Next Generation Neurology: E-learning

The Association of British Neurologists Trainees Innovative E-Learning Programme: aiming to promote confidence and engagement with neurology prior to specialisation.

Background
The term neurophobia, coined by Ralph Jozefowicz in 1994, refers to a fear of neurology encountered amongst medical students. A recent national survey of UK medical students confirms that students continue to find the subject of neurology and the ability to draw up a neurological differential diagnosis significantly more difficult compared with other specialties.

We have recently conducted a survey of 108 Foundation and Core Medical Trainees (CMT) from 19 deaneries across the United Kingdom. Results revealed that 48% describe themselves as being neurophobic, therefore demonstrating that neurophobia is not just confined to medical students. Overall, 78% felt they were under-confident managing neurological conditions that may present on the acute medical take (self-rated confidence level of two or less on a four point scale). Thematic analysis of free text responses from the 52 self-identified neurophobes highlighted three areas of particular concern: lack of clinical exposure and experience during medical school and/or early training, lack of skill base to effectively elicit clinical signs and form differential diagnoses, and a perception of neurology being a complicated speciality requiring expert support and rapid specialty takeover. [Unpublished]

The Association of British Neurologists (ABN) continues to play a key role in campaigning for disorders of the nervous system to feature centrally on UK undergraduate curricula. Recent evidence from the USA supports the premise that undergraduate exposure to teaching of the neurosciences correlates directly with the likelihood of medical graduates subsequently enrolling in a neurology specialist training programme. The competition ratio for ST3 neurology applications has been relatively stable over the last three years, but with typical rates of around two applicants per post, there is room for improvement if we seek to expand our specialty. A recent article in the BMJ highlighted the urgent need to expand neurology services in the UK, given that there is only one neurologist per 9,000 people (compared with a European average of one per 15,000), and an estimated 12 month wait for outpatient neurology services. As it stands in the UK at present, we must acknowledge that a high proportion of the one in five patients who present to the acute take with a disorder of the nervous system, are not received by a Neurologist. Their initial management tends to be provided by junior doctors on an acute medical unit, the same population who our survey suggests feel under-confident or neurophobic.

E-learning
E-learning, defined as ‘learning conducted via electronic media’, has been traditionally used to deliver distance-learning and computer assisted instruction. E-learning formats for the delivery of medical education range from plain electronic text, to wholly interactive, virtual reality platforms. The World Health Organization (WHO) recently commissioned a review of evidence for e-learning in healthcare, conducted by Imperial College London. The findings suggested that e-learning resources should complement, rather than replace, traditional learning methods for teaching healthcare professionals, but that e-learning enhances the convenience and accessibility of educational resources. Student satisfaction appears to be higher for e-learning than for traditional learning methods and data exists to validate e-learning as a means of improving test scores. In our survey of Foundation and core medical trainees, only 24% report using interactive e-learning resources to revise for professional exams. The remainder predominantly cited lack of availability, and cost of available resources as reasons for not utilising interactive e-learning cases as a revision tool. In our survey of Foundation and core medical trainees, only 24% report using interactive e-learning resources to revise for professional exams. The remainder predominantly cited lack of availability, and cost of available resources as reasons for not utilising interactive e-learning cases as a revision tool. In our survey of Foundation and core medical trainees, only 24% report using interactive e-learning resources to revise for professional exams. The remainder predominantly cited lack of availability, and cost of available resources as reasons for not utilising interactive e-learning cases as a revision tool. In our survey of Foundation and core medical trainees, only 24% report using interactive e-learning resources to revise for professional exams. The remainder predominantly cited lack of availability, and cost of available resources as reasons for not utilising interactive e-learning cases as a revision tool. In our survey of Foundation and core medical trainees, only 24% report using interactive e-learning resources to revise for professional exams. The remainder predominantly cited lack of availability, and cost of available resources as reasons for not utilising interactive e-learning cases as a revision tool. In our survey of Foundation and core medical trainees, only 24% report using interactive e-learning resources to revise for professional exams. The remainder predominantly cited lack of availability, and cost of available resources as reasons for not utilising interactive e-learning cases as a revision tool. In our survey of Foundation and core medical trainees, only 24% report using interactive e-learning resources to revise for professional exams. The remainder predominantly cited lack of availability, and cost of available resources as reasons for not utilising interactive e-learning cases as a revision tool.

Student-centred Learning
Developing a comprehensive, evidence-based, curriculum-centred online learning resource for junior doctors represents a significant challenge. While a range of subscription-based online question banks for MRCP exams exist, we endeavoured...
to generate a non-profit, open-access resource. Evidence from undergraduate practice shows that asking students to write their own exam-style questions, and to review and respond to those of their peers, can be an effective way of encouraging learning. The Peerwise initiative (https://peerwise.cs.auckland. ac.nz) had high rates of student uptake and generated large volumes of formative learning material. This demonstrates how valuable learning resources can be developed without the need for high-level investment from time- and resource-poor departments. Interestingly, the students also reported that they found the process of question writing, answering, and commenting on peers’ questions to be a useful learning technique.

**Innovative e-learning**

When authors ET and SV were paired as ABNT mentor and mentee, we, along with a colleague (SR), decided to embark on a project that collaborated with the ABNT to enhance neurology training for junior doctors, and to offer an opportunity to engage with neurology ahead of specialisation. We suggest that the enthusiasm of junior doctors who are already interested in neurology can be employed in this project to develop a resource that is relevant and accessible to any junior doctor, regardless of their specialist interest. We have devised an innovative and interactive e-learning programme that will cover all neurology outcomes of the CMT curriculum through a series of 20-30 modules. Learning modules will be developed around clinically relevant scenarios that we expect junior doctors to face in their current medical practice. Our e-learning modules will utilise a basic and accessible computer format (PowerPoint) and will require participants to prioritise patients and combine academic knowledge with clinical acumen, principally through single best answer questions.

So far, 23 topics have been allocated to junior doctors who will work in conjunction with a senior neurology mentor. The project will be led by the junior colleague, who will research the topic and devise a module that simulates an on-call shift, ward or outpatient clinic experience, dealing with neurology based presentations. The role of the neurology mentor will be to aid learning, highlight relevant resources and to ensure clinical accuracy. Once the e-learning module material is received by the Innovative E-learning team, it will be sent for further peer-review by one of the ABNT committee, before it is transformed into an e-learning format and uploaded to the ABNT website (www.abnt. org.uk/elearning.php). E-learning modules will be freely available for individuals or as a teaching resource worldwide, with accreditation given to the contributors.

Lack of maintenance to e-learning sites has been cited as an obstacle to the longevity of open-access online teaching resources. In fostering a supportive mentoring ethos we would encourage maximal learning with minimal effort using PeerWise. Medical education 2015;49(5):521-2 doi: 10.1111/medu.12720[published Online First: Epub Date].

**Summary**

We envisage that the ABNT Innovative E-learning project will provide a comprehensive, interactive e-learning platform for junior doctors to access free of charge. In developing this programme as a grassroots initiative we hope to achieve sustainability, and motivate junior doctors to feel confident managing acute neurological disorders and consider neurology as an inspiring and supportive specialty.

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**References**