



Morrison, J. (2015) Undergraduate medical education: looking back, looking forward. *Scottish Medical Journal*, 60(4), pp. 149-151.

There may be differences between this version and the published version. You are advised to consult the publisher's version if you wish to cite from it.

<http://eprints.gla.ac.uk/114703/>

Deposited on: 19 January 2016

Enlighten – Research publications by members of the University of Glasgow  
<http://eprints.gla.ac.uk>

Undergraduate Medical Education: Looking back, looking forward.

Jill Morrison

Medical Education in Scotland has a long and distinguished history and the Universities have played a key role. I could not begin to enumerate all of the achievements of the medical schools based in Scottish Universities but, for example: one of the earliest medical schools in the English speaking world was established in the University of Aberdeen<sup>1</sup>; the first medical school in the USA opened in Philadelphia in 1765 with a curriculum based on Edinburgh's and ten of its first 12 professors were alumni of Edinburgh University<sup>2</sup>; and some of the greatest names in medicine such as the Hunter brothers and William Cullen were Scottish.<sup>3</sup> Undergraduate Medical Education based in the ancient Scottish Universities in the 18<sup>th</sup> and 19<sup>th</sup> centuries was famous for innovations such as the early use of bedside teaching and anatomy dissection, and was recognised as providing excellent lecturers.

In recent years, the Scottish Medical Schools have punched well above their weight in terms of scholarly output and have continued a tradition of innovation. For example, in Dundee, Ronald Harden developed the Objective Structured Clinical Examination with Fergus Gleeson and this assessment is now widely used around the world to examine clinical skills<sup>4</sup>. "The Scottish Doctor", a project funded by all five of the Scottish Medical Schools and carried out by the Scottish Deans' Medical Education Group, has been disseminated and used widely, like the Scottish doctors who spread out across the world in the diaspora.<sup>5</sup>

In the late 19<sup>th</sup> century, medical education across the world was recognised as suffering from curriculum overload. Knowledge had begun to expand exponentially and the response from medical schools was to pack more and more information into undergraduate curricula. The General Medical Council (GMC) criticised the tendency to overload the curriculum as far back as 1863<sup>6</sup> and Thomas Huxley wrote "the burden we place on the medical student is far too heavy, and it takes some doing to keep from breaking his intellectual back. A system of medical education that is actually calculated

to obstruct the acquisition of sound knowledge and to heavily favour the crammer and grinder is a disgrace".<sup>7</sup>

By the late 20<sup>th</sup> century the problem of curriculum overload was acute and the GMC finally responded definitively in 1993 by producing guidance in *Tomorrow's Doctors*.<sup>6</sup> The curriculum would no longer be all embracing and "unconfined overload" would be reduced. A core curriculum would be defined to ensure that a graduating doctor would have the required knowledge, skills and attitudes, to safely begin the pre-registration house officer year. Special study modules would comprise about one third of the course and these would provide the greatest educational opportunities. There would also be more community based education and more attention would be focused on skills such as communication skills and clinical skills. In response to *Tomorrow's Doctors*, the Scottish Medical Schools reformed their curricula to a greater or lesser extent and were at the forefront of innovation. This was a very exciting time to be involved in medical education in Scotland where new ideas and new methods of learning and teaching were being tried. Curricula became integrated, the preclinical/clinical divide began to disappear and early patient contact became the norm. Clinical skills were taught at an early stage on simulators and in skills labs so that students had a better idea about what to do before practicing on real patients. Active learning methods such as problem based learning and case based learning were adopted in all Scottish Medical Schools to a greater or lesser degree and lectures became less heavily used.

What of the present day? Perhaps inevitably, the pendulum has swung away from innovation in undergraduate curricula to more standardisation. The GMC has produced two further versions of *Tomorrow's Doctors*, each longer and more prescriptive than its predecessor. *Tomorrow's Doctors 1* had 68 paragraphs and 30 pages, *Tomorrow's Doctors 2*, published in 2003, had 43 pages and 108 paragraphs and *Tomorrow's Doctors 3*, published in 2009, had 108 pages and 172 paragraphs.<sup>8,9</sup> The language used has also changed from recommendations to regulations that indicate clear

responsibilities for the GMC, Medical Schools, the NHS and so on. Criteria and standards are outlined and “must” has replaced “should”.

Undergraduate Medical Education in Scotland cannot be divorced from the Scottish Health Service context. The drivers for change in health care in the 21<sup>st</sup> century are well-recognised: an ageing population with consequent multi-morbidity; rising public expectation of improved service; workforce pressures; and new medical technologies, and medical education in Scotland will need to adapt to meet these challenges.<sup>10</sup> Change in medical education is inevitable, not only because of the change in context of medical care, but also because, as Stewart Menin wrote when discussing the American situation “medical education exists in a state of tension between the tendency to fall back into traditional teacher centred pedagogies and the urge to reach forward to newer, more interactive, authentic, integrative and transformative approaches to learning and teaching”.<sup>11</sup>

We are going through a phase of heavily regulated basic medical education and medical educators in Scotland are looking forward to a GMC inspection in 2017 that will encompass both undergraduate medical education and postgraduate training. The GMC is currently considering a National Licensing examination in the UK.<sup>12</sup> Student selected components (the descendants of special study modules) comprise a reduced amount of curriculum time (only 10% recommended compared with 33% in *Tomorrow’s Doctors 1*) and curricula may be in danger of becoming overloaded again. Even the preclinical/clinical divide is making a comeback. Sir David Weatherall has argued for a six month introductory course, probably lecture based, in all UK medical schools on the medical sciences.<sup>14</sup> It remains to be seen, if recent changes introduced by the GMC in *Tomorrow’s Doctors 3* will help us to produce the flexible and creative doctors that many believe the future Health Service needs.

The focus of this edition of the Journal is on medical education in a digital age and I would like to finish with some observations about this. In some respects, the medical schools are playing catch-up with our students who arrive at university as “digital natives”. Current students don’t remember a time without the internet or mobile phones. Clearly technology has changed how we work to a huge

extent. I work in a general practice that is almost completely paperless and I can write prescriptions, make referrals and communicate with my hospital colleagues via my computer. Technology enables students on placement in Dumfries to hear lectures in real time delivered by experts in Glasgow or listen to podcasts by world leading experts anywhere at any time. Students on clinical placements don't need to carry a copy of the British National Formulary in their pocket – a library of useful resources, including the latest clinical guidelines, are a few taps away on their phone.

I would argue, however, that the fundamentally important things that medical students need to learn cannot be learned from technology. These include: how to spot a seriously ill patient; how to communicate effectively; how to live up to the standards in Good Medical Practice<sup>14</sup>; when to ask for help; and so on. Students need many contacts with real patients to learn these important lessons. They also need guidance from real doctors who can act as good role models, provide relevant clinical experiences and help students to make sense of these experiences. Providing opportunities to meet these needs is the current strength of undergraduate medical education in Scotland and, while we embrace all of the advantages of new technologies, long may this strength continue.

### References

1. University of Aberdeen School of Medicine and Dentistry.

[www.abdn.ac.uk/study/courses/undergraduate/medicine/medicine](http://www.abdn.ac.uk/study/courses/undergraduate/medicine/medicine) (accessed 23/6/15)

2. Penn University Archives and Record Center.

[www.archives.upenn.edu/histy/features/1700s/medsch.html](http://www.archives.upenn.edu/histy/features/1700s/medsch.html) (accessed 23/6/15)

3. Helen. M Dingwall. *A history of Scottish Medicine: themes and influences*. 2003. Edinburgh University Press. Edinburgh

4. Harden RM, Gleeson FA. Assessment of clinical competence using an objective structured clinical examination (OSCE). *Medical Education* 1979; **13**:41 - 54

5. The Scottish Deans' Medical Education Group. *The Scottish Doctor: learning outcomes for the medical undergraduate in Scotland: a foundation for competent and reflective practitioners*. 3<sup>rd</sup> Edition 2008. Association for Medical Education in Europe (AMEE), Dundee, UK.

<http://www.scottishdoctor.org> (accessed 23.6.15)

6. General Medical Council. *Tomorrow's Doctors*. 1993, General Medical Council, London, UK

7 Kopelman P. The future of UK medical education curriculum – what type of medical graduate do we need? *Future Hospital Journal* 2014; **1**: 41 – 46.

8 General Medical Council. *Tomorrow's Doctors*. 2003, General Medical Council, London, UK

9 General Medical Council. *Tomorrow's Doctors*. 2009, General Medical Council, London, UK

10 Scottish Executive Health Department. National Planning team. National Framework for Service Change in the NHS in Scotland. Drivers for change in health care in Scotland. 2005. SEHD Edinburgh. [www.sehd.scot.nhs.uk/nationalframework/Documents/DRIVERSFORCHANGE.pdf](http://www.sehd.scot.nhs.uk/nationalframework/Documents/DRIVERSFORCHANGE.pdf) (accessed 23.6.15)

11 Menin S. Self-organisation, integration and curriculum in the complex world of medical education. *Medical Education* 2010; **44**: 20 – 30

12 General Medical Council. *National Licensing Exam*. 2014 General Medical Council, London, UK

[http://www.gmc-uk.org/Item\\_4\\_National\\_Licensing\\_Exam.pdf\\_58341483.pdf](http://www.gmc-uk.org/Item_4_National_Licensing_Exam.pdf_58341483.pdf) (accessed 23.6.15)

13. Weatherell D. The state of the science: Flexner retrospective. *Medical Education* 2011; **45**: 44 – 50.

14. General Medical Council. *Good Medical Practice* 2013. General Medical Council, London, UK.

[www.gmc-uk.org/guidance/good-medical-practice.asp](http://www.gmc-uk.org/guidance/good-medical-practice.asp)

(accessed 23/6/15)