No more neurophobia:
welcome neurology in general practice

Thirty years ago, there were 150 neurologists in the NHS. A higher neuroscience degree in a subspeciality of neurology was usual, in addition to clinical training for neurologists. There was no neurology training in service development for patients in the community, and little working in multidisciplinary teams. GPs remember adapting to work in the community was a challenge, even in a supportive training practice. New neurologists found a split contract job visiting one or more district hospitals, mitigated by returning to a university hospital 2 days per week. Many areas of neurology were adopted and organised by other specialities. Elderly care physicians took on stroke, epilepsy, and Parkinson's disease for older people, and psychiatrists took on epilepsy with learning disability and dementia. So the misperception arose that neurology was the study of rare conditions, by egg-heads.

Now there are nearly 600 neurologists in the UK, and hospital beds have been radically cut, so apart from providing liaison advice in district hospitals, neurologists' main activity is doing outpatient clinics, like GPs. Primary care trusts (PCTs) are struggling to deliver Department of Health policies for vascular disease and cancer. How can neurology get itself on their radar screen? Enter Paul Morrish and his paper in this edition of the Journal.[1] It raises important issues: the underdevelopment of neurology in the community for common conditions like headache, epilepsy, and Parkinson's disease; the skill mix, workforce planning, and training needed for diagnosis and long-term management; medically unexplained conditions; referral rates; and the politics of getting neurology noticed by PCTs.

What should be the GP's role in diagnosing and managing neurological conditions? This should depend on the incidence and prevalence of each one. GPs will diagnose and manage the most common conditions, like headache and migraine. They refer for diagnosis less common ones, like epilepsy and Parkinson's disease, and take most of them back afterwards for long-term management. GPs refer for diagnosis and share management of rarer conditions like multiple sclerosis and motor neurone disease.

Because neurological illness has been divided up, UK doctors find it difficult to define what a neurological condition is. When defined broadly, neurological conditions are the third most common reason for consulting a GP. McDonald *et al*[2] pragmatically removed common conditions like headache/migraine, which we later found causes 4% of adults to consult a GP per year and 97% of which is managed by GPs.[3] Patient pressure is a key reason that 2% do get referred to neurologists,[4,5] and demand may rise. We have shown that GPs with special interests (GPwSIs) can satisfy patients with migraine more than specialists and at a lower price.[6]

GPs in many areas already have direct access to scanning, but as in other specialist areas,[7] GPs may be reluctant to use direct access. The greater resolution and discrimination of magnetic resonance imaging (MRI) is attractive to neurologists, but frequent non-specific findings confuse doctors not used to MRI reporting. However, in the evaluation of patients with non-acute headache, the advantage of MRI appears of little importance, compared to straightforward computer-tomography.[8] Future research might include evaluation of direct access to GPs to brain scanning.

In the meantime, GPwSIs do access direct access scanning, and anecdotally use scans more sparingly than neurologists. GPwSIs can manage most of the 2% of patients who GPs currently refer. This satisfies patients more and comes at a lower cost.[6] GPwSIs can, if they wish, refer patients with unusual or difficult to manage primary headache disorders, like cluster headache, paroxysmal hemicrania, and neuraliform headache to headache specialists. Morrish identifies private practice as a perverse incentive for neurologists seeing common conditions.[1] This is particularly true for migraine.

Epilepsy is less frequently seen in general practice. Each GP has about 12 people with long-term epilepsy on their list. A specialist should make or confirm the diagnosis,[9] but I do not believe, as some suggest, that a subspecialist is needed to diagnose epilepsy or other common neurological conditions. This will increase secondary referral from one neurologist to another. Neurologists who do one subspecialist clinic can deskill general neurologists, increase patient travel, and reduce the time they themselves are available in their own districts.

Neurologists, GPwSIs, and nurse specialists do have a role in advising, and in a minority of cases taking over management of people with difficult to control epilepsy. Ideally one of these experts will be available to see patients who GPs or practice nurses find have had one or more episodes in the prior year when monitoring, as part of the Quality and Outcomes Framework (QOF). Six out of seven epilepsy admissions are unplanned through accident and emergency (A&E).[10] Low epilepsy QOF scores are associated with high A&E use.[11] Prevention of unplanned admission is a priority for PCTs, so this may be a way to get on their radar screen.

Sudden death is 23 times as common in people who have had a seizure in the prior year.[12] The death rate has remained static,[13] despite the rising number of neurologists. I have reviewed the social causes of inequality in epilepsy, and suggested that a rehabilitation approach and clear pathways linking primary and specialist care could improve important outcomes, like reducing unplanned admissions and death in epilepsy.[14]

Morrish has expressed concern that London and other metropolitan areas with teaching hospitals, have relatively too many neurologists.[1] In an unpublished

study of neurology referrals to Guy's and St Thomas', and Kings College Hospital trusts we found over half of referrals came from outside the district. Teaching hospitals may benefit the region, and focus less on their local community. Morrish also highlights that more neurologists have not led to better patient outcomes.[1] Health services researchers get a sense of déjà vu. Demonstrating that services for chronic disease make a difference, except in patient satisfaction, is difficult.

Comparisons are confounded by social deprivation which is associated with poorer health, particularly in inner cities. Lambeth and Southwark, where I work, are in the top 10 boroughs for social deprivation, and have a tertiary neurology centre. QOF data on actual achievement based on the proportion of all patients (unenhanced by exception reporting), show important differences in epilepsy control. For example, 60% of people with epilepsy in the UK have had no seizure in the prior year; only 50% of people achieve this control in Lambeth and Southwark (Mark Ashworth, personal communication, 2008).

Morrish describes how more neurology clinics almost automatically results in more 'demand' in terms of patients seen.[1] The GP is a gatekeeper, but so too is the waiting list for specialists. More consultants' clinics lead to more service use. It will be a challenge for neurologists to show that if their numbers increase and they follow-up more patients, as European and US neurologists do, that this makes a difference to outcomes. Just as it is for GPs who manage chronic conditions, it will be difficult to show improvements in outcome. They will need to select conditions which have preventable outcomes like epilepsy.

The advantage of general practice in the UK is that almost everyone is registered. This is important when trying to tackle the disability, comorbidity (which includes depression), and inequality that are associated with poorly controlled epilepsy. In an unpublished study of A&E attendance for seizures at Guy's and St Thomas' Hospital NHS Trust we found 20% of these patients had no fixed abode. However 80% could provide the name and address of their GP. There are opportunities here for neurologists to collaborate with GPs to help those most at risk.

There are threats and opportunities for neurology ahead. Modern neurologists lament they have given away stroke, dementia, and in-patients. Where will it stop? Most currently do four outpatients clinics. Will PCTs ask them to do six? Some neurologists have suggested co-location with GPs. I am currently acting as a Royal College of General Practitioners' representative on a Royal College of Physicians' group tasked to map the future role of district neurologists over the next decade. I believe education and training is the important connecting link. In the past neurology and neurologists were seen as so rare, that only about 3 weeks of teaching was provided in medical schools.

At King's College London, where I chair neurology and psychiatry teaching, these two specialities are taught over 13 weeks. We focus on common problems, and neurologists teach students for 2 or 3 hours a week. We found that although students regard neurology cases as being the most difficult, they are no longer phobic. Students rated their neurology knowledge and skills as similar to other specialities taught in the first clinical year, during which they rotate though firms which relate broadly to head, chest, and abdominal health.[15] This clinical neurology teaching, delivered with enthusiasm, achieved the highest interest rating from students. This teaching could be lost if it is not valued, as neurologists are drawn out into primary care; although this move could be used to create new opportunities for teaching.

Undergraduate clinical training in neurology provides the basics. There are templates for neurology training for GP registrars in place.[16] It is not clear how they are delivered in different areas. We could develop and share models of teaching neurology. GP registrars in Lambeth and Southwark work on the stroke ward where they gain training and confidence in neurological assessment, vascular risk reduction, long-term conditions, and multidisciplinary rehabilitation for early supported discharge. Neurological disorders generate the most long-term disability, so ward or clinic work of this kind could enhance GP training.

The next tier of training is to become GPwSIs.[17] GPwSIs can contribute to learning too. Our headache GPwSIs have produced referral guidelines, visited local practices with educational sessions, and taught registrars and students.

Collaboration on teaching to boost current GPs confidence and competence in neurology is a two-way process. It fosters common visions across primary and secondary care. A critical mass of neurologists and interested GPs will induce PCTs and commissioners to provide resources. These can be used to develop networks and pathways to help patients manage their long-term neurological conditions in the future.

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Provenance
Freely submitted; peer reviewed.

REFERENCES

1. Morrish P. The changing relationship between neurology and general practice in England. *Br J Gen Pract* 2009; **59:** 599–604.
2. McDonald BK, Cockerell OC, Sander JWAS, Schorvon SD. The incidence and lifetime prevalence of neurological disorders in a prospective community-based study in the UK. *Brain* 2000; **123(4):** 665–676.
3. Latinovic R, Gulliford M, Ridsdale L. Headache and migraine in primary care: consultation, prescription, and referral rates in a large population. *J Neurol Neurosurg Psychiatry* 2006; **77(3):** 385–387.
4. Ridsdale L, Clark L, Dowson AJ, *et al*. How do patients referred to neurologists for headache differ from those managed in primary care? *Br J Gen Pract* 2007; **57(538):** 388–395.
5. Morgan M, Jenkins L, Ridsdale L. Patient pressure for referral for headache: a qualitative study of GPs' referral behaviour. *Br J Gen Pract* 2007; **57(534):** 29–35.
6. Ridsdale L, Doherty J, McCrone, *et al*. A new GP with special interest headache service: observational study. *Br J Gen Pract* 2008; **58(552):** 478–483.
7. Sibbald B. Direct access to diagnostic services. *Br J Gen Pract* 2009; **59(562):** e144–145.
8. Frishberg B, Rosenberg JH, Matchar DB, *et al*. Evidence-based guidelines in the primary care setting: neuroimaging in patients with nonacute headache. http://www.aan.com/professionals/practice/pdfs/gl0088.pdf (accessed 24 Jun 2009).
9. National Institute for Clinical Excellence. *Epilepsy in adults and children: NICE guideline*. http://www.nice.org.uk/CG020NICEguideline (accessed 24 Jun 2009).
10. Majeed A, Bardsley M, Morgan D, *et al*. Cross sectional study of primary care groups in London: association of measures of socioeconomic and health status with hospital admission rates. *BMJ* 2000; **321(7268):** 1057–1060.
11. Shohet C, Yelloly J, Bingham P, Lyratzopolous G. The association between the quality of epilepsy management in primary care, general practice population deprivation status and epilepsy-related emergency hospitalisations. *Seizure* 2007; **6(4):** 351–355.

12. Nilsson L, Farahmand B, Persson PG, *et al*. Risk factors for sudden unexpected death in epilepsy: a case–control study. *Lancet* 1999; **353(9156):** 888–893.
13. Bruce M, Griffiths C, Brock A, Majeed A. Trends in mortality and hospital admissions associated with epilepsy in England and Wales during the 1990s. *Health Stat Q* 2004 Spring; **(21):** 23–29.
14. Ridsdale L. The social causes of inequality in epilepsy and developing a rehabilitation strategy: a UK-based analysis. *Epilepsia* 2009; http://www3.interscience.wiley.com/journal/122421043/abstract (accessed 25 Jun 2009).
15. Ridsdale L, Massey R, Clark L. Preventing neurophobia in medical students, and so future doctors. *Pract Neurol* 2007; **7(2):** 116–123.
16. Royal College of General Practitioners. *Royal College of General Practitioners Curriculum Statement 15.7: Neurological Problems*. http://www.rcgp.org.uk/pdf/curr_15_7_neurological_problems.pdf (accessed 25 Jun 2009)
17. Royal College of General Practitioners. *GP with a special interest.* http://www.rcgp.org.uk/clinical_and_research/circ/pwsi.aspx (accessed 25 Jun 2009).

DOI: 10.3399/bjgp09X453756

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Bell's palsy:
new evidence provides a definitive drug therapy strategy

Bell's palsy is acute, idiopathic, unilateral paralysis of the facial nerve[1] and most GPs will see a new case about once every 5 years. Although most patients recover well, up to 30% have a poor outcome, with persistent facial weakness, psychological difficulties, and facial pain. The rapid, often painful onset of facial weakness is distressing for patients, leading them to present urgently to their GP. Primary care management has included various options, such as prednisolone and/or antiviral drugs, or neither, but evidence for these or other strategies has been weak or absent. This persisting uncertainty about ideal management can be disconcerting for GPs and their patients.

In 2001, the American Academy of Neurology published guidelines on the management of Bell's palsy, concluding that, while the benefit of steroids and/or aciclovir had not been established, the available evidence indicated that steroids were 'probably effective', and that aciclovir combined with prednisolone was 'possibly effective'.[1] Subsequently, two articles published in the *British Medical Journal* triggered controversy when they recommended the early use of steroids and aciclovir,[2,3] although no further reliable data had been published since the American guideline. After decades of little persuasive evidence, four randomised controlled trials, involving over 1800 patients, have recently been published, and their results allow much more robust conclusions regarding drug treatment of Bell's palsy.[4–7]

Steroids definitely improve outcome, based on the results of two large primary care based trials which addressed this question. The Scottish Bell's palsy trial[4] included 551 patients recruited from primary care, and showed that 83% of patients treated with prednisolone within 72 hours of onset (50 mg/day for 10 days) had recovered compared to 63.6% who received placebo at 3 months (number needed to treat [NNT] = 6) and this result remained significant at 9 months (NNT = 8). The recent Swedish trial[5] involving 839 patients confirmed this, with 72% of the steroid group (10 days of prednisolone starting at 60 mg/day for 5 days, then reduced by 10 mg/day, started within 72 hours of onset) who achieved full recovery at 12 months versus 57% in the control group.

Antiviral drugs do not improve outcome. The Scottish trial used aciclovir 2000 mg/day for 10 days, and led to no improvement in recovery either in addition to, or instead of, prednisolone. Two Japanese hospital based trials[6,7] compared prednisolone alone (starting dose 60 mg/day) with prednisolone plus valaciclovir (a pro-drug of aciclovir). One study (150 patients recruited) reported a negative result (valaciclovir offered no advantage over prednisolone alone).[6] The second study (296 recruited) reported a positive outcome,[7] but this result was compromised by a number of serious methodological flaws, including an inadequate randomisation procedure, single blind design, and a 25% drop out rate (not included in the analyses).[8]

Following the publication of these three trials in 2007,[4,6,7] some commentators still recommended the use valaciclovir for those with severe facial weakness,[9,10] despite the evidence of lack of effectiveness. Most recently, the Swedish study[5] has hopefully put the matter beyond doubt, with no evidence that valaciclovir was effective in the management of Bell's palsy.[11]

Yet some may still be tempted to recommend antiviral treatment. Their rationale is driven by the suspicion that many cases may be due to reactivation of herpes simplex virus (HSV), although this aetiological hypothesis has never been