

Who'd want to be a surgeon?

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Given the similar demands and expectations of surgeons throughout the world, it is surprising that the preparatory training should vary as much as it does among countries. But a problem common to several countries in the northern hemisphere is currently one of recruitment. In many European countries medical training is being profoundly influenced by legal statute, which dictates the length of the working day and indeed the working week.¹ This is having a significant impact on the exposure of the surgical trainee to clinical situations and presumably, therefore, affects training and in turn its popularity. Throughout North America, where there is little in the way of time restriction, the popularity of surgery is also on the wane, perhaps for that very reason — that time restrictions do not apply, and the resultant effect upon lifestyle is such that surgical recruitment in several specialties (including general surgery) is at an all-time low.²⁻³

In the UK the popularity of medicine among school leavers is on the decline,⁴ and within medicine the gender shift is such that with an increasing proportion of females in each class, recruitment to surgery (traditionally still a male-dominated bastion) is diminishing.

The number of early retirements among surgeons in North America and Europe is perhaps another indicator that surgery has lost its lustre and is no longer a magnet for the active, able-minded, and able-bodied individual that it once was.

At such times it is useful to reflect on the factors that influence the choice of career in medicine in general and surgery in particular. I am grateful to be given an opportunity to comment on some of the external pressures influencing the quality of surgical training, the quality of surgeons, and hence the care of surgical patients. I would like to acknowledge the Penman Foundation for its sponsorship and support of my visit to Cape Town and thank Professors Kahn and Rode and their colleagues for hosting me so graciously.

I am conscious that these international problems may appear somewhat irrelevant to South Africa in 2003, but they were similarly absent from Europe in 1990 and the USA in 1995. In which case they are not a function of geography but a product of society and time, and perhaps that time has still to arrive in South Africa.

I would like in this lecture to examine each milestone in surgical development and to identify some of the problems at each level in the hope that we can rid ourselves of the stigmas which appear to be deflecting the young away from a career in surgery; and perhaps even identify ways in which surgery could change to engage and excite young people into a specialty that is so rewarding in so many ways. These milestones will trace the path through medical school into basic and advanced surgical training. The challenges facing new consultants coming into practice will be reviewed and perhaps some remedies concocted to rid the job of some of its demons.

Medical school recruitment

The relative popularity of medicine as a career has diminished among British school leavers. Extrapolation of current trends suggests that within 2 years British medical schools will be competing for the same cohort of eligible applicants — a long cry from the halcyon days when medicine was a course for the elite and universities could afford to be selective in their admission policy. The number of school-leavers going on to a university education has soared in the UK, but the number choosing medicine has remained static. In contrast the number of medical school places and of medical schools themselves has increased significantly, producing a drop in the ratio of applicants per place from 3 - 4 with acceptable credentials 20 years ago, to less than 1 in the current year. There are of course many who would wish for such a career but do not have the academic credentials to match their ambition.⁴

Additionally, the proportion of females admitted to medical schools has risen from about 20% of each class to now around 70%. This has implications for the workforce in general, and if these women are required, or wish to combine domestic responsibilities with their professional duties (in a way that males seem to avoid), then this has serious implications for surgery, a specialty traditionally occupied by males.

The aspirations of those applicants reaching the portals of medical school appear unchanged on a year-to-year basis. The blend of idealism with the quest for active intervention in meeting disease are welcome attributes. The discrimination process during selection has become increasingly standardised to meet the claims of being unfair to a variety of societal and ethnic groupings. Indeed some medical schools factor the actual academic performance of an applicant by taking into account the educational opportunity afforded by his/her environment and offer a positive weighting to the application if that environment is seen to be adverse and the student has achieved in the face of such. Nonetheless there is clear correlation between school performance and success in a subsequent medical career,⁵ and academic credentials remain an important selection criterion. Motivation, insight, leadership skills and team-working ability are all explored through a large number of interviews carried out during the application process.

Undergraduate choices

And so into medical school; the degree itself (Bachelor of Medicine, and Bachelor of Surgery) suggests some form of apprenticeship model in surgery. But nothing could be further from the truth. Surgical contact time in the Scottish universities is brief and is part of an integrated approach to the understanding of disease and its treatment. As such there is no 'ring-fenced' block of lectures delivered by surgeons, although

clinical attachments to wards remain. Indeed, the preoccupation of academic medicine is perhaps more with research, which produces more fiscal benefits to the medical school, than with teaching. The surgeon, by the nature of his work sequestered much of the day in an operating theatre and therefore invisible to many of the students, may not prove to be a good role model — his gender is against him for 70% of the class! Add to that gender profile a strong work ethic and a lifestyle not entirely suited to domesticity, plus a loss of place at the academic top table, and perhaps one can see why the surgical reputation is suffering.

Recent publications from the USA point to a similar disaffection for surgical careers among graduating students. Vacancy factors of 25% are predicted to occur in the USA general surgery programmes by 2005.⁶ Perhaps with attrition rates of 20% per year among the residents and average working hours of 90 - 95 hours per week, with only 4 days off duty per month, it is not surprising that recruitment is poor; particularly in a generation where lifestyle and contact with friends and family assume a higher priority than in previous generations of trainees. 'Generation X' appears to want to work to live rather than live to work.⁷

In this climate of arduous work ethic with few role models it is no surprise that females remain in the minority of surgical residents (25%).

Basic surgical training

The UK still enjoys healthy competition in the basic training ranks but the large number of foreign graduates at this level perhaps masks the true nature of the hurdle needing to be cleared in order to reach advanced training. In spite of this, the ratio between basic surgical trainees applying and the higher trainee vacancies existing can be as high as 30:1, with the average time spent in basic surgical training being 6 years, twice the anticipated level of training. Until recently the successful candidate entering higher training would not only probably have good clinical experience and the obligate credentials of M.R.C.S. but was also likely to have a higher degree and research publications, and was, in reality, almost over-qualified for the job in hand. However, the prime concern facing the current generation of trainers and trainees alike is the erosion of skill created by political directives such as the New Deal and the European Working Time Directive.¹ These rulings, while laudable in their aim of protecting doctors from exhaustion from prolonged duty periods, have disrupted working patterns, prevent continuity of care, and dilute operative experience. As from August 2004, no doctor in training in the UK can work more than 58 hours per week; they must have at least 11 hours' continuous rest every 24 hours, 1 day off duty per week, at least 48 hours' rest every 2 weeks, have 4 weeks annual leave and work a maximum of 8 hours per 24 if on a night shift. Such conditions are hardly compatible with the repetitive exposure to clinical experience that has characterised previous training models. These working conditions are defended by alleging that tired doctors, albeit experienced, learn slowly, are prone to error and provide poorer care. Whether true or not, the number of operations now being performed by trainees working under such conditions is perilously low. A recent study carried out in Edinburgh showed that basic trainees in a 6-month period each carried out on average only 6 appendicectomies. Interestingly the trainer's impression was that many more such operations were being carried out per trainee — a significant mismatch between perception and reality.⁸

Perhaps, then, new strategies are required. The European legal directives are non-discretionary. They are statutory and hence obligatory. The onus is therefore on trainers to analyse

this problem and find new solutions. It is something of an indictment of surgical training that we know so little about the cognitive processes involved in surgery.⁹ Perhaps that is why we justify our trainees practising on humans. Musicians practise scales before progressing to concerts, cricketers practise at the nets before the test match, and golfers practise on the practice range, and yet surgeons attempt to acquire their skills at the operating table. If a better understanding existed of the way we learn, perhaps stimulation could occur during simulation so that the rehearsal process could take place in a more effective way.¹⁰

While the requisite qualities of a competent surgeon are identifiable, the blend and relative weighting is still highly subjective and the relative impact of attributes such as innate dexterity, personality traits, cognitive factors and academic credentials make variable contribution to the ultimate clinical ability of a surgeon. If we knew better the role of each, perhaps we could make better preparation in training.

Instead, we emphasise the function of volume and repetition, reinforcing the intuitive belief that if some cases are good for learning, more are better. This is perhaps true for learning but not necessarily so for clinical outcome, and indeed some learn faster and need fewer practice rounds in order to clear the competence hurdle.^{11,12}

Advanced/higher training

The strictures of shorter working times coincided in the UK with a change in training structure during the 1990s that prescribed higher training to a period of 72 months. The accelerated pace of training and the shorter week placed emphasis on the need to become competent faster and hence in all probability, in fewer spheres of surgery. Specialisation has therefore triumphed in this environment and the advantages of generalisation with transferable skills from one area to another have virtually disappeared.

Appraisal and assessment has become rigorous — rightly so — and perhaps an even more robust process of continuous or formative assessment will determine those who will be capable of success in the specialty board examinations that are now a part of our summative assessment during training. Moreover a maximum of three attempts at these board examinations makes it a very high stakes process at the end of a protracted training period and a huge effort is currently being invested in ensuring that the assessment is fair and reliable. Perhaps more is required to ensure a high-quality training programme for all.

Consultancy

Having survived the challenges of medical school entry, student life, basic and higher surgical training, one may have predicted a smooth journey through the next 25 years of consultancy. Apparently not so. Suspension of consultant surgeons and complaints to the standards authority in the UK are at an all-time high. A variety of demons bedevil consultancy. While our junior doctors are protected from overwork, the seniors are not — at least not yet. In 2008 consultants may be protected, since in that year European mandates may affect all workers, not only those in training.

The hostile media that exists in the UK seems to feast upon adverse medical events and these demons haunt surgeons. There is a notion that a rating figure can be applied to surgeons and we are therefore subject to league table ratings — at least the hospitals are. Accountability is, of course, crucial and public accountability is nothing to hide from, but the effects of the Bristol enquiry, Harold Shipman murders and Alder Hey organ retention events have cast a shadow over

doctors in general and surgeons in particular. These demons must be dispelled, but how do we do that? I suggest that we accept that there is much more to surgery than simply the technical operative exercise, that communication skills (now an examinable component of basic and advanced training) are crucial, and that the attributes of collaboration and teamwork are just as important as individualism, which was so often heralded as a prime surgical attribute. We would dispel these demons by demonstrating openly our worth and skills.

Appraisal and reappraisal are now essential, as is a lifelong learning agenda. We should be able to exhibit to others the qualities that allow us to have the privilege of caring for the children, parents, mothers, fathers and friends who are so dear to one another.

Exorcism of the demons surrounding surgery lies in our ability and need to blend individualism with collaboration, leadership with teamwork, flexibility with focus, and courage with humility.

Perhaps that challenge to human nature and behaviour is why many should want to be a surgeon.

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