



Doctors and Medical Training

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EDITORIAL

Please cite this paper as: Jiwa M. Doctors and medical training AMJ 2012, 5, 9, 513-516.
<http://doi.org/10.21767/AMJ.2012.1512>

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Medical schools are charged with preparing their students for lifelong service of humanity. However, as discussed in this editorial many medical students may not be served well by the experience of their training. It is paramount that what is taught at medical school and those who teach prepare an educated but resilient workforce. The unmet expectations of medical students and their experience as newly qualified doctors sometimes reinforce the damage done during medical training.

Medical schools

In 2006 there were 1849 medical schools listed in 166 countries, this number has since increased further.¹ Most are government subsidised, some are private. All offer a very expensive education. The cost of tuition fees at an Australian medical school ranges from 35-55,000 AUD for a full fee-paying student.²

Despite the cost, demand for places is high and traditionally medical schools attract the 'brightest' students. Entrance to medical schools is highly competitive. Schools deploy standardised entrance examinations to narrow the selection criteria for candidates. Perhaps the world's most famous medical school, Harvard, receives 5,000 to 6,000 applications every year, and of these, between 800 to 1,000 applicants are interviewed before 165 students are chosen.³ All students applying to Harvard must have a baccalaureate degree. Required courses include biology,

with at least a year of laboratory experience. Students need two years of chemistry and one year of physics. At least one year of calculus is required, but advanced placement credits may qualify. One year of expository writing is needed. Computer skills are important. Applicants are encouraged to complete courses in languages, literature, the arts and humanities as well as the social sciences.

Medical students

The successful entrants to medical school are able to rapidly absorb and regurgitate facts, dates, formulae and ideas. Parents worldwide encourage their 'academically' gifted offspring to consider 'doing medicine'. The generation of parents that does so today was raised living with doctors who were rarely seen in public, had an air of mystery about them, drove the best car, dined at the best restaurant and seldom if ever queued for a cheap seat. Parents, and sometimes teachers, buy into the dream, now considered outdated by some commentators that to get a lifelong, well-paid job you must work hard at school, go to the 'right' university, tick all the 'right' boxes, take your place as an employee and subsequently live happily ever after.⁴

So children are tutored, hot housed, spend their teenage years doing integral calculus and memorising the Krebs' cycle, regurgitating commentaries about Shakespeare's numerous works, reproducing diagrams detailing geographical features, describing experiments to verify the laws of physics or explaining what happens when an acid is introduced to an alkali. Their final years at high school are spent in the library, ensuring the requisite examination results and thus the approval of parents and other adults. Many such students learn that their self-worth is defined by their latest academic prize or exam results. Meanwhile the urges of adolescence are kept in check for the promise of the good life when finally the student is offered a place



at medical school and has it reinforced that they really are special, the best of the best, and finally, worthy of the attention which has long since bestowed on lesser mortals who chose instead to spend the time growing up and finding happiness other than on a school report card.

The medical school experience

Medical students quickly realise that they have to spend hours learning and regurgitating facts and figures. Anatomy is, at least in some medical schools taught in minute detail or hardly at all. The course of the median cutaneous nerve of the thigh is accorded more academic time in some schools than the art of giving people bad news. Courses can last four (postgraduate entry) or even six (undergraduate entry) years in a young adult's life. Students may spend at least some of their training in the company of people who are neither accomplished in their own field nor actively involved with patients. For example a survey of 403 medical students published in 'Medical Education' highlighted the plight of some students:⁵

"Negative features in 18.2-37.2% of tutorials included unreasonable expectations, conflicting information, late arrival, early departure, failure to show up and the display of anger, a patronising attitude, favouritism or ridicule. While two-thirds of tutors were regarded as friendly and helpful, the remaining one-third were perceived as unconcerned, discouraging, derogatory or hostile. Overall, only half the clinical tutors were rated as effective teachers;...One-third of students had experienced at least some form of mistreatment by their tutors, including gender, appearance, religious and racial discrimination, unfair grading and public humiliation. These findings suggest that the clinical clerkship may not be providing an optimal learning environment for medical students."

It is mandated of medical students to learn yet more formulae, to titrate chemicals in the laboratory, and spend hours conducting experiments or writing essays about topics that they will in all probability never again have to think about.

As one blogger put it:

It is also pretty important that they realise that 'getting in' is not the end goal and that they are committing to

*years of hard work just to get to the point where they can practice their desired vocation...without change in lifestyle, these students are not going to be able to hack it even if they manage to get into med school."*⁶

Research appears to concur with this view and further suggest the impact of this on future practitioners. A review of the literature published in 2006 reported that:

*"The studies suggest a high prevalence of depression and anxiety among medical students, with levels of overall psychological distress consistently higher than in the general population and age-matched peers by the later years of training. Overall, the studies suggest psychological distress may be higher among female students."*⁷

Medical wards

Much of the art medicine is taught when students arrive for clinical training on the wards. The business of teaching medical students, as practised by some doctors on the wards, has been described as 'pimping'.⁸ In 'pimping' the established doctor asks about some medical fact; usually it is a series of questions, designed to test the bounds of knowledge. Related to the Socratic method it is meant to encourage growth and to keep students on their toes.⁹ Shame-based learning has traditionally been at the heart of medicine.

Here is an example provided by a junior doctor:⁸

*"The worst time ever was standing in the orthopaedic operating room, holding a retractor while we explored an ankle. The orthopedist asked me which structures ran behind the medial malleolus...I blanked. I feebly tried "well, there's a mnemonic for them." He encouraged me, patronisingly. It...took...20 minutes before it popped back into my head: "Tom, Dick, And Not Harry." "Uh hunh," he said, "and what are those structures?" I paused again. *Shit!* It came back to me a few minutes later. "Tibialis Posterior, Flexor Digitorum Longus, Posterior Tibial Artery, Posterior Tibial Nerve, Flexor Hallucis Longus." Frick. It was like pulling teeth. He was the dentist and I the poor patient with no analgesia."*



In practice most doctors learn the most about the art of healing after they leave medical school. The function of medical school is to make sure its graduates are 'safe', or at least knowingly unlikely to commit errors of omission or commission. Some perceive the status of the medical school to increase their prospects of being offered a particular postgraduate training rotation above their competitors. However many junior doctors present on their first day as a qualified doctor needing to consult a formulary before signing a prescription for the simplest medicines or having to ask for help when inserting a cannula or catheter.¹⁰

The reality is that much of what passes as medicine on the wards is form filling, administrata, some of it driven by protocols or whims rather than research evidence.¹¹ For example some patients hospitalised with infections were until relatively recently often prescribed intravenous (i.v.) antibiotics to be administered by a junior doctor with some doses administered at night. It was assumed that i.v. antibiotics were better than oral regimens.¹² Fine during the day when there are lots of doctors on duty, not so much at night when there is only a small team available. In fact night shifts, for so long a part of a doctor's life have come under particular scrutiny, not least because of the risk of iatrogenic disease when doctors are not allowed to rest.¹³

Life on the wards is punctuated by obligatory ward rounds. These rituals can consume an entire morning and require that the consultant is accompanied by a retinue of note taking minions.¹⁴ Medical students participate on 'firms', following their mentor on the ward and in the clinic, paying close attention even as their mentor makes small talk about hobbies or family. This behaviour has been reported in the literature.¹⁵

The top of the tree

The competition with peers that started in high school continues through medical school. Exam results are posted on public bill boards and the drive is to be at the top of the tree. Awards and prizes are conferred, often named after previous 'luminaries' at the school. That such awards rarely identify the most effective healers is a well-guarded secret. Nevertheless prize winners have their names embossed in gold on plaques or appear on perpetual trophies. Those who need time to assimilate facts introduced merely days ago, or do not have friends in previous years who know the examiners' foibles or

hobby horses risk humiliation. Students conditioned to think that their rank in school is a measure of their personal worth become depressed and isolated. The extent of depression and psychological distress among medical students is among the highest recorded in any group of undergraduate students.¹⁶ The four categories most commonly cited in answers to an open-ended question on recent stressful events were talking to psychiatric patients, effects on personal life, presenting cases, and dealing with death and suffering. Relationships with consultants raised the strongest negative feelings, with 102 (34%) students finding these particularly stressful.

Healers

In spite of this many doctors turn out normal, well-adjusted individuals. During their training some discover their sexuality, religiosity or politics. A few become cynical, some become ill and a few take their own lives.¹⁷ Most however will serve as humble generalists in their community or drop out of medicine to discover that their real passion is for cooking, writing, business or music. Many but not all who remain in the profession will go on to discover that the promised land of guaranteed job satisfaction does not exist at the other end of qualification. Until recently the majority of medical graduates ended up in the toughest speciality as GPs or family physicians.^{18,19} Patients will present to them with undifferentiated conditions. In a life time of clinical practice they will be expected to recognise when someone who appears relatively well needs urgent medical intervention. This ability to triage requires the most finely honed skill to respond to human distress, expressed in a myriad of ways, verbal and non-verbal.²⁰

Not all these skills are imparted at medical school. They are to be found in the interactions of the person who has lived a full life, has loved and lost, knows the human condition, has not spent his or her youth locked in a library or a sterile laboratory injecting rats in search of fame and fortune.

Conclusion

Medical schools must prepare future generations of healers. They must do so with reference to the catch



cry of medicine --- *primum non nocere*. Those who choose to enter this noble profession must do so with a sense of vocation and not simply to fulfil a parental dream or as a route to a secure and generous income.

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Not commissioned. Externally peer reviewed.

CONFLICTS OF INTEREST

The author declares that he has no competing interests.