

*Guide to
Medical Science*

General Introduction

A new century dawns and a pause for reflection over even the last fifty years will highlight some amazing developments and discoveries. Pioneering research, innovative surgical techniques, and a global focus on health have made this an exciting time to study or work in any one of the many fields that comprise the medical sciences. It is a community drawn together with one overriding objective, to understand disease and prolong life. Technological developments have revolutionized the treatment of illnesses that have eluded us for so long. We are able to control with a fusion of drugs and other non-invasive methods many diseases that were only recently beyond our grasp or understanding. Keyhole surgery is taking on a whole new meaning with some of the space age techniques coming out of NASA. Whilst for every success story we can easily observe those areas still lacking, at least we know the pace at which scientists are collaborating worldwide is accelerating daily.

What does it take to contribute to this movement? Do you enjoy problem solving; are you naturally inquisitive and enthralled by documentaries that outline in microscopic detail current exploration and trends? Do you avidly follow the headlines relating to controversial medical issues? Do you have heated discussion with your friends (or parents and teachers) regarding genetic engineering or moral and ethical issues? Don't worry you don't have to score points, but you will simply be facing the reality and knowledge that you have a natural affinity with the sciences.

New world order is creating countless opportunities that rely on a lifetime of learning. The satisfaction of intellectual curiosity together with a thirst for scientific advances procures yet further career opportunities and goals. The maxim of one life one career is no longer the dominant force in our working lives. Change of path two or three times is now conceivable, enabling us to have more than one career in our lifetime. At Duff Miller College each year we see many students who aspire to contribute and be a part of this scientific community, but are not sure of what, how or where to study. The choice is plentiful and surprisingly not as difficult at it may at first seem. Our experience simply shows that with an appropriate level of guidance and focus each student can make choices, plan ahead and deter obstacles. The aim of the pages that follow is to create a starting point for discussion, exploration and information gathering, or simply to reinforce your own thinking and desires.

The Medical Sciences

What Are They?

Medical advancement and the growth of the biotechnology industry are ever increasing the breadth of disciplines that comprise the medical sciences. A more holistic and preventative approach towards health, and a more enlightened use of artificial intelligence has created a new breed of scientist. The map of exploration has extended its parameters and hitherto unknown territory is now in the lap of science.

The following are just some of the sectors that are open to you:

Anatomy, Animal Sciences, Biological Sciences, Dentistry, Genetics, Medical Science, Medicine Microbiology, Nursing, Occupational Therapy, Optometry, Orthoptics, Osteopathy, Pharmacy and Pharmacology, Physiology, Physiotherapy, Radiography, Veterinary Science.

Each of the above offers scope in the type of career path that will be open to you. There will be many natural links between them, and a number of universities integrate study in the early stages where boundaries are eradicated through the necessity for common knowledge. This is very much in line with the current practice where health professionals work closely together in treating the whole rather than just focusing on a particular ailment. The biotechnology sector has undergone major resurgence in recent years and the pace at which developments take place within neuroscience continues to flourish. The progress in medical software production is apace with other areas and exceeding all expectations. Whilst being at the centre of controversy the leaps made in genetic engineering illustrate the nature of science today.

The above can seem daunting if you are drawn to any one of the sciences but are not sure of your long term career aims. A fundamental premise of the Duff Miller College Medical Sciences programme is to foster independence of thought, to nurture students who are knowledgeable and caring, and understand broadly the place of science in society. We will show you how to enhance your existing study skills, introduce you to new approaches, techniques and methods. These will serve to make understanding easier, learning more pleasurable, and will stay with you throughout your medical or scientific training.

Making the Choice?

In many respects the choices although vast will be much easier than at first anticipated. The desire to study medicine or dentistry, for example, will have been prevalent at an early age for many. Your dedication in pursuit of these goals will have been reflected in the subjects, work experience and other activities that you have undertaken.

If the study of a scientific area beckons, but which one remains a mystery, our experience shows the following guidelines will make the path easier. Some will necessitate greater use of data, others will require a more pragmatic and lateral approach. It's really like a game of Trivial Pursuits, the answer is there it's just isolating it!

If you,

Are taking your GCSEs, planning to take science/s at A level, then spend time and think carefully and cleverly about your choice. Make sure that you understand what the subject entails; how much practical work does it encompass; how much is mathematically or statistically based; which subject/s will give you an all round preparation for science in general. If you have been studying combined science, list particular interests and any difficulties. Subjects which you may have spent more time on, and which areas you race through for the sake of necessity.

Are taking A levels that are science based, you will need to ensure that you are quite objective in decision making. Analyse each subject individually, what has been the highlight of the course (to date) for you and why; apart from subject knowledge what else have you gained; how much do you read around the subject (not just the prescribed texts); which aspects of the subject are you eager to really know more about and would happily discuss outside class.

Are taking humanities and/or arts based A levels in association with a science, possibly at AS, and discover an overwhelming interest and desire to study a scientific discipline at university. Make sure that you know exactly why you want to take this path. Be quite precise and write down reasons for the choice; what have you done to point you in this direction; what are the reasons against (if any); to what extent is your interest absorbed in your everyday life. If the conclusion is to shift direction then you can consider foundation courses, pre-medical course in preparation for medicine, or take a one-year A level course where relevant subjects can be studied on a consolidated programme.

Academic Background

A few pointers at this stage are crucial. Whilst admissions tutors are unanimous in the belief that academic grades alone are not the sole determinants for selection, they are critical and form the basis of any application that you make. Bear in mind the following:

- * GCSE grades are significant, and if you are intending to study areas such as medicine you will need a good clustering of A and A* grades. They are also important as research shows direct correlation between grades achieved and performance at degree level. The breadth of your subject choice at this level will indicate a propensity for multi tasking, information gathering and research, and discipline in study. The wider the range the greater depth it adds to your character.

- * Be certain that you have chosen an A level combination that will meet the requirements for your chosen career route, or if undecided try to keep your options open. Remember study at this level is specialist and requires real interest. Talk to fellow pupils who have studied the same subject, find out what skills set the subject equips you with. You may be surprised to find that a far wider range of options will be open to you than perhaps you initially envisaged. Employers are not just looking for specialist knowledge. Many successful careers are reliant, and built, on a blend of intellectual and attitudinal skills.

- * The movement away from choosing from Biology, Chemistry, Physics and Mathematics for science or medically inclined courses opens many many possibilities with regard to A level combinations. You may find that timetable or other restrictions make your preferred subject choice an impossibility. If, for any reason, you find that you do not have the desired science subject for the degree course you wish to pursue, there are options open to you. There are a number of post A level one year Foundation and Access courses which will cover the basic scientific fundamentals necessary to embark on the degree. Another option is to study for the necessary A level subjects over a one year period. At Duff Miller College we see a few students each year - particularly those who wish to study medicine, dentistry or physiotherapy - who will do just that. It is essential that you are properly advised to ascertain that this is the right route for you, and that you are following the appropriate, and realistic, subject choice

What are the Career Options?

The career options are many and quite distinctly varied. The more commonly known are of course medicine, dentistry, pharmacy and veterinary science. But, there are numerous other routes where a combination of scientific knowledge and skill can be expressed in association with a more artistic, business or sociological endeavor.

You may have a fascination with the human body or mind but this may not automatically lead you to study medicine. Becoming an Anatomist or Physiologist would enable you to study to the depth that you desire. You may have an inclination towards curing, and if this is what drives you, then a career as a Pharmacologist would be worth heavy consideration.

The extent to which you enjoy communicating with others, researching, tackling problems and are tenacious in your search for a result, will be key influences in the career that you opt for. Ultimately what do you want to spend your time doing both at university and, more significantly, when you face the challenges of everyday working life? Many scientists will study aspects of disease and contribute towards major revelations without having any medical qualifications. So, even though the interest and fascination with disease may become your focus it does not mean that you need to study medicine.

Ultimately you can choose to be a practitioner in the field that you have qualified in, or possibly research or teach. As your degree comes to its end it is always a useful exercise to take some time out to assess the strengths and interests that you are leaving with. Observations may conclude that you love the subject but equally you derive great pleasure through communication and expression, and/or that you would thrive in a dynamic business environment. Doctors with appropriate talents have become lawyers, writers, politicians or built successful careers in business and industry.

Perhaps you could look at careers in medical or scientific journalism, marketing and product development. For example, you could have completed a degree in pharmacy and chosen not to practice. Instead you could use this highly specialist knowledge working as a copywriter for an advertising agency, where a scientific understanding is essential to put the message across accurately and effectively. The European Union will always provide ample opportunities for those who have a high level of technical expertise coupled with linguistic capability.

Useful Pointers

Lifelong Learning

The expansion in the biotechnology sector during the last decade highlights how frequently mini revolutions take place in scientific research and development. Your degree is the nucleus and provides the foundation for the volume of knowledge that you will accrue over the years. Continuing to accumulate information and knowledge should be rewarding and pleasurable, not arduous and tiresome. By the time a student has entered the A level phase of study they will have started formulating study skills that are working for them. Our experience has shown that those students who thrive in the acquisition of new skills and approaches are the ones who regularly achieve their potential. Building upon and using the following skills will equip you with a set of tools that will enable you to continue to discover and accumulate new information.

Analytical thinking; Problem solving; Accelerating the pace at which you read, taking notes and learning; Keeping the motivation going; Memorizing data and Images.

Flexibility in thought, respect for the contribution others make, and a lifelong commitment to exploration and discovery will yield endless results. Awareness of, and commitment to, lifelong learning is integral to successful professionals working in a sector which, by its nature, relies on advancement in achieving success.

Research

Keep a file of cuttings and information that you have built up. Once you have clarified which areas are of particular interest to you, whether drug, disease or development related, track the progress and keep the evidence and information you have collated. Remember to watch documentaries, read health and science sections in newspapers such as The Guardian, The Independent and The Times, journals such as New Scientist, and weekend papers Surf the internet.

In Pursuit of Medicine

Introduction

Occasional glamour interspersed with heroic acts may be the television version of medicine, but the reality tells a very different story. Yes there are many daily occurrences where lives are being saved, fatal diseases stopped in their tracks, through clever diagnosis and speed of thought. In spite of this, emphasis must be placed on the length of medical training, on the fact that it is emotionally and physically demanding. Notwithstanding this, finance also plays a vital part. Continual flux in the NHS, promise or threat of reforms, and an ever increasing uncertainty over working conditions and resources, are just some of the testing times facing doctors today.

If the above is more in line with the gloom and doom of 'Casualty' then why is it still extraordinarily competitive to gain a place in medical school? In spite of the fact that the going is tough an injection of the positive is appropriate. The study of medicine is still one of the most fascinating interchanges of scientific advances and the ever evolving human nature. Rarely does a profession expect one to engage in continual development and make a difference to the lives of many. A real understanding of what is needed and what lies ahead is rudimentary in order to avoid the pitfalls and face unnecessary heartaches.

Doctors today find that they are more likely to confront issues that can have deep moral and ethical implications. Making judgments and decisions that affect the quality of life and death is integral to the oath each doctor takes on completion of their training. Does a patient have the right to decide when their life ends, or should they be forced to continue living in discomfort and the knowledge that there is no cure? Consider the case of Annie Lindsell who suffered from Motor Neurone disease. Ms Lindsell went to court to seek a ruling that would allow her GP to give her enough diamorphine to relieve her distress when the time came. The judge ruled that the GP's action would not be illegal. Health authorities have been in the limelight in recent years in connection with the right to treatment. A case to hit the headlines was that of a child refused further more expensive treatment for leukaemia as its usefulness was uncertain. The child's father appealed for public support and through charitable donations the treatment was administered privately. Sadly the treatment did not work.

The Person

As an aspiring medical student you will face critical appraisal almost immediately you declare your intent to study medicine. You will be assessed on your character, your academic capabilities, your personality and your nervous disposition. Expectations of doctors are greater than ever. Whilst scientific knowledge and ability are crucial to the understanding of health and disease, a successful medical practitioner must also possess excellent communication skills. A self directional approach and the ability to multi-task needs to be evident at an early stage to show potential to cope with the profession's demands. These are some of the attributes and personal qualities that you will need:

An empathetic, approachable and caring nature

Energy, stamina, enthusiasm and a positive approach

Determination, perseverance and a sense of service

Curiosity in the exploration of science and thought

Responsibility and a sense of how to work with others.

Problem solving and solution finding

The ability and confidence to overcome challenges

A team player

A willingness to learn at all times

As a scientist facing the early years of medical school you will start developing an attitude to learning based on curiosity and exploration of knowledge, rather than on its passive acquisition. You will acquire the knowledge and skills to understand health, the prevention and management of disease, and appreciate health and illness in the context of the whole. You will develop skills of analysis, critical appraisal, data handling and communication. You will enjoy thought provoking discussion and face emotive issues with an open mind, and you will find that patience is a virtue! Finally, a sense of humour is prescribed to get you through it!

Laying the Foundations

Making the decision to study medicine is one of the biggest commitments you will make in your life. You will need to prove to yourself and to prospective medical schools that you fully comprehend what it means to take this path. A behind the scenes understanding of the full scale operation that is required to treat people of varying needs, whether through hospital treatment, care homes or hospices opens up the health system in its entirety. At Duff Miller College we counsel our students in non academic preparation to illustrate a genuine interest in medicine. We help them plan the following:

- a Work Experience: You will need to have completed a variety of work experience that will give you exposure to the hard and demanding daily activity of medical practitioners. As well as spending time shadowing your GP, try to spend time at your local hospital and any others within the vicinity. Keep a tight record of the activities that you have seen, whether consultants in action, medical team meetings, operations. You need to understand what is being discussed, become familiar with the terminology, ask the necessary questions. Observe the way in which the team works together, goes through individual cases and makes judgments.

Working on a voluntary/part time basis looking after the elderly in retirement or care homes and handicapped children is particularly worthwhile. Many primary schools have a specific literacy hour where help is generally needed. The local hospice would probably be very appreciative of any help that you could give, and would give you a real insight into palliative care and support for the patient and family. This is a time when the importance of ability to communicate effectively is seen at its most significant. You should be prepared to do anything that can be of help or assistance.

A regular involvement in local charitable ventures is a useful activity. Time spent in this way is very useful in opening up your ability to communicate with people of differing races and cultures. Ensure that you keep a full record of all the activities that you regularly participate in. Write profiles on individuals that you have frequent contact with, and assess why their contribution is so valid to the team that they work with. Look at how the person who has the overall responsibility deals with difficult issues and keeps the team working in a cohesive way.

A blend of the above experiences will confirm that you have a genuine interest in the welfare of the human being. It also highlights that you have the strength of character and stamina to cope with the heavy emotional and physical demands that caring professions entail.

- b Other activities that will help to reinforce your qualities can include participating in schemes such as the Duke of Edinburgh's Award; membership of Venture Scouts or the Guides; school clubs that may be debate/drama/sports based. Adopting a school mentoring role is also considered very useful. Being part of an orchestra and taking musical examinations is also advantageous.
- c Research and Information Gathering: Read on a regular basis the health pages of newspapers such as The Guardian, The Independent and The Times, Supplement this reading with the New Scientist and Student BMJ. The Sunday Broadsheets will generally have a precis of the week's medical development. Golden rule, keep cuttings.

Track diseases, drug advancement and topical issues. Cancer and heart disease are UK's leading causes of death. You will need to show that you have grasped the factors that contribute to their development. Some understanding (albeit basic) of what hinders progress in the development of drugs that can make a change to the statistics. What are some of the other aspects that could be prohibiting their decline? Are the reasons always scientific? What are the strategies in place for treatment and prevention? Major developments have taken place in recent years in understanding the need for adequate palliative care for both the patient and their family. Support for this area has grown through the prominence of the hospice movement, and yet a hospice will generally receive only a third of its funding from the NHS. Find out how hospices can, and do, function so successfully.

Medical advance is extending the average life span, and the effects of an aging population will have a widespread sociological as well as economic impact. Observing the results of some of the wide range of studies that are regularly produced is interesting reading. Surf the Internet to access information from bodies such as the World Health Organisation, private foundations and national and international research bodies. Watch documentaries and even hospital drama series. Maintain an avid interest and collate the information in a record book.

You may find it useful to use part of a summer holiday creating a questionnaire that you can distribute to local GPs, hospital medical staff and nursing home personnel. Its purpose can be to show how professionals within different spheres of the health service are viewing and responding to the major structural changes they are facing. Think carefully about what you want to achieve with this and structure your questions well.

The Route

The well-trodden path is lengthy and does not end when medical school comes to a close. The following is the route that you will take:

- 1 Gain A levels or equivalent acceptable qualifications. A few pointers regarding GCSE - The majority of medical schools are asking for an average of five or six A or A* grades. Those that are not will ask for As and Bs. All will ask for English and Mathematics, and science subjects where they are not studied at A level. Combined, Dual Award and Integrated Science will be accepted. Some will also ask for a language in addition to English. All are agreed that breadth of subject choice is important. These requirements refer to one sitting.

Some general advice regarding A level subjects. Chemistry is the A level that is required by all medical schools. Some state a preference for Biology. It is commonplace to take a non-science subject as long as it is an academic subject. General Studies is not considered as one of three A level subjects. If you are taking non science subjects check with the medical schools that you are interested in to see that your chosen subject is acceptable. A high grade in General Studies (taken as a fourth A level) is definitely beneficial. Whichever subjects you choose, you must enjoy studying them.

- 2 Study at Medical School for five or six years, depending on whether you take an intercalated degree (more of this later.)
- 3 At the end of the five or six year period you will graduate and will be a fully qualified doctor. This will lead to provisional registration from the General Medical Council.
- 4 You will now take two six month house officer posts, and upon completion you are fully licensed to practice as a doctor.

At this juncture you will make the decision to either become a GP or follow a hospital based career. To become a fully fledged GP you will undertake a vocational training scheme for a period of three years that includes a year in general practice and four six month house officer posts.

If your choice is hospital based medicine you will work as a senior house officer for a minimum two year period. At the end of this time you will sit examinations that, if successful, will enable you to move on to a specialist registrar post. The post of Consultant is next, but how long it takes is very much dependent on the posts that are available and of course how successful you are.

You can now see that the propensity for learning and a thirst for knowledge goes hand in hand in this ever evolving field

The Choice - Where to Study

There are some twenty-five institutions throughout the UK where you can study medicine. Although your desire to gain a place may seem to outweigh any other considerations, this should definitely not be the case. Numerous factors should, and will, influence the choices that you make.

When completing the UCAS form you are urged to limit your application to four choices. Although a number of medical schools state that they you can elect to make two alternative choices without prejudice, it is probably wise to leave them blank. If you are serious in studying medicine it is highly unlikely that you will simultaneously be considering other careers. If you are, then you will need to re-examine what your real motivations are objectively.

Whilst it is difficult to gauge the feel of an institution from a prospectus, it will certainly give you a great deal of information on which to base your choices. Try to find out as much as you can from family or friends who may have studied medicine. Use the internet to see which names come up in relation to research, particular trials that are taking place and noted areas of expertise. Each of the medical schools will have web sites, which will add to the prospectus information.

Ask for information from up to ten medical schools. In addition to the prospectus most medical schools will have separate course information on Medicine. Attend open days wherever you can, they will give you the chance to soak up the atmosphere, see the facilities and get the real story from students.

Prior to going through the individual prospectuses define the criteria that will determine your selection. The focus may be on the following, size of university and department; location, whether city of campus based; recreational and sports facilities; particular research achievements and findings; course structure and make up; assessment procedures; accommodation and whether there are any links with medical schools abroad providing work placements.

The majority of medical schools and faculties have considerably revamped their courses over the last few years. A paper entitled 'Tomorrow's Doctors' produced by the GMC in 1993 was instrumental in producing a training for a new breed of doctor. Now frequently referred to as the 'New Curriculum'. Focus on self directed learning, a more problem solving approach and greater focus on the human skills and ability to communicate has resulted. The patient is not necessarily looking to hear endless technical information and facts; they are simply looking for someone who is prepared to give them time and be prepared to talk to them and listen. The demise of the extended family has meant that the doctor and team is crucial for advice and guidance. Often five minutes will be enough and just as effective as a half hour purely technical chat.

The type of course will have a big impact on your choice. They are defined in the following ways:

- * Integrated Courses: Students will work with patients at an early stage. A non integrated course will isolate the theoretical training (the pre-clinical) from the clinical teaching.
- * Systems Based Courses: The teaching is aligned to the body's systems, such as, the respiratory system..
- * Subject Based Course: The teaching will focus on the fundamental subjects such as Human Anatomy or Biochemistry

The highest percentage of courses are integrated and systems based. It is usually the case that a non integrated subject based course will appeal to students who have a particularly affinity to the scientific aspects of medicine. In essence, the core content will be much the same across the board.

- * The Intercalated degree features in nearly all of the medical courses. This is a relatively new addition and gives the student a chance to spend a year on specific scientific or medical interests resulting in a BSc or MedSci. As well as gaining subject knowledge it is a fantastic opportunity to undertake front line research, become skilled in

laboratory techniques and write scientific papers. The recent problem solving and self directed approach espoused by a number of medical schools is a natural preparation for this option.

- * Location, city or campus base, and size of the institution will all play an important part. You can elect to study at a large London teaching hospital, such as St George's, or at a university medical school such as Nottingham. They will each have their own unique pros and cons.

The former may appear to be more limited in terms of the people that you will mix with but integration within hospital life seems immediate. The latter may give you a far wider social and intellectual spectrum, but do remember that you will not have as much leisure time as the majority of those studying other disciplines.

- * Do think about the grades that you are predicted to get. If there is any room for doubt, then it is imperative that you select at least two medical schools that would consider a retake student. This is not being negative, simply realistic and keeping all the options open in case of unforeseen and extenuating circumstances.

The Medical Schools

Whilst competition remains rigorous, the Government announced in July 1998 that 1000 new first year places were being made available. The first increase took place in 1997 with the creation of 50 new places bringing the overall figure to 5,050. This would be followed by the following phases:

- * 2001 - 5,450 medical students
- * 2005 - 6,000 medical students

The following is a brief summary giving some general information on each of the medical schools:

Aberdeen - Medical School, University of Aberdeen, Polworth Building, Fosterhill, Aberdeen AB9 2ZD, 01224 554975. The UK Clinical Aptitude Test (UKCAT). Typical offer ABB. Estimated intake 175. Require Chemistry at A level and Biology or Physics, with leaning towards Biology. Interview. No to retakes.

Belfast (Queen's) - School of Medicine, The Queen's University of Belfast, Belfast, BT7 1NN, 02890 971444. Typical offer AAA/AAB and one A at AS Level. Estimated intake 262. Require Chemistry grade A, Biology, Physics or Mathematics, with preference for Biology. Will consider non science third subject. Few interviews. Consider retakes if offer at Queen's was held. Offer for retakes is AAA and students without offer with BBB or above.

Birmingham - Medical School, University of Birmingham, Edgbaston, Birmingham, B15 2TT. Prospectus requests - 0121 414 6727. Admissions enquiries 0121 414 4064. Typical offer AAB. Estimated intake 197. Chemistry and one other science. Third subject can be non scientific. Interview. Will consider retakes in extenuating circumstances.

Bristol - Faculty of Medicine, University of Bristol, Tyndall Avenue, Bristol, BS8 1TH, 0117 928 7679. Typical offer AAB. Estimated intake 135. Chemistry and one other science, preference for Biology. Minimum of six grade A passes at GCSE. Will consider retakes in extenuating circumstances.

Cambridge - Cambridge Intercollegiate Applications Office, Kellet Lodge, Tennis Court Road, Cambridge, CB2 1QJ, 01223 333308/337733. School of Clinical Medicine, Addenbrookes Hospital, Hills Road, Cambridge CB2 2SP. Typical offer AAA. Chemistry and one other science, preferences will vary according to the individual colleges. Grade A GCSE profile. Interview. No to retakes.

Cardiff (University of Wales College of Medicine) - Heath Park, Cardiff, CF4 4XN, 01222 742027. Typical offer AAB. Estimated intake 190. Chemistry and one other science, Biology preferable. Welcome applications from students whose third subject is a European language. 5 A* or A grades at GCSE. Interview. Retakes only in exceptional circumstances and offer will be AAA.

Dundee - Medical School, University of Dundee, Ninewells Hospital, Dundee, DD1 9SY, 01382 344160. Typical offer ABB. Chemistry and Biology preferred. Human Biology and Social Biology will be accepted as alternative to Biology. Third subject can be non science. Interview about half. Retakes not normally considered.

Edinburgh - Faculty of Medicine, University of Edinburgh, Medical School, Teviot Place, Edinburgh, EH8 9AG, 0131 650 3187. Typical offer AAB. Estimated intake 202 including premedical students. Chemistry and two out of Biology, Mathematics or Physics, or Chemistry and Biology and one approved

subject. Interview a small proportion. Retakes considered in exceptional circumstances.

Glasgow - Medical School Office, University of Glasgow, Glasgow C12 8QQ, 0141 330 6216. Typical offer AAB. Estimated intake 200. Chemistry and either Biology, Mathematics or Physics, Third can be non science. Interview. Will consider retakes.

Leeds - The School of Medicine, University of Leeds, LS2 9JT, 0113 233 4362. Typical offer AAB. Estimated intake 200. Chemistry and two other subjects. Substantial number of GCSE passes at a high standard. Some interviews. Will consider retakes with extenuating circumstances.

Leicester - School of Medicine, University of Leicester, Maurice Shock Medical Science Building, University Road, Leicester, LE1 6HN. Typical offer AAB. Estimated intake 177. Chemistry and one other science. Third subject can be from science, arts or social science disciplines. Interview. Will consider retakes.

Liverpool - School of Medicine, University of Liverpool, Liverpool, L69 3BX, 0151 709 7172/0151 706 426. Typical offer ABB. Estimated intake 218. Chemistry and one other science. Third subject can be non science. Interview. Will consider retakes.

London (Imperial College School of Medicine) - London SW7 2AZ. Typical offer ABB. Estimated intake 286. Chemistry and one other science, no preference. AAABB minimum GCSE profile. Interview. Will consider retakes in extenuating circumstances and if previously applied to ICSM or its constituents. Suggest retake students take Biology to at least AS level if not previously offered. AAA normally required.

London (King's) - Guy's, King's & St Thomas's School of Medicine, Admissions Office, Hodgkin Building, Guy's Campus, London SE1 9RT, 0171 848 6501. Typical offer ABB. Estimated intake 360. Chemistry and one other science subject. Third subject can be taken from humanities, languages or social sciences. Looking for A and B Grades at GCSE. Interview. Consider retakes in extenuating circumstances.

London (QMW) - The Admissions Office, St Bartholomew's and The Royal London School of Medicine and Dentistry, Turner Street, London, E1 2AD, 0171 377 7611. St Bartholomew's and the Royal London School of Medicine and Dentistry, Queen Mary and Westfield College was formed in 1995,

following the merger of QMW with two historic medical colleges Typical offer ABB. Chemistry and one other science subject, preference for Biology as the second subject. Interview. Retakes considered in extenuating circumstances.

London (Royal Free) - Royal Free Hospital School of Medicine, Rowland Hill Street, London, NW3 2PF, 0171 830 2686. In August 1998 University College London Medical School and the Royal Free School of Medicine merged to form the Royal Free and University College Medical School of UCL First joint intake September 2000. Estimated intake 330. Typical offer ABB. Interview. Retakes only in extenuating circumstances.

London (St George's HMS) - St George's Hospital Medical School, Cranmer Terrace, London, SW17 ORE, 0181 725 5992. Typical offer AAA/AAB. Chemistry and one other science, preferably Biology. Interview. Retakes considered in extenuating circumstances.

London (UCL) - Admissions and General Enquiries Office, University College London, Gower Street, London, WC1E 6BT, 0171 387 7050. In August 1998 University College London Medical School and the Royal free School of Medicine merged to form the Royal Free and University College Medical School of UCL First joint intake September 2000. Estimated intake 330. Typical offer AAB-ABB. Chemistry and one other science A level.. Interview. Retakes only considered in extenuating circumstances.

Manchester - Medical School, University of Manchester, Oxford Road, Manchester, M13 9PT, 0161 275 5025/5774. Typical offer AAB. Estimated intake 255. Chemistry and one other science. Third subject can be non scientific. Expect five or six A grades at GCSE, may consider four. Interview. Retakes considered in extenuating circumstances.

Newcastle - Medical School, University of Newcastle upon Tyne, Framlington Place, Newcastle upon Tyne, NE2 4HH, 0191 222 6138/0191 222 7005. Typical offer AAB. Estimated intake 190. Preference for Chemistry and Biology, or Human Biology. Third subject need not be science based. Minimum of 4 A and B grades at GCSE. Interview. Will consider retakes and will normally require AAA.

Nottingham - Medical School Faculty Office, Queen's Medical Centre, Nottingham, NG7 2UH, 0115 970 9379. Typical offer AAB. Chemistry and one other science, and third mainstream academic subject. Look for six A grades at GCSE which must include the sciences. Interview. Consider retakes in extenuating circumstances.

Oxford - Oxford Colleges Admissions Office, University Offices, Wellington Square, Oxford OX1 2JD, 01865 270207. Oxford University Medical School, John Radcliffe Hospital, Headington, Oxford, OX3 9DU. Typical offer AAA. Chemistry and one other science. Interview. Grade A GCSE profile. No to retakes.

St Andrews - University of St Andrew's, 79 North Street, St Andrew's, Fife, KY16 9AJ, 01334 476161. Typical offer ABB. Chemistry and either Mathematics or Physics. Preference for Biology as third subject. Proportion interviewed. Will consider retakes.

Sheffield - Medical Admissions Office, Medical School, University of Sheffield, Beech Hill Road, Sheffield, S10 2RX, 0114 271 2142/2736/3975. Typical offer ABB. Chemistry plus one other science subject. At least four A grades at GCSE, preferably more. Interview. Will consider retakes.

Southampton - School of Medicine, Biomedical Sciences Building, Bassett Crescent East, Southampton, SO16 7PX, 01703 594408. Typical offer ABB. Chemistry two other subjects. Welcome applications from students taking one or two Minimum of seven A and B Grades at GCSE. Interview very few. Will consider retakes in exceptional circumstances.

Ultimately the choice is yours. Be absolutely honest with yourself and your advisors when you are making your application. If you cannot verify with conviction your reasons for choice to an interviewer, you are immediately diminishing any chance you may have.

The UCAS Application

Once you have done your research, taken advice and chosen where you would like to study, you are ready to complete the UCAS form. In common with Oxbridge applications the deadline for medicine is 15 October. The number of medical schools selected should be limited to four in keeping with the agreement reached by the Committee of Heads of UK Medical Colleges.

Bear in mind that admissions tutors will be reviewing vast numbers of forms, and often at the end of an exhausting day. One of the biggest hurdles to overcome is interview selection and this is solely based on the UCAS form. You only have the one chance, so, some simple guides:

- * Make more than one photocopy of the original so that you can practice. Ensure that your writing is legible, remember the form will be two thirds of its original size when photocopied and distributed by UCAS.
- * Ensure that all information requested is accurate and chronological.
- * Your interests and breadth of extra curricular activities and any other involvement needs to be evident. You will need to be able to discuss in some depth anything that you note. Do not over gloss.
- * Prepare section 10 logically, use headings for easy reading and to draw attention to interests and achievements. Where possible produce this section using a word processor.

The form should paint an accurate portrait of your academic capability, interests and pastimes. Selectors may scan up to two thousand forms during the season and what makes you special must stand out. They are not psychic, and certainly do not have the time, or inclination to look for any hidden stories. Alongside the personal attributes and qualities outlined earlier, selectors are also looking for the following:

- * Intellectual capability reflected in results achieved and grades predicted for A level performance. Expectation of at least 5 A/A* GCSE grades is now commonplace. The subject spread is also a consideration as it reflects breadth, range of interests and an ability to learn and assimilate information. The standard request for English, Mathematics, and the sciences, where not offered at A level, is frequently supplemented by the need for a further language.
- * Evidence of motivation for the study of medicine and an appreciation of the profession. The way in which, for example, the NHS evolved over the years. A practical understanding of the demands, not just of the medical profession, but also other caring fields, will be reflected through work experience built up.
- * Potential for achievement, personal and intellectual, is also highly valued. The successful medical student will not have already scaled the peak, but achievements and prized contributions to date, will testify to further promise. Tenacity and perseverance signify strength of character and backbone.

- * Good communication skill is a recurring theme, and an integral factor in choice. This ability will be apparent at interview and is an absolute aspect of your personality, therefore, cannot be learnt from a book. The standard rhetoric to be yourself, friendly and approachable will stand you in good stead.

The Interview

Prizing open the envelope containing notification of interview is normally greeted with great excitement, soon turning to fear and trepidation for even the most confident student. The Principal and Vice Principal at Chelsea Independent College can both testify to students bursting through the door as elation turns to panic. The majority of medical schools will interview and a few will include either a questionnaire or test in advance. The average length of interview is fifteen minutes. The panel will generally comprise three people which can include an Admissions Tutor, a doctor from the medical school, a current student and a member of the academic staff.

The interview panel will look to assess why you want to study medicine. Are you really equipped for it in every sense, what experience do you have, and why have you applied to that particular medical school? You will certainly need to be aware of current topical issues such as CJD; the big killers, such as Cancer and Circulatory diseases; recent innovations and the global health picture. It is likely that you will be asked questions on ethics, particularly abortion and euthanasia. You will be expected to venture knowledgeable responses and show that you are aware of cases that may have been of media interest and hit the headlines recently.

Let us look at, for example, your reasons for choosing to study medicine. Do not in any event state that you just 'want to cure sick people'. Rather, perhaps recount an interesting episode in your life, either illness that you or a close relative suffered, that brought you into contact with the medical world and reinforced your desire to study medicine. You can lead on to specific passions that have evolved, but do make sure that you can answer questions knowledgeably and fluently. The key is balance. Too self effacing could cause frustration, too full of your own capabilities, an automatic negative! The good news is that a shining performance can easily outweigh an application that is in line with the rest. You now have the time to prepare and a real opportunity to

bring the person described in the form to life. The three P's Preparation, Practice and Performance, will underline your approach.

In essence, the following is a synopsis of our approach (we would of course be delighted to talk to you in greater depth):

1 Preparation:

- a Ensure that you can talk fluently about anything that you have included on your form. Make sure that periods and activities are synchronized in your mind. For example, the questions "Why do you want to be a doctor?" You need to think carefully about how you answer this question. Give an interesting (and true) version of events that confirmed that this was the vocation for you. Your reasons may be based on your own hospital or other medical experiences, or could have resulted in a bystander role where a close member of your family has suffered illness. You must be prepared for in-depth questioning and must be able to substantiate any references that you have made.
- b The cuttings folder that you have established will ensure that you are fully conversant with current initiatives, developments and controversies within the field. Of course, you will not be expected to be an expert. This information must be absorbed through genuine interest and spoken about positively. Sheer systematic regurgitation of facts will not impress anyone. The schools are not looking for rote learning machines who can assimilate information purely on demand.
- c Where possible, spend some time talking to your local doctor, or any family friends who have experience of interviewing. Remember it is just as important to prepare for the structure of an interview and how to influence the questioning.
- d Follow the golden rule of quoting the most recent research or developments that the medical school may be engaged in. Relating information dating back three or four decades will only imply that you have simply selected a piece of information at random.

- e Ensure that any questions that you ask have not already been answered in the prospectus. You may wish to find out whether some preparation on a science that you did not study at A level would be advantageous.

2 *Practice*

The mock interview/s will put into practice all of the above. Even if the atmosphere is informal and can seem jolly, there are a variety of techniques employed in the art of successful interviewing. The focus is not too make you feel uneasy, you have been selected for interview on the basis that you have the necessary qualities for medicine. The interview panel is looking for reinforcement of motivation, aptitude and enthusiasm. Thorough preparation will ease nerves and give you a head start. A video recording of the mock interview is a useful tool and amongst other things will highlight any mannerisms that you need to be aware of and try to minimise.

The questions are designed to assess the following: your motivation; understanding the medical profession; the NHS versus the private sector; your character and what contribution you can make to the medical school. Bear in mind that there is not always a right or wrong answer, the interest will be more in how you respond and put opposing views across in a balanced way. The probable length of the interview will be only fifteen minutes. This simply goes to reinforce that thorough preparation is critical. You will always hear some horror stories about some real red herring questions thrown out, but on the whole the following are a fair indicator of questions you could expect to be asked:

- 1 Why do you want to study Medicine?

Looking for: A real response with reasons that can be verified and well substantiated. An interest that has been fueled by a particular event or range of activities, and which has since grown and become something of a passion. The selectors are quite categorically not looking for someone who professes to 'love people' and who wants to 'cure the sick'. Any reasons given which sound remotely superficial will pinpoint lack of genuine interest and understanding of the profession.

2 Why do you want to study here?

Looking for: Valid responses based on real research. You will need to have read the Prospectus in its entirety, spoken to your careers teacher, spoken to any former students, attended an open day and spoken to current students and an admissions tutor. This will help you to build up an all round picture of the way in which the courses are structure, e.g. system or subject based, which may be a particular influence. The school may have a particular research reputation or may be involved in a level of international collaboration where it is reaching its peak. You can, of course, talk about this type of activity, and if you do make sure that they you are thoroughly up to date and understand the implications of what you have been reading about.

3 What are the qualities required to be a good doctor?

Looking for: A well thought out response that will incorporate the technical skill and scientific knowledge with particular character traits. Commensurate with this is the ability to listen, understand and communicate well. Although certain aspects of communication are inherent within us, training and skills development can enhance our ability to do so well.

4 What are your views on private and NHS medicine?

Looking for: A balanced understanding of the issues and whether you are able to convey both sides with equal clarity. You can give your own opinion at the end, although the primary interest is in the former.

5 Do you agree with Euthanasia?

Looking for: Understanding what it really means and a knowledge of the legal aspects. You would also need to stress that a decision of this magnitude can only be reached once full medical training has taken place and agreement reached with the patient and relatives. You may wish to mention a high profile case illustrating this issue stressing what has been of significant interest to you.

6 Should lung cancer patients who refuse to stop smoking be treated on the NHS?

Looking for: The argument is about rationing resources within the NHS. We all recognise that there are limited funds available and these are becoming more widely spread as new treatments become available. The important issue is to recognise that smoking is an addiction, and to refuse treatment really requires some form of treatment to remove the the problem, which might include chemical treatment, eg, Nicorette, or even alternative therapies such as acupuncture or hypnotherapy which have been proven to be successful.

7 What would you do if you were in charge of the NHS?

Looking for: This is a totally open ended question. Issues that you can bring in range from spending additional monies on disease prevention, eg, stopping smoking, to re-rationalising the management within trust holding hospitals. There are no rights or wrongs to the question. Look at the number of governments who have failed to deliver and find the ideal solution.

3 *Performance*

A piece of very simple advice - **be yourself**. This statement cannot be over emphasised. First impressions count so dress smartly and equally as important, dress appropriately. Be open, enthusiastic, confident (not arrogant) and maintain good eye contact. Try to be articulate and keep your answers relatively short. The panel will be assessing you on the way in which you put forward differing points, and show a true understanding of the profession. In any cases there is not a right or wrong answer.

The Next Stage

The interview over, what happens next? The interview panel will make one of three recommendations to the Dean. These are:

Accept
Borderline
Reject

- 1 To Accept: You are made a conditional offer.
- 2 Borderline: You may face stiff competition from other interviewees` and receive a rejection, which may result in your name being on a waiting list.
- 3 To reject: You need to find out if you are still being considered on the waiting list. Any feedback from the interview will be disclosed to your referee, and this is obviously worthwhile getting.

A Level Results Day, And What Happens Next?

- 1 You've got the grades, well done, you're in!
- 2 You have achieved good grades, but are not holding an offer. In reality it is rare that places for medicine will be on offer during the clearing period. If you have three A grades and were rejected then guided by your referee write directly to the medical school outlining your position. Try to persuade your referee to contact the admissions tutor on your behalf.

You may wait and re-apply the following year, which would give you ample time to reaffirm you interest, and dedication to medicine. For example, you could spend the year fruitfully engaged in either paid or voluntary work in hospital and care environments. You may elect to spend some time abroad working with children or in care homes in South America or one of the Asian sub continents. Or you may opt to follow a course allied to medicine.

- 3 You have not achieved the grades that your offer requires. A devastating time for any student (and parents) in this situation. An acute sense of failure followed by anger and frustration often pervades. If your determination to study medicine is undiminished in spite of this setback, then an alternative will not suffice. At this juncture the only option you may wish to consider will be to retake your A levels. This proposed route will elicit various responses, some encouraging and some erring on the defeatist. The explanation for lack of performance and whether there are unquestionable mitigating factors such as illness requires verification

At Chelsea Independent College we spend time with each student facing this dilemma to fully ascertain that it is the right decision for them. Subject to be retaken; possible new subject choices, appropriate length of study and suitability of board changes are assessed in depth. Over the years many students have walked through our door traumatised unsure of where to turn and seeking help desperately as their dream has shattered. We will gently probe for evidence of real interest, aptitude and avowed determination to try again, and most significantly, succeed. Whilst the period between receipt of results and the start of retake courses is brief, time to reflect and comprehend what a commitment of this nature entails must precede a decision.

A vast majority of medical schools will accept applications from retake students, but a number will only consider those applicants who applied to them initially. If you did not receive offers first time round it is highly likely that you will not warrant consideration until you have actually got the grades, and then it will be another year before you enter medical school. If this really is the vocation for you, then this will not seem insurmountable. The time in between can be spent profitably building further practical experience either at home or overseas.

Drawn to Dentistry

Introduction

The premise of dentist as psychologist may not seem an obvious parallel, but the value that a healthy set of teeth and gums can add to mental well being is perhaps underestimated. A healthy smile is one of the quickest confidence boosters there is! The advance of cosmetic and restorative dental procedures has intensified in recent years, enabling the dentist to scale new heights and safeguard teeth and gums for a lifetime.

The uninitiated may well view dentistry as the easy option for the failed would-be doctor. Without a doubt, this most definitely is not the case, and should never be viewed as such. The prospective dental surgeon is no different to the prospective doctor in facing a course that is academically, emotional, financially and physically demanding. Dentistry also requires a commitment to a life spent further educating oneself, amassing new information and techniques. In common with those studying medicine, potential dentists will view all of the aforementioned factors as par for the course.

What is the allure of dentistry? Scores of students over the years at Chelsea Independent College have frequently cited the combination of specialist scientific study often creatively expressed coupled with the opportunity to run their own business as key influences. The dental surgeon although concerned primarily with oral health will have a wide appreciation and knowledge of general health and medicine. Solving problems and having direct responsibility for the solution without a need for referral is tremendously appealing for many scientists. Thorough examination can also pinpoint indicators of more general diseases where early diagnosis will save lives. Thus the importance of the contribution the dentist makes as part of a more holistic approach to medicine is significant.

Major changes within the NHS impacting on the provision of services and the expansion of the private sector regularly elicits vociferous debate on the moral implications. As a prospective dentist you should be aware of all the changes that are taking place, and have well defined views regarding the interplay between the two sectors. Media focus regularly highlights the exorbitant costs of cosmetic treatments and the number of dentists opting out into this more lucrative sector.

The Person

A fear of visiting the dentist is common and for many deep rooted, often irrational and based on secondhand information and scaremongery. Yet, many of us will avoid making the appointment until nature intervenes when pain takes the matter out of our hands and makes the decision for us. This simple illustration only goes to reinforce the number of roles a dentist must be able to perform. Nevertheless the dental industry is thriving and competition to enter on the incline. Pose the question 'What does it take to be a dentist?' and the responses will be numerous. These are some of them:

An empathetic and caring approach.

An ability to communicate with people of all ages.

Manual dexterity, nimble and deft.

Thirst for scientific knowledge and advancement.

Enjoy problem solving, and lateral and logical thinking.

Patient with a natural instinct for listening.

Be self critical and objective.

Team spirited in mind and approach

Strength of character, robust and can endure hard work.

It does not end there. A dentist needs to be hugely adaptable and resourceful, able to respond to the huge changes that are taking place in the field. Pioneering research both in the UK and world wide, the introduction of novel products, has increased the range of treatments that can be carried out at the dental clinic without the need for referral. Keeping track of these developments requires up to the minute scientific knowledge. Explaining them well and putting the patient at ease requires good all round communication ability. Some business acumen and an organizational ability are also necessary as the typical dentist will be involved in running their own business. This is just part of the rubric of everyday life for the average dentist. The practitioner needs to exude integrity which in turn inspires trust.

Building the Base

In common with their kindred spirit, the medical student, the aspiring dental student will have to support their expressed interest with real evidence of motivation and application. The first stage is to ensure that you have sufficient practical awareness and experience of the practice of dentistry, and secondly that you can use the experiences to articulate your own motivation.

Chelsea Independent College students who are intending to enter Dental school will incorporate the following in their programme:

- a Practical Experience: Exposure to the real world of dentistry is vital for two reasons; helping you to truly appreciate what the work fully entails, and to act as affirmation of your desire to study it. Experience of more than one setting, watching different people within the process at work is key. Approaching dental surgeries and departments within hospitals can be formidable, but plan your strategy carefully, get any help that you can from family and friends.

The following spread of placements would give you the breadth that you need. The easy point at which to start is with you family dentist. There are probably a number of dentists within the practice, and your dentist will, if nicely approached, be able to give you contacts within the areas. Spend time shadowing dentists in both smaller and larger practices. Spend some time if possible within a hospital department and observe the work of the oral surgeon.

Spend some time also observing the work of the dental nursing staff, hygienists and orthodontist. This will help to give you a better all round understanding of the importance of team work, and to put into perspective the treatments of common oral ailments. Ask sensible questions, make notes and keep a record of activities/conversations. Do follow up any time that you have spent in a surgery so that you can see the way in which it is developing, what changes are taking place, so that it becomes a real community to you. Spend some time at a community dental service that caters for children. In addition, visit a dental lab. The dental schools at Liverpool and Sheffield universities are currently offering two day course which are an excellent introduction to the study of dentistry, nuts and bolts.

Any voluntary work that you can undertake involving people is always

a good ideas. To highlight ability to communicate with people of differing ages and cultures, look to do something that is mixing with people outside of your own circle or background. The age range that you work with should ideally span childhood through to the elderly, and can be experienced in nursing and residential homes. Never underestimate the importance of communication. This is often seen at its best in hospices where eager volunteers are welcomed. Perhaps time spent and involvement in a fund raising activity or some charitable activities would be good ventures for you. Joining the local musical or drama society might be a suitable medium for your talents. Even if you are not an actor or singer, you may find that you are an asset in the costume or set design department. Evidence of community spirit and nimble deftness in the latter.

- b Research: Prior to, and following, any work placements that you have completed you should be keeping a folder(s) with information on the profession. For example, changes within NHS provision and how they are impacting upon the patient. Progress, new treatment availability. Increasing information regarding some of the lesser known oral cancers. Scan websites, read the New Scientist and the Dental Medical Journal. Dailies such as the Guardian, the Independent and The Times will carry pages each week devoted to health and medical matters.

Interesting projects might be to follow through what are the perceived changes that appear to be affecting NHS provision; how does the UK compare to other EU countries in its state provision. Why does the US citizen appear to spend a greater amount of time and money on dental health. Does this ensure that they avoid any of the dental problems that pensioners face in the UK. Keep an eye on the commercial world and products available over the counter, some of the claims they make and the results of research undertaken verifying or contradicting the claims.

The point of doing all of these things is to help you totally appreciate the medical contribution the dentist makes, and his/her role in society. Writing fluently and talking knowledgeably about the experiences you have had, and how this has enhanced your own reading and research will simply endorse you intent to pursue dentistry.

Academic Background and Qualifying

GCSE achieved grades and A level predicted grades form the academic basis upon which the majority of applications are selected. Breadth and range of subject choice is critical. As well as the standard English, Mathematics and science subject requirements, it is always beneficial to include a subject that is artistically or mechanically inclined. Whilst manual skill and dexterity can be built up, some early evidence is necessary. Art, CDT and Music will highlight deftness and creativity. Of course, a number of students will be involved in pursuits of this nature outside of their normal schooling and can produce a portfolio illustrating their work. This could include examples of fine art, sculpting and/or pottery. Specification for five or six subjects at A or A* or a strong A and B distribution is much more in evidence.

The standard A level offer for dentistry is ABB (first attempt), with the normal stipulation that the A grade is in a science subject. Chemistry is the required subject, and there has been a significant increase in the number of dental schools specifying a preference for Biology as the second subject (dentistry is primarily concerned with the study of anatomy). In fact, it is anticipated that Biology will become a required science to prevent the difficulties currently encountered by first year non-Biology students. Generally a third subject can be non science based as long as it is considered academic. It is important to always check any non science based choice that you make with the schools that you are interested in. General Studies will not be taken into account as one of three subjects.

The course to qualify as a dental surgeon, the Bachelor of Dental Surgery, takes five years and is offered at dental schools or faculties within universities. Upon graduating students will proceed to a period of vocational training which lasts for a year. The Bachelor of Dental Surgery (BDS) is recognized by the profession's governing body, The General Dental Council, for inclusion in the UK register. You are automatically entitled to practise once included in the register.

By its very nature the training is demanding and exacting, drawing a natural parallel to the study of medicine. Medical and dental students are drawn together through the common bond of commitment and vocation. The undergraduate lifestyle is one that certainly does not quite match the leisure time of their peers in other disciplines.

Where to Study?

There are some thirteen institutions in the UK offering courses leading to qualification as Bachelor of Dental Surgery. The scale may seem limited but in some ways this makes the choice harder. Inevitably the number of places available is eclipsed by the growing numbers applying, rendering the level of competition greater. So, careful and serious consideration must be given to a selection of factors. These will encompass environmental, logistical, social, academic and sporting criteria.

Contact approximately eight dental schools and ask for the prospectus and any additional information pertaining to dentistry. Draw up a list outlining desired conditions such as location (inner city or out of town campus); logistics (distance from home, facilities, size of school and institution; accommodation ; any special academic features (teaching style, course structure; electives and special study modules; clinical integration, research achievements or study opportunities with overseas universities.)

Whilst the General Dental Council will determine the overall content necessary for qualification, each dental school is responsible for its own course structure. By virtue of the fact that is highly specialist study and a vocational preparation, the course content will generally be similar across the board. The structure will fluctuate, accentuating patient contact at differing stages. The extent to which clinical integration has taken place is far greater than just a few years ago, and in many ways mirrors the changes within medical training. Timing when integration occurs varies between the dental schools, and some will focus primarily on the scientific base for the first five terms for example, and stress clinical during the final stages.

Generally the pre clinical stage will cover Anatomy, Biochemistry, Molecular Biology and Physiology. The clinical stage will link the scientific background with disease, dental techniques and oral surgery. Further strands of biological development will continue throughout this stage. The inclusion of behavioral, communication and psychological components is now commonplace. Time is also devoted to the development of computing and information technology skills. Courses tend generally to be of an integrated and student centered nature. Special Study Modules, Electives and the Intercalated degree are incorporated within all courses. Individual prospectuses will outline course structure and admissions tutors are exceedingly helpful in guiding prospective students.

The Dental Schools

Belfast (Queen's University) - The Faculty of Medicine & Health Sciences, The Queen's University of Belfast, Belfast BT7 1NN, 01232 245133. Typical offer AAB. Estimated intake 25. Chemistry and normally two from Biology, Physics and Mathematics. Proportion called for interview. Very few retakes.

Birmingham - School of Dentistry, University of Birmingham, Edgbaston, Birmingham, B15 2TT, Prospectus requests - 0121 414 6227/General enquiries 0121 414 3374/7168. Typical offer ABB. Estimated intake 64. All three science subjects or Chemistry and Biology, Physics or Mathematics, the preference is for Biology. Third subject can be non science. Interview. Will not normally consider retake students.

Bristol - The University of Bristol Dental School and Hospital, Lower Maudlin Street, Bristol BS1 2LY, 0117 928 8150. Typical offer AAB. Estimated intake 50. Chemistry and one other science. Biology is essential if third subject is non science. Six A grades at GCSE. Interview. Will consider retakes.

Cardiff (University of Wales College of Medicine) - Heath Park, Cardiff, CF4 5XN, 01222 742027. Those intending to study Dentistry will apply to the UWCM but will be based at Cardiff University. Typical offer ABB. Estimated intake 55. Chemistry and two from Biology, Physics or Mathematics, or Chemistry with Biology or Physics and a third non science subject. Interview. Will consider retakes but preference given to those who have previously applied to UWCM.

Dundee - Dental School Administration Office, University of Dundee, 2 Airlie Place, Dundee, DD1 4HQ, 01362 344026. Typical offer ABB. Estimated intake 50. Chemistry and normally two from Biology, Physics and Mathematics. Physical Science will satisfy the requirements of both Chemistry and Physics but will count as only one subject. Exceptionally a third non science subject may be considered and accepted. Interview. No to retakes.

Glasgow - Glasgow Dental Hospital & School, University of Glasgow, 378 Sauchiehall Street, Glasgow, G2 3JZ, 0141 211 9703/4. Typical offer ABB. Estimated intake 75. Chemistry or Physical Science and one from Biology, Physics and Mathematics. Third can be non science. Interview. Will consider retakes.

Leeds - School of Dentistry, Leeds Dental Institute, Clarendon Way, Leeds, LS2 9LU, 0113 233 6169. Typical offer ABB. Estimated intake 55. Chemistry and

two from Biology (preferred), Physics and Mathematics. Will look at applicants with a non science third subject as long as Biology and Chemistry are taken. Substantial number of GCSE passes at high grades expected. Interview. Very few retake students.

Liverpool - School of Dentistry, University of Liverpool, Liverpool, L69 3BX, 0151 794 2000/0151 706 5203. Typical offer AAB/ABB. Estimated intake 55. Chemistry and one other science, preferably Biology or Zoology. Third subject can be non science but needs to be an approved subject. Interview. Will consider retakes. Currently offer a two day introductory course for sixth former prospective dentists..

London (King's MDS) - Admissions Office, Guy's, King's & St Thomas' Dental Institute, Admissions Office, Hodgkin Building, Guy's Campus, London SE1 9RT, 0171 848 6511. King's College London and the United Medical and Dental Schools of Guy's and St Thomas's Hospital amalgamated in 1998. Typical offer ABB. Estimated intake 145. Chemistry and one other science subject. Specifies six A or B grades at GCSE. Interview. Only consider retakes in extenuating circumstances.

London (QMW) - Admissions Office, St Bartholomew's and the Royal London School of Medicine and Dentistry, Turner Street, London E1 2AD, 0171 377 7611. Typical offer ABB. Chemistry and one other science preferably Biology. Welcome third non science subject. Interview. Will consider retakes.

Manchester - The Admissions Office, The Turner Dental School, University of Manchester, Higher Cambridge Street, Manchester, M15 6FH, 0161 275 6603. Typical offer ABB. Estimated intake 65. Chemistry plus two from Biology, Physics and Mathematics; or Chemistry plus one other science and a third non science based subject. Preference for Biology as the second subject. Expected to have A and B grades in a range of GCSE subjects. Interview. Will consider retakes.

Newcastle - Dental School, University of Newcastle upon Tyne, Framlington Place, Newcastle upon Tyne, NE2 4BW, 0191 222 6138/0191 222 8347. Typical offer ABB. Estimated intake 75. Three subjects to include Biology or Chemistry of Physical Science. Interview as many as possible. Will consider retakes.

Sheffield - Admissions Office, School of Clinical Dentistry, Claremont Crescent, Sheffield, S10 2TA, 0114 271 7808. Typical offer ABB. Estimated

intake 50. Chemistry and one other science from Biology, Human Biology, Social Biology, Zoology, Physics, Physics and Mathematics, Engineering Sciences, Nuffield Physical Sciences, Mathematics Pure and Applied, Mathematics and Statistics. Third A Level can be in any subject. The A grade must be in science. Interview. Will consider retakes in exceptional circumstances. Offer a short introductory course for sixth form students.

The UCAS Form

The UCAS form is the document that is going to procure an interview or offer. Either way it is your passport to studying dentistry so complete it with the due diligence it deserves. Bear in mind that selectors will be looking to make an assessment on your suitability and potential to study and practise dentistry. They are looking for evidence of academic achievement and potential, personal qualities and breadth of interests. The information that you give needs to portray your character and academic capabilities through achievements and contribution. Some dental schools will see only one in four of those applying to them so that stresses again the importance of the form.

First things first, you should select only five out of the possible six choices. It is widely accepted that you can use the sixth choice for a different subject. If you do then you would be advised to look at some thing that is allied to the dental profession. Otherwise you may find it difficult to justify real desire for dentistry. A note of caution at this stage. If you are unsuccessful in receiving an offer for dentistry, but accept an offer from your 'insurance' choice you are obliged to take it. If you are serious in your intent to become a dentist and have done all in your power to stress your motivation and achieve the grades then you will not seriously consider any other course.

Some simple guidelines:

- * Make more than one photocopy of the form so you can practice until both you and your tutor are satisfied with it.
- * The form will be photocopied by UCAS and reduced to two thirds its original size, so legibility, a clear format and planning is essential.
- * Make sure that all of the information that you give is totally accurate and factual, and that all dates synchronize. You need to be able to discuss fluently and knowledgeably anything that

you write about or refer to. In fact, you would be expected to answer some in depth questions so a superficial or fleeting interest or experience will not suffice.

- * Section 10 gives you the opportunity to convince the selectors that you are fully equipped with all the attributes needed to become a successful dentist. You may find it practicable to structure a format where you use headings which will make it succinct and will easily highlight strengths at a glance. Always ensure that this style is acceptable to the institutions you have selected.

The selectors will be looking for evidence of the following both in the personal statement and the referee's report:

- * A good spread of grades at GCSE and breadth within the subject choice, a comprehensive mix of arts, humanities and science.
- * Evidence of motivation for the study of dentistry demonstrated through real experience and articulated well.
- * An understanding of the role of the dentist within society, the demands of the profession and the need for a commitment to lifelong development.
- * Activities and events that you may have contributed to and/or participated in which show your ability to work as part of a team, assume the leadership role and communicate well.
- * Evidence of manual skill which will be reinforced by any arts activities. In addition to art, active involvement in any more delicate areas such as jewelry or model making would equally emphasise highly manual skill and dexterity.

The majority of dental schools will not make offers prior to interview, and the only basis on which they can select for interview is the UCAS form. Its importance as your only tool cannot be overstressed, it is both your life history and a key to your future.

The Interview

Our experience over many years has shown that those students who are invited for interview react with the same emotions as those facing an interview at medical school. Elation followed by apprehension and insecurity. It is important to bear in mind that you have passed the first hurdle, the UCAS form has made a good impression on the selectors and they are keen to see you. The interview is not in any way meant to replicate mental torture. It is a vehicle for the school to confirm that you have the academic potential, determination and motivation to succeed in training and practising as a dental surgeon. It is also an opportunity for the interview panel to see evidence of your understanding of dental work, and gives you the opportunity to affirm your interest.

The interview panel genuinely want to see you 'perform' well and will do their best to adopt an informal atmosphere to put you at your ease. The factual information in your UCAS form, your personal statement and the referee's statement have all impressed so far. Now it is your turn to bring these strengths and qualities that have been written about to life. The interview is not a test, it is an opportunity for you to show that you can think on your feet and respond instinctively; that you can recollect information, data and stories, and link them together and that you can show your eminent suitability to dentistry.

The interview panel will usually consist of three people made up of academic and admissions staff. Some schools will also co-opt a student member and may include a practising dental surgeon. The length of an average interview is fifteen minutes. Yes, only fifteen minutes in which your fate is sealed. Most people have one of two reactions, either that it is such a short time that they can 'walk it' or it is too short a time in which to do justice to all the knowledge they have acquired. We can dispel both of these misconceptions straight away!

There is no such thing as 'walking' an interview. Being self assured and confident based on preparation and practice is good, but over confident harboring on the cocky is detrimental and likely to bring about failure. The questions are designed to elicit responses that will act as verification of your commitment, academic and personal potential, ability to communicate and awareness of the profession at large. Experiment and observe a fifteen minute period and you will see that if you do not have anything of relevance to talk about it will certainly drag. Remember you are not talking at the panel, you are communicating with them, and are expected to show a balanced and mature approach in your responses. Firstly, they are only human, and secondly you will not have an opportunity for hindsight!

A successful interview outcome will be solely dependent on what we term our three P's, Preparation, Practice and Performance. Use the following guidelines on your road to success:

1 Preparation

The maxim to prepare, prepare and then prepare some more applies 110% in this instance. If, as we advocate at Chelsea Independent College, you have established a routine in building up research data, materials and practical experience, then you are well on the way.

- a Look through your UCAS form again and read through the personal statement once more. The interviewers will use this as the basis for questioning. Make sure that you can expand on your experiences and interests, and do not try to regurgitate parrot fashion. Do make sure that you have concrete updates on any activities that you indicated were in the planning stage.
- b The research that you have been undertaking will ensure that you are armed with facts, and knowledgeable about some of the latest technological developments in the field; the NHS and the debate that so often surrounds it; state of provision. The whole area of funding is critical as dental disease is in many cases preventable, but prohibitive costs make it out of reach for many.
- c Dedicate some time to talking to you dentist, and where possible any family or contacts who may have be involved in dental surgery and experienced in interviewing. Anyone with experience of a dental school environment would be a great asset. Do ask well thought out questions.
- d Read the prospectus in its entirety to make sure that you do not ask any questions answered in print. Take notes as you go along so that you can compile questions that have not been answered. Check the website/s to see whether there is any major development or change to the course, research findings/papers, special features or facilities.

2 *Practice*

The only way in which you can put into practice all the above and complete your preparation is to undergo a mock interview, or more if necessary. At Chelsea Independent College we organise mock interviews with experienced interviewers who understand the field and subject matter. Although going into an interview is slightly facing the unknown, the questions are likely to reflect the following:

1 Why do you want to be a dentist?

Looking for: Reasoning based on experience through exposure either personally or through family, which then led to interest building up. Will want to see evidence of work experience/shadowing and time spend in charitable and pursuits. An eager and animated rendition of some of the experiences undertaken, noting some particular observations with regard to treatment or the way in which a team worked well together is a positive approach.

2 What are essential qualities a dentist must have?

Looking for: Real understanding of the work and role of the dental surgeon within society. Will expect judgments to have been formed through experience and evaluation. Qualities talked about should reflect all aspects of the work. Technical skills must be mirrored by ability to communicate, listen and appreciate fully medical and psychological needs of the patient. Useful to refer to a particular surgeon when talking through a procedure.

3 Why are so many dentists opting out of the NHS?

Looking for: An in-depth up-to-the minute awareness of the state of dental practice within the NHS. The response should not be an immediate agreement that they are. You will need to demonstrate through your answers that you understand the historical background and the provision provided by the NHS. Political or sociological ideals should not interfere with any statements made.

4 Why do you want to study at this Dental school?

Looking for: The influences that have prompted choice. You will probably have a number of reasons, and they need to be clear and well thought out. Show that you have done your research and indicate what interests you in particular about the course, research, and others aspects of the school.

- 5 What do you think makes you a particularly good candidate for the study of dentistry?

Looking for: Awareness of what the profession fully entails, and a well thought out response aligning your own suitability. Useful to use example highlighting times when strengths and character traits have come to the fore, in school, community or work experience placement.

- 6 What do you think are some of the most interesting dental techniques that have been pioneered recently?

Looking for: Digging deeper and looking for evidence that you have built up knowledge through research, and that you keep up to date. Your response will need to be more than just a superficial understanding as it is likely that you will get a follow on question. So make sure that you fully understand terminology that you may use and how the treatment works. No one will expect you to be an expert.

- 7 What work experience do you have, and what do you think you have gained from it?

Looking for: Genuine interest and excitement derived. What enthused you the most? You will not have much time so you will need to draw on your experiences carefully. Particular treatments and/or the way in which the dentist worked with his/her team may have had a big impact on you. You may have been struck by the way in which the dentist was able to respond well to so many different types of people. Always use examples that are interesting, and be prepared to answer questions on them.

3 *Performance*

Understanding appearance, appropriate body language and how to communicate with a group is important. In essence, performing well simply highlights an ability to communicate and indicates confidence eschewing diffidence. Attention to appearance, a solid handshake, good eye contact with the panel and a happy and positive demeanour are a good starting point. Think, speak clearly and coherently, be succinct, do not try to force out as much as you can. It may be competitive but you are not in a race. Don't forget to smile and thank the panel for their time at the end. A deep breath at the beginning, and probably one or two when you finish!

Interview Over - What Next?

Seems like a lifetime, yet quarter of an hour and it's all over. Now the waiting game. Although you will want to discuss the interview with those around you, you do not need to spend too much time on the 'what if' scenario. Hindsight is a wonderful thing, and if you could bottle it and sell it you would make a million. But you can't! While you go off to pontificate, the interview panel will make one of three recommendations to the Dean. They will either

- 1 Decide to Make a Conditional Offer.
- 2 Refer you for further discussion.
- 3 Make a decision to reject you.

What does this mean?

- 1 The Offer: The Panel is satisfied that you are suited on all counts for the practice of dentistry and will offer a place upon the achievement of set grades.
- 2 Referral: You may be borderline and placed on a waiting list.
- 3 Rejection: Your level of motivation or understanding of the dental profession may have been unconvincing and lacking in magnitude. Unease with people, insufficient experience, limited knowledge of the medical world, lack of awareness in current affairs could all be contributory factors.

A Level Results Day - The Final Stage

- 1 Got the grades, well done! Now comes the real hard work.
- 2 If you are not holding an offer but have achieved grades which have exceeded your predictions, then you have an opportunity to try again. Whilst the possibility of getting a place through clearing is not entirely impossible, it is highly unlikely. Compose a letter and send it without delay to dental schools, ask your referee to telephone them in support of your case. Realistically you will probably have to wait another year, but if it what you really want to do, then you can use the time profitably gaining further experience.
- 3 Sadly you are holding an offer but have not achieved the requested grades. For many students this will be the biggest disappointment they have had to face, and a period of mourning and tears precedes the crunch and decision time. What can you do, what should you do, is it worth it? This array of questions and many others will be playing havoc with emotions, and sometimes rational thought is not at the immediate forefront. The options are straightforward, either you take an alternative course or you retake A levels.

If your intent to study dentistry is still resolute and not impaired by this setback, then consideration must be given to the retake option. Your ears will probably resound to horror and success stories of students who have followed this route. A word of caution, do listen to advice and if dentistry is not for you, be sensible and look at one of the many alternatives on offer which will encompass your interests and talents. At Chelsea Independent College we store great emphasis on assessing each case individually and realistically. The underlying need is to establish credible reasons for poor performance and to what extent mitigating circumstances were responsible. We do not seek excuses, we simply need to be sure that we can help you reach your potential.

The choice to retake does not ensure an offer. In fact, unless you were holding an offer previously you may well have to get the grades first. This could mean two years before entrance to dental school. How you view this will very much depend on your innate desire to follow this path. At the end of the day there is not guarantee, but the course does look for tenacity, motivation and proof that you are committed to enter the profession.

Veering Towards Veterinary Science

Introduction

The romanticized image of the veterinary surgeon is often at odds with some of the tough choices facing the profession. To many the field of veterinary science is embodied by the vet who devotes his life to the welfare of sick animals on the farm and at home. The reality is that the vet has to appreciate the cost of treatment is not always affordable and often an animal's life will be viewed in a commercial sense. Growing dependence on the role of animals as companion has highlighted the importance of the need for their care and treatment. Standards in the level of clinical advice and care are ever evolving in order to safeguard their health, prevent disease and to insure that hazards to human health are minimized.

In addition to primarily ensuring a level of adequate care is provided for animals, vets are also concerned with food production from animals. Their aim is to strike a balance between the proficient application of biotechnical knowledge and concern for the welfare of the animal. Recent years have witnessed an increase in the demand for veterinarians who have postgraduate clinical training in specialist areas, or in the disease of specific animal species. Roughly a quarter of veterinarians are employed in universities and research establishments, government service and pharmaceutical companies amongst others. Opportunities exist within the State Veterinary Service of the Ministry of Agriculture, Fisheries and Food, the animal charities RSPCA and PDSA, as well as the various pet food and drug companies.

For the majority of those entering the profession the control of disease and the relief of suffering still remain the primary concern. Nevertheless, employment opportunities within the profession are among the most diverse. There are numerous career opportunities in more specialized fields such as immunology, microbiology, parasitology and pathology. Private practice is exceedingly varied and becoming ever more specialized through the discipline followed or by the species its incumbents deal with. The underlying shared bond is that they relish the biological sciences and have a desire to work with animals. We may be prone to a little over indulgence when it comes to our pets, but perhaps there is still a way to go before we emulate the beauty and grooming parlors of the United States!

The Person

The extent to which the average person has had exposure to animals is perhaps the mandatory childhood hamster or rabbit, the family cat or dog, perhaps we can even the odd goldfish. That's where in the majority of cases the interest and desire ends. The prospective student of veterinary science is a curious mixture of natural scientist and born communicator. The ability to console the owner whose pet has little hope of survival, and at the same time comfort an animal relating to a different language is rare. Ask grateful owners what makes their vet special and they will probably be afforded godlike status. Ask the veterinary schools what attributes they are looking for in prospective students, and these are some of the responses you will get:

- * Stamina and a never ending capacity for sheer hard work.
- * An inquisitive mind drawn toward problem solving.
- * Ability to communicate with all types of people.
- * Natural affinity towards animals of all types.
- * Patience and the ability to listen.
- * A real 'muck in' attitude and physical strength.
- * Realistic understanding of veterinary science in commercial terms.

If you simply love animals and want to work outside then it probably is not the career for you. Like his compatriot the prospective dentist or doctor, the veterinarian must be able to show dedication and commitment in pursuit of their training. An overwhelming number of vets will have experienced the desire to work within the field from an early stage. Fledgling interest is often determined by personal association living in farming and agricultural communities, or through active participation in equestrian sports. Further appreciation and awareness for the welfare of animals is gained through practical experience and general research. The level at which technological advance has impacted upon veterinary science is no different to dentistry or medicine. The veterinarian needs to be adaptable, able and willing to keep up with the level of change that will continue to take place throughout their career.

Laying the Foundation

Veterinary science is the most fiercely competitive degree course in the UK. Gaining a coveted place will require strong evidence of interest and motivation. Strong academic performance must be supplemented by good background knowledge and practical work experience. The following are some guidelines that Chelsea Independent College students to ensure that this criteria is met:

- 1 Practical Experience: Embark on some work experience spending at least two weeks in more than on veterinary practice. Spend at least two weeks on a dairy farm and a livestock farm. Build a mixture of other experience which should include helping out in kennels, stables or animal sanctuaries and zoos. Glasgow University recommends that you should take a few riding lessons if you are inexperienced working with horses. As well as giving you first hand experience of the world of animal welfare and animal husbandry, any unknown allergies or reactions that you are unaware of will come to the surface. Time spent in a laboratory is also beneficial, particularly for those who may wish to ultimately pursue a research career. Realistically you should have about two months experience in total.
- 2 Research: Akin to the practical experience you should be collating a portfolio of information on a variety of animal issues. You may find that you are drawn to a particular animal species and wish to further develop your understanding and build up a knowledge on all that is known about it. You may also elect to track perhaps one of the species that is becoming extinct, and assess the way in which different world communities are collaborating and working together to protect it. Quarantine, vivisection and ethics issues are regularly aired in the media and comparison between the UK, the stance adopted by the EU and other countries would make interesting study.

Transmission of disease through animals has been highly topical in recent years, with BSE and the Ecoli virus at the forefront. A grasp of the main facts surrounding the advent of these diseases, what type of preventive action is taking place, what the future holds. Although political controversy can at times appear to shroud the facts in mystery, dig deeper the information is all there. Accumulate any information that you can from the drug and food companies, as they will generally be involved in varying forms of research.

Academic Background

By its very nature the intensity of demand for veterinary science courses simply enforces academic excellence and high achievement. A major restrictive factor is the number of places available as there are only six institutions in the UK which offer veterinary science and this simply exacerbates the situation. Typical course offers for A level students are AAB, with two of the six stipulating AAA. Nonetheless, like medicine and dentistry, veterinary science is a vocation and will continue to attract those with the tenacity and sheer determination to succeed.

Once again the breadth and quality of GCSE subjects and grades is under the microscope. A smattering of good grades is no longer sufficient, the number of A and A* grades attained is hugely influential. Obviously a natural leaning toward science subjects needs to be prevalent, but in addition an all round student with a wide range of interest and skills needs to emerge. Remember that in the majority of cases these will be the only grades achieved and therefore their role is all important. The choice of A level subjects is very much determined by the veterinary schools and Chemistry is the common core required subject. Biology (Zoology is an acceptable alternative, always check with the individual schools) is also currently required by three schools, and generally the request is that the third subject is taken from Mathematics or Physics.

The Courses and Schools

Slightly a double edged sword as with only six to choose from the choice is made for you. You still need to undertake the appropriate research to understand the make up of the veterinary school, how the course is structured, any particular special features/links that it may have. In addition, you will want to know more about the university of which it is a part. The veterinary schools are accountable for the teaching and examining of courses, their content and standards are inspected by the RCVS. They must also conform to the Veterinary Directives of the European Union. The degree course extends over five years (six at Cambridge) and completion admits students to membership of the Royal College of Veterinary Science, the professional qualification required by those who wish to enter practice. The RCVS also offers certificate and diploma examinations for specialist qualification.

The veterinary science courses all include study of the dominant animal species encountered in practice (for example, cats, cattle, dogs, sheep, pigs, horses,

dogs, cats, birds as well as less common ones). In addition to the degree course content, the Royal College of Veterinary Surgeons requires all veterinary students to undertake a period of extra-mural studies. Currently a period of 38 weeks of experience needs to be gained in holiday periods during the five years. The following is a brief profile on each of the veterinary schools:

Bristol University - School of Veterinary Science, University of Bristol, Senate House, Tyndall Avenue, BS8 1TH, Veterinary Admissions Clerk - 0117 928 7679. Typical offer AAB. Estimated intake 65. Chemistry, Biology or Zoology, Physics or Mathematics. Interview. Will consider retakes.

Cambridge University - Department of Veterinary Science, Madingley Road, Cambridge, CB3 0ES, Intercollegiate Applications Office - 01223 333308. The course at Cambridge takes place over a six year period. The first three years will focus on pre-clinical sciences, taught within the guidelines of the Medical and Veterinary Sciences Tripos, and leads to the BA degree. Typical offer AAA. Chemistry and one of Biology, Physics or Mathematics. Third subject can be non science based. Interview.

Edinburgh University - Admissions Office, Faculty of Veterinary Medicine, Royal (Dick) School of Veterinary Studies, Summerhall, Edinburgh, EH9 1QH, 0131 650 6178. Typical offer AAB. Chemistry must be A grade, and two of Biology, Mathematics or Physics. Interview. No to retakes.

Glasgow University - School of Veterinary Medicine, University of Glasgow, Bearsden Road, Glasgow, G61 1QH, 0141 330 5705. Typical offer AAB. Chemistry at A grade, with Biology and either Physics or Mathematics at AB or BA. Interview. No to retakes.

Liverpool University - Faculty of Veterinary Science, The University of Liverpool, L69 3BX, 0151 794 4281. Typical offer AAB. Chemistry with Biology and Physics most common combination. An alternative is Chemistry with either Biology, Zoology, Mathematics or Physics, plus a third subject. Some interviews. Unlikely to consider retakes.

Royal Veterinary College, London - The Registry, The Royal Veterinary College, University of London, Royal College Street, London, NW1 OUT, 0171 468 5000. Typical offer AAA. Biology and Chemistry and one other subject which does not overlap with the two prescribed subjects. Interview. Limited consideration of retake students.

The UCAS Form

The UCAS form is your key to the interview, and with a ratio of one to five applications receiving an offer of place, its importance is once again magnified. It highlights to the admissions committee your scholastic achievements and potential; general interests and experiences; initiative and motivation for the study of veterinary science. Your personal statement should not reflect a purely theoretical rendition of what you have seen or read about, but should bring to life your experiences exemplifying your suitability for the profession. This should be reinforced by your referee.

You should use five out of the six choices for veterinary science courses. The sixth choice can be a related course, such as animal science, and this should not prejudice your application. Again bear in mind that if you accept the 'insurance' offer you are obligated to take it. The following are guidelines that Chelsea Independent College students will follow:

- * Practice on photocopies until you and your personal tutor are satisfied before completing the original. The form is reduced by a third when photocopied and distributed by UCAS, so clarity and legibility is fundamental.
- * Scrutinize all factual information, ensure that it is in chronological order. You will be expected to be well informed and speak fluently on anything that you make reference to.
- * Section 10 gives you the opportunity to promote yourself. You may find it useful to plan your statement using headings and dividing it into sections. An advantage of this is that the eye is drawn to areas of interest immediately.

The selectors will be looking to assess you on the following criteria:

- * GCSE grades, A and A* achieved, breadth of subjects, evidence of dexterity in subjects.
- * Evidence of motivation and suitability for the profession. The typical application will merit high scholastic achievement thus all practical experience and involvement should mirror this. Exposure to a number of veterinary environments, maturity, motivation, interests, and an in-depth understanding of what the profession entails.

The Interview

Trembling figures rip open the envelope bearing the invitation for interview. A sense of jubilation and a pat on the back is allowed, and in some ways mandatory, at this stage! The interview is your chance to show that you are eminently suitable to train as a veterinarian. The intention of the interview panel is not to 'grill' you, but they will anticipate an acute awareness of all aspects of the profession. You will be expected to have views on controversial issues such as vivisection, and to understand that much of the work of the vet is focused on commercial aspects of animal production. Be prepared also to face questions on your A level syllabus.

Four out of the six schools will make offers based on interview. The length of interview is much the same as medicine, fifteen to twenty minutes, and the average interview panel will comprise three people. The key to the interview is the preparation and practice time that you put into it, and the guidelines you should adhere to are very much those outlined in the medicine section.

The following are examples of the type of questions you could expect:

1 Why do you want to be a Vet?

Looking for: Real understanding substantiated by practical experience on the work of the veterinary surgeon. Looking to see that you are not under the illusion that it is all about saving the lives of animals.

2 What are your views on vivisection?

Looking for: You can state your own opinion as there is no right or wrong answer. What the school is looking for is how you state the argument. You should understand the necessity of vivisection, and the benefits that have been reaped through animal experimentation. Recognition that the world of veterinary medicine is not perfect. In the long run death of a few may lead to the saving of many animals. If you are against vivisection then say that in your view it is morally wrong.

3 Do you have any views on vegetarians?

Looking for: Recognise the importance of animal welfare in the way that they are treated and killed rather than human consumption.

It is very much the welfare issue rather than a right or wrong moral imperative. You feel that, as a vet your job is to ensure that animals are treated humanely, because animals will always be eaten.

4 Do you have any feelings about intensive factory farming?

Looking for: Again it is the concept of idealism versus animal production. The key thing is to ensure animal welfare as best as one can. The desire for inexpensive food will always be there, and the need for factory farming will not be alleviated.

5 Would you eat beef? Describe the BSE problem.

Looking for: Yes because the Chief Veterinary Officer now believes that there is no problem with eating beef, however you do recognise the importance of the food chain. The BSE problem was brought into existence by the rendering of dead sheep carcasses and feeding to cattle.

What is interesting is the only reason infection occurred was a lowering in temperature at which rendering occurred, which was a commercial consideration. This led to the prion protein which is thought to cause BSE jumping the species barrier. In humans this prion is thought to cause new variant CJD, causing the sponginess in the brain and eventual death.

6 What does it take to be a good vet?

Looking for: Understanding the enormity of the role and the demands made upon veterinary surgeons. :Knowledge of the training and skills that need to be gained, and ability to communicate with people from varying backgrounds and communities. Emotional strength in dealing with animal demise, and stamina for the physical demands.

Post Interview

The stages following the interview proceed along the same lines as medicine and dentistry. Once A level results have been received the process with regard to clearing or retakes is the same. Again we will happily advise students on an individual basis.

Studying Optometry

Introduction

The word optometrist conjures up all sort of visual images, and many of us are perhaps more familiar with the term 'ophthalmic optician.' Optometry is essentially concerned with the human vision system, and requires a detailed understanding of the eye, both as an anatomical structure and as an optical system. It focuses on optical defects and functional disorders of the eye, and the way in which they can be corrected or relieved to restore maximum visual efficiency.

The optometrist's responsibilities include detection and monitoring of eye disease, the management of paediatric and geriatric eye disorders and binocular vision problems. In recent years the optometrist has become more actively involved in the primary care of patients with conditions such as diabetes and glaucoma. A career in optometry is still sought after for many reasons. It is a very varied and rewarding profession, combining scientific knowledge with commercial instinct. As well as centering around the clinical areas of pathology, refraction and contact lenses, the optometrist will advise on colour vision, occupational vision and illumination. The optometrist is also qualified to test vision and dispense spectacles and fit contact lenses.

The Person

The allure of optometry and associated disciplines begins for many people with their regular eye checks. This followed by a part time job or a spell or work experience at the optometrist's usually confirms interest in being part of the profession. As befits those entering one of the caring professions the optometrist must possess good communication and interpersonal skills, and show an interest in dealing with people and the community. A strong interest and ability in scientific subjects is vital, whilst an element of manual dexterity is desirable. A natural inquisitive element that is adept at problem solving is necessary in a career where it is essential to respond to constant change, analyze problems and challenge current ways of thinking. All courses are designed to cover all of these aspects in depth alongside the scientific training.

The Courses and Qualification

Upon completion of the BSc in Optometry, which is a three year course, the optometry graduate will spend a year working in clinical practice under the auspices of a registered optometrist or in the ophthalmic department of a hospital. This will include taking the Professional Qualifying Examinations of the College of Optometrists, the completion of which precedes recommendation for inclusion in the Opticians Register maintained by the General Optical Council. There are only seven universities which offer the study of Optometry, and the level of competition for entry is reflected in an average A level offer of AAB/ABB, strong GCSE performance with some actively looking for A, A* and B grades. Most courses are designed to integrate the scientific and clinical components at an early stage. The table below indicates the lists the institutions offering Optometry and their individual requirements:

University	Grades	Interview
Aston	AAB	No
Bradford	ABB	Yes
Cardiff	AAB/ABB	No
City	AAB/ABB	Yes
Glasgow Caledonian	BBC	Yes
Ulster	AAB	Few
UMIST	ABB	No

Selection Criteria

Approximately half of the faculties offering Optometry will interview, the remainder will make their decision based on the UCAS form. Obviously they are looking for the same attributes. The interview is further evidence of motivation, creating an opportunity for selectors to meet the candidate and assess how they would fit it and contribute to the department. Your UCAS form should indicate clearly why you wish to pursue optometry. It is vital that you have gained some practical experience, built up an understanding of the profession and show through voluntary and community work good communication ability. All will ask for two science subjects and a third approved subject. Always check with the individual universities to ensure that your choice is acceptable.

Studying Physiotherapy

Mention 'physio' and images of the football or rugby pitch with the club physiotherapist soothing aching limbs and joints are probably foremost in our minds. Physiotherapy is an essential aspect of health care provision and, as such, the physiotherapist is integral in restoring movement and function. Physiotherapy is both science and skill; it is a blend of scientific knowledge and ability to understand, and communicate, with people of all ages and types. Prognosis relies on clinical reasoning and judgment, resulting in the application of techniques firmly established in a sound knowledge of anatomy, physiology, pathology and psychology.

The physiotherapist will treat and rehabilitate working in partnership with other health care professionals. Treatment methods may involve the use of electrical equipment such as ultrasound; exercises designed to strengthen muscles and manipulation of joints. Some patients may need to be re-educated in processes that are normally taken for granted but necessary in returning to an independent way of life. An example is learning how to walk again. The greatest proportion of qualified physiotherapists are employed in hospitals, with openings in specialist units as neurology, paediatrics, and orthopaedic to name a few. Opportunities continue to arise in professional sport, industry and private practice.

Why Physiotherapy? It is certainly popular and hugely competitive. Demand for places at university is continually soaring in spite of the fact that 30 institutions provide courses. Nottingham and Southampton experience respectively 35 and 30 average applications per place (approximately)! Undoubtedly it is an exciting and rewarding career for people with scientific aptitude; team ethic; empathy and good communication skill in equal measure. Institutions offering courses degrees in Physiotherapy look for scientific interest and propensity; an interest in health and people; and experience of physiotherapy in practice, preferably in a hospital setting. Graduates qualify for membership of the Chartered Institute of Physiotherapy and State Registration enabling them to work within the NHS, social services or the private sector. They are also automatically eligible for State Registration with the Council for Professions Supplementary to Medicine.

King's College, London, is the only institution to offer a four year undergraduate programme (MSci). The majority will ask for Biology or a Biological Science at A level, and most prefer at least two science subjects.

The Courses

University	Grades Required	Interview
Birmingham	BBB	Yes
Bradford	BBC	Yes
Brighton	24-22 pts	Yes
Bristol UWE	BBC	Few
Brunel	BBB	No
Cardiff UWCM	BBC	Few
Coventry	BBB	Yes
East Anglia	BBB	No
East London	BCC	Yes
Glasgow Caledonian	CCC	No
Hertfordshire	24-18pts	
Huddersfield	BCC/BB	Yes
Keele	BBB	Few
Kingston	24 pts	No
Leeds	BBB	No
Metropolitan		
Liverpool	BBC	Yes
London King's	ABB	No
London St George's HMS	24 pts	Yes
Manchester	BBC	No
Nottingham	BBB/C	Yes
Northumbria	BCC	Yes
Oxford Brookes	BBB	No
Queen Margaret College	ABB	Yes
Robert Gordon	ABB	Yes
Salford	BBB	Yes
Sheffield Hallam	BBC	Yes
Southampton	BBB	No
Teeside	20 pts min	No
Ulster	AAB/ABB	No

Studying Pharmacy

The prominence and growth of major retailing chains such as Boots has radically influenced the dispensing and sale of medicines and drugs. Whilst the local shop culture, which would include the local chemist, has undergone radical change, the role of the pharmacist in society remains as important as ever. The pharmacist is responsible for the safe control, use and dispensing of medicinal products, and is also prevailed upon to provide professional advice on all aspects of health care and education. It is under this guise of community pharmacy that the profession has its primary point of contact with the public. Pharmacy brings together the branches of biological, chemical and medical sciences, which in association formulate active chemicals to produce medicines.

What is it that attracts young people in abundance to become career pharmacists? There is no doubt that it is a rewarding profession enabling specialist knowledge to be utilised in the public domain. The contribution of pharmacy to overall health ranges from discovery and development of medication, to dispensing and supplying to patients. Community work is followed by hospital pharmacy in popularity, where the role is to monitor prescriptions and advise on the correct usage and administration of drugs. The pharmacist is the health care team member strictly concerned with drugs and medicine, assisting consultants in choosing the most suitable treatment. Other career options will be found in academia or industry. Pharmaceutical knowledge is essential to the biotechnology industry in the search for more effective drugs to combat disease. Some pharmacists will choose to use their knowledge and training within marketing, journalism and other aspects of communication disseminating medical information.

What makes a good pharmacist? Intellectual curiosity, scientific aptitude and a propensity for hard work provide a solid foundation for training in pharmacy. In addition to these attributes, universities are also looking for a good spread of GCSE and A level grades, and of course a genuine interest in pharmacy. To support the latter valid experience can be gained through part time work in a pharmaceutical environment such as Boots and local pharmacies. Research to build up a knowledge base encapsulating the work of drugs giants such as GlaxoWellcome or SmithKline Beecham is very useful. Voluntary work in residential or nursing homes, and hospital environments, heightens an understanding of the skills necessary in working with people and health

All degree courses in the UK lead to the MPharm and last for a period of four years. Generally they will teach you about the origin and physio-chemical properties of drugs, and how they are analysed and synthesised before being administered to humans and animals. You will develop an understanding of the basic anatomy and physiology of cells, tissues and organs, and the prognosis and treatment of disease. Professional, legal and ethical aspects of pharmacy are incorporated in the training, as well as counseling skills critical to ensure effective use of medication.

To register as a pharmacist in the UK you must undertake a 12 month pre-registration training placement in an approved hospital or community pharmacy, or a split placement with six months spent in industry and six months in a hospital. This will lead to the examination of the Royal Pharmaceutical Society of Great Britain, which leads to full registration. The following table shows the institutions offering courses in Pharmacy and their current requirements. Chemistry at A level is required by all of them, and the majority will ask for two or three sciences at A level. As with all high demand subject the spread of GCSE subjects and grades achieved is significant.

University	Grades	Interview
Aston	BBB	Yes
Bath	26 pts, B in Chem	Yes
Belfast (Queen's)	AAB	Rarely
Bradford	BCC	Yes
Brighton	20-22 pts, B Chem	Yes
Cardiff	ABB	Yes
De Montfort	BBB/BCC	Yes
Liverpool John Moores	BBB/CCC	Yes
London (King's)	BBB	Rarely
London School of Pharmacy	BBB	Some
Manchester	BBC/AB	No
Nottingham	AAB/ABB	Yes
Portsmouth	BCC	No
Robert Gordon	CCC	Yes
Strathclyde	BBC, B in Chem	Yes
Sunderland	BCC	Yes

Parental Guide

Here at Chelsea Independent College we constantly remind ourselves that parents often need as much guidance as student at crucial moments. These tend to fall into two major categories, taking GCSE and A level examinations, and making university choices and applications. Of course, entwined within these is the critical exam results day. Education is the key to so much in our lives, and as such, enforces us to make vital decisions at early stages. The primary school curriculum, senior school choices and university offerings have all undergone dramatic change in recent years. This makes much of what happens uncharted territory for parents. Consequently, we will often see parents on their own.

Some initial advice to help with the early stages. Encourage children to develop wide interests, encompassing academic, cultural and cultural issues. Involvement in activities both school and community based nurture healthy awareness and communication abilities. Without being overly prescriptive, exposure to publications focusing on world and national issues, and specialist scientific magazines, help reinforce a solid general knowledge foundation.

When your child is in the process of making A level choices it is important that they choose subjects reflecting their interests and aptitudes. The range of subjects offered at this level has grown significantly, and the potential mix far more interesting. It is important to understand the delineation between academic subjects and those that are more vocationally orientated. Our own prejudices should not in any way influence choice. University admissions offices are always extremely helpful in clarifying subject validity and acceptance. Apart from the initial prospectus request, university contact should always be made by the student. After all, they are looking for independence in the student and not the parent.

Work patterns will also vary considerably. Extensive educational research has shown that we are programmed to work in different ways. Some people will work more effectively in the morning, while others are night owls. The goals are being met as long as a routine is established and results achieved. Whether your child works in a comfy chair with music on becomes an irrelevance. Defining an appropriate set of study and learning skills helps to make the difference between A and E grades at A level, alongside active encouragement and student centered teaching. This is where we come in to help your child achieve educational success.

Action Diary

Pre and GCSE Student:

Use your school holidays effectively and undertake some voluntary and community work. When you are old enough consider taking a part time job in any one of the following: care or nursing homes, community centers, local pharmacist. Ask members of your family and friends involved in the medical sciences if you can spend time work shadowing them. Arrange to do the same with your GP (dentist, vet, pharmacist, optometrist, physiotherapist) and see if they can give you names of other contacts. Commence research and awareness building activity. Continue school activities and clubs that you participate in such as: Drama Club, Orchestra, Duke of Edinburgh's Award Scheme. Put lots of effort into your GCSE courses, keep those A and A* grades in mind. Make A level subject choices carefully.

Lower Sixth Student:

Start your A level course with the right attitude toward your studies. Establish a pattern and ensure that you do not fall into the last minute trap. A level predictions will be based on lower sixth performance and not just future promise. Carry on, time permitting, voluntary and any other work commitment, and use time left to experience unknown areas. Make sure that you do not neglect research. Spend plenty of time getting prospectuses, collating information asking all the questions that you need to make your choices. Avoid the last minute scramble to meet the UCAS deadline of 15 October for Medicine and Oxbridge, or 15 December for other courses.

Awaiting A Level Results:

Try not to spend too much time in lengthy post mortems once the examinations are over. If you anticipate poor performance caused by factors outside your control then a little reality and planning ahead is a good idea. Look at the retake option and ask for information from sixth form colleges. Then at least if your fears are confirmed in August you can make immediate appointments to visit and get some specialist advice.

Suggested Reading

University and College Entrance: Official Guide 2000, UCAS, Cheltenham

Degree Course Offers, Brian Heap, Trotman, Surrey

A Student's Guide to Entry to Medicine, UCAS, Cheltenham

The New Learning Medicine, Peter Richards and Simon Stockill, BMJ Publishing Group, London

Doctors to Be, Susan Spindler, BBC Publishing, London

Getting into Medical School, Joe Ruston and James Burnett, Trotman, Surrey

A Doctor Or Else? John Thurman, Yare Valley Publishers, Norfolk

Getting into Medicine, Hodder Headline, London

Useful Websites:

Each of the schools and universities mentioned will have their own quite extensive sites, but the following will also provide useful information:

UCAS - www.ucas.ac.uk

British Medical Journal - www.bmj.com

World Health Organisation - www.who.org