Paediatric Neurology Training Guide

November 2018

Background Guidance for grid trainees and trainers

- In 2018, the GMC approved a new syllabus for paediatric training: ***RCPCH progress***
- The neurology training guide has been developed to help trainees achieve and evidence the speciality learning objectives (SLO) and key capabilities (KC) set out in the new level 3 Paediatric neurology syllabus.
- Trainees must also achieve and evidence the LO and KC of the level 3 generic syllabus (paediatrics specialty syllabus).
- The Guide gives examples of the roles and responsibilities of a consultant paediatric neurologist across 3 core and 11 subspecialty areas 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.
- Trainees completing on or before 15 September 2019 will not have to switch onto RCPCH Progress.
- Trainees with a CCT date after 15 September 2019 will be 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 14 programme areas and prospectively collect evidence to support achievement of relevant SLO and KC. Past experience can be reviewed and documented in supervision reports.
- Trainees should discuss with their supervisor how best to acquire and evidence towards to the SLO and KC within a particular 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 14 training areas as well as the speciality learning outcomes (SLO) and key capabilities (KC). Whilst there is no mandatory number of entries, there are suggestions regarding the depth and breadth of experience a consultant would need in a particular area.
- Case logs and MDT attendance should be discussed with one's supervisor and can be captured as a development log or in a supervision meeting. Trainees are not expected to log each individual case or MDT.
- Trainees should choose the most appropriate WBA to represent each SLO and KC. WBA could support capabilities in a particular subspecialty. They may be cross referenced to another subspecialty or one of the core programmes.
- 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.

Contents

RCPCH Paediatric Neurology Syllabus

Learning Outcomes	Key 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.	1	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: • Epilepsies in the newborn, infancy, childhood and adolescence • Neonatal neurology • Cerebrovascular disorders • Neuromuscular disorders • Inflammatory and demyelinating disorders • Neurodegenerative and neurometabolic disorders • Movement disorders, including cerebral palsy • Neuropsychiatric and neuropsychological disorders, and medically unexplained neurological syndromes • Neurorehabilitation and acquired brain injury • Headaches and disorders of raised intracranial pressure • Neuro-oncology
	2	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.

2. Co-ordinates 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.	1	Considers the full range of treatment and management options available, including new and innovative therapies, relevant to paediatric neurology.
	2	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.
	3	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.
	4	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 with neurological and neurosurgical disorders.
	5	Explains the role of neuroimaging in the clinical diagnostic and management plan.
	6	Describes the role of neurophysiological investigations in the clinical diagnostic and management plan.

3. Promotes the neurological and developmental health of a child with a neurological disorder.	1	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 with neurological disorders.
	2	Identifies and manages risks of safeguarding issues in children with complex neurological disorders, including those relating to child, family and wider society.
4. Assumes the role of paediatric neurological team leader and takes responsibility for this area of service.	1	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.
	2	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.
	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 investigating, reporting and resolving 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.
	2	Identifies quality improvement opportunities, supervises healthcare professionals in relation to improvement projects, and leads and facilitates reflective evaluation.
6. Keeps up to date and engages in, supports and stimulates research in child neurology.	1	Demonstrates independent development and revision of guidelines and procedures to improve service delivery, centred around current clinical research and evidence-based healthcare.

Core Training

Three generic components of paediatric neurology training have been identified as encompassing skills and knowledge that are relevant to all of the sub-speciality 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-speciality programmes and many of the core skills may be acquired within the context of one of the sub-speciality areas.

Neurophysiology for Paediatric Neurology Grid Trainees

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

1. Apply principles that underlie commonly used neurophysiology techniques
2. Understand CNS pharmacology and the effect of various drug actions on neurophysiology recordings
3. Appropriately use and interpret diagnostic EEG techniques in paediatric neurology practice, including invasive EEG techniques used to facilitate epilepsy surgery
4. Appropriately use and interpret peripheral neurophysiology studies
5. Appreciate the role of neurophysiology modalities used less frequently and indications for their use in paediatric neurology practice (including VEPs and ERGs)
6. Apply anatomical knowledge of the major subdivisions of the central and peripheral nervous systems
7. Apply basic knowledge of nerve conduction including ion channel function
8. Apply basic knowledge of synaptic function (inhibitory and excitatory) and the neuromuscular junction
9. Have an understanding of central nervous system neurotransmitters and drugs which modulate them
10. Appreciate the mode of action of drugs affecting the central and peripheral nervous systems

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 with regard to 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

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

Guidance in relation to providing evidence to support completion of training in neurophysiology

Key activites:

- 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-speciality areas eg epilepsy or neuromuscular)
- Evidence of clinical presentation, audit or service evaluation where neurophysiology is the focus (NB this could cross link to sub-speciality training)

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.

Portfolio 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 paediatric neurology specialty learning outcomes (SLO) and key capabilities. A portfolio entry may be linked to both neuroradiology and another subspecialty area i.e. Epilepsy

Neuroradiology for Paediatric Neurology Grid Trainees

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

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

CT imaging

Be aware of the strengths and limitation of CT and with the CT appearances of the following:

- Cerebral oedema
- Central and uncal herniation
- Diffuse severe hypoxic - ischaemic injury - pattern reversal
- Hydrocephalus - acute and chronic
- Extradural haemorrhage
- Sub-dural 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.**
- **Be familiar with the appearances of the following :**

1. Malformations
    a. Cortical malformations
        i. Lissencephaly (including cobblestone)
        ii. Polymicrogyria
        iii. Hemimegalencephaly
        iv. Focal cortical dysplasia

   b. Brainstem malformations
   c. Cerebellar malformations
   d. Chiari 1 and 2
   e. Neural tube defects
2. Neurocutaneous disorders
   a. TS
   b. NF1
3. White matter disorders
   a. PVL
   b. ADEM/MS
   c. Understand the concept of hypomyelination vs delayed myelination
   d. Recognise classical MR phenotypes eg
      i. X-ALD
      ii. MLD
      iii. VWM
      iv. PMD
      v. Mitochondrial leukodystrophies
4. Grey matter disorders
   a. Mitochondrial eg
      i. MELAS
      ii. POLG
      iii. Leighs
   b. Neuronal ceroid lipofuscinoses
   c. NBIAs
5. Stroke
   a. Arterial ischaemic stroke
   b. Moya Moya
   c. Carotid dissection
   d. Sagittal sinus thrombosis
   e. cavernoma
   f. Normal MRA and MRV appearances
6. Brain tumours
   a. Medulloblastoma/ependymoma
   b. Pilocytic astrocytoma
   c. Craniopharyngioma
   d. DNET
   e. Optic pathway glioma
7. Spinal disorders
   a. LETM

   b. Intramedullary tumours
   c. Extra medullary tumours
   d. Syrinx
8. Brain damage patterns
   a. Neonatal HIE
   b. PVL
   c. Porencephaly
   d. Multicystic encphalomalacia
   e. Hydranencephaly
   f. Hippocampal sclerosis
9. CNS infection
   a. Congenital infection esp. CMV
   b. HSE
   c. Abscess
   d. Meningitis

- **Understand the role of Advanced Imaging techniques in the assessment and Management of Children with Neurological Disorders:**
  - **3T MR**
  - **fMR**
  - **PET/SPECT**
- **Be familiar with evolving MR modalities eg DTI, FA, MTI**

Guidance in relation to providing evidence to support completion of training in neuroradiology:

Key activites:

- Regular attendance at neuroradiology MDT *
- 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-speciality areas eg neuroinflammatory or neurovascular)
- Evidence of clinical presentation, audit or service evaluation where neuroimaging is the focus (NB this could cross link to sub-speciality training)

Other useful experience:

- Attendance at UK Neurogenetics club meeting
- Attendance at neuroradiology teaching sessions
- Completion of Distance Learning Unit 0 Introduction to Paediatric Neurology

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

Portfolio Evidence:
This is probably the most critical element of the 3 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 SLO and key capabilities. A portfolio entry may be linked to both neuroradiology and another subspecialty area i.e. acquired brain injury.

Core Genetics for Paediatric Neurology Trainees

As a practising consultant paediatric neurologist you will be expected to be confident in discussing the following with patients:

- 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 (in particular, 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 on the basis of:
    - 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

Guidance in relation to providing evidence to support completion of training in neurogenetics:

Key activites:

- Regular attendance at neurogenetics MDT *
- 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-speciality training)

Other useful activities:

- Attendance at UK Neurogenetics club meeting
- Completion of Distance Learning Unit 1 Neurogenetics, which have been mapped to the above programme

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

Portfolio 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 paediatric neurology specialty learning outcomes (SLO) and key capabilities. A portfolio entry may be linked to both neuroradiology and another subspecialty area i.e. neurodegenerative disease

Acquired Brain Injury (ABI) and Neurorehabilitation

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

1. 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.

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

3. 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

4. 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. *

5. Provide medical input and lead multi-disciplinary goal planning meetings for children/ adolescents with ABI. Be able to 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.*

6. 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 eg seizures, and headaches

7. 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.*

8. Assess and manage children with suspected and confirmed spinal injury including those with autonomic dysreflexia.

9. Recognise the characteristics of inflicted traumatic brain injury and apply relevant safeguarding procedures Be able to draft reports for other agencies including social services and the police *.

* The generic skills required apply to a number of subspecialty areas

Guidance in relation to providing evidence to support completion of training in Acquired Brain Injury (ABI) and Neurorehabilitation:

Key activites:

- A case log of a number of patients 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 a number of 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
- Case report or presentation of child with ABI
- Completion of Distance Learning Unit 0 Introduction to Paediatric Neurology

Portfolio 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 the specialty learning outcomes (SLO) and key capabilities. A portfolio entry may be linked to both neurorehabilitation and another subspecialty area i.e. neurovascular disorders.

Neonatal Neurology

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

1. Neurological examination of the preterm and term infant.

2. Assessment of an infant with acute profound and chronic partial hypoxic ischaemic brain injury and be able to discuss the mechanisms, patterns, timings and range of outcome.

3. Formulate a differential diagnosis and investigative plan for neonatal encephalopathy and its subsequent management.

4. Use the ILAE classification for neonatal seizures, and be able to distinguish abnormal movements from epileptic seizures.

5. Draw up a differential diagnosis and directed investigative plan for neonatal seizures. Be able to interpret investigations and develop a management plan for neonatal epilepsy syndromes

6. Manage status epilepticus in newborn infants at different gestational ages, recognizing patterns and nature of EEG and MR abnormalities, and advising on therapeutic choices.

7. Understand the nature of arterial ischaemic stroke (AIS) and cerebral venous sinus thrombosis (CVST) presenting in neonates. Interpret investigations and formulate a management plan.

8. Assess and investigate infants with altered tone, both floppy and stiff. Formulate a differential diagnosis and strategy for management.

9. Examine infants with neural tube defects, provide guidance on key aspects of their management including co-morbidities affecting bladder and bowel

10. 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

11. 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. Be able to communicate uncertainty of prognosis in certain disorders.

12. Provide neurological expertise to a fetal MDT with respect to neurological abnormalities recognised antenatally on neuroimaging both USS and MR, or through genetic testing.

Guidance in relation to providing evidence to support completion of training in Neonatal Neurology:

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

Portfolio 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 specialty learning outcomes (SLO) and key capabilities. A portfolio entry may be linked to both neonatal neurology and another subspecialty area i.e. epilepsy.

Movement Disorders (MD)

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

1. 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

2. 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.

3. Assess functional motor skills and outcomes with established tools, that facilitate shared assessment for audit and research **

4. 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 **.

5. Assess, investigate and diagnose a child/adolescent presenting with common MD phenotypes including tics, stereotypies, dystonia, athetosis, chorea, ataxia, myoclonus and spasticity. Be able to interpret CSF neurotransmitter results.

6. Discuss the long term consequences and prognosis of MD on behaviour, learning and performance *

7. 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.

8. Investigate and manage status dystonicus and other acute onset movement disorders eg chorea. Recognise acute dystonic reactions to medication

9. 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

be able to discuss treatment benefits and side effects with children, young people and their families *

10. 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

** These elements cross reference with Neuromuscular Disorders

* Skills in MD team working, communication and leadership are essential to SLO 2,3,4 and 5 and shared across many subspecialty areas

Guidance in relation to providing evidence to support completion of training in Movement Disorders:

Key activities:

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

Portfolio Evidence:
Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to movement disorders across age ranges (SLO1 KC1) and acutely (SLO2, KC2) and mapping them to the range of specialty learning outcomes (SLO) and key capabilities. A portfolio entry may be linked to both movement disorders and another core or subspecialty area i.e. neurophysiology or ABI.

Neuromuscular Disorders

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

1. 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.

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.

3. 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.

4. 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.

5. Recognise and evaluate the systemic, metabolic and mitochondrial disorders that can affect neuromuscular function.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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

11. 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.

12. 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

Guidance in relation to providing evidence to support completion of training in Neuromuscular Disorders:

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
- Attendance at a UK muscle special interest group meeting and/or regional NM forum

Desirable

- Completion of Distance Learning Unit 5 Neuromuscular Disorders
- Completion of a NM course either MDC, BMS or EPNS course
- Evidence of audit or service evaluation that relates to children with NMD
- Case report or presentation of child with NMD

Portfolio Evidence:
Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neuromuscular disorders across age ranges (SLO1 KC1) and acutely (SLO2, KC2).

A number of 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 subspecialties to demonstrate multidisciplinary working, management of disability and end of life planning, as well as the core training programmes i.e. neurogenetics

The Epilepsies

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

1. 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.

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.

3. Determine the aetiology of the underlying epilepsy using appropriate investigations for children presenting at all ages.

4. 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.

5. 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.

6. Choose and monitor appropriate antiepileptic medication across a range of epilepsies in different ages.

7. 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

8. 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.

9. 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.

10. 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. *

11. Manage adolescents with a range of epilepsies supporting transition to adult services, understanding the challenges of compliance and co-morbidities in this age group.*

*The generic skills/activities are required for a number of areas of practice ie neurodegenerative disease, ABI etc.

Guidance in relation to providing evidence to support completion of training in Childhood Epilepsies:

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

Other useful activities

- Evidence of audit or service evaluation that relates to children with epilepsy eg participation in Epilepsy 12 audit
- Completion of Distance Learning Unit 6 Epilepsy
- Completion of 'Expert to Expert' Epilepsy course

Portfolio Evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to the epilepsies across all age ranges (SLO1 KC1) and acutely (SLO2, KC2).

A number of capabilities in epilepsy overlap with the generic management of children with complex neurodisability and neurodegenerative diseases so entries may be cross referenced with other subspecialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core training programmes i.e. neurophysiology

Neurovascular Disorders

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

1. Diagnose, investigate and manage a range of neurovascular conditions presenting in childhood.

2. 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.

3. Request appropriate imaging studies and interpret their results to determine the aetiology of AIS, CVST and other arteriopathies.

4. Appreciate the differential diagnosis of stroke in different age groups, i.e. perinatal stroke, stroke in older infants and in adolescents

5. Diagnose, investigate, manage and appropriately refer children with traumatic and non-traumatic intracranial haemorrhage, including AV malformation and aneurysms.

6. Implement therapeutic strategies for both paediatric and adolescent stroke, including referral for hyperacute management with thrombolysis and/or mechanical thrombectomy

7. 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*

8. Be able to discuss principles in management of intracranial and intraspinal AV shunts (particularly high flow AV shunts such as Vein of Galen malformation).

*****Cross reference between other subspecialities

Guidance in relation to providing evidence to support completion of training in Neurovascular Disorders:

Key activities:

- Case log both children and adults with a wide range of neurovascular disorders
- Complete assessments that demonstrate your understanding and management of neurovascular disorders in both in and outpatient settings
- Attendance at Neurovascular 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 Activites

- Visit to supraregional centre to observe mechanical thrombectomy and embolisation procedures
- Evidence of audit or service evaluation that relates to children with neurovascular disorders
- Case report of child with neurovascular disorder
- Complete Distance Learning Unit 7 Cerebrovascular disease, trauma and coma

Portfolio Evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neurovascular disorders across all age ranges (SLO1 KC1) and acutely (SLO2, KC2).

A number of capabilities overlap with the generic management of children with complex neurodisability and neurorehabilitation, so entries may be cross referenced with other subspecialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core training programmes i.e. neuroradiology

*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 neurovascular practice

Neuroinflammatory Disorders

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

1. Undertake a history and examination of a child or infant with acute and chronic neuroinflammatory conditions.

2. 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
   - The range of acquired demyelination syndromes to include optic neuritis, transverse myelitis, neuromyelitis optica, clinically isolated syndromes and multiple sclerosis and their imaging characteristics
   - Acute neurological syndromes with systemic inflammatory disorders

3. Recognize CND disorders that present with predominantly neuropsychiatric features and use a range of strategies in liaison with MD colleagues to support their management

4. Initiate acute and maintenance immunotherapy with necessary monitoring for potential complications.

5. Appreciate current concepts in CNS inflammation and implications for presentation and management in different age groups

Guidance in relation to providing evidence to support completion of training in Neuroinflammation:

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
- Completion of Distance Learning Unit 8 Inflammation & Infection of the CNS or EPNS immunology course
- Attendance at Chronic inflammation MDT (including imaging)

Portfolio Evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neuroinflammatory disorders across all age ranges (SLO1 KC1) and acutely (SLO2, KC2).

A number of capabilities overlap with the generic management of children with complex neurodisability and chronic disease, so entries may be cross-referenced with other subspecialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core training programmes i.e. neuroradiology

*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

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

1. Classify neurodegenerative (NDD) and neurometabolic disorders using accepted terminology.

2. Undertake a detailed history and assessment of a child with suspected NDD presenting at any age from the neonatal period through to young adulthood.

3. Distinguish “pseudo-regression” from true regression and use appropriate investigations to make a diagnosis (eg non-convulsive status, hydrocephalus, brain tumour).

4. 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.

5. Appreciate the neuroimaging features of the main categories of NDD eg leukodystrophy, Neurodegeneration with Brain Iron Accumulation (NBIAs), NCLs, mitochondrial disease or peroxisomal disorders and use imaging results to guide further investigation.

6. Identify treatable NDDs and NM disorders and implement investigations and management in a timely manner.

7. 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.

8. 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*

9. Diagnose and manage neurodegenerative or neurometabolic diseases which may present acutely.
    a. Status epilepticus in POLG and other metabolic disorders
    b. Acute encephalopathy in mitochondrial, urea cycle, amino/organic acid disorder and fatty acid oxidation disorders
    c. Acute paralysis +/- rhabdomyolysis in metabolic disorders
    d. Multi system failure in metabolic disorders
    e. Status dystonicus eg in NBIA disorders

10. Recognize adult onset NDD that may present in childhood i.e. Wilsons, Parkinsonism, mitochondrial disorders (MERRF/MELAS).

11. Facilitate transition to adult services of children with more slowly progressive NDD i.e. CLN3, Freidreichs ataxia, Ataxia Telangiectasia *

*The generic skills/activities are required for a number of areas of practice ie NM disorders, ABI etc.

Guidance in relation to providing evidence to support completion of training in Neurodegenerative and Neurometabolic Disorders:

Key activites:

- 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)*

Other useful activities:

- Evidence of audit or service evaluation that relates to children with NDD
- Case report or presentation of NDD/metabolic patient
- Completion of Distance Learning Unit 9 Metabolic, Nutritional and Systemic Disease

Portfolio Evidence
Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neurodegenerative and neurometabolic disorders across all age ranges (SLO1 KC1) and acutely (SLO2, KC2).

A number of capabilities overlap with the generic management of children with complex neurodisability and chronic disease, so entries may be cross-referenced with other subspecialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core training programmes i.e. neuroradiology and neurogenetics

*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

Neuro-oncology

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

1. Recognise the common clinical presentations of brain tumours in children and young adults and understand the reasons why delayed diagnosis of brain tumours occurs.

2. Instigate emergency neurological management of acutely presenting brain tumours.

3. Identify classical brain tumour appearances on neuro-imaging and appreciate the role of advanced imaging modalities (see neuroradiology curriculum).

4. Diagnose and investigate disorders that may be suspected to be a brain tumour (including patients presenting with epilepsy, headache).

5. Contribute to multidisciplinary pre-surgical evaluation and neuro-oncology MDT.

6. Appreciate the role of molecular diagnostics in stratifying treatment for brain tumours

7. Recognise genetic disorders with increase tumour predisposition such as:
    a. NF1
    b. TS
    c. Li- Fraumeni

8. Be aware of adjunctive treatment strategies listed, their complications at different ages and impact on management i.e. in congenital brain tumours.
    a. Photon radiotherapy
    b. Proton radiotherapy
    c. Stereotactic radiotherapy
    d. Chemotherapy
    e. Gene therapy
    f. Experimental treatments

9. Diagnose and manage common perioperative complications of brain tumours:
    - Cerebral swelling and oedema
    - DI, SIADH and cerebral salt wasting
    - Posterior fossa syndrome
    - Eye movement disorders

10. Recognise common late-effects of treatment for a brain tumour including neuropsychiatric morbidities, endocrine effects, cognitive decline and refer for appropriate management / treatment.

11. Understand the role of radiological surveillance and clinical monitoring in the management of brain tumours.

12. Recognise and manage acute presentation of brain tumours with
    - Acute hydrocephalus
    - Intracerebral haemorrhage
    - Other signs of raised intra cranial pressure
    - Acute onset of Seizures or focal neurology

13. Work with MD colleagues in oncology, neurosurgery, critical and palliative care teams to ensure effective care, including emergency and end of life care plans *

* Generic skills shared with other disciplines

Guidance in relation to providing evidence to support completion of training in Neuro-oncology:

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 activites

- Attendance at a neuro-oncology follow up clinic
- Evidence of audit or service evaluation that relates to children with a brain tumour
- Completion of Distance Learning Unit 11 Neuro-oncology

Portfolio Evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to neurooncology across all age ranges (SLO1 KC1) and acutely (SLO2, KC2).

A number of capabilities overlap with the generic management of children with complex neurodisability and chronic disease, so entries may be cross referenced with other subspecialties to demonstrate multidisciplinary working, emergency care planning and transition, as well as the core training programmes i.e. neuroradiology and epilepsy

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

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

1. Undertake a detailed history and assessment of a child with suspected headache disorder (HD).

2. Classify primary and secondary headache disorders, using ICDH-beta classification and the NICE guideline for headaches in children >12 years of age.

3. Institute appropriate investigation for headaches and determine when further investigation is not necessary.

4. Diagnose and manage headaches in infants and children presenting acutely with raised intracranial pressure and subarachnoid haemorrhage

5. Assess, diagnose and manage children with idiopathic intracranial hypertension (IIH), interpreting ophthalmological assessment findings and referring to neurosurgery as necessary

6. Assess, investigate and diagnose a child presenting with common headache types including migraine, common migraine variants and periodic syndromes

7. Initiate management for chronic medically un-explained headache and appreciate the role of psychological approaches

8. Lead on inter-disciplinary working with allied specialities including ophthalmology, psychology and CAMHS service.*

Guidance in relation to providing evidence to support completion of training in Headache Disorders:

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 activites:

- Audit, service evaluation or quality improvement project in relation to headache disorders (could be adult)
- Attendance at Children's Headache Training (CHaT)/Regional course/Headache conference
- Attendance at headache specialist interest group meeting
- Completion of Unit 12 of the Distance Learning Programme

Portfolio Evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to headache disorders across all age ranges (SLO1 KC1) and acutely (SLO2, KC2).

Some capabilities overlap with the generic management of children with complex neurodisability and chronic disease, so entries may be cross referenced with other subspecialties to demonstrate multidisciplinary working and transition, as well as the core training programmes i.e. neuroradiology

Medically Unexplained Neurological Disorders

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

1. 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

2. Identify neurological disorders with atypical presentations that can erroneously be thought to have a 'non-organic' basis. In particular, movement disorders, headache, sensory abnormalities, inflammatory disorders and epilepsy.

3. 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.

4. Understand the role of investigations and their potential negative impact in MUNDs.

5. 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.

6. 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

7. Address parental/family actions that could result in a child presenting with MUNDs i.e. family illness behavior, and how this should be approached and investigated.

8. Be able to formulate management strategies with families, working closely with the multidisciplinary team and other agencies

Guidance in relation to providing evidence to support completion of training in Medically Unexplained Neurological Disorders (MUND):

Key activites:

- 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
- Case report or presentation of child with MUND

Portfolio Evidence

Choose the most appropriate assessments to demonstrate you have developed the capabilities required as a consultant paediatric neurologist in relation to MUNDs in children and adolescents (SLO1 KC1) including those presenting acutely (SLO2, KC2).

Some capabilities overlap with the generic management of children with complex neurodisability and chronic disease, so entries may be cross referenced with other subspecialties to demonstrate multidisciplinary working and transition, as well as the core training programmes i.e. neuroradiology

Guide to Activities That May Evidence Completion of Grid Training in Paediatric Neurology

Programme	Case Log[#]	MDT	Other/external	Audit	Distance Learning
Core Training Programmes					
Neurophysiology		50	Should be attending regular MDT throughout training which can be internal, adult focused or specialist external meeting i.e. CESS/epilepsy network meeting		
Neuroradiology		50	Should be attending regular MDT throughout training which can be internal, adult focused or specialist external meeting i.e. NG club/IWMD group		
Neurogenetics		10	Should be attending regular MDT throughout training which can be internal, adult focused or specialist external meeting i.e. NG club/IWMD group		
Acquired brain injury and neuro-rehabilitation	35	6	Need time in unit with MTC and NS ITU. Ideally visit a spinal injuries unit	Yes	Yes (desirable)
Neonatal Neurology	10	2	Attend BPNA NeoNATE course (desirable)	Yes	Yes (desirable)
Movement Disorders	20	4	Movement disorder clinic	Yes	Yes (desirable)
Neuromuscular	20	1*	Attend NM interest group or regional NM forum	Yes	Yes (desirable)
Epilepsy	100	5*	Epilepsy surgery/KG diet/VNS/teenage and transition Attend PET123 courses	Yes	Yes (desirable)
Neurovascular Disorders	20	3	Placement in unit with paediatric neurovascular service i.e. with specialist diagnostic neuroradiologist. Attendance at UK Cerebrovasular special interest group	Yes	Yes (desirable)
Neuroinflammation	20	2+*	Attendance at clinic/MDT in a centre with high caseload. Attendance at UK-CID special interest group	Yes	Yes (desirable)
Neurodegenerative and Neurometabolic Diseases	10	1*	NGC club or IWMD MDT plus 2 metabolic clinics	Yes	Yes (desirable)
Neuro-oncology	10	5		Yes	Yes (desirable)
Headache	30	-	Attendance at CHAT course, regional meeting or headache conference (desirable)	Yes	Yes (desirable)
Medically Unexplained Neurological Disorders	10	1	Expect would attend 10 + CAMHS/ psychology/ psychiatry clinics to obtain relevant experience	Yes	Yes (desirable)
TOTAL	255	30			

*Specialist MDT in the form of attendance of Special Interest Group meeting or regional forum – again the numbers are to serve as a guide to the relevant importance of each area.

[#]Case log numbers are a guide to give some perspective on the relative importance of the different sub-specialities. It may be necessary to see more or less cases to feel competent in all the different areas. Cases do not need to be uploaded as individual portfolio entries – review of a case log may be captured in a supervision meeting or as a curriculum entry.