



# Neurological Problems

*One in a series of curriculum statements produced by the Royal College of General Practitioners:*

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# Acknowledgements

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## Key messages

- The management of epilepsy in primary care is a key competence for general practice.
- All general practitioners should be competent in the management of neurological emergencies.
- Making appropriate referrals for neurological problems is a key competence, because of the potential to manage many neurological conditions in primary care (e.g. chronic headache) and the UK shortage of neurologists.

# Introduction

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## Rationale for this curriculum statement

Neurological problems are common. They may present as acute life-threatening emergencies or as part of a long-term complex problem with an evolving natural history. The presentation of a neurological problem may indicate the presence of a disorder confined to a part of the nervous system or may indicate the beginning of a multisystem or other disease. Symptoms presented to the general practitioner (GP) and attributable to a neurological cause may be due to minor, self-limiting disease or a more sinister problem (headache is a good example). The GP will be able to evaluate the need for any required intervention.

People with chronic debilitating illness and their carers need support. The GP has a role in the provision and organisation of this and coordinating with secondary care.

A US study found that one-seventh of a population sample visited their doctor for a neurological problem each year.<sup>1</sup> A UK study found that 20% of hospital beds were used by patients with neurological problems,<sup>2</sup> and a multinational report showed that 28% of disability was accounted for by neurological and psychiatric problems.<sup>3</sup> With an ageing population these figures are rising. In this context patients require an appropriately trained workforce.

Most European countries have one neurologist for a population of between 8000 and 38,000.<sup>4</sup> In the UK there is one neurologist to 150,000 people.<sup>5</sup> This under-provision has led to: a shortage of outpatient appointments; more problems being managed by GPs and other physicians specialising in areas such as general medicine, elderly care and psychiatry; and under-provision of undergraduate and postgraduate teaching.

## UK health priorities

Consulting rates for nervous diseases increased from 1409 per 10,000 persons in 1981–2 to 1732 in 1991–2.<sup>6</sup> Increases were evident among people in all age groups, but were greatest among elderly people. There was a decrease in the proportion of people who consulted for trivial conditions. There was little change between 1981–2 and 1991–2 in the proportion of people who consulted for Parkinson's disease, multiple sclerosis or epilepsy. Consulting rates for migraine increased between the two surveys from 82 to 115 per 10,000. For vertiginous syndromes, the rate increased from 49 to 73 per 10,000.

Neurological problems tend to be chronic. Table 1 shows that migraine, cerebrovascular disease, neuropathies and disc disorders are most commonly seen by GPs. Disorders such as epilepsy, dementia, Parkinson's disease and multiple sclerosis are likely to require frequent attendance with a doctor.

**Table 1: General practitioner consultations (per 10,000 population) for neurological disorders over one year (1991–2)<sup>6</sup>**

<i>Disease group</i>	<i>New or first ever episodes</i>	<i>Period prevalence</i>
Migraine	94	115
Cerebrovascular disease	51	71
Neuropathy	33	36
Intervertebral disc disorders	26	39
Epilepsy	12	36
Dementia	8	18
Parkinson's disease	5	15
Multiple sclerosis	2	7

Perceived lack of neurological expertise may lead to referral of patients when some problems could be managed in general practice, e.g. patients with migraine and other headache are the commonest group of new referrals seen by neurologists, accounting for about 25% of new appointment spaces.<sup>7</sup>

Epilepsy is one of the commonest serious neurological disorders seen in general practice, in A&E and in hospital. Managing diabetes presents similar challenges to managing epilepsy, and specialists have created teams that educate and link up care in the community. However, patients with epilepsy have frequently not been advised and monitored by their GP or any other doctor.<sup>8</sup> Approximately 10% of people with epilepsy have attacks that are difficult to control, and poor management has been implicated in the fact that people with epilepsy are at three times the risk of suffering sudden unexpected death.<sup>9</sup> Good proactive advice in the context of an integrated service provided by doctors and nurses may reduce A&E attendance, unnecessary hospitalisation and mortality from epilepsy.

# Learning Outcomes

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The following learning objectives describe the knowledge, skills and attitudes that a GP requires when managing patients with neurological problems. This curriculum statement should be read in conjunction with the other RCGP curriculum statements in the series. The full range of generic competences is described in the *core* RCGP curriculum statement 1, *Being a General Practitioner*.

## Primary care management

- Manage primary contact with patients who have a neurological problem.
- Coordinate care with other primary care health professionals, such as occupational therapists, physiotherapists and district nurses to enable chronic disease management and rehabilitation.
- Describe the indications for referral to a neurologist for chronic conditions requiring ongoing specialist management (e.g. multiple sclerosis, Parkinson's disease) and conditions that are irreversible without early treatment (e.g. ulnar nerve entrapment).

## The knowledge base

### Symptoms:

- Headache
- Vertigo/dizziness (neurological, otological, psychological and cardiovascular causes)
- Tremor
- Neuropathies
- Abnormal movements/chorea
- Seizures
- Drowsiness
- Loss of consciousness and coma.

### Common and/or important conditions:

- Epilepsy
- Common causes of headache – tension headache, migraine, cluster headache, cervical neuralgia, sinusitis, dental pain, drug rebound headache
- Important causes of headache – raised intracranial pressure, thunderclap headache (subarachnoid haemorrhage, enlarging aneurism or migraine), temporal arteritis, trigeminal neuralgia, herpes zoster, cancers
- Brain infections – meningitis, encephalitis, brain abscess, tuberculosis, HIV
- Neurological causes of vertigo – stroke (brainstem and cerebellar haemorrhage/infarction), multiple sclerosis, trauma and concussion, acoustic neuroma, brain tumours

- Mononeuropathies – trigeminal neuralgia, Bell’s palsy, carpal tunnel syndrome, nerve entrapments, e.g. ulnar, sciatic and femoral nerves
- Polyneuropathies – metabolic causes (diabetes, alcohol, vitamin B<sub>12</sub> and folate, porphyria, uraemia, infectious causes (e.g. Guillain-Barré, post viral, HIV), drugs induced neuropathy
- Multiple sclerosis
- Amyotrophic lateral sclerosis
- Essential tremor
- Parkinson’s disease
- Congenital conditions, e.g. cerebral palsy, spina bifida
- Genetic conditions, e.g. Huntingdon’s disease.

### **Investigation:**

- Knowledge of secondary care investigations and treatment including: electroencephalography (EEG), computerised tomography (CT) and magnetic resonance imaging (MRI), nerve conduction studies.

### **Treatment:**

- Understand principles of treatment for common conditions managed largely in primary care – epilepsy, headaches, vertigo, neuropathic pain, mononeuropathies, essential tremor and Parkinson’s disease.

### **Emergency care:**

- Acute management of meningitis and meningococcal septicaemia
- Acute management of people presenting with collapse, loss of consciousness or coma
- Understand indications for emergency referral of people with stroke, intra-cranial haemorrhage, raised intra-cranial pressure and temporal arteritis.

### **Prevention:**

- Health education and accident prevention advice for people with epilepsy
- Vaccination for meningococcal disease
- Understand avoidance of triggers and prophylaxis for migraine
- Investigation of people with family history of genetic neurological disease, e.g. Berry aneurysm.

## **Person-centred care**

- Communicate prognosis truthfully and sensitively to patients with incurable disabling neurological conditions, such as Parkinson’s disease and multiple sclerosis, and share uncertainty when the patient wants this information.
- Demonstrate empathy and compassion towards patients with incurable disabling neurological conditions.
- Describe the importance of continuity of care for patients with chronic neurological conditions.

## **Specific problem-solving skills**

- Describe the functional anatomy of the nervous system to aid diagnosis.
- Demonstrate a structured, logical approach to the diagnosis of ‘difficult’ symptoms with multiple causes, e.g. headache, dizziness.
- Use time as a diagnostic tool for chronic neurological conditions.

## **A comprehensive approach**

- Counsel patients appropriately regarding epilepsy medication drug interactions and side effects, including contraceptive and pregnancy advice.

## **Community orientation**

- Describe the current medical standards of fitness to drive for neurological conditions, in particular epilepsy.

## **A holistic approach**

- Recognise that neurological conditions often affect patients during their working lives, and consequently have a large impact on the family's social and economic wellbeing.
- Recognise the stigma associated with neurological disability.

## **Contextual aspects**

- Describe the central role of primary care in managing epilepsy.
- Recognise that the higher death rate amongst patients with epilepsy may be related to poor seizure control.

## **Attitudinal aspects**

- Describe the ethical principles involved when treating an incompetent patient (e.g. unconsciousness), and when treating a patient who is unable to communicate (e.g. dysphasia).
- Ensure that a patient's neurological disability does not prejudice the doctor's attitude towards or the information communicated to the patient.

## **Scientific aspects**

- Describe the key national guidelines that influence healthcare provision for neurological problems (e.g. the NICE guidelines on epilepsy diagnosis and management).

## **Psychomotor skills**

- Demonstrate complete neurological examination of the cranial and peripheral nervous system including visual acuity, visual fields and fundoscopic examination.

## Further Reading

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### Examples of relevant texts and resources

- BRITISH MEDICAL ASSOCIATION AND ROYAL PHARMACEUTICAL SOCIETY OF GREAT BRITAIN. *The British National Formulary* London: BMJ Books, updated annually
- BRITISH MEDICAL ASSOCIATION, ROYAL PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, ROYAL COLLEGE OF PAEDIATRICS AND CHILD HEALTH. *The Neonatal and Paediatric Pharmacists Group BNF for Children* London: BMA, 2005
- MURTAGH J, RIDSDALE L, HART Y, *et al.* Neurological problems, Section 11. In: Jones R, Britten N, Culpepper L, Gass DA, Grol R, Mant D, *et al.* (eds). *Oxford Textbook of Primary Medical Care, Vol. 2: clinical management* Oxford: Oxford University Press, 2004, pp. 1043–80
- THE NEUROLOGICAL ALLIANCE. *Levelling up: standards of care for people with a neurological condition* London: The Neurological Alliance, 2002
- THE NEUROLOGICAL ALLIANCE. *Getting the Best from Neurological Services* London: The Neurological Alliance, 2003
- RIDSDALE L, DOWSON A, ROGERS G. Neurology. Chapter 12. In: Lakhani M and Charlton R (eds). *Royal College of General Practitioners Handbook: recent advances in primary care* London: RCGP, 2006
- WOLFE C AND RUDD AG. Stroke and transient ischaemia, Chapter 1.7. In: Jones R, Britten N, Culpepper L, Gass DA, Grol R, Mant D, *et al.* (eds). *Oxford Textbook of Primary Medical Care, Vol 2: clinical management* Oxford: Oxford University Press, 2004, pp. 640–4

### Web resources

DVLA guidelines for doctors regarding driving licences for patients with neurological disorders.  
[www.dvla.gov.uk/media/pdf/medical/aagv1.pdf](http://www.dvla.gov.uk/media/pdf/medical/aagv1.pdf)

NICE – CG020 *The Epilepsies: the diagnosis and management of the epilepsies in adults in primary and secondary care*  
[www.nice.org.uk/Guidance/CG20](http://www.nice.org.uk/Guidance/CG20)

NICE Appendices A–H available from [www.nice.org.uk/page.aspx?o=CG020](http://www.nice.org.uk/page.aspx?o=CG020)

National clinical guidelines for stroke published by the Clinical Effectiveness and Evaluation Unit of the Royal College of Physicians, in collaboration with the Intercollegiate Stroke Working Party.  
[www.rcplondon.ac.uk/pubs/books/stroke/index.htm](http://www.rcplondon.ac.uk/pubs/books/stroke/index.htm)

### National Library for Health and Public Health Specialist Library

The aim of the National Library for Health (NLH) is to provide clinicians with access to the best current know-how and knowledge to support health care-related decisions. Patients, carers and the public are also welcome to use the site, because the NLH is open to all. The ultimate aim is for the Library to be a resource for the widest range of people both directly and indirectly.

The main priority for the NLH is to help the NHS achieve its objectives. However, it is also aimed at those healthcare professionals who are working in the private sector where common standards should apply. For example, the National Screening Committee is not only an NHS advisory committee, but its mission is also to promote the health of the whole population and its recommendations are relevant to the private sector. Part of

the content of the NLH such as Clinical Evidence and Cochrane Library is licensed from commercial providers. There are two other groups of health and care professionals whose needs will also be met by the NLH – those working in public health and in social care. The Public Health Specialist Library is intended for all public health professionals, many of whom work in local government. It has been developed by the Health Development Agency.

[www.library.nhs.uk](http://www.library.nhs.uk)

[www.library.nhs.uk/publichealth/](http://www.library.nhs.uk/publichealth/)

## Interesting papers

FULLER G. How to perform a neurological examination *Medicine* 2004; 32: 27–30

MARKUS HS. Stroke: causes and clinical features *Medicine* 2004; 32: 57–61

O'BRIEN MD. Taking a neurological history *Medicine* 2004; 32: 1–6

PEATFIELD R. Headache and facial pain *Medicine* 2004; 32: 10–14

PENDLEBURY ST AND ROTHWELL PM. Stroke: management and prevention *Medicine* 2004; 32: 62–8

SISODIYA SM AND DUNCAN J. Epilepsy: epidemiology, clinical assessment, investigation and natural history *Medicine* 2004; 32: 47–51

SISODIYA SM AND SANDER JW. Epilepsy: management *Medicine* 2004; 32: 52–6

# Promoting Learning in Neurological Disease

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## Work-based learning – in primary care

Primary care is a good place to learn how to manage neurological problems because of the wealth of clinical material presenting. Patients will present various symptoms, at varying stages of the natural history. Critical, professional discourse with a trainer will aid the specialty registrars (GP) in developing heuristics to aid problem-solving. Supervised practice will engender confidence.

Follow up of presentations during the training period will allow personal observation of developing natural histories of the neurological disease. Clinical experience would be supported by a GP trainer and experienced members of the primary healthcare team, such as the physiotherapist, occupational therapist and district nurse.

## Work-based learning – in secondary care

Some GP training programmes will contain placements of varying length with neurologists and/or general physicians and physicians for elderly people that give exposure to patients with serious neurological problems in the acute setting. Most specialist care is, however, provided in outpatient or clinic settings. These are ideal places for seeing concentrated groups of patients with neurological problems. They provide opportunities to observe many of the common conditions, and treatments for migraine, epilepsy, stroke and Parkinson's disease.

Vocational training programmes should offer the opportunity to attend neurology clinics when working in other hospital posts and should also consider attending specialist clinics during their general practice-based placements

## Non-work-based learning

Many postgraduate deaneries provide courses on neurological problems. Other providers include universities and the Royal College of General Practitioners.

### **RCGP Learning Unit – *Professional Development Series – Update in Neurology for General Practitioners***

The RCGP, in partnership with the University of Bath School for Health, has developed a series of courses called the *Professional Development Series* that are user friendly and relevant to everyday practice. Primarily developed for GPs and using a GP's perspective, multiprofessional teams have also found the materials to be a useful resource. While they are an excellent choice for established GPs' PDPs (professional development portfolios), specialty registrars (GP) will also find them very useful because all relevant learning goals are covered.

The *Update in Neurology* is a flexible, case-based short course for GPs. The course consists of videos of real patient consultations on CD, a textbook on neurological conditions seen in general practice and two 1-day clinical meetings. The aim is to update GPs in diagnosis, investigation and management, including referral to secondary care, of common and 'red flag' neurological conditions. The course is evidence-based and encourages audit of aspects of the care of patients with a neurological disorder in order to evaluate the user's own practice in specific neurological areas.

The course is divided into six topic areas:

- Headaches
- Tingling and numbness
- Fits and faints
- Dementia, confusion and movement disorders
- Sciatica & brachialgia
- Strokes and TIAs.

Full details are available via this web link: [www.rcgp.org.uk/practising\\_as\\_a\\_gp/distance\\_learning/rcgp\\_learning\\_unit.aspx](http://www.rcgp.org.uk/practising_as_a_gp/distance_learning/rcgp_learning_unit.aspx).

## **Learning with other healthcare professionals**

Neurological problems by their nature are often exemplars of teamwork across agencies. Careful consideration and discussion of the roles of various individuals representing many professional and non-professional groups should be fruitful. Physiotherapists, occupational therapists and district nurses have important expertise in the management of and rehabilitation for neurological disease. Often specific case conferences are held to organise and focus effort in the provision of care.

## References

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- 1 CHARLES PD, SCHEROKMAN B, JOZEFOWICZ RF. How much neurology should a medical student learn? A position statement of the AAN Undergraduate Education Subcommittee *Acad Med* 1999; 74: 23–6
- 2 MORROW JI AND PATTERSON VH. The neurological practice of a district general hospital *J Neurol Neurosurg Psychiatry* 1987; 50: 1397–401
- 3 MENKEN M. Demystifying neurology *BMJ* 2002; 324: 1469–70
- 4 ASSOCIATION OF BRITISH NEUROLOGISTS. *Acute Neurological Emergencies in Adults* London: ABN, 2002
- 5 ASSOCIATION OF BRITISH NEUROLOGISTS. *UK Neurology – the next ten years* London: ABN, 2003
- 6 ROYAL COLLEGE OF GENERAL PRACTITIONERS, THE OFFICE OF POPULATION CENSUSES AND SURVEYS, AND THE DEPARTMENT OF HEALTH. *Morbidity Statistics from General Practice Fourth National Study 1991–1992* London: HMSO, 1995
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- 8 RIDSDALE L, ROBINS D, FITZGERALD A, *et al.* Epilepsy monitoring and advice recorded: general practitioners' views, current practice and patients' preferences *Br J Gen Pract* 1996; 46: 11–14
- 9 HANNA NJ, BLACK M, SANDER JW, *et al.* *The National Sentinel Clinical Audit of Epilepsy Related Death: epilepsy – death in the shadows* London: HMSO, 2002

