The future of medical education

How do we shape the doctors of the future into competent, compassionate practitioners who can work efficiently and safely within the challenging environment of the NHS, lead effectively and contribute to service innovation? These are the questions faced by everyone working in the fields of both undergraduate and postgraduate medical education today.

Focus on understanding as well as knowledge

What often strikes me when I meet medical students these days is their focus on acquisition of the necessary knowledge in order to pass examinations, but sometimes not on developing the fundamental understanding to hang this knowledge upon. Students often think that studying a topic is a discrete learning event they have completed, meaning that they can then move on to the next subject. However, in reality learning in medicine is an ongoing, never-ending process that continues throughout a career. For example, there are few clinicians who know absolutely everything there is to know about the electrocardiogram. This is reflected by the nature of spiral curricula adopted widely by UK medical schools, in which topics are revisited and built upon throughout the entire course.

Encouraging this lifelong learning and developing learner-centred approaches to teaching, generating inquisitively minded students who are able to independently research the vast medical literature and focus on the application of basic first principles is, in my opinion, perhaps more important than studying the minutiae of anatomy.

'Non-clinical' learning

There are so many newer 'non-clinical' concepts that modern medical students and junior doctors need to become familiar with, such as patient safety, human factors, situational awareness, clinical leadership and management. I graduated in 2005 and these aspects were certainly not central components of my education, but are now becoming commonplace and vital as set out in documents such as the General Medical Council's *New Doctor* (General Medical Council, 2009). Many medical schools are developing innovative models to teach such concepts including collaborating with other departments within universities to exploit expertise, for example within management schools (Nie et al, 2011).

The role of simulation

As patient safety is such a hot topic at present, developing methods for teaching in an environment where skills can be practised and honed before a real-life situation is encountered is the ideal. This is where simulation training comes to the fore. Simulation is being used more and more in both undergraduate and postgraduate education. Not only can students practise clinical skills in a safe environment to achieve competency, but they can also often work on more generic skills such as team working and leadership.

High fidelity simulators are now available in many medical education centres and can replicate abnormal physiology and clinical presentations extremely realistically and accurately. Simulators have also enhanced the training of procedural skills such as bronchoscopy, with trainees who are taught initially using simulators shown to acquire competence sooner than those taught using the more traditional approach (Kennedy et al, 2013).

The impact of technology

Learning technologies are becoming more and more visible in everyday practice with the development and use of e-learning, social media, mobile devices and applications. Information is more readily accessible at your fingertips and making efficient use of the vast array of available resources in the clinical environment, to complement teaching, will undoubtedly enhance learning. However, becoming reliant on these technologies to deliver medical education in place of the face-to-face experience is something I am extremely wary of.

The advent of massive open online courses (MOOCs) is one demonstration of this. These courses can teach thousands of learners in multiple geographical locations simultaneously. However, I believe that learning the skills to become a good doctor is a very human journey. Looking after patients when they are at what is often the most vulnerable time in their life is not something that can be taught by sitting in front of a computer screen.

The use of social media in medical education is already firmly established and many feel that this is where the future of medical education lies. In their systematic review Cheston et al (2013) showed that educational interventions using social media tools were associated with improved exam scores, promoted learner engagement, feedback and collaboration. #TeamHaem and #Gasclass are examples where trainee doctors are taking control of their own learning and using social media tools such as Twitter and Storify to facilitate the discussion of complex cases and augment learning.

Focussing on patients

Enhancing the patient experience alongside other more quantitative outcome measures is increasingly recognized as extremely important in the NHS and patients can play a hugely valuable part in medical education. The traditional involvement in communication skills training, bedside teaching and clinical examinations will of course continue, but their role may extend further to contribute to curriculum development and appraisal.

Learning on the job

Time for clinicians to spend delivering teaching and training is a precious and rare commodity within the NHS in the era of the European Working Time Directive. Role modelling, allowing the development of students and trainees within clinical teams, is being lost with our current system. I would like to see a future where we look to history a little and return to the old style 'firm' approach to medicine, recognizing the great value of this.

It is my strong belief that it is impossible to become a rounded doctor solely by learning in a lecture theatre or a classroom. The professional knowledge, skills and

attitudes necessary to succeed are best acquired by experiential learning, applying knowledge learned at earlier stages to real life clinical scenarios and then reflecting on the experience. Many medical schools are starting to embrace this with the development of assistantships for senior medical students (Vivekananda-Schmidt et al, 2011).

Conclusions

The future of medical education, in my opinion, is to use newer technologies and advances to complement learning, but never to forget the vocational nature of a doctor's role. These skills are best acquired 'on the job' from enthusiastic teachers, both clinicians and patients, who have the necessary time and skills to provide high quality training and education. BJHM

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KEY POINTS

- Medical education is a lifelong process.
- Newer technologies such as e-learning, social media and applications can enhance the learning experience.
- Simulation training for both management of acutely ill patients and for procedural skills is becoming more commonplace.
- Experiential learning is an incredibly important central part of becoming a doctor.