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Medical Education

Student selection

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This is the second in a series of articles examining the problems in medical education and their possible solutions

Medicine is often seen as a difficult university subject to enter, with medical schools choosing only the cream of students from many eager applicants. Certainly many schools spend considerable time, effort, and money on their selection process, but are they really getting a good return on this investment? Do we get the sort of medical students and doctors that we want? Are we even clear about what we want? Does it matter, anyway?

What do we want?

If medicine was simply a degree course like any other there would be little need for elaborate selection processes. Minimum scholastic achievement could be defined before entry to ensure that students had a fair chance of keeping up with the course, but places could then be awarded by lottery.

Most people, however, see the medical course as a vocational training. Applicants are expected to make medicine their career. Candidates are asked "Why do you want to be a doctor?" not "Why do you want to study medicine?" This is in sharp contrast with other degree courses. We do not, for example, expect all graduates in English to write or teach for a living. Nor do we insist that graduates from other facilities should "repay" society by obtaining any employment, much less in a specified field. A spattering of students who

study medicine for its own sake might even enhance the educational climate in many of our medical schools.

If we assume, however, that medical education will continue, for now, to be about training doctors the selection process becomes one of choosing people who will make good doctors. This immediately raises the problem of defining a good doctor. Is there really an essential common core of knowledge, skills, and attitudes that all doctors should have? In a profession like medicine there may well be niches for all—regardless of their particular interests, skills, and weaknesses. Specific aptitudes are doubtless important in selecting people for specialist training, but their relevance at the undergraduate stage is much less obvious.

Is there an end product?

If we could clearly identify the aims of undergraduate medical education we could begin to decide how best to select medical students. The General Medical Council defines the principal objective of basic medical education as providing "the knowledge, skills and attitudes which will provide a firm basis for future vocational training."¹

The only immediate requirement is to produce a graduate who can function as a preregistration house officer. This should enable an essential core of factual knowledge and clinical skills to be defined that all doctors should have mastered by the end of the course. They will then have to embark on a protracted postgraduate education in their chosen specialty. All medical graduates should therefore have the skills to enable them to continue learning beyond university.

In recent years the trend has been for medical schools to select only the most academically gifted applicants, with standard offers of places often depending on acquiring three "A" grades at A level. This attitude is now changing, more schools acknowledging that people with only moderate academic achievement can cope well with the course and often have more to offer in terms of personal skills, attitudes, and experience. Dr John Foreman, subdean of University College and Middlesex School of Medicine, University College, London, recently explained the school's reasons for setting low minimum requirements for entry: "Our standard offer of C, C, C is the lowest in the country.... We strongly believe C, C, C reflects the level of academic ability needed to follow the course. It gives us the scope to admit people below the academic average for medicine,

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How many young people like these will apply to and be accepted by medical schools?

but who possess other qualities we deem to be more important."² Schools like Newcastle and University College and Middlesex School of Medicine now place more emphasis on personality and motivation in selecting students and have low minimum requirements for A level grades at entry (although in practice most of their entrants obtain grades well above the required minimum) (box 1).

Some schools select students whom they believe are particularly suited to the specific course on offer. McMaster University, in Ontario, Canada, has an unusual medical course based almost entirely on self directed learning in small tutorial groups. There are no formal examinations and students are expected to take on much of the responsibility for what they learn. McMaster has broad entry criteria, taking students who have much lower academic achievements than the norm for North American medical courses. The students also tend to be older than those in other schools. They are, however, carefully selected on the basis of their skills at directing their own learning and working in small groups (box 2).³ Although many of the entrants would have failed to obtain a place in other North American medical schools, they seem to cope as well as other students during the course and beyond.⁴⁻⁶

What should we look for?

We now accept that no doctor can learn all that there is to know about medicine and that medical facts go out of date quickly. The ability to identify gaps in one's own knowledge, seek out new information, assess it sensibly, and act on the new knowledge is more important than the ability to absorb vast amounts of factual information and perform well in tests of recall. Dr Chris McManus, from St Mary's Hospital, Paddington, who has conducted extensive research into how medical students learn, believes that learning styles are better predictors of university performance than are A level results. Certainly among medical students poor performance in examinations is hardly ever the result of low academic ability.⁷

Ideally we should be selecting medical students who have the attitudes and learning styles that will help them to continue lifelong education. Three main types of learning style have been identified.⁸ A shallow learner adopts rote learning and may perform well in tests of short term recall, but this style does not correlate well with deep understanding of a problem. A deep learner grasps the underlying concepts and understands the problem rather than memorising the

Box 2

Student selection at McMaster University, Hamilton, Ontario, Canada

Students are selected at McMaster on the basis of their performance during a simulated tutorial designed to test their skills at problem solving in small groups. The aim is to select students in a way that reflects the pattern of study in the school.³

- Applicants are allocated to tutorial groups of five or six, with a tutor for each group
- Each tutorial lasts about 45 minutes, during which group tackles two unstructured problems
- About half way through tutorial candidates are asked to summarise how well they think they are functioning in group
- A team of assessors observes tutorial through one way mirror and assesses how well each candidate performs within group

facts. A strategic learner uses features of both styles and adapts as required by the specific task. A deep learner will be better able than a shallow learner to cope with the ongoing demands of a subject like medicine. A strategic learner may also cope well.

Chris McManus has found that people can readily adopt shallow learning techniques, but that deep learning skills are much harder to acquire. In one study students who performed badly in end of term examinations quickly adopted shallow techniques in response to the pressures of the next exam. This led rapidly to a downwards spiral of achievement.⁷ Dr McManus thinks that an important response to this problem is to modify the examination format to reduce factual recall and encourage understanding of the underlying principles, but he also thinks that we should try to select students who have an established deep learning style. Admissions tutors might do better to select on the basis of psychometric testing rather than GCSE and A level grades.

Essentials of the selection process

Despite the time and money that many schools spend on their selection procedures the methods are, on the whole, amateurish and haphazard. Most schools rely on the good will of a few motivated members of staff to assist the dean in sorting out applications. Many schools select entirely on the basis of information provided on the UCCA (Universities' Central Council on Admissions) form. But even those that consider interviews to be important in identifying the traits most desirable in a medical student or doctor rarely train their staff in interviewing techniques. The small pool of volunteers for this difficult and time consuming task may allow some consistency of approach within each school, but it is no guarantee of excellence.

Dr Brian Jolly, of St Bartholomew's Hospital Medical School, London (which does have a written protocol to guide selectors), agrees that the system in many schools is haphazard but questions whether it would really be cost effective to undertake extensive training of those taking part. He thinks that there are so many and varied opportunities after graduation in medicine that selectors should not agonise too much about choosing the "right sort" of undergraduate.

There is, however, one essential feature of selection processes that all schools should monitor and enforce—the system must be fair.⁹ In 1987 the preliminary screening programme at St George's Hospital Medical School was discovered to be discriminating against female applicants and those with non-European sounding surnames.¹⁰⁻¹² The problem was identified only because the preliminary screening was being

Box 1

Student selection at Newcastle medical school

- All UCCA forms are screened to ensure minimum scholastic achievement on the basis of GCSE results and predicted A level grades
- Above threshold level, scholastic achievement plays no further part in selection process
- All students achieving threshold for scholastic achievement are graded 1 to 5 on other aspects of their applications. Attention is paid to excellence outside academic life, community service, social activities, etc
- All applicants scoring 5 and some of those scoring 4 are invited for interview
- During interview academic ability is taken for granted
- Attention is again directed to other aspects of candidate's personality and interests
- Awareness of special features of Newcastle curriculum and evidence of genuine interest in innovative curricula (based on other courses listed on UCCA form) carry considerable weight

computerised, and similar covert discrimination was undoubtedly common in other schools. The resulting outcry led to the introduction of ethnic monitoring of applicants and entrants to medical schools.¹³ This ensures that racial discrimination does not happen once people have applied for medical school, but a more difficult problem is ensuring that there is no discrimination by default, with people from ethnic minorities failing to apply at all. Across Britain students from Asian backgrounds are now over-represented in proportion to their numbers in the community, and Chris McManus thinks that this reflects a general trend for Asian families to encourage their children to obtain portable professional qualifications. There is still, however, a dearth of applicants to British medical schools from African and Caribbean backgrounds and no sign of attempts to tackle the problem.

Nor is race the only area for possible discrimination. We may now have almost equal numbers of male and female medical students in Britain, but we have been less successful in ensuring a mix of social class backgrounds. The social class mix of British medical students has changed little in the past 30 years, and the latest figures available from UCCA confirm that 31% of applicants and 38% of acceptances in 1991 came from professional families (the corresponding figures for skilled manual workers and unskilled workers being 8% and 7% and 0.7% and 0.4% respectively). Recent trends like the student loan scheme and the recession will further discourage applicants from poorer backgrounds.

Another area of potential discrimination is the age of the applicant. Despite the fact that mature students cope well with the medical course and are often thought to have a stabilising influence on the younger students, most medical schools actively discriminate against the oldest applicants—usually on the basis of the length of the postgraduate training for doctors. Universities have no real justification for basing decisions on an applicant's hypothesised subsequent career, and Chris McManus suggests that in some countries with better established antidiscrimination laws, such as the United States, the legality of such an approach could be challenged effectively through the courts.

The rationing myth

Most medical schools assume that their selection process serves an important rationing function, ensuring that only the best of the vast number of eager applicants gain places. Although individual schools may receive 10 or more applications for each place, the number of people applying to study medicine is falling despite an overall trend for more people to enter tertiary education. UCCA data confirm that applications for places at British medical schools fell by 2.7% between 1985 and 1991, while the total number of applicants for all university places rose by 29.8%. Although no formal studies have investigated the reasons, many people I have spoken to suggest that the public image of medicine as a career has taken a severe knocking in recent years with publicity about the

long hours of work, a fall in doctors' salaries relative to other professions, and studies showing high levels of dissatisfaction among medical students and young doctors.¹⁴⁻¹⁶

Once allowance is made for the multiple applications permitted on the UCCA form there are actually only two applicants for each place on a medical course in British universities. The selection process is becoming as much a case of students choosing schools as schools selecting students. Dr Reg Jordan, the academic subdean at Newcastle, recognises this. "We want to offer places to students who really want to be here." He sees that as particularly important, given that Newcastle has an unusual course with considerable integration between the basic and clinical sciences and large elements of self directed learning. If as a result of recent moves by the GMC¹⁷ schools become more diverse in the content and style of their courses this element of students choosing schools may become even more pronounced.

Conclusion

Despite the time and money invested in selecting students for medical schools the systems are unlikely to identify those most suited to recent changes in medicine. More effort should be directed to selecting for desired learning styles and less emphasis placed on academic success at school. Any system must be fair, and in particular we need to find ways of encouraging applicants from all social classes and ethnic groups. Given the small and dwindling pool of applicants to medical schools, we should be realistic about how influential the selection process can be in shaping the final product. If this is to change we must encourage more applicants by reversing recent negative images of medicine as a career.

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