 4, KC 1, 2 and 3

### **Key activities**

- Reflective case log of neonatal neurology patients with a variety of neurological issues
- Completion of suitable assessments covering neonatal neurological problems
- Attend a neonatal neurology or development follow-up clinic
- Attend a radiology meeting in which neonatal neuroimaging is reviewed
- Attend an EEG meeting in which neonatal EEG is reviewed

### **Other useful activities**

- Attend a fetal / antenatal counselling session
- Completion of [Distance Learning Unit 2 Neonatal Neurology](#)
- Attendance at [BPNA NeoNATE](#) course

### **RCPCH ePortfolio evidence**

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to the management of neonates with neurological disorders, mapping them to the specific specialty learning outcomes and key capabilities suggested against the activities listed above. Try and ensure that you encompass the SLOs and KCs that are specific to neonatal neurology such as contributing to a fetal medicine MDT, or managing a floppy baby as well as the more generic SLO and KCs. A portfolio entry may be linked to both neonatal neurology (SLO 1 KC 1.3) and a core diagnostic or another sub-specialty area i.e. epilepsy (SLO 1 KC 1.2).

## **Movement disorders**

As a practising consultant paediatric neurologist, you may have to undertake the following

## activities

- Take a detailed history and assess a child/adolescent with a suspected MD, using knowledge of neuroanatomy and neurophysiology to determine aetiology and management and taking into consideration the natural history of MDs from fetal to adult life (SLO 1, KC 1.1, 1.8; SLO 2, KC 4,5 and 6)
- Diagnose and manage young people presenting with early onset common adult disorders, especially when juvenile forms may have subacute presentations misdiagnosed as developmental disorders i.e. Huntingdon's Disease. (SLO 1, KC 1.1, 1.8 and 2; SLO 2, KC 1,2,3,4 and 5; SLO 4, KC 3)
- Assess functional motor skills and outcomes with established tools, that facilitate shared assessment for audit and research<sup>4</sup> \* (SLO 1, KC 1.1, 1.8 and 2; SLO 2 KC 3; SLO 4, KC 2; SLO 5, KC 2; SLO 6, KC 1)
- Evaluate normal variants in motor development and be confident in interpretation of 'abnormal' results in otherwise healthy children to ensure children are not submitted to unnecessary investigations \*. (SLO 1, KC 1.1,1.8 and 2; SLO 2, KC 4,5 and 6)
- Assess, investigate and diagnose a child/adolescent presenting with common MD phenotypes including tics, stereotypies, dystonia, athetosis, chorea, ataxia, myoclonus and spasticity. Can interpret CSF neurotransmitter results. (SLO 1, KC 1.1, 1.8 and 2; SLO 2, KC 1,2,3,4, 5 and 6; SLO 4, KC 3)
- Discuss the long-term consequences and prognosis of MD on behaviour, learning and performance<sup>5</sup> (SLO 1, KC 1.1, 1.8; SLO 3, KC 1; SLO 4 KC 3)
- Appreciate the neuropsychiatric features of certain MD. Understand the role, potential complications and drug interactions of psychotropic drug treatment for neuropsychiatric co-morbidities of MDs. Know when to consider neuropsychiatric and psychological approaches in the management of tic disorders and Tourette syndrome. (SLO 1, KC 1.1, 1.8; SLO 2, KC 1,2, and 3; SLO 3, KC 1; SLO 4, KC 1,2 and 3)
- Investigate and manage status dystonicus and other acute onset movement disorders, eg chorea. Recognise acute dystonic reactions to medication (SLO 1, KC 1.1, 1.8 and 2; SLO 2, KC 1,2 and 3)
- Advise on management of common movement disorders including use of orthoses, physical therapies and medication. Appropriately refer a child/adolescent for botulinum neurotoxin or functional neurosurgery (including deep brain stimulation and intra-thecal Baclofen) and can discuss treatment benefits and side effects with children, young people and their families \*(SLO 1, KC 1.1, 1.8 and 2; SLO 2, KC 1,2 and 3; SLO 3, KC 1; SLO 4, KC 1,2 and 3; SLO 5, KC 2)
- Identify and manage involuntary movements and hypertonia in children with underlying developmental disorders, i.e. cerebral palsy and autistic spectrum disorders, and be familiar with how their presentation may evolve with time SLO 1, KC 1.1, 1.8 and 2; SLO 2, KC 1,2 and 3; SLO 3, KC 1; SLO 4, KC 1,2 and 3)

## **Movement disorders: Providing evidence to support completion of training**

KC 1.1, 1.8 and 2; SLO 2, KC 1,2,3,4,5 and 6; SLO 3, KC 1; SLO 4, KC 1,2 and 3; SLO 5, KC 1 and 2; SLO 6, KC1

### **Key activities**

- Reflective case log of a variety of cases presenting acutely and as out-patients with a



range of movement disorders (MD)

- Completion of assessments that cover diagnosis or management of MD

### Other useful activities

- Attendance at specialist MD clinics
- Evidence of audit or service evaluation that relates to children with MD ( SLO 5, KC 2; SLO 6, KC 1;)
- Attendance at BPNA Movement Disorder special interest group
- Attendance at BPNA Expert to Expert Movement Disorders course
- Completion of [Distance Learning Unit 4 Central Motor Deficits](#) and Unit 9 Metabolic, Nutritional and Systemic Disease

### RCPCH ePortfolio evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to movement disorders (SLO 1, KC 1.8) across age ranges (SLO 1 KC 1.1) and acutely (SLO 2 KC 2). A portfolio entry may be linked to both movement disorders (SLO 1 KC 1.8) and another core or sub-specialty area i.e. neurophysiology (SLO 1 KC 1.1) or ABI (SLO 1 KC 1.10) or one of the more generic SLOs 3-6.

## Neuromuscular disorders

As a practising consultant paediatric neurologist, you may have to undertake the following activities:

- Undertake a detailed history and assessment of a child/adolescent with a suspected neuromuscular disorder (NMD), assessing functional motor skills using established tools, evaluating muscle power and joint range, noting different patterns of muscle involvement. \*(SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 4,5 and 6; SLO 4, KC 2)
- Assess, investigate and diagnose a child presenting with more common NMD including dystrophin related muscular dystrophy, Spinal Muscular Atrophy (SMA), inherited peripheral neuropathy (CMT), Myasthenia Gravis and congenital myotonic dystrophy. \*(SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 4,5 and 6; SLO 4, KC 2)
- Evaluate, initiate and interpret investigations including neurophysiology, muscle biopsy, genetic testing and muscle imaging studies in a child/adolescent with possible myopathy and/ or neuropathy. \*(SLO 1, KC 1.5 and 2; SLO 2, KC 4,5 and 6; SLO4, KC 2)
- Discuss management strategies and prognosis of more common neuromuscular conditions (as outlined in 2. above). Be aware of newer treatment options for certain NMD eg Nusinersen and gene therapy for SMA. (SLO 1, KC 1.1 , 1.5 and 2, SLO 2, KC 1,2 and 3, SLO 3, KC 1 and 2; SLO 4, KC 1,2 and 3; SLO 6, KC 1;)
- Recognise and evaluate the systemic, metabolic and mitochondrial disorders that can affect neuromuscular function.(SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 2,3, 4,5 and 6, SLO 4, KC 2)
- Understand the multisystem nature of NMD and know how to assess and monitor potential complications including cognitive, respiratory, cardiac and postural abnormalities and the strategies for their management. .(SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 1, 2 and 3; SLO 3, KC 1 and 2; SLO 4, KC 2 and 3)

- Assess and manage children presenting with acute NMD such as rhabdomyolysis, critical illness polyneuropathy/myopathy and the acute complications of established NMD including cardiac and respiratory failure, fracture and fat embolus syndrome. (SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 2 and 3; SLO 4, KC 2)
- Discuss the limitations of genetic studies in the diagnosis and management of NMD with families, including antenatal screening, carrier testing and the approach to presymptomatic individuals. (SLO 1, KC 1.1, 1.5 and 2; SLO 2 KC 1 and 4; SLO 4, KC 2; SLO 5, KC 1;)
- Use referral pathways and multidisciplinary network to support the management of children/ adolescents with NMD, including national networks for audit and research, international standards of care in DMD, SMA etc., patient registries, relevant charities and NCG centres. Draft emergency care plans and lead MDT discussions. (SLO 1, KC 1.1, 1.5 and 2; SLO 2 KC 1,2 and 3; SLO 3 KC 1 and 2; SLO 4, KC 1, 2 and 3; SLO 5, KC 1 and 2, SLO 6, KC1;)
- Manage evolving phenotypes of childhood onset disorders as they become adults i.e. myotonic dystrophy, and be able to diagnose and manage adult disorders that occasionally present in childhood. (SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 1, 2 and 3; SLO 4, KC 2 and 3;)
- Appreciate the specific cognitive and behavioural profiles of certain NMD i.e. DMD and myotonic dystrophy and how they may impact on presentation. Recognize the implications for compliance and when planning education and social support and discuss this with families and other relevant agencies. (SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 1, and 3; SLO 3, KC 1 and 2; SLO 4, KC 1, 2 and 3)
- Lead MDT planning meetings and highlight the different approaches in managing certain elements of care i.e. postural support, contracture management, use of orthotics and orthopaedic intervention in children with NM disorders in comparison to other conditions associated with ND i.e. cerebral palsy. (SLO1, KC 1.1, 1.5 and 2; SLO 2, KC 1, and 3; SLO 3, KC 1; SLO 4, KC 1, 2 and 3)

## **Neuromuscular disorders: Providing evidence to support completion of training**

SLO 1, KC 1.1, 1.5 and 2; SLO 2, KC 1,2, 3, 4, 5 and 6; SLO 3, KC 1 and 2; SLO 4, KC 1,2 and 3; SLO 5, KC1 and 2; SLO 6, KC1

### **Key activities**

- Case log reflecting the spectrum of acquired and inherited NMD that present acutely and in outpatients
- Attendance at specialist NM clinics, including adult / transitional clinics
- Completion of assessments during training that cover diagnosis or management of NMD

### **Desirable**

- Completion of [Distance Learning Unit 5 Neuromuscular Disorders](#)
- Completion of a NM course either MDC, BMS or EPNS course (SLO 6, KC 1)
- Evidence of audit or service evaluation that relates to children with NMD ( SLO 5, KC 2)
- Case report or presentation of child with NMD ( SLO 6, KC 1)
- Attendance at a UK muscle special interest group meeting and/ or regional NM forum

## RCPCH ePortfolio evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neuromuscular disorders (SLO 1, KC 1.8) across age ranges (SLO 1 KC 1.1) and acutely (SLO 2 KC 2). A portfolio entry may be linked to both neuromuscular disorders (SLO 1 KC 1.8) and another core or sub-specialty area i.e. neurophysiology (SLO 1 KC 1.1) or neurorehabilitation (SLO 1 KC 1.10) or one of the more generic SLOs 3-6. For example, a discussion about novel therapies in Spinal Muscular Atrophy may be linked to SLO 1, KC 1.8 and SLO 2, KC 1.

Many capabilities in neuromuscular disorders overlap with the generic management of children with complex neurodisability and neurodegenerative diseases and so entries may be cross-referenced with other sub-specialties to demonstrate multidisciplinary working, management of disability and end of life planning, as well as the core diagnostic programmes, ie neurogenetics.

## Epilepsy programme

As a practising consultant paediatric neurologist, you may have to perform the following tasks:

- Undertake a detailed history and assessment of a child presenting with paroxysmal events and construct a differential diagnosis, recognising the risks surrounding misdiagnosis in epilepsy, managing diagnostic uncertainty and risk. ( SLO 1, KC 1.1, 1.2 and 2; SLO 2, KC 4,5 and 6; SLO 3, KC 2; SLO 4, KC 2)
- Use the ILAE classification of the epilepsies to formulate an epilepsy syndrome diagnoses where possible across all age ranges (neonatal, infantile, childhood and teenage). Discuss the diagnosis, implications and prognosis with children and families. ( SLO 1, KC 1.1 and 1.2; SLO 2, KC 4,5 and 6; SLO 4, KC 1, 2 and 3)
- Determine the aetiology of the underlying epilepsy using appropriate investigations for children presenting at all ages. ( SLO 1, KC 1.1, 1.2 and 2; SLO 2, KC 4,5 and 6; SLO 4, KC 2)
- Use EEG to support diagnosis and management, understanding the range of normal and abnormal EEG patterns throughout the paediatric age range. Interpret EEG reports in the context of clinical information. (SLO 1, KC 1.1, 1.2 and 2, SLO 2, KC 3 and 6;)
- Assess and effectively manage cognitive and behavioural co-morbidities associated with the epilepsies. Diagnose, evaluate and manage children and young people with cognitive epilepsies, such as Landau-Kleffner Syndrome (LKS), those with symptomatic epilepsies in the context of underlying neurodevelopmental disorders (Epilepsy Plus) and those with non-epileptic attacks in the context of an underlying seizure disorder. Work with CAMHS, neuropsychology, child development teams and families to ensure holistic care. ( SLO 1, KC 1.1, 1.2 and 2; SLO 2, KC 1,2,3, 4,5 and 6;

SLO3, KC 1 and 2; SLO 4, KC 1 and 2)

- Choose and monitor appropriate antiepileptic medication across a range of epilepsies in different ages. ( SLO 1, KC 1.1 and 1.2; SLO 2, KC 1, 2, 3 and 6; SLO 4, KC 3; SLO 5, KC 1))
- Consider alternative treatment in children with drug resistant epilepsies, including ketogenic diet. Discuss the potential risks of these treatments with families and refer to specialist epilepsy clinics, when necessary ( SLO 1, KC 1.1 and 1.2; SLO 2, KC 1, 2 and 3; SLO3 , KC 1; SLO 4, KC 1; Refer children for consideration of epilepsy surgery when appropriate for resective surgery and vagal nerve stimulation, using established referral criteria. Work with regional Children's Epilepsy Surgery Service (CESS) to ensure effective work up/discussion of cases and to support management of children post-surgery. ( SLO 1, KC 1.1 and 1.2 and 2; SLO 2, KC 1, 2, 3, 4,5 and 6; SLO3 , KC 1; SLO 4, KC 1 and 2; SLO 5 , KC 2;)
- Diagnose acute convulsive seizures, status epilepticus and non-convulsive status across all age ranges, constructing a differential diagnosis that includes epilepsies with an explosive onset (i.e. POLG mutation) and effective management plan. Support critical care teams in managing seizures and refractory status in the ICU setting. Identify systemic complications of status epilepticus and the factors that may affect long term outcome. ( SLO 1, KC 1.1 and 1.2 and 2; SLO 2, KC 1, 2, 3, 4,5 and 6; SLO3, KC 1 and 2; SLO 4, KC 1, 2 and 3;)
- Produce emergency care plans for the management of seizures; ensure these are effectively communicated to relevant agencies and ensure that the limitations and risks of rescue medication are understood. 6 ( SLO 1, KC 1.1 and 1.2 and 2; SLO 2, KC 1, 2 and 3; SLO3, KC 1 and 2; SLO 4, KC 1; SLO 5, KC 1;)
- Manage adolescents with a range of epilepsies supporting transition to adult services, understanding the challenges of compliance and co-morbidities in this age group. 6 ( SLO 1, KC 1.1 and 1.2 and 2; SLO 2, KC 1, 2, 3; SLO3, KC 1 and 2; SLO 4, KC 1, 2 and 3)

## **Epilepsy: Providing evidence to support completion of training**

SLO 1, KC 1.1 and 1.2 and 2; SLO 2, KC 1,2, 3, 4, 5 and 6; SLO 3, KC 1 and 2; SLO 4, KC 1,2 and 3; SLO 5, KC1 and 2; SLO 6, KC1

### **Key activities**

- Keep a case log of children of different ages that reflects the range of epilepsy syndromes that present acutely to inpatient settings and to outpatients. The cases should reflect elements of diagnosis, investigation and management with a mix of secondary and tertiary patients. It is envisaged this will be the largest subspecialist case series collected.
- Attendance at epilepsy specialist clinics including epilepsy surgery clinic, ketogenic diet clinic, vagal nerve stimulator clinic, teenage epilepsy clinic and transition clinic
- Attend sufficient EEG reporting sessions to develop skills in interpretation and reporting
- Completion of assessments during training that cover key elements of diagnosis and management of epilepsy
- Attendance and participation in regional epilepsy network meetings
- Completion of [Paediatric Epilepsy Training 1, 2 and 3](#) ( SLO 6, KC 1)

## Other useful activities

- Evidence of audit or service evaluation that relates to children with epilepsy e.g. participation in Epilepsy 12 audit (SLO 5, KC 2, SLO 6, KC 1)
- Completion of [Distance Learning Unit 6 Epilepsy](#)
- Completion of 'Expert to Expert' Epilepsy course (SLO 6, KC 1)

## RCPCH ePortfolio evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to the epilepsies (SLO 1, KC 1.2) across all age ranges (SLO1 KC 1.1 ) and acutely (SLO 2, KC 2). A portfolio entry may be linked to both the epilepsies (SLO 1 KC 1.2) and another core or sub-specialty area i.e. neurophysiology (SLO 1 KC 1.1 or SLO2 , KC 6) or neuroinflammation (SLO 1 KC 1.6) or one of the more generic SLOs 3-6. For example i.e. a CBD in relation to a child being considered for epilepsy surgery may focus on the investigations SLO1, KC 1.2 and SLO 2, KC 3, 4 , 5 or 6 or on the communication with family and/or coordination of care and SLO1, KC 1.2 and SLO 3, KC 1 or SLO 4, KC 2.

Many capabilities in epilepsy overlap with the generic management of children with complex neurodisability and neurodegenerative diseases so entries may be cross referenced with other sub-specialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core diagnostic programmes, ie neurophysiology.

## Cerebrovascular disorders programme

As a practising consultant paediatric neurologist, you may have to perform the following tasks:

- Diagnose, investigate and manage a range of cerebrovascular conditions presenting in childhood. ( SLO 1 , KC 1.1, 1.4 and 2; SLO 2, KC 1,2,3,4 and 5; SLO 3, KC 1, SLO 4, KC 1,2 and 3)
- Identify risk factors i.e. pre-existing disorders such as Down's Syndrome, for arterial ischaemic stroke (AIS), cerebral venous thrombosis (CVST) and other occlusive arteriopathies including spinal stroke. ( SLO 1, KC 1.1 and 1.4 , SLO 2, KC 3, 4 and 5)
- Request appropriate imaging studies and interpret their results to determine the aetiology of AIS, CVST and other arteriopathies. ( SLO 1, KC 1.1 and 1.4 and 2, SLO 2, KC 3 and 5, SLO 4, KC 2;)
- Appreciate the differential diagnosis of stroke in different age groups, i.e. perinatal stroke, stroke in older infants and in adolescents ( SLO 1, KC 1.1 and 1.4 and 2, SLO 2, KC 3, 4 and 5, SLO 4 KC 2)
- Diagnose, investigate, manage and appropriately refer children with traumatic and non-traumatic intracranial haemorrhage, including AV malformation and aneurysms. ( SLO 1, KC 1.1 and 1.4 and 2, SLO 2, KC 1, 2, 3, 4 and 5, SLO 4 KC 2)
- Implement therapeutic strategies for both paediatric and adolescent stroke, including referral for hyperacute management with thrombolysis and/or mechanical thrombectomy ( SLO 1, KC 1.1 and 1.4 and 2, SLO 2, KC 1, 2, 3, and 5, SLO 4 KC 2)
- Contribute to MDTs supporting neurorehabilitation in children/adolescents post stroke in particular outlining specific considerations in relation to more insidious cognitive and

behavioural effects of arteriopathies like Moya Moya syndrome<sup>7</sup> (SLO 1, KC 1.1 and 1.4, SLO 2, KC 3; SLO 3, KC 1; SLO 4, KC 1, 2 and 3)

- Can discuss principles in management of intracranial and intraspinal AV shunts (particularly high flow AV shunts such as Vein of Galen malformation). ( SLO 1, KC 1.1 and 1.4, SLO 2, KC 1, 2 and 3)

SLO 1, KC 1.1 and 1.4 and 2; SLO 2, KC 1,2, 3, 4 and 5; SLO 3, KC 1 and 2; SLO 4, KC 1,2 and 3; SLO 5, KC1 and 2; SLO 6, KC1

### Key activities

- Case log both children and adults with a wide range of cerebrovascular disorders
- Complete assessments that demonstrate your understanding and management of cerebrovascular disorders in both in and outpatient settings
- Attendance at cerebrovascular MDT meetings with diagnostic and interventional radiologists and neurosurgeons, presenting cases and implementing agreed action plans\*
- Attendance at 1 x UK cerebrovascular special interest group meeting

### Other useful activities

- Visit to supraregional centre to observe mechanical thrombectomy and embolisation procedures
- Evidence of audit or service evaluation that relates to children with cerebrovascular disorders (SLO 5, KC 2)
- Case report of child with cerebrovascular disorder ( SLO 6, KC 1)
- Complete [Distance Learning Unit 7 Cerebrovascular disease, trauma and coma](#)

### RCPCH ePortfolio evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to cerebrovascular disorders (SLO 1, KC 1.4) across all age ranges (SLO1 KC 1.1 ) and acutely (SLO 2, KC 2). A portfolio entry may be linked to both cerebrovascular Disorders (SLO 1 KC 1.4) and another core or sub-specialty area i.e. neuroradiology (SLO 1 KC 1.1 or SLO2 , KC 5) or ABI/ neurorehabilitaion (SLO 1 KC 1.10) or one of the more generic SLOs 3-6. For example i.e. a CBD in relation to a child with Moya Moya disease may focus on the investigations SLO1, KC 1.10 and SLO 1, KC 2, or SLO2, KC 2, 3, 4 or 5 or on consideration of neurosurgery SLO2, KC 1 or 3.

Many capabilities overlap with the generic management of children with complex neurodisability and neurorehabilitation, (SLO 1 KC 1.10), so entries may be cross referenced with other sub-specialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core diagnostic programmes i.e. neuroradiology

**Note:** If a trainee is unable to access some aspects of training, they may need to arrange a clinical placement in a unit with a comprehensive paediatric cerebrovascular practice.

## Neuroinflammatory disorders

As a practising consultant paediatric neurologist, you may have to perform the following tasks:

- Undertake a history and examination of a child or infant with acute and chronic neuroinflammatory conditions. ( SLO 1, KC 1.6 )
- Establish the correct diagnosis using clinical assessment, and basic investigations for the following acute syndromes:
  - Autoimmune encephalitis and the range of immune-mediated CNS syndromes and associated antibodies including NMDAR and limbic encephalitis (SLO 1, KC 1.1 and 1.6 and 2, SLO 2, KC 5 and 6; SLO 4, KC 2;)
  - The range of acquired demyelination syndromes to include optic neuritis, transverse myelitis, neuromyelitis optica, clinically isolated syndromes and multiple sclerosis and their imaging characteristics (SLO 1, KC 1.1 and 1.6 and 2, SLO 2, KC 5 and 6; SLO 4, KC 2;)
  - Acute neurological syndromes with systemic inflammatory disorders (SLO 1, KC 1.1 and 1.6 and 2, SLO 2, KC 4, 5 and 6; SLO 4, KC 2;)
- Recognise CND disorders that present with predominantly neuropsychiatric features and use a range of strategies in liaison with MD colleagues to support their management ( SLO 1, KC 1.1 and 1.6 and 2, SLO 2 KC 1,2 and 3; SLO 4, KC 1, 2 and 3;)
- Initiate acute and maintenance immunotherapy with necessary monitoring for potential complications. (SLO1, KC 1.1 and 1.6 and 2, SLO 2, KC 1, 2, 3 and 4)
- Appreciate current concepts in CNS inflammation and implications for presentation and management in different age groups ( SLO 1, KC 1.1 and 1.6; SLO 2, 1,2, 3 and 4; SLO 3, KC 1)

## **Neuroinflammation: Providing evidence to support completion of training**

SLO 1, KC 1.1 and 1.6 and 2; SLO 2, KC 1,2, 3, 4, 5 and 6; SLO 3, KC 1 and 2; SLO 4, KC 1,2 and 3; SLO 5, KC 2; SLO 6, KC1

### **Key activities**

- Reflective log of a series of children with various autoimmune encephalitis
- Reflective log of a series of children with systemic immune mediated disorders with a CNS presentation
- Reflective log of children of different ages with a range of acquired demyelination syndromes including MS
- Attend 1 x UK-Childhood Inflammation Disorders special interest group meeting (held 4 times per year including once at BPNA)

### **Other useful activities**

- Involvement in audit or quality improvement project or protocol development (SLO 5, KC 2)
- Completion of [Distance Learning Unit 8 Inflammation & Infection of the CNS](#) or EPNS immunology course (SLO 6, KC 1)
- Attendance at Chronic inflammation MDT (including imaging)

### **RCPCH ePortfolio evidence**

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neuroinflammatory disorders (SLO 1, KC 1.6) across all age ranges (SLO1 KC 1.1 ) and acutely (SLO 2, KC 2). A portfolio entry may be linked to both neuroinflammatory disorders (SLO 1 KC 1.6) and another core or sub-specialty area i.e. neuroradiology (SLO 1 KC 1.1 or SLO2 , KC 5) or ABL/ neurorehabilitaion (SLO 1 KC 1.10) or one of the more generic SLOs 3-6. For example, a CBD in relation to use of disease modifying drugs in MS may focus on the reviewing the literature SLO1, KC 1.6 and SLO 6, KC 1, or on how to safely prescribe and monitor the drug SLO1, KC 1.6 and SLO5, KC 1.

Many capabilities overlap with the generic management of children with complex neurodisability and chronic disease, so entries may be cross-referenced with other sub-specialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core diagnostic programmes, ie neuroradiology

**Note:** If a trainee is unable to access some aspects of training, they may need to arrange a clinical placement in a unit with a specialized neuroinflammation service

## Neurodegenerative and neurometabolic diseases programme

As a practising consultant paediatric neurologist, you may have to perform the following tasks:

- Classify neurodegenerative (NDD) and neurometabolic disorders using accepted terminology. (SLO1, KC 1.7)
- Undertake a detailed history and assessment of a child with suspected NDD presenting at any age from the neonatal period through to young adulthood. (SLO1 , KC 1.1, 1.7)
- Distinguish “pseudo-regression” from true regression and use appropriate investigations to make a diagnosis (e.g. non-convulsive status, hydrocephalus, brain tumour).( SLO 1, KC 1.1 , 1.7; SLO 2, KC 2,4 and 5; SLO 4, KC 2)
- Investigate a child with suspected neurometabolic and neurodegenerative diseases at different ages, working jointly with metabolic disease specialists, geneticists, and neuroradiologists to develop an appropriate investigative pathway. ( SLO 1, KC 1.1, 1.7 and 2, SLO 2 KC 3-6, SLO 3, KC 1; SLO 4, KC 1,2 and 3)
- Appreciate the neuroimaging features of the main categories of NDD e.g. leukodystrophy, Neurodegeneration with Brain Iron Accumulation (NBIA), NCLs, mitochondrial disease or peroxisomal disorders and use imaging results to guide further investigation. (SLO 1, KC 1,1 and 1.7, SLO 2, KC 4 and 5)
- Identify treatable NDDs and NM disorders and implement investigations and management in a timely manner. ( SLO 1, KC 1.1, 1.7 and 2, SLO 2 KC 1-6, SLO 3, KC 1; SLO 4, KC 1,2 and 3)
- Institute or refer children with specific NDDs for timely symptomatic management where relevant, including those who may benefit from experimental or early clinical trials for rare NDDs. ( SLO 1, KC 1.1, 1.7 and 2, SLO 2 KC 1-3, SLO 3, KC 1; SLO 4, KC 1,2 and 3)
- Contribute to MDT meetings and goal planning for children with NDD highlighting disease specific complications and co-morbidities i.e. neuropsychiatric difficulties in



Huntingdon's disease. Involve charitable support groups where appropriate<sup>8</sup>( SLO 1, KC 1.1 and 1.7, SLO 2 KC 3; SLO 3, KC 1 and 2; SLO 4, KC 1,2 and 3)

- Diagnose and manage neurodegenerative or neurometabolic diseases which may present acutely. \*( SLO 1, KC 1.1, 1.7 and 2, SLO 2 KC 1,2 and 3; SLO 4, KC 2)
  - Status epilepticus in POLG and other metabolic disorders
  - Acute encephalopathy in mitochondrial, urea cycle, amino/organic acid disorder and fatty acid oxidation disorders
  - Acute paralysis +/- rhabdomyolysis in metabolic disorders
  - Multi system failure in metabolic disorders
  - Status dystonicus e.g. in NBIA disorders
- Recognize adult onset NDD that may present in childhood i.e. Wilsons, Parkinsonism, mitochondrial disorders (MERRF/MELAS). \*( SLO 1, KC 1.1, 1.7 and 2, SLO 2 KC 1- 3; SLO 4, KC 2)
- Facilitate transition to adult services of children with more slowly progressive NDD i.e. CLN3, Freidreichs ataxia, Ataxia Telangiectasia \* \*( SLO 1, KC 1.1, 1.7 and 2, SLO 2 KC 1- 3; SLO 4, KC 1,2 and 3)

## **Neurodegenerative and neurometabolic disorders: Providing evidence to support completion of training**

SLO 1, KC 1.1, 1.7 and 2; SLO 2 KC 1-6; SLO 3 KC 1-3; SLO 4, KC 1-3

### **Key activities**

- Reflective case log of a series of children and young people with confirmed NDD
- Reflective log a series of children with "pseudo regression" (See 3 above)
- Completion of assessments during training that cover diagnosis or management of NDD
- Attendance at 1 x neurogenetics club or IWMD special interest group or equivalent regional/national MDT
- Attendance at specialist metabolic diseases clinic (could be an adult clinic)<sup>9</sup>

### **Other useful activities**

- Evidence of audit or service evaluation that relates to children with NDD ( SLO5, KC 2)
- Case report or presentation of NDD/metabolic patient ( SLO 6, KC 1)
- Completion of [Distance Learning Unit 9 Metabolic, Nutritional and Systemic Disease](#)

### **RCPCH ePortfolio evidence**

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neurodegenerative/ neurometabolic disorders (SLO 1, KC 1.7) across all age ranges (SLO1 KC 1.1 ) and acutely (SLO 2, KC 2). A portfolio entry may be linked to both neurodegenerative disorders (SLO 1 KC 1.7) and another core or sub-specialty area i.e. neuroradiology (SLO 1 KC 1.1 or SLO2 , KC 5) or or one of the more generic SLOs 2-6. For example i.e. Attendance at the neurogenetic club may link to more knowledge of the radiological appearances of different neurodegenerative disorders ( SLO1, KC 1.1 and SLO 1, KC 1.7 or 2), or to a greater understanding of the application of novel therapies for specific neurometabolic disorders (SLO 1, KC 1.7 and SLO 2, KC 1).

Many capabilities overlap with the generic management of children with complex

neurodisability and chronic disease, so entries may be cross-referenced with other sub-specialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core diagnostic programmes i.e. neuroradiology and neurogenetics.

## Neuro-oncology programme

As a practising consultant paediatric neurologist, you may have to perform the following tasks:

- Recognise the common clinical presentations of brain tumours in children and young adults and understand the reasons why delayed diagnosis of brain tumours occurs. (SLO 1, KC 1.1, 1,12)
- Instigate emergency neurological management of acutely presenting brain tumours.(SLO 1, KC 1.1, 1.12 and 2; SLO 2, KC 2,3 and 5)
- Identify classical brain tumour appearances on neuro-imaging and appreciate the role of advanced imaging modalities (see neuroradiology curriculum). (SLO 1, KC 1.1, 1,12 and 2; SLO 2, KC 4 and 5)
- Diagnose and investigate disorders that may be suspected to be a brain tumour (including patients presenting with epilepsy, headache). (SLO 1, KC 1.1, 1,12 and 2; SLO 2, KC 2,3,4 and 5; SLO 4, KC 2)
- Contribute to multidisciplinary pre-surgical evaluation and neuro-oncology MDT. (SLO 1, KC 1.1, 1,12 and 2; SLO 2, KC 1,3,4 and 5; SLO 4, KC 1 2)
- Appreciate the role of molecular diagnostics in stratifying treatment for brain tumours (SLO 1, KC 1.1, 1,12 and 2; SLO 2, KC 1, 3 and 4;)
- Recognise genetic disorders with increase tumour predisposition (SLO 1, KC 1.1, 1.12 and 2; SLO 2, KC 3,4 and 5;) such as:
  - NF1
  - TS
  - Li- Fraumeni
- Be aware of adjunctive treatment strategies listed, their complications at different ages and impact on management i.e. in congenital brain tumours. (SLO 1, KC 1.1 and 1.12; SLO 2, KC 1,3,4 and 5; SLO 3, KC 1; SLO 4, KC 2 and 3)
  - Photon radiotherapy
  - Proton radiotherapy
  - Stereotactic radiotherapy
  - Chemotherapy
  - Gene therapy
  - Experimental treatments
- Diagnose and manage common perioperative complications of brain tumours: (SLO 1, KC 1.1 and 1.12; SLO 2, KC 1,2,3,4 and 5;)
  - Cerebral swelling and oedema
  - DI, SIADH and cerebral salt wasting
  - Posterior fossa syndrome
  - Eye movement disorders
- Recognise common late-effects of treatment for a brain tumour including neuropsychiatric morbidities, endocrine effects, cognitive decline and refer for appropriate management / treatment. (SLO 1, KC 1.1 and 1.12; SLO 2, KC 1,3,4 and 5; SLO 3, KC 1; SLO 4, KC 2 and 3)
- Understand the role of radiological surveillance and clinical monitoring in the

management of brain tumours. (SLO 1, KC 1.1 and 1.12; SLO 2, KC 3,4 and 5; SLO 3, KC 1; SLO 4, KC 2 and 3)

- Recognise and manage acute presentation of brain tumours with (SLO 1, KC 1.1 and 1.12; SLO 2, KC 2,3,4 and 5;)
  - Acute hydrocephalus
  - Intracerebral haemorrhage
  - Other signs of raised intra cranial pressure
  - Acute onset of Seizures or focal neurology
- Work with MD colleagues in oncology, neurosurgery, critical and palliative care teams to ensure effective care, including emergency and end of life care plans \*(SLO 1, KC 1.1, 1.12 and 2 ; SLO 2, KC 3,4; SLO 2 KC 1; SLO 4 KC 1-3)

Generic skills shared with other disciplines

## **Neuro-oncology: Providing evidence to support completion of training**

SLO 1, KC 1.1, 1.12 and 2; SLO 2, KC 1-5; SLO 3, 1-2; SLO 4, 1-3

### **Key activities**

- Attendance at neuro-oncology MDT meetings to present and discuss cases
- Reflective case log of a series of children with brain tumours including: medulloblastoma, optic pathway glioma, craniopharyngioma, posterior fossa pilocytic astrocytoma, diffuse pontine glioma and a non-tumour space occupying lesion (SOL)
- Completion of assessments relating to patients with a brain tumour

### **Other useful activities**

- Attendance at a neuro-oncology follow up clinic
- Evidence of audit or service evaluation that relates to children with a brain tumour (SLO 5, KC 1 and 2)
- Completion of [Distance Learning Unit 11 Neuro-oncology](#)

### **RCPCH ePortfolio evidence**

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neuro-oncology (SLO 1, KC 1.12) across all age ranges (SLO1 KC 1.1) and acutely (SLO 2, KC 2). A portfolio entry may be linked to both neuro-oncology (SLO 1 KC 1.12) and another core or sub-specialty area i.e. neuroradiology (SLO 1 KC 1.1 or SLO2 , KC 5) or or one of the more generic SLOs 2-6. For example i.e. A case log of patients seen in clinic may develop understanding of the different clinical presentations of different childhood brain tumours ( SLO1, KC 1.12 and SLO 4, KC 2) or to more understanding of the use and side effects of chemo and radiotherapy for (SLO 1, KC 1.7 and SLO 2, KC 1 or SLO3, KC 1).

Many capabilities overlap with the generic management of children with complex

neurodisability and chronic disease, so entries may be cross referenced with other sub-specialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core training programmes i.e. neuroradiology and epilepsy (SLO 1 KC 1.2).

**Note:** If a trainee is unable to access some aspects of training, they may need to arrange a clinical placement in a unit with a higher case load to access the range of experience required

## Headache programme

As a practising consultant paediatric neurologist, you may have to perform the following tasks:

- Undertake a detailed history and assessment of a child with suspected headache disorder (HD). (SLO 1, KC 1.1, 1.11 and 2; SLO 2 KC 4 and 5)
- Classify primary and secondary headache disorders, using ICDH-beta classification and the NICE guideline for headaches in children >12 years of age. (SLO 1, KC 1.1 and 1.11)
- Institute appropriate investigation for headaches and determine when further investigation is not necessary. (SLO 1, KC 1.1, 1.11 and 2; SLO 2 KC 3, 4 and 5)
- Diagnose and manage headaches in infants and children presenting acutely with raised intracranial pressure and subarachnoid haemorrhage (SLO 1, KC 1.1, 1.11 and 2; SLO 2 KC 2, 3 and 5)
- Assess, diagnose and manage children with idiopathic intracranial hypertension (IIH), interpreting ophthalmological assessment findings and referring to neurosurgery as necessary (SLO 1, KC 1.1, 1.11 and 2; SLO 2, KC 1, 2, 3 and 5; SLO 3 KC 1; SLO 4, KC 2;)
- Assess, investigate and diagnose a child presenting with common headache types including migraine, common migraine variants and periodic syndromes (SLO 1, KC 1.1, 1.11 and 2; SLO 2, KC 1, 2, 3 and 5; SLO 3 KC 1; SLO 4, KC 2;)
- Initiate management for chronic medically un-explained headache and appreciate the role of psychological approaches (SLO 1, KC 1.1, 1.11 and 2; SLO 2, KC 1 and 3; SLO 3 KC 1 and 2; SLO 4, KC 1, 2 and 3;)
- Lead on inter-disciplinary working with allied specialties including ophthalmology, psychology and CAMHS service.\* (SLO 1, KC 1.1, 1.11 and 2; SLO 2, KC 1 and 3; SLO 3 KC 1 and 2; SLO 4, KC 1, 2 and 3;)

### Headache disorders: Providing evidence to support completion of training

SLO 1, KC 1.1, 1.11 and 2; SLO 2, KC 1-5; SLO 3, 1-2; SLO 4, 1-3

#### Key activities

- Reflective Case Log of children and young people with primary and secondary headache disorders
- Completion of relevant WBA, including idiopathic intracranial hypertension

#### Other useful activities

- Audit, service evaluation or quality improvement project in relation to headache disorders (could be adult) (SLO 5, KC 1 and 2)

- Attendance at [Children's Headache Training \(CHaT\)](#)/Regional course/Headache conference ( SLO 6, KC 1)
- Attendance at headache specialist interest group meeting
- Completion of Unit 12 of the Distance Learning Programme ( SLO 6, KC 1)

### **RCPCH ePortfolio evidence**

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to headache disorders (SLO 1, KC 1.11) across all age ranges (SLO1 KC 1.1 ) and acutely (SLO 2, KC 2). A portfolio entry may be linked to both headache (SLO 1 KC 1.11) and another core or sub-specialty area i.e. neuroradiology (SLO 1 KC 1.1 or SLO2 , KC 5) or or one of the more generic SLOs 2-6. For example i.e. A reflective case note of a present presenting acutely with a history of headache and raised intracranial pressure (ICP) may focus radiological features of raised ICP ( SLO1, KC 1.11 and 2) or on acute management (SLO 1, KC 1.11 and SLO 2, KC 2).

Some capabilities overlap with the generic management of children with complex neurodisability and chronic disease, so entries may be cross referenced with other sub-specialties to demonstrate multidisciplinary working and transition (SLO 4, KC 1-3), as well as the core diagnostic programmes i.e. neuroradiology (SLO 1 KC 1.1).

## **Neuropsychiatry and neuropsychological disorders including Medically Unexplained Neurological Disorders (MUND) programme**

As a practising consultant paediatric neurologist, you may have to perform the following tasks:

- Recognise the symptoms and signs that might indicate a medically unexplained neurology disorders (MUND) across different age groups, in those presenting acutely i.e. with paralysis and status epilepticus and with more insidious symptom onset (SLO 1, KC 1.1, 1.9 and 2; SLO 2, KC 2-6; SLO 3, KC 2)
- Identify neurological disorders with atypical presentations that can erroneously be thought to have a 'non-organic' basis. Movement disorders, headache, sensory abnormalities, inflammatory disorders and epilepsy. (SLO 1, KC 1.1, 1.9 and 2; SLO 2, KC 2-6; SLO 3, KC 1;)
- Undertake a detailed history and assessment of a child and family where MUND is suspected and effectively communicate the diagnosis to the child, family and other relevant professionals. (SLO 1, KC 1.1, 1.9 and 2; SLO 2, KC 3 and 4; SLO 3, KC 1, 2; SLO 4 1 and 2, SLO 5, KC 1)
- Understand the role of investigations and their potential negative impact in MUNDs. (SLO 1, KC 1.1, 1.9 and 2; SLO 2, KC 3 and 4; SLO 3, KC 1, 2; SLO 4, 1 and 2, SLO 5, KC 1)
- Diagnose a coincidental MUND in a child with a pre-existing neurological disorder i.e. non-epileptic attacks in a child with a confirmed seizure disorder. (SLO 1, KC 1.1, 1.9 and 2; SLO 2, KC 2 - 6; SLO 3, KC 1, 2; SLO 4, 1 and 2,)
- Develop a plan for the ongoing management in a child with MUNDs, identifying factors that may affect prognosis, with early engagement from relevant multidisciplinary

services and support networks to avoid unnecessary investigations and treatment, especially when FII is suspected (SLO 1, KC 1.1, 1.9 and 2; SLO 2, KC 3 and 4; SLO 3, KC 1, 2; SLO 4, 1 and 2, SLO 5, KC 1;)

- Address parental/family actions that could result in a child presenting with MUNDs i.e. family illness behaviour, and how this should be approached and investigated. (SLO 1, KC 1.9, SLO 2, KC 3; SLO 3 KC 1-2; SLO 4, KC 1-2; SLO 5, KC 1)
- Can formulate management strategies with families, working closely with the multidisciplinary team and other agencies (SLO 1, KC 1.9; SLO 2, KC 3 and 4; SLO 3, KC 1, 2; SLO 4, 1- 3;)

## **Neuropsychiatry, neuropsychological and Medically Unexplained Neurological Disorders (MUND): Providing evidence to support completion of training**

SLO 1, KC 1.1, 1.9 and 2; SLO 2, KC 1-6; SLO 3, 1 and 2; SLO 4, KC 1-3; SLO 5, KC 1

### **Key activities**

- Case log of a series of children and adolescents presenting acutely and via outpatients with a spectrum of different MUNDs
- Attendance at psychology/psychiatry/CAMHS clinics during training (It is envisaged that around 10 sessions would be required)
- Completion of WBA , including some CBDs that cover the assessment, acute and ongoing management of a child presenting with MUND, ideally in both out and inpatient settings
- Attendance at a complex MD planning meeting for a child with diagnosis of MUND

### **Other useful activities**

- Evidence of audit or service evaluation that relates to children with MUND ( SLO 5, KC 2)
- Case report or presentation of child with MUND (SLO 6, KC 1)

### **RCPCH ePortfolio evidence**

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to Neuropsychiatry, neuropsychology and MUNDs (SLO 1, KC 1.9) across all age ranges (SLO1 KC 1.1 ) and acutely (SLO 2, KC 2). A portfolio entry may be linked to this programme (SLO 1 KC 1.9) and another core or sub-specialty area i.e. neurophysiology (SLO 1 KC 1.1 or SLO2 , KC 5) or or one of the more generic SLOs 2-6. For example i.e. A CBD on a child with non epileptic attacks (NEAD) may focus on the key differentiating features between NEAD and epilepsy ( SLO1, KC 1.2 and 1.9) or on their management (SLO 1, KC 1.9 and SLO 2, KC 3 or SLO 4, KC 1).

Some capabilities overlap with the generic management of children with complex neurodisability and chronic disease, so entries may be cross referenced with other sub-specialties to demonstrate multidisciplinary working and safeguarding (SLO 3, KC 2), as well as the core training programmes i.e. neurophysiology (SLO 1 KC 1.1).

## Guide to activities which may evidence completion of sub-specialty training

Programme	Case Log <u>10</u>	MDT	Other/external	Audit	Distance Learning
<b>Core Training Programmes</b>					
<b>Neurophysiology</b>		50	Should be attending regular MDT throughout training which can be internal, adult focused or specialist external meeting i.e. CESS/epilepsy network meeting		
<b>Neuroradiology</b>		50	Should be attending regular MDT throughout training which can be internal, adult focused or specialist external meeting i.e. NG club/IWMD group		
<b>Neurogenetics</b>		10	Should be attending regular MDT throughout training which can be internal, adult focused or specialist external meeting i.e. NG club/IWMD group		
<b>Acquired brain injury and neuro-rehabilitation</b>	35	6	Need time in unit with MTC and NS ITU. Ideally visit a spinal injuries unit	Yes	Yes (desirable)
<b>Neonatal Neurology</b>	10	2	Attend BPNA NeoNATE course (desirable)	Yes	Yes (desirable)