

Neurology: *quo vadis?*

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The practice of neurology has changed in the 63 years since a national health service was established in the UK. In 1948, the sun was already setting on a golden age of descriptive British neurology that had lasted for almost 100 years. Neurology had acquired a fine reputation for hagiography and self-referential eponymous classification. Famous figures were remembered by diseases named after them although most of these designations attracted rival claims for priority in giving the first account of that disease. Clever diagnoses were made, but nothing much could be done about them. Outside London, a few hospitals were staffed by a single-handed consultant who took responsibility for vast swathes of the countryside. The rest took their chance with non-specialists. The provision of services focused on shifting huge numbers of cases in record time and led to the caricature of neurology: ‘you have a brain tumour; I’ll write to your doctor’. When experimental medicine gathered pace in the 1960s, and new disciplines impacted on the understanding of disease mechanisms, neurology was slow to engage with the modern era. Training remained centred on London. Advancement was unpredictable, maverick, patrician, open-ended and dependent on dead-men’s shoes.

There is no doubt that many of the NHS reforms of the early 1990s, and related changes, altered neurology in a way that benefited patients and transformed the specialty. The gross under-provision of neurological services throughout the UK was exposed; and a workable mechanism provided for rapid and substantial manpower expansion. The internal market and imposition of shorter waiting times led directly to services being provided closer to the onset of symptoms and nearer to home. A substantial increase followed in the number of consultant neurologists. Membership of the Association of British Neurologists increased from 194 in 1970 to 1,116 in 2011. The revision of training structures providing curriculum, mentorship, assessment and a timescale for apprenticeship complemented these changes. To some extent, increased provision encouraged a fall in the threshold for referral fuelled by ‘fear of neurology’ among non-specialist medical practitioners. The ‘worried well’ could now be passed on to neurologists more easily, rather than having to accept reassurance from primary care and general physicians. Neither the culture of litigation and complaints nor the steady erosion of neurology in the undergraduate curriculum of medical schools did much to enhance neurological confidence among non-specialists.

Manpower expansion and the principle that people with neurological disease should be seen by specialists early in the course

of their illness and at a convenient time and location have encouraged the development of sub-specialism. This is appropriate; and patients have also been much advantaged by the appointment of specialist nurses whose work, often disease specific, provides ready contact, approachability, a style that not every neurologist can match and which patients value, and much better management of the many practicalities needed to assist aspects of daily living in the context of chronic neurological disability. With funding increasingly allocated to research and development through the structures of the National Institute of Health Research, the need and opportunity to advance understanding of neurological disease and improve outcomes have come ever more sharply into focus. As always, it is the NHS (rather than the Higher Education Funding Council for England and Wales) that is the major provider of support for developments in academic neurology. Professors of neurology proliferated from 13 in 1987 to 104 in 2011. Young people in medicine now feel that they must commit to medical science, declare interest in a particular discipline, and even develop a sub-specialty interest, early in their careers. As a result, neurological societies for students are flourishing in many medical schools. But with reduced exposure to general medicine, less time (on average) spent in specialist training itself, and a period of full-time research no longer a requirement for consultant appointment, the style of neurology funded through the NHS (and the universities), and hence generic skills in clinical neuroscience expected of each and every neurologist, have drifted apart.

Traditionally, neurologists were perceived as reluctant to engage with acute medicine and, especially held the view that ‘stroke is not neurology’. While that attitude has changed, the present arrangements are somewhat *ad hoc*: stroke is usually managed within trusts through directorates of medicine; training under the umbrella of geriatric medicine; thrombolysis assessed and administered by neurology specialist registrars; and academic stroke research based in university departments of neurology or clinical neurosciences. Emergency triage to regional centres or hyper-acute stroke units (HACU) by ambulance crews has a low strike rate for diagnostic accuracy so that many patients are managed acutely in the wrong sector. Against this background, a group convened by the Royal College of Physicians (RCP) with representation from relevant specialties has recently revisited the involvement of neurologists with acute illness and advised on the future provision of neurology in district general hospitals. The main recommendations of *Local adult neurology services for the next decade* are:

- expansion of local services with a shift in emphasis from scheduled to emergency care

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- creation of an integrated network for neurological care distributed across the spectrum of primary, district and regional centre-based healthcare
- management of long-term neurological conditions through partnership with other specialties, and an enhanced role for specialist nurses and general practitioners (GPs) with an interest in neurology.¹

The principle is that patients with neurological emergencies are admitted to hospitals providing an acute neurology service that is led by consultant neurologists. This will require specific commissioning of neurology and recognition of the need for unscheduled, as well as planned, outpatient care. These activities must be linked to multidisciplinary community teams responsible for common neurological conditions, but also to regional centres. The report recognises that these aims will require an eventual increase in the number of consultant neurologists from 600 to 880 (1 per 70,000 population), most of the expanded workforce being locally based and better distributed with respect to demographics and where patients ought to be seen. In turn, this will require expansion in the training grades. While this may all seem unrealistic in the present climate, the report considers that significant cost improvements can already be achieved through more efficient working and better use of existing resources.

Other forces are set to continue the evolution of neurology that characterised the second half of the 20th century in order to match the increased opportunities for patients arising from research; and the aspiration – political and professional – that everything should be of the best for all people in need. No longer will one size fit all. Nor has the naming of disease stood still. *Eponym* and *acronym* are disappearing as clinical neurology has become more sophisticated, laboratory methods introduced, descriptive phenotypes broadened and overlap between apparently different conditions increasingly recognised. The beginnings of mechanism-based disease classifications are emerging with the recognition of a genetic basis for many common disorders, the identification of their environmental triggers, and the characterisation of molecular pathways involved in the pathogenesis of these complex phenotypes. Generic principles such as aberrant protein folding, immune-based tissue injury, perturbations in ion-channel activity, and altered energy states within cells and their organelles are radically changing the understanding and classification of neurological disease. The future of neurology may be less colourful in terms of hagiography but, as the interplay of basic and clinical neuroscience continues to strengthen, it will be more realistic and useful in terms of mechanistic classifications and the emergence of new and improved therapeutic opportunities. For the future, we can envisage four types of clinical neurologist:

- the generalist in the district retaining meaningful links to the centre supported by GPs with an interest in neurology,

nurse practitioners and other professions allied to medicine

- the sub-specialist who is nonetheless competent in general neurology working mainly in the centre but supporting the provision of general neurological services in the district
- the super-specialist who rarely strays outside a particular area of expertise or leaves the centre
- the medically qualified full-time research scientist who occasionally sees a patient (but only under escort from a specialist registrar).

Whatever arrangements for funding and the distribution of resources emerge from the most recently proposed reforms of the NHS, patients must not be disadvantaged through being required to access services eccentrically. The many facets of neurological illness may involve skills and facilities available in the community, in the district general hospital, or in centres, and each of those environments may offer more than one level of expertise. What matters is that the patient is able to shuttle in any direction, effortlessly and without endless financial negotiation irrespective of where along the continuum of care that person happens to have entered the system. But no amount of organisation, management and reform will deliver what the individual patient expects from medicine in an NHS. It was the failure of those who imposed new structures to understand that the oil that makes the NHS go round is professionalism, and that devaluing or discarding that essential commodity through heavy-handed top-down management, endless new reports, ill-judged contracts and temporary reforms was bound to be counter-productive. Neurology is not alone in having alternately been buffeted and moved along by the last 63 roller-coaster years. But despite all, in 2011 the NHS can be proud of the calibre and commitment of those employees who specialise in neurology, and equally, people who work for the NHS can be grateful for the clinical and scientific opportunities, the camaraderie and sense of purpose, and the privileges and nurture of professional aspirations that it provides.

As neurology and neuroscience continue to evolve, perhaps more than many branches of medicine, its practitioners must continue to play a sensitive and experienced hand in patrolling the science (what can be done) and the art (what should be done) of this quintessentially clinical specialty.

References

1. Royal College of Physicians. *Local adult neurology services for the next decade*. London: RCP, 2011.

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