

NEUROLOGY CURRICULUM FOR MEDICAL STUDENTS IN PAKISTAN SCOPE AND PRIORITIES

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Neurologic symptoms are common in all practice settings, and neurologic diseases comprise a large and increasing proportion of health care expenditures and global disease burden. Consequently, the training of all physicians should prepare them to recognize patients who may have neurologic disease, and to take the initial steps in evaluating and managing those patients. 1 A task force of European Federation of Neurological Societies (EFNS) found that the time and resources allocated to neurology education at undergraduate level was insufficient. 2 Given that approximately one third of all disease burden is caused by brain diseases, the task force thought that one third of teaching curriculum in medical schools should deal with brain and one third of funding in life sciences should go to basic and clinical neuroscience.²

Generally neurology is perceived to be more difficult to handle than other disciplines throughout all the medical community including medical students.² Neurophobia is the term used to describe the fear of neural sciences and clinical neurology.³ This is a common problem worldwide and may result in 'paralysis of thinking or action', with doctors either not performing at all or performing poor neurological examination, or indiscriminately referring patients to neurologists even with simple, common neurological conditions to avoid dealing with them.³ Paucity of bedside neurology teaching, and limited patient contact are considered important causes of this.³ Poor teaching, trouble with neuroanatomy, neuroscience and clinical examination have been postulated to be other reasons contributing to neurophobia. A recent survey of medical students and residents in the USA found that the trainees considered neurology as the most difficult medical specialty of which they had least knowledge, resulting in least confidence in dealing with patients with neurological problems. 4 One of the possible causes of neurophobia is lack of role models in neuroanatomy, neurophysiology, neurology and neurosurgery for the students.

The main goal of clinical neurology clerkship as described by American Academy of Neurology (AAN) is to teach the principles and skills underlying the recognition and management of the neurologic diseases a general medical practitioner is most likely to encounter in practice.¹ The core curriculum suggested by American Academy of Neurology about a decade ago aimed at an attempt to define the minimum body of clinical neurology skills and knowledge required of all graduating medical students, regardless of their eventual career path. It was meant to be a realistic and practical tool for neurology departments to use both in routine self assessment and during the process of developing or reorganizing a neurology clerkship.¹

As medical school curricula and instructional techniques, resident and fellow education and work rules, and continuing medical education (CME) opportunities are evolving; there is a need to pay attention to the outcomes of these initiatives.⁵ Thus, there is a need to rigorously study the many changes that impact physician education to determine the effectiveness of our educational practices and define and remedy shortcomings in the education of physicians. Two major themes are central to this effort: do the educational experiences of individuals at one stage in their career predict future performance, and do educational initiatives translate into better patient care?⁵

The authors have experience of teaching neurology at undergraduate level to the students of Shifa College of Medicine, Islamabad, Pakistan. One 8 week long neuroscience module is presented in 2nd year and a 4 week

neurosciences module in 3rd year of MBBS training at Shifa College of Medicine which integrates the basic and clinical sciences in horizontal, vertical and spiral integration. The duration of rotation of medical students in neurology and neurosurgery in clinical years has varied from one week to 4 weeks over past few years. Currently, the students rotate through neurology for five days while doing their 3 months of medicine clerkship in 4th year of MBBS training. Although no formal survey has been carried out, both the teaching faculty including the authors and the rotating medical students feel this duration to be too short for exposure to clinical neurology.

Pakistan Medical and Dental Council curriculum for MBBS designates 800 hours of training in Medicine and allied specialties spread over 5 years, however, it does not require specific specialty rotations.⁶ The European Federation of Neurological Societies task force has recommended that the total length of the clinical neurology training period (excluding basic neurosciences) as full time neurology should have a minimum of 5 weeks. The total number of teaching hours should be at least 72 hours as a whole, including demonstrations, sabbaticals, and lectures.² The task force has also suggested that neurology should be considered an independent subject area and assessments should be independent from the other disciplines.² Although one month rotation in neurology ward with separate assessment had been practiced in many medical colleges of Pakistan in past, evolution into integrated modular system is not allowing such rotations now.

Several strategies have been suggested to decrease neurophobia including anticipation of neurophobia in students and trying to change the negative state of mind from the outset by providing positive feedback, increasing student-patient interaction and selecting common neurological conditions at the beginning of study.⁷ Studies have found that peer assisted learning⁸ and standardized patient sessions⁹ result in improved performance of medical students learning neurological examination. Another study found that feedback from standardized patients was associated with a significant increase in student scores on the neurological examination, as well as more favorable perceptions of the experience.¹⁰

The medical education is rapidly changing with traditional methods of teaching being replaced by modular systems, integration of various subjects based on a theme, and problem based learning in small and large interactive groups. At the same time the incidence and prevalence of chronic neurological problems is on the rise and it is likely that most of the students graduating from medical schools today will have to deal with neurological problems at some point of their professional career.

With this scenario it is imperative that Pakistan Society of Neurology, Pakistan Medical and Dental Council, College of Physicians and Surgeons of Pakistan and other relevant bodies and individuals give an urgent priority and play an active role in restructuring the medical education in Pakistan, addressing the increasing demand of adequate neurology education at undergraduate level, as well as postgraduate level. We suggest that all medical colleges in Pakistan must be mandated to have a separate neurology department with dedicated neurology faculty. No undergraduate training should be recognized without at least 20 percent of time, effort and resources dedicated to education about brain and brain related diseases. For those medical colleges that do not have neurology departments currently should have their students do mandatory rotation in neurology units of other medical colleges and hospitals. Neurology rotations should be made mandatory for all medical students for at least 4 weeks in their 4th or final year of MBBS training.

Use of standardized patients for teaching neurological examination should be increased. The students should have early contact in their clinical years with actual patients with neurological ailments. Efforts should be made to decrease the neurophobia both among students and faculty. Almost all medical students have hi-tech gadgets with them these days. Use of technology with computer based 3-D simulators, and models be introduced to make neuroanatomy learning easy and a pleasant experience.

We feel this as a high time to recognize the urgent need of prioritizing neurology education at undergraduate as well as postgraduate level to cope with the impending yoke of neurological ailments that students of today are going to

face tomorrow when they are in their real life experience.

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REFERENCES:

1. Gelb DJ, Gunderson CH, Henry KA, Kirshner HS, Józefowicz RF; Consortium of Neurology Clerkship Directors and the Undergraduate Education Subcommittee of the American Academy of Neurology. The neurology clerkship core curriculum. *Neurology*. 2002 Mar 26;58(6):849-52.
2. Lopes Lima JM, Mesec A, Wilkinson IM, Wiles CM, Gilhus NE, Zimprich F, Alekseenko YV, Grisold W; European Federation of Neurological Societies. Report of the Task Force on pre-graduate education in Europe of the education committee of the European Federation of Neurological Societies Composition of the task force of the education committee on pre-graduate education. *Eur J Neurol*. 2008 Dec;15(12):e103-9.
3. Lim EC, Seet RC. Demystifying neurology: preventing 'neurophobia' among medical students. *Nat Clin Pract Neurol*. 2008 Aug;4(8):462-3. Epub 2008 Jul 1.
4. Zinchuk AV, Flanagan EP, Tubridy NJ, Miller WA, McCullough LD. Attitudes of US medical trainees towards neurology education: "Neurophobia" - a global issue. *BMC Med Educ*. 2010 Jun 23;10:49.
5. Curriculum of MBBS. <http://www.pmdc.org.pk/LinkClick.aspx?fileticket=EKfBIOSDTkE%3d&tabid=292&mid=849> accessed on June 25, 2012
6. Giles J. Clinical neuroscience attachments: a student's view of 'neurophobia'. *Clin Teach*. 2010 Mar;7(1):9-13.
7. Stern BJ, Lowenstein DH, Schuh LA. Invited article: Neurology education research. *Neurology*. 2008 Mar 11;70(11):876-83.
8. Heckmann JG, Dütsch M, Rauch C, Lang C, Weih M, Schwab S. Effects of peer-assisted training during the neurology clerkship: a randomized controlled study. *Eur J Neurol*. 2008 Dec;15(12):1365-70.
9. Safdieh JE, Lin AL, Aizer J, Marzuk PM, Grafstein B, Storey-Johnson C, Kang Y. Standardized patient outcomes trial (SPOT) in neurology. *Med Educ Online*. 2011 Jan 14;16.
10. Park JH, Son JY, Kim S, May W. Effect of feedback from standardized patients on medical students' performance and perceptions of the neurological examination. *Med Teach*. 2011;33(12):1005-10.