3. Requirements for entry

Entry to medical school is academically the most competitive moment in the student's life. However, becoming a doctor requires many more qualities than brain power, including compassion, endurance, determination, communication skills, enthusiasm, intellectual curiosity, balance, adaptability, integrity and a sense of humour. All these are highly desirable attributes but not absolute "requirements" for entry to medicine: few have them all but a remarkable number of applicants have many.

Academic ability is an essential requirement for entry, and the ability to pass examinations remains important throughout the course and the subsequent years of postgraduate training. Less competitive than A levels, but no less intense, were the traditional end of first and second year examinations on the sciences underpinning medicine. New curriculums that emphasise understanding and integration of knowledge rather than "facts" are tested more by continuous assessment, a less destructive process than a series of annual crises but not without a constantly recurring academic tension. Professionally, the hardest exams are those for the higher specialist diplomas of fellowship or membership of the medical Royal Colleges, requiring a broad and solid grasp of the clinical skills, knowledge, and, to an increasing extent, the attitudes appropriate to a specialist. "Finals"—the examinations for the Bachelor of Medicine and Surgery degree, the degree which acts as the basis for a provisional licence to practise as a doctor, are largely a matter of hard slog, particularly in the later years. They used to be taken as a big bang at the end of the course but are now broken up at most universities over a period of about 18 months.

Broader requirements

Although all doctors need to be bright (not less perhaps than what it takes to get three B grades at A level at first attempt), medicine needs a great deal more than academic ability. With the headlong advance of science and technology, it is no longer true to say that "the A level requirements select people too academic for a career which needs compassion, endurance, and a damn good memory rather than brains", but those qualities certainly are still needed. Compassion is easier to detect in someone who has already shown practical concern for others, perhaps in voluntary, social, or medically related work (such as helping with remedial teaching of younger and less able pupils

at school or working in a local hospital or nursing home on one's own initiative rather than simply as a requirement for voluntary work at school). It impresses most admissions tutors to see applicants whom, in their UCAS form personal statements, can show a longer commitment to such work than the odd day here or there, or perhaps a week of work experience organised by school, as most applicants will have done this. This element of past experience often forms popular subject matter for any interview panel, so make sure you have something interesting to say about it and how it has informed your decision to study medicine. The ability to communicate well, to work in a team with a confident but not arrogant manner, and to be prepared as need arises to lead and take responsibility is important too. A sense of humour sprinkles oil on the wheels of communication.

Endurance, determination, and perseverance are part of the same package. They feed on dual enthusiasm for science and for the healing art

of medicine. They are inspired by curiosity and enriched by sparks of initiative and originality. Lord Moran (Dean of St Mary's and Winston Churchill's doctor) once said, "The student who is not curious is surely no student at all; he is already old, and his thoughts are borrowed thoughts."

Becoming a doctor is not as formidable as it sounds, given good friends, teachers, and opportunities to learn, but it requires solid organisation of time and life and being self propelled. Desirable characteristics for medicine

do not end here. Balance is needed, balance which comes from an intellectual and personal life broader and deeper than academic success alone. Professor David Greenfield, first Dean of the University of Nottingham Medical School, referred to "balance of scientific and clinical excellence, humanitarian and compassionate concern … balance of service and learning, balance of current competence and future adaptability". Other interests—literary, musical, artistic, and sporting—encourage achievement, provide recreation, and demand application, enthusiasm, and ability. They can become great stabilisers and good points of communication with both colleagues and patients. For a female accident and emergency consultant to also be the medical officer for a well known football club (not that she is a great player) is good for her and for her hospital.

Then there is the invaluable down to earth ability to organise and to cope; a capable pair of hands and a reassuring attitude of "leave it to me and I'll sort it out", taking huge weights off shoulders and loads off minds. Sir George Pickering, onetime Regius Professor of Medicine at Oxford, wrote, "Medicine is in some ways the most personal and responsible profession: the patient entrusts his life and wellbeing to his doctor. Thus, the character and personality of the doctor, his sympathy and understanding, his sense of responsibility, his selflessness are as important as his scientific and technical knowledge." He also pointed out that a doctor neither needs to nor should try to sort out every problem him or herself: "the best doctors know to whom to turn for help".

Many medical schools, when asked which qualities they regarded as most important in applicants to medicine, highlighted the desirability of a realistic understanding of what is demanded in the study of medicine and in the subsequent career. Without this embryo insight many years of unhappiness may lie ahead, however bright and however gifted the student. Failure to understand the demands of the job and the limitations of the art may explain why some doctors drop out of medicine.

Applicants from medical backgrounds have an advantage in this respect. They have seen the effects of the career on their parents and families and have had the opportunity to explore what their parent or parents do; they also have relatively easy access to observing other medical specialties. All the more regrettable if they have not taken this opportunity to find out what it's all about. For others, it is much more difficult. Most TV medical programmes glamorise and trivialise and give little insight into the everyday undramatic life of a doctor. The BBC TV series *Doctors To Be* and *Doctors At Large*, following students through their years at St Mary's, and now for ten years into their careers, are an exception and offer useful insights, even if the structure of the course itself has now changed. The rather embattled and disillusioned group of new doctors at the end of the series has now been balanced by glimpses of where they are now, ten years on, and reveals that they feel that it has all been worth while. Because this is one of the most fundamental aspects of making an informed personal decision *Learning Medicine* puts less emphasis on the years in medical school and more on where they lead.

Personal health requirements and disability

A doctor's overriding responsibility is the safety and well-being of patients. As such all applicants to medical school must have the potential to function as a fully competent doctor and fulfil the rigorous demands of professional fitness to practice as stated by the General Medical Council. All applicants must therefore disclose any disabilities or medical conditions on the application form as they may affect the ability to practise medicine. This may be by placing patients at risk of infection, being unable to perform necessary medical procedures, or by impairing your judgment. Similarly applicants must also complete a declaration that they have no criminal convictions or pending prosecutions, in line with national policies for staff working in sensitive roles. In most circumstances a declaration does not automatically disqualify an applicant but will allow the case to be decided on its own merits.

The UK Department of Health has requirements for specific conditions, which means that a student cannot be admitted with active tuberculosis or if infectious with hepatitis B, until they can be proven to be no longer infectious. In the case of hepatitis B, all prospective students must show proof of adequate immunisation before commencing the course. You will be asked for documentary proof when you arrive at medical school. Your own GP can usually arrange for hepatitis B immunisation to be carried out. The course and testing for a satisfactory response can take up to nine months, so you should discuss this with your GP at the earliest opportunity. If there is a failure to respond to the immunisation a student will be expected to prove that they are not infectious. In these rare circumstances, or where a student tests positive for any of the hepatitis B antigens, they should discuss this with their GP and the admissions tutor of their preferred school, as soon as possible.

There is no clear national policy as yet about candidates who are known to be hepatitis C positive. However, this must be declared on the UCAS form, and individual schools will advise in this rare instance. In any event, failure to disclose any condition that puts patients at risk will result in immediate dismissal from medical school.

All students are advised to be immunised against meningococcal meningitis before starting at university.

Any disability should also be disclosed and will be dealt with by the schools on a case by case basis. Dyslexia should also be disclosed on the UCAS form and this will need to be supported by a formal statement from a suitably qualified psychologist. Most medical schools will advise relevant departments of the assistance which may be necessary for students with dyslexia and will make some time allowances in written examinations, but no concessions are made in clinical examinations.

Taking illegal drugs or abusing alcohol are also inconsistent with a doctor's professional responsibilities, both on patient safety grounds and the need for personal integrity. Students who ignore their responsibilities to

be utterly dependable in this regard put their place in medical school in severe jeopardy.

Academic requirements

Although academic achievement is only the qualifying standard for entering the real field of selection, like the Olympic qualifying standard is to selection for the national team, it is overwhelmingly the strongest element in selection. Unlike all the other desirable attributes of personality, attitude, and interest examination results look deceptively objective. Relatively objective they may be but they are still poor indicators of the potential to become "a good doctor"—a product difficult to define, not least because medicine is such a wide career that there may be many different sorts of good doctors—but they all need the appropriate knowledge, skills, and attitudes for effective medical practice and the ability to use them competently.

Examination results at the age of 18 do not predict late developers nor do they take account of differences in educational opportunity at school nor of support for study at home. Results may also be upset by ill health on the day; even minor illness or discomfort crucially timed may take the gloss off the performance, a gloss which may make all the difference between a place at medical school and no place at all. Having said that, however, those who fail during the medical course are generally those with the poorest A level results, and those who do best, especially in the early years with their greater scientific content, are generally those with the highest. But there are outstanding exceptions.

All medical schools set a minimum standard of at least ABB at A level (Table 3.1). The actual achievement of entrants is very similar at all universities whatever their target requirements, except Oxford and Cambridge, where they are higher. Medical schools which set marginally lower grades leave themselves the flexibility to make allowances for special situations and to give due weight to outstanding non-academic attributes. Most successful applicants to medical schools setting a lower minimum substantially exceed their requirements. It is vital to realise that good grades do not guarantee a place: far more applicants achieve the necessary grades than can be given a place.

Chemistry or physical science is required by all universities for medicine. They prefer this at A level, but practically all of the medical schools in the United Kingdom are prepared to accept AS chemistry in place of A level. Most are prepared to accept a combination of AS levels in place of another science or maths A level. In practice AS levels are normally offered in addition to three A levels and not in substitution for one. The detailed requirements can be found in the UCAS *Students Guide to Entry to Medicine* and should if in doubt be double checked with the medical school in question. Many universities prefer two other science subjects at A level,

Table 3.1—Typical grades required at first attempt for entry to medicine excluding premedical, 1st MB, courses

Medical school	Grades
Birmingham	AAB
Brighton & Sussex	ABB
Bristol	AAB
Cambridge	AAA
East Anglia	AAB
Hull–York	ABB
Leeds	AAB
Leicester–Warwick	AAB
Liverpool	ABB
Imperial College, London	ABB
King's College, London (Guys, King's, St Thomas')	ABB
Queen Mary's, London (Bart's & Royal London)	ABB
St George's London	ABB
University College, London (Royal Free & University College)	ABB
Manchester	AAB
Newcastle	AAB
Nottingham	AAB
Oxford	AAA
Peninsula	AAB
Sheffield	ABB
Southampton	AAB
Aberdeen	ABB
Dundee	ABB
Edinburgh	AAB
Glasgow	AAB
St Andrew's	ABB
University of Wales College of Medicine, Cardiff	AAB
Queen's University, Belfast	AAB

All medical schools are prepared to accept one and sometimes more than one non-science or maths A level.

See medical school prospectuses or websites for more details if non A level entrance qualifications will be offered.

taken from the group of physics (unless physical science is offered), biology, and mathematics, but all are prepared to accept a good grade in an arts subject in place of one, or in some medical schools, two science subjects. Some medical schools do not accept maths and higher maths together as two of the required three A level subjects. General studies A level is generally not acceptable as one of the subjects.

No particular non-science subjects are favoured but knowledge based rather than practical skills based subjects are generally preferred. It may be difficult to compare grades in arts and science subjects, so a higher target may be set for an arts subject for entry to medicine. Several universities express a preference for biology over physics or maths. Chemistry and biology are the foundations of medical science, especially if the mathematical aspects of those subjects are included. But however useful it is to be numerate in medicine, especially in research, students without a

good knowledge of biology find themselves handicapped at least in the first year of the course by their lack of understanding of cell and organ function and its terminology. They also generally have greater difficulty in expressing themselves in writing, especially if their first language is not English. Failure in the first two years of the medical course is more common in those who did not take biology at A level. All universities require good grades in science and mathematics at GCSE level if not offered at A level, together with English language.

The relative popularity with applicants of mathematics over biology does not indicate changed perception of the value of mathematics for medicine but reflects the general usefulness of maths for entry to alternative science courses. It may also be because good mathematicians (or average mathematicians with good teachers) can expect higher grades in mathematics than in the more descriptive subject of biology. A few applicants gain excellent grades at A level in four subjects—for example, chemistry, physics, biology, and mathematics or the less appropriate combination for medicine of chemistry, physics or biology, mathematics, and higher mathematics. It is a better strategy for admission to achieve three good grades than four indifferent ones.

Scottish Highers are the usual entry qualification offered by Scottish applicants, most of whom apply to study at Scottish medical schools. Scottish qualifications are accepted by medical schools in England, Wales, and Northern Ireland. Most have hitherto required a good pass in the certificate of sixth year studies (CSYS), but with the introduction of new Scottish Highers and Advanced Highers the CSYS has disappeared. The Scottish academic tests are accompanied by formal testing of core study skills needed for understanding a university course: personal effectiveness and problem solving, communication, numeracy, and information technology.

Both the International Baccalaureate and the European Baccalaureate are acceptable entry qualifications at United Kingdom medical schools but only a handful of entrants come by that route. Requirements vary at different schools and can be found in the UCAS publication. Even fewer students enter medicine with BTEC/SCOT BTEC National Diploma Certificate but it is a possible route of entry. The Advanced General National Vocational Qualification (GNVQ) or General Scottish Vocational Qualification (GSVQ) are not generally accepted, although some universities are prepared to consider it on an individual basis. It is likely that a distinction would be required, along with a high grade in GCE A level, probably in chemistry. Over half the medical schools in the UK will accept as an entry qualification the Access to Medicine Certificate from the College of West Anglia in King's Lynn (www.col-westanglia.ac.uk). This is a one year full time course in physics, chemistry, and biology designed for potential applicants to medical schools with good academic backgrounds or professional qualifications, such as in nursing.

Graduate students

Most medical schools will accept applications from graduates for the conventional course. A first or upper second class honours degree is usually required, most commonly in a science or health related subject. Unless their degree includes chemistry or biochemistry, an A level in chemistry is usually required in addition. It may be acceptable for a graduate to sit the GAMSAT (Graduate Australian Medical School Admissions Test), a scientific aptitude test which is usually held once a year, for example at St George's Hospital Medical School. A good score in this, in addition to their degree and personal characteristics may be acceptable. Students wishing to pursue this method of entry are best advised to contact their preferred schools early to discuss this option. In addition a growing number of medical schools have started—or are planning to introduce—shortened (four year) medical courses for some graduates (see page 40). These courses generally condense the early years and basic science component of the course. Similarly those schools with six year courses that include an intercalated BSc or equivalent, such as Oxford, Imperial College, and Royal Free and University College Medical School are introducing shorter (five year) courses if you already have a similar degree. If the degree includes chemistry or biochemistry, it may be accepted in lieu of A level chemistry, otherwise this is likely to be required in addition. Graduate entrants are not normally exempted from any parts of the medical course at most medical schools but they are in some.

How about resits?

What about those who take longer before a first attempt or retake examinations after further study, having failed to achieve their grade target at first attempt? Clearly, there are perfectly understandable reasons for poor performance at first attempt, such as illness, bereavement, and multiple change of school, which most medical schools are prepared to take into account, at least if they had judged the candidate worthy of an offer in the first place. Medical schools which did not give an offer first time round are unlikely to make an offer at second attempt. Apart from these exceptions, most medical schools are not normally prepared to consider applicants who failed to obtain high grades at first attempt.

Three points might be made about applicants who, for no good reason, perform below target at first attempt. Firstly, a modest polishing of grades confers little additional useful knowledge and gives no promise of improved potential for further development, especially when only one or two subjects are retaken. The less there is to do the better it should be done, and the medical course itself requires the ability to keep several subjects on the boil simultaneously. On the other hand, a dramatic improvement (unless

achieved by highly professional cramming) may indicate late development or reveal desirable and necessary qualities of determination and application. Secondly, age should be taken into account. The usual age for taking A level is 18, and some much younger applicants may simply have been taken through school too fast. Thirdly, those unlikely to achieve ABB at GCE A level (or equivalent) at first attempt are probably unwise to be thinking of medicine, unless their non-academic credentials are very strong indeed. Even then, it is likely to be an uphill battle. Read the prospectus carefully between the lines to try to discover those medical schools most likely to give weight to broader achievements.

Survival ability

So much for what we think medical schools are, or should be, looking for. But what qualities are needed for survival? We asked Susan Spindler, producer of *Doctors To Be*, what in her opinion, based on several years in medical school and hospital making the TV series, makes a good medical student. This is what she said:

> Medical school is very hard work and great fun. There will be a vast array of things to do in your free time coupled with a syllabus that could have you working day and night for years. You need to be the sort of person who can keep both opportunities and work requirements in perspective. There is a lot of drinking and a lot of sport. In many universities the burden of the curriculum and the emotional pressure of the course means that medics tend to stick together and intense, but rather narrow, friendships can result. Try to make and maintain friendships with non-medics. Many medical schools aim to select gregarious, confident characters who have experience of facing and overcoming challenges and leading others. It certainly helps if you fit this mould—but there are many successful exceptions. You'll get the most out of medical school if you are impelled by some sort of desire to help others and blessed with boundless curiosity. You'll need the maturity and memory to handle a large volume of sometimes tedious learning; the ability to get on with people from all walks of life and a genuine interest in them; and sufficient humility to cope cheerfully with being at the bottom of the medical hierarchy for five years. It helps if you are good at forging strong and sustaining friendships—you'll need them when times get hard—and if you have some sort of moral and ethical value system that enables you to cope with the accelerated experience of life's extremes (birth, death, pain, suicide, suffering) that you will get during medical school.

REMEMBER

- Academic ability is not the only quality needed to secure a place at medical school.
- Broader attributes, such as compassion, endurance, determination, communication skills, enthusiasm, intellectual curiosity, balance, adaptability, integrity and a sense of humour are also needed.
- There are national guidelines regarding health and personal requirements to which all applicants must adhere. Failure to disclose information which may put patients at risk will result in losing a place at medical school.
- UK universities require ABB or higher at A level at first attempt, but this alone does not guarantee admission.
- A level chemistry (or physical science) is normally required but practically all of the medical schools will accept AS chemistry in its place. Biology is becoming the next preferred subject. All medical schools will accept at least one non-science A level.
- Scottish Highers and European/International Baccalaureate examinations are accepted at UK universities.
- Entry requirements for graduate applicants are more flexible, and options exist for some graduates to apply for shortened courses in some schools.
- Applicants who are resitting A levels will usually only be considered in special circumstances and should expect to be given higher entry requirements.