

# Neurology research and teaching in Malawi

Agam Jung, Ashok Raman, Macpherson Mallewa and Tom Solomon

**ABSTRACT** – In this article, British neurologists share their experiences of neurology in Malawi – as educators and researchers. Malawi is a resource-poor country in Central Africa. The spectrum of neurological illnesses is varied and primarily related to HIV and neuroinfections. Structured overseas training programmes for residents can lead to academic exchange with mutual benefit. New links can be established which can then be used to launch international health initiatives. Such visits can also lead to the development of institutional links, the fostering of which can have a role in the achievement of the global health agenda.

**KEY WORDS:** developing world, Malawi, medical education, neurology, research

In this article, neurologists Agam Jung, Ashok Raman, Mac Mallewa and Tom Solomon describe their experiences of neurology in Malawi, as medical educators and researchers. While all four have taught in Malawi, Mallewa and Solomon have ongoing research projects at the College of Medicine, Blantyre, Malawi.

Africa has a population of 700 million. Out of the estimated 10 million patients with epilepsy, 85% are not receiving treatment. Neurological complications are seen in up to 70% of patients with HIV/AIDS and 64% of the new HIV infections are taking place in this region.<sup>1</sup> Formerly known as Nyasaland, Malawi is a landlocked country. It became a British protectorate in 1891 and gained independence in 1964 when Dr Hastings Banda became president. After a totalitarian rule spanning three decades, a referendum was held in 1994 and the political system became multiparty. Of its 12 million population, 85% live in rural areas. With people speaking English and Chichewa, literacy rates are at 58%.

Health statistics reveal Malawi to be one of the poorest nations of the world. While sub-Saharan Africa has an estimate of one neurologist per three million people, Malawi has one part-time neurologist for its 12 million population. There are 266 physicians in the country and the life expectancy at birth for both men and women is 40 years. The maternal mortality ratio is 984 per 100,000 live births. The HIV prevalence rate is

13–19% and is higher in women. The infant mortality rate is 76 per 1,000 live births,<sup>2</sup> while AIDS has orphaned half a million Malawian children.

The College of Medicine, Blantyre was founded in 1991. Since inception, there have been 254 graduates, 60% of these are currently working in Malawi. Of the 40% abroad, 60% are in training.<sup>3</sup> Annual intake also comprises of international students from Swaziland, Lesotho, Namibia and Botswana. Senior academic positions are mostly held by expatriate staff. A master of medicine training programme began in 2004 with the first two years of the registrar training held in Malawi followed by a part 1 examination. This is then followed by training in South Africa, a part 2 exam and the completion of a dissertation of a research project.

At the Queen Elizabeth Central Hospital, wards are full at more than double their capacity. Of the ward admissions 90% are related to AIDS and neurological complications account for more than 50% of the inpatients. Limited diagnostic neurological resources present a major challenge in patient management. A computed tomography (CT) scanner is in use, however, as the country's only public sector radiologist is undergoing training in the USA physicians have to interpret all the CT scans themselves. Hydrocephalus, strokes, space-occupying lesions and meningitis are the predominant pathologies. Neurophysiology is not available.

Cerebrovascular disease is frequently encountered. A strong association between stroke and HIV has been established and further research is being conducted in this area. In non-HIV positive individuals hypertension remains a major aetiological factor. A three-bed stroke unit has the support of one occupational therapist and two physiotherapists. A rehabilitation centre provides an outreach service to 64 clinics.

The positive impact of antiretroviral therapy is evident in the clinics. Approximately 30% of the attendees have neurological problems including drug-induced neuropathy, headaches and meningitis. Ward referrals typically include cerebral malaria, stroke and stroke-like syndromes, meningitis, cerebral toxoplasmosis, paraparesis, tetanus and the entire spectrum of HIV neurology. Language barriers are significant although not insurmountable as English is widely spoken.

The management of neurological disorders, especially infections, has advanced considerably in recent years through collaborative research between the College of Medicine, and external partners, such as the University of Liverpool and Michigan State University. This work, supported by the Wellcome Trust, National Institutes of Health, World Health Organization and others, has advanced understanding and management of cerebral malaria, bacterial meningitis, rabies and other neurological conditions prevalent in the tropics. Major challenges include

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neurological complications of HIV, particularly stroke-like syndromes and various 'opportunistic' infections.

As visitors, we have taught clinical officers, undergraduate and postgraduate students. The most popular lecture has been on neuroimaging given to the academic staff. All undergraduate students are actively involved in high-quality research projects. Grand rounds, didactic lectures and bedside teaching, particularly on the neurological examination and interpretation of signs, were the main thrust of the teaching aspect.

The Crisp Report details the role that the UK can play in developing and fostering a global health partnership,<sup>4</sup> a sentiment echoed by the Royal College of Physicians (RCP).<sup>5</sup> The recent signing of a Memorandum of Understanding between the RCP and the West African College of Physicians aims at promoting the global health agenda.<sup>6</sup> Organisations such as the International Medical Education Trust 2000 are initiatives whereby British doctors sponsor medical students in Malawi so that dearth of funds does not hinder the education of Malawian medical students.<sup>7</sup> British trainee neurologists can contribute significantly to the development of a neurological education base, for example Jung (a trainee neurologist) has developed a low-cost educational tool on neuroimaging for distribution in the developing world.<sup>8</sup> This CD-ROM was developed after seeing at first hand the challenges faced by colleagues working in Malawi. It aims to bridge the digital divide and is being distributed to a number of countries ranging from Sierra Leone to Bangladesh by the British charity organisation, Teaching Aids at Low Cost. 'Strengthening health services for people with epilepsy' is a project where nurses in Malawi are supported in their work on epilepsy after having been trained by neurologists in the UK.<sup>9</sup> Trainee neurologists should be encouraged by their supervisors to undertake clinical attachments, teaching visits and research projects to the developing world. Refresher courses for clinical officers at the district hospitals should be the main focus of these teaching visits as these are likely to make the most impact. Deaneries can also offer support by organising yearly educational visits by senior neurology trainees and by providing opportunities for out-of-programme experience. British trainee neurologists can thus be involved in bringing about change through active participation in research and educational visits to Africa.

## Further information

Pre-visit considerations:

- visa
- immunisation (yellow fever, hepatitis)

- prophylaxis (malaria, post-exposure antiretroviral regime – depending on the degree of clinical exposure)
- a relevant course eg the Liverpool Neurological Infectious Disease course ([www.liv.ac.uk/neuroidcourse](http://www.liv.ac.uk/neuroidcourse)) or the Diploma in Tropical Medicine and Hygiene
- other recommended websites: [www.liv.ac.uk/braininfections](http://www.liv.ac.uk/braininfections) and [www.medcol.mw](http://www.medcol.mw).

## Acknowledgements

The authors would like to thank Dr Tepu Heikinheimo-Connell and Dr Theresa Allain (Department of Medicine, University of Malawi, Blantyre, Malawi); Department of Neurology and Neuroradiology, Hull Royal Infirmary and the Association of British Neurologists.

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