



**BPNA**

British Paediatric Neurology Association

**◀ DISTANCE ▶**  
**LEARNING**  
**IN PAEDIATRIC NEUROLOGY**

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## Introduction

The British Paediatric Neurology Association's paediatric neurology distance learning course complements clinical training. The course offers a comprehensive theoretical background in paediatric neurology with the aim of improving clinical practice.

The course has been developed for clinicians specialising in paediatric neurology and/or paediatrics. It is available to doctors worldwide. The course is written in English and is accessed online.

The whole of child neurology has been split into twelve topics. Depending on your role, it will be appropriate for you to do the whole course or just a few units.

Unit 01	Neurogenetics
Unit 02	Neonatal Neurology
Unit 03	Neurodevelopment & Neuropsychiatry
Unit 04	Central Motor Deficits
Unit 05	Neuromuscular Disorders
Unit 06	Epilepsy
Unit 07	Cerebrovascular disease, trauma and coma
Unit 08	Inflammation & Infection of the CNS
Unit 09	Metabolic, nutritional & systemic disease
Unit 10	Vision & Hearing
Unit 11	Neuro-oncology
Unit 12	Headache

## Who is the course for?

The course has been developed for clinicians specialising in paediatric neurology and paediatricians with an interest in neurology. Paediatric neurology trainees should complete all the units. Paediatric trainees and consultants should complete units relevant to their role.

The course is delivered online and is available to doctors throughout the world. During 2020-21, 368 people from 53 countries enrolled onto >1,200 units.

- 92% of students reported that the units were relevant to their clinical practice
- 79% of student reported that they learned from the units
- 90% of students reported that they would definitely or probably recommend the units to their colleagues

## How long does it take?

There is no start or end date to complete each unit. We would hope that you will work through it at a rate that is right for you, maintaining a balance between momentum and enjoyment. People complete the course at differing rates depending on their personal circumstances.

Some units contain more work than others. Please see the Course Content information below for specific unit study hours.

## How is the course delivered?

The course is accessed via a dedicated website. On acceptance of your application, we will provide you with a username and password to access the website.

Each Unit is split into smaller Sections (see Course Content for details). For each section, you will download a zip file containing an Activity document and reference papers. You will also have access to a wealth of video lectures.

The Activity document leads you through each section, providing work-based activities for you to complete. You may choose to work through the Activity document on your computer or print off the materials so that you can work on a hard copy.

Each activity is designed to lead you through the topic. Sometimes an activity will ask you to read a paper and then answer questions. Other times it will ask you to consider a case. A Commentary follows each activity, to check your learning. For most units there are also a number of lectures to watch online.

## What certificate will I gain?

As you complete the Activity document for each section, send it by email to the BPNA. Once it has been reviewed, we will provide a certificate of Continuing Professional Development. You can download this from your BPNA personal account.

## Course content

### Unit 0: Introduction to paediatric neurology

Unit 0 provides an introduction to paediatric neurology. This Unit is provided free to all distance learning students when they enrol on a Unit.

1. Evidence Based Medicine	9.0
2. Principles of Neuroimaging	3.0
3. Principles of Neurorehabilitation	3.0
<i>Total study hours</i>	<i>15.0</i>

### Unit 1: Neurogenetics

This unit provides an introduction to the growing area of genetics, to enable you to understand the genetic bases of many of the neurological diseases of childhood which you will encounter throughout the distance learning course in paediatric neurology, and throughout your career as a clinician practicing paediatric neurology.

1. Introduction to clinical genetics	2.0
2. Patterns of Inheritance	4.5
3. DNA	6.0
4. Chromosomal Disorders	6.0
5. Dysmorphology	6.0
6. Prenatal diagnosis, pre-implantation genetic diagnosis, diagnostic and pre-symptomatic genetic testing in children	3.0
<i>Total study hours</i>	<i>27.5</i>

## Unit 2: Neonatal neurology

We will be studying the biological processes involved in brain development and then go on to see how environmental and genetic disorders may have an adverse effect on that process. We will study perinatal brain injury and causes of this in both the preterm and the term born baby. We will study neonatal encephalopathy, and we will learn about assessment, differential diagnosis and treatment options in the floppy and “stiff” baby. The unit will also address different aspects of neonatal neurological examination, neurophysiology, and neonatal imaging and how this benefits initial assessment and relates to prognosis. Throughout the Unit we will reflect on how we might most effectively communicate our thoughts to the families involved.

1. Development of the nervous system	8.0
2. Abnormal cerebral, cerebellar and spinal cord development and neurogenetics	9.0
3. Fetal and antenatal counselling	6.0
4. Preterm brain injury	4.0
5. Perinatal stroke and intracranial haemorrhage in the term baby	6.0
6. Neonatal encephalopathy	9.0
7. Neonatal seizures and neonatal EEG	6.0
8. The floppy baby and stiff baby	6.0
9. Neurological examination of the preterm and full term infant	4.0
10. Congenital and neonatal CNS infection	3.0
<i>Total study hours</i>	<i>61.0</i>

*Related BPNA courses:*



[NeoNATE](#) - 2-day face-to-face course

## Unit 3: Neurodevelopment & Neuropsychiatry

Neurodevelopment, Neuropsychology and Neuropsychiatry is a new unit, combining the previous Development and Learning unit with the Psychiatry unit. This new Unit is aimed at Paediatric Neurologists, trainees, paediatricians and community paediatricians.

1. Normal development of the central nervous system after birth	6.0
2. Cellular mechanisms of learning	3.0
3. Experience, learning and brain plasticity	3.0
4. Developmental assessment	3.0
5. Speech and language development	3.0
6. Speech and language impairments	3.0
7. Developmental co-ordination disorder and dyspraxia	3.0
8. Intellectual disability	4.5
9. Specific learning disorders	4.5
10. Cognitive function	3.0
11. Neuropsychology	6.0
12. Psychiatric classification and formulation	2.0
13. Autism spectrum disorders	6.0
14. The confused child	6.0
15. The overactive child	4.0
16. The sad child	2.0
17. Illness behaviour and somatoform disorders	3.0
18. Neurodevelopment movement disorders: Tics, Tourettes and Motor Sterotypies	1.0
<i>Total study hours</i>	<i>66.0</i>

## Unit 4: Central motor deficits; congenital and acquired spinal cord deficits

This Unit should familiarise you with the commonest motor disorders of childhood and will take you through neural tube disorders, cerebral palsy and acquired motor dysfunction. For each disorder you will be taken through the case of a child, or several children, and you should try to identify similar cases in your own practice with which you have had personal involvement.

1.	Anatomy and physiology of the central motor pathways, basal ganglia and cerebellum	3.0
2.	Normal development of motor skills	3.0
3.	Epidemiology, co-morbidity and natural history of the cerebral palsies	9.0
4.	The assessment and management of disorders of walking and hypertonus in cerebral palsy: a physiological atlas	12.0
5.	Dystonia and dystonic cerebral palsy	6.0
6.	Total body involvement cerebral palsy – feeding	3.0
7.	Total body involvement cerebral palsy – assessment of communication difficulties	3.0
8.	Neural tube disorders	6.0
9.	Acquired spinal disorders	3.0
10.	Movement disorders	15.0
	<i>Total study hours</i>	<i>63.0</i>

Included in this Unit is one section from the 'Metabolic, Nutritional and Systemic Disease'. This covers the movement disorders determined by primary metabolic disorders, and concentrates on the more common presentations of these,

their biochemical and central nervous system substrate basis, a rational approach to investigation and how best to inform the families involved of their nature. With this addition, Unit 4 becomes a comprehensive resource for learning about the spectrum of paediatric movement disorders.

### *Feedback from current students*

*"Good organized and concise" – Paediatric Neurology Trainee, Malta*

*"Interesting articles on NTD and folate supplementation" – Associate Specialist, UK*

*"Learnt about the underlying principles of developing alternate means of communication in the most vulnerable children" – Associate Specialist, UK*

### *Related BPNA courses:*



[Approaching Children's Tone \(ACT\)](#)

2-day course available virtually

## Unit 5: Neuromuscular disorders

This unit covers the full spectrum of neuromuscular disease. It provides up-to-date information on how growing knowledge of molecular genetics has contributed to our rapidly expanding understanding of these disorders and changed diagnostic strategy. Access to a busy neuromuscular service will bear witness as to how this knowledge is put into practice and a number of sections are devoted specifically to intervention.

1. Muscular dystrophy classification, proteins and genes – multisystem involvement	3.0
2. A) Neurophysiology and imaging in neuromuscular disease; B) Duchenne and Becker muscular dystrophy	3.0
3. Limb girdle muscular dystrophies, congenital muscular dystrophies and FSHD	3.0
4. A) Congenital myopathies; B) Phenotype genotype correlation	4.0
5. Inflammatory myopathies	2.0
6. Spinal Muscular Atrophy	3.0
7. Neuropathies	3.0
8. Neuromuscular junction transmission defects. The Childhood Myasthenias	3.0
9. Myotonic dystrophy	2.0
10. Metabolic and mitochondrial myopathies; Ion channel disorders; malignant hyperthermia susceptibility	6.0
11. The floppy infant	3.0
12. Physiotherapy, orthoses and rehabilitation	3.0
13. Respiratory complications of neuromuscular disorders	3.0
14. Cardiac complications in neuromuscular disorders	3.0
15. Feeding difficulties, nutritional aspects – multidisciplinary management /MDC	2.0
<i>Total study hours</i>	<b>46.0</b>

### *Feedback from current students*

*“Great description of DMD and BMD presentation types, as well as multidisciplinary management. Good explanation about value of muscle biopsy”* –  
Consultant Paediatric Neurologist, Ukraine

*“Resource materials were very useful”* –  
Consultant Paediatrician, India

*“Good case scenarios”* – Paediatric Neurology Trainee, China

*“Excellent learning resource for JDM”* –  
Paediatric Neurology Trainee, UK

*“Simplified approach with pictorial representation of the physical signs”* –  
Consultant Paediatric Neurologist, India

### *Related BPNA courses:*



[Approaching Children's Tone \(ACT\)](#)

2-day course available virtually

## Unit 6: Epilepsy

The overall aim of this Unit is to provide you with an understanding of the physiological basis of seizure disorders and their epidemiology, along with the detailed clinical knowledge necessary to manage children with seizure disorders to an advanced (tertiary) level. This Unit complements and expands upon the BPNA Paediatric Epilepsy Training (PET) face-to-face courses.

1. Definitions	3.0
2. Neurobiology	6.0
3. Neonatal seizures and neonatal EEG	6.0
4. Epilepsies presenting in infancy	9.0
5. Epilepsies presenting in childhood	6.0
6. Epilepsies presenting in adolescence	4.0
7. Status epilepticus	6.0
8. Psychogenic non-epileptic seizures	3.0
9. EEG investigations	9.5
10. Neuroimaging investigations	6.0
11. Other investigations	1.5
12. Treatment: Drug	6.0
13. Treatment: Surgical	3.0
14. Treatment: Ketogenic diet	3.0
15. Treatment: VNS & Neuromodulation	3.0
16. Epidemiology	3.0
<i>Total study hours</i>	<b>78.0</b>

### Related BPNA courses:



#### [Paediatric Epilepsy Training \(PET\)](#)

1 and 2-day courses available virtually

#### [Expert to Expert: Epilepsy](#)

2-day face-to-face course for Consultant Paediatric Neurologists

### *Feedback from current students*

*“Good introduction to terminology and definitions”* – Consultant Paediatrician, UK

*“Enjoyed case descriptions – could identify with children/YP I see in clinic”* – Consultant Paediatrician, UK

*“Excellent videos, good clear descriptions”* – Paediatric trainee, UK

*“Very practical information about each type of epilepsy presenting in infancy”* – Paediatric trainee, UK

*“I really enjoyed the lectures as they were so practical, up to date and relevant”* – Consultant Paediatrician – UK

*“Step wise approach to cases – making is applicable to real life scenarios and how you might counsel in these cases. Also linking EEG to the cases very helpful seeing it in practice”* – Paediatric Trainee, UK

*“Extremely clinically relevant. Really enjoyable. Thank you”* – Paediatric Neurology Trainee, UK

*“Focus on new epileptic [drugs] and their place in current treatment is well explained”* – Consultant Paediatrician, India

## Unit 7: Cerebrovascular disease, trauma and coma

You will be learning about some acute neurological conditions, namely coma, trauma and cerebrovascular disorders. All of these are extremely common conditions in neurological practice; hopefully you will find yourself better equipped to deal with them once you have worked through this Unit. We will start by going over some principles of anatomy and physiology relevant to both of these disorders and then consider the epidemiology, clinical features and management of each of these in turn.

1. Basic Science	7.5
2. Arterial Ischaemic Stroke	6.0
3. Arterial ischaemic stroke investigation & management	4.5
4. Cerebral Venous Thrombosis	3.0
5. Perinatal Stroke	3.0
6. Intracranial haemorrhage and vascular malformations	3.0
7. Trauma & coma - Physiology and clinical assessment	9.0
8. Inflicted traumatic brain injury	4.5
9. Traumatic brain injury	4.5
10. Rehabilitation after acquired brain injury	4.5
<i>Total study hours</i>	<b>49.5</b>

### *Feedback from students*

*"The lecture was very informative"* – Paediatric Neurology Trainee, Kenya

*"Interesting and well organised"* – Paediatric Neurology Trainee, Kenya

## Unit 8: Inflammation and infection of the central nervous system

Inflammation and infection of the nervous system explores the mechanisms of inflammation within the CNS, examining the role of the immune system in the control and modulation of infection and inflammation and the impact of immune dysregulation and immune deficiency.

Infection processes are examined in detail to develop an in depth knowledge of meningitis, encephalitis, brain abscess as well as sections on specific pathogens which may be less common but very important including TB, HIV and prions.

Prevention is better than cure so finally an overview considers immunisation, infection control and public health measures to prevent CNS related infection.

1. Immunological and inflammatory response to the nervous system	4.0
2. Bacterial Meningitis	6.0
3. Focal Infections	3.0
4. Tuberculosis and Fungal Infections of the CNS	3.0
5. Encephalitis / Viral Meningitis	6.0
6. Human Immunodeficiency Virus	3.0
7. Transmissible Spongiform Encephalopathy	3.0
8. Unusual and Tropical Infections	4.5
9. Immunodeficiency (non-HIV)	3.0
10. Demyelinating disorders of the central nervous system (CNS)	4.5
11. Autoimmunity and the brain: autoimmune encephalitides	4.5
12. Preventions of Infection	3.0
13. Therapeutic strategies in CNS inflammatory disorders	3.0
<i>Total study hours</i>	<b>50.5</b>

## Unit 9: Metabolic, Nutritional and Systemic Disease

Ultimately all conditions are metabolic. In this Unit we will concentrate on those disorders determined by primary metabolic disorders, an increasing number of which have been elucidated genetically. We will learn how clinical acumen can increase the suspicion of a neurometabolic disorder. We shall consider the classification of these disorders and how that can help a rational approach to investigation. As usual we shall consider how information on these conditions, often complex can be relayed to the families involved.

1. Recognition of inborn errors of metabolism	9.0
2. Inherited white matter disorders	6.0
3. Inherited grey matter disorders	6.0
4. Movement disorders	15.5
5. Acute encephalopathy in inborn errors of metabolism (IEM)	3.0
6. Metabolic and genetic treatments in neurometabolic disease	4.5
7. Neurological complications of system disease	4.0
<i>Total study hours</i>	<i>48.0</i>

## Unit 10: Vision & Hearing

Through these sections you will develop an understanding of the principles behind vision and visual disorders, their management and investigation. Then move onto the hearing sections where you will develop an understanding of hearing, its associated disorders and management.

1. Basic science: anatomy and embryology of the eye and visual pathways, and epidemiology of developmental disorders of the eye	3.0
2. Epidemiology of visual disorders and cerebral visual impairment	1.5
3. Assessment of vision	3.0
4. Squint and eye movement disorders	3.0
5. Retinal disorders	1.5
6. Audiovestibular – anatomy, physiology and embryology	3.0
7. Classification of hearing impairment and epidemiology	1.5
8. Assessment and management of audiovestibular problems in children	3.0
<i>Total study hours</i>	<i>19.5</i>

## Unit 11: Neuro-oncology

Neuro-oncology starts with two sections that provide an overview of the epidemiology of central nervous system tumours in childhood and an introduction to tumour biology. The remainder of the unit is more clinically based. Four sections are devoted to the clinical effects of tumours and the methods we use for diagnosis and for surveillance following diagnosis. Four sections deal with management, the neuro-toxic effects of treatments and the late effects which are so important in young people with central nervous system tumours. Paraneoplastic syndromes, principally the Dancing Eye Syndrome, are covered in one section and the unit finishes with an overview of palliative care.

1. Epidemiology and pathogenesis of brain and spinal tumours	2.0
2. Tumour biology	1.5
3. Presentation and diagnosis of brain tumours	2.5
4. Radiological and clinical surveillance of brain and spinal tumours	2.0
5. Presentation and diagnosis of spinal cord tumours	2.0
6. Endocrine manifestations of brain tumours	2.0
7. Treatment pathways and surgical and radiotherapy management of patients with brain and spinal tumours	1.5
8. Chemotherapy in the management of patients with brain and spinal tumours and advances in oncological treatments	2.5
9. Neurotoxicity of oncological treatments	2.0
10. Late effects of tumours and their treatments	2.0
11. Paraneoplastic disorders in childhood and their immunological basis	2.0
12. Palliative treatment and symptom control	1.5
<i>Total study hours</i>	<b>23.5</b>

## Unit 12: Headache

Headache in all its forms represents the commonest neurological condition experienced by children and young people. Reduction in quality of life can be significant but many patients fail to get adequate help for this problem.

This unit will equip you with the knowledge you need to navigate your way between the many primary and secondary headache types, and show you how to manage them effectively. You will learn about the neurobiology of headaches, how you can classify them using clinical assessment, and when and how to investigate them further. You will focus on different types of common primary and secondary headaches such as migraine, tension-type headache, chronic daily headache, shunt-related headache and idiopathic intracranial hypertension. There is material on how to frame discussion with patients and their families, followed by a section on how to treat and prevent headaches. Finally, use the 'headache clinic' section to test out and reinforce what you have learned.

1. Clinical evaluation and classification	4.0
2. Primary headache pathophysiology	6.0
3. Headache interventions	4.0
4. Primary headache disorders	4.0
5. Secondary headache disorders	4.0
6. Headache clinic	4.0
<i>Total study hours</i>	<b>26.0</b>

*Related BPNA courses:*



[Children's Headache Training \(CHaT\)](#)

1-day course available virtually

## Course fees

DL fees are differentiated by country according to the World Bank economic classification to widen access to doctors worldwide, in line with BPNA charitable aims. Enrolment fees in low and middle income countries (LMIC) are reduced by approximately 70%.

## Bundles

We have also created 'Bundles' of 3 or more units. To complete the whole course, enrol on all four Bundles.

Bundles provide a cost effective way of buying multiple units – save up to 40% discount compared to buying individual units.

	<i>Bundle contents</i>	<i>High income country fee</i>	<i>Low &amp; Middle income country fee</i>
<b>Bundle 1</b>	Unit 0 Introduction to paediatric neurology Unit 3 Neurodevelopment & Neuropsychiatry Unit 10 Vision & Hearing	GBP 455.00	GBP 150.00
<b>Bundle 2</b>	Unit 0 Introduction to paediatric neurology Unit 6 Epilepsy Unit 7 Cerebrovascular disease, trauma & coma Unit 12 Headache	GBP 558.60	GBP 184.80
<b>Bundle 3</b>	Unit 0 Introduction to paediatric neurology Unit 1 Neurogenetics Unit 2 Neonatal neurology Unit 4 Central motor deficits	GBP 531.00	GBP 175.20
<b>Bundle 4</b>	Unit 0 Introduction to paediatric neurology Unit 5 Neuromuscular disorders Unit 8 Inflammation & infection of the CNS Unit 9 Metabolic, nutritional & systemic disease Unit 11 Neuro-oncology	GBP 687.00	GBP 226.80

## Individual units

You may enrol on one or more individual units. These are priced individually. Individual fees:

	<i>High income country fee</i>	<i>Low &amp; Middle income country fee</i>
Unit 0 Introduction to paediatric neurology	Included free with any other unit	
Unit 1 Neurogenetics	GBP 170.00	GBP 57.00
Unit 2 Neonatal neurology	GBP 325.00	GBP 107.00
Unit 3 Neurodevelopment & Neuropsychiatry	GBP 436.00	GBP 144.00
Unit 4 Central motor deficits	GBP 390.00	GBP 128.00
Unit 5 Neuromuscular disorders	GBP 325.00	GBP 107.00
Unit 6 Epilepsy	GBP 436.00	GBP 144.00
Unit 7 Cerebrovascular disease, trauma & coma	GBP 325.00	GBP 107.00
Unit 8 Inflammation & infection of the CNS	GBP 325.00	GBP 107.00
Unit 9 Metabolic, nutritional & systemic disease	GBP 325.00	GBP 107.00
Unit 10 Vision & Hearing	GBP 170.00	GBP 57.00
Unit 11 Neuro-oncology	GBP 107.00	GBP 57.00
Unit 12 Headache	GBP 107.00	GBP 107.00

## How to enrol

Please enrol online at <https://courses.bpna.org.uk/>

## Organisations enrolling multiple students

If you are from an organisation wishing to enrol more than one student, please contact us so that we can help. Please email [Padmini.ramesh@bpna.org.uk](mailto:Padmini.ramesh@bpna.org.uk) and please provide the following information:

- Which country your students are working in
- Names of students and email addresses
- Which unit(s) or bundles each student will be enrolled on
- Purchase order number so that we can send an invoice to you

Please ask the students to register as users on the BPNA website - [https://bpna.org.uk/bpna\\_reg.php](https://bpna.org.uk/bpna_reg.php).

Please do not register on their behalf.