

Angela E. Fanshawe and Michael E. Ibrahim

Introduction

A surgical career combines technical prowess, tough decision-making, the care of acutely unwell patients and the rewards of repairing and restoring function. For this reason, surgery is a fantastic career. It is also demanding, competitive and requires great stamina. As medical students, there is so much you can do to set your career off on the right footing.

In this chapter, we discuss the things you can do in medical school to give you the best shot at getting the career that you want. The first specific hurdle in becoming a surgeon in the UK is securing a core surgical training post (CST1-2) after your two-year foundation training. So that you know what you're aiming for (right from the basics), it is worth looking at the person specification outlined on the Core Surgery National Recruitment for the NHS page whilst still at

medical school. The extent to which you match the person specification determines how likely you are to get into surgical training (<http://www.surgeryrecruitment.nhs.uk/downloads>).

Although it may seem too soon to be considering postgraduate applications in medical school, bear in mind that surgery is competitive and things that will stand out on your application form (audits, research, presentations) often take a very long time to see to completion. Starting early also allows you to make mistakes but still ultimately succeed. In this chapter, we discuss the key features of a surgical career, alternative similar careers and discuss what can be done at medical school to help one succeed.

A Surgical Career

Many different sorts of people have become excellent surgeons. However, in “the little red book” published by the American College of Surgeons, Drs Johansen and Heimbach discuss surgical “traits” (<https://www.facs.org/education/resources/residency-search>). These are certain personality traits that are worthwhile reflecting upon when deciding whether you could make a productive and happy surgeon. Such traits include a propensity to lead, good organisational skills, decisiveness, a thirst for excellence, and clarity of thought and communication. Attention to detail is particularly important in surgery because the finer

A.E. Fanshawe, MA, MBBS, MRCS (✉)
General Surgery, Northwick Park Hospital,
Watford Road, Harrow HA1 3UJ, UK
e-mail: angela.fanshawe1@gmail.com

M.E. Ibrahim, MA, MBBS, AICSM, PhD
Integrated Resident in Cardiothoracic Surgery,
University of Pennsylvania, Philadelphia, PA, USA

Division of Cardiovascular Surgery, Hospital
of the University of Pennsylvania,
3400 Spruce Street, 6 Silverstein Pavilion,
Philadelphia, PA 19104, USA
e-mail: michaelibrahim@doctors.org.uk

points can have life-changing consequences. Note that many of these traits are only developed over time and with practice, but having a natural inclination towards them is a good starting point.

Whilst surgery is sometimes reduced to the technical act of operating, it is much more than this. It is the privilege of gaining the confidence of a patient who is fearful, seeing them through an operation using meticulous surgical technique and post-operative care, and having the reward of following them up afterwards. Having said this, it is essential that you do like the technical act of operating! So much can be learnt from scrubbing up and simply watching operations. How does the surgeon approach decisions? How do they hold their instruments? How do they handle particular tissues? If you do not enjoy this, then you are unlikely to find surgery a rewarding experience.

If not all of the above sounds appealing, it might be worth considering alternative careers. Technical challenge is intrinsic to both anaesthetics and interventional radiology. Tough decision-making and looking after acutely unwell patients is the day-to-day work of the intensive care physician. Those who prefer more career stability and quicker rewards might consider obstetrics and gynaecology. If having a lifestyle free of on-calls is important to you, consider being a general practitioner with a specialist interest in minor surgery.

Building a Surgical Career

Medical School Examinations

Performing well in your medical school examinations is important. Good performance helps you get your chosen foundation jobs as the higher you rank within your medical school, the more FPAS (Foundation Programme Application System) points you are awarded. A better performance also means it is more likely you will be awarded a prize (most medical schools have prizes for both subject-specific performance and overall performance). More fundamentally, the safe and effective practice of surgery is underpinned by the basic sciences and core clinical knowledge.

The postgraduate examinations in surgery are MRCS (Member of the Royal College of Surgery) Part A (multiple-choice written examination) and Part B (a clinical examination). Whilst Part B is better taken once you have at least a few years of postgraduate clinical experience, Part A is best sat soon after medical school as the knowledge required leads on well from final year examination requirements.

BSc/Intercalation

If you are convinced you want to pursue a career in surgery from an early point in medical school, it may be worth choosing to do a BSc (and doing well in it) in a surgical topic. Not only will it give you insight into a surgical career, but will demonstrate commitment to surgery from a very early point (which looks impressive for core surgical application). A BSc with a strong research component is an excellent choice as evidence of publications and presentations plays an important part in the application process. This research component may take the form of original laboratory or clinical research, or it may be a literature review for a dissertation. Both are valid and every opportunity should be pursued to publish the research you have produced. A dissertation, for example, can be modified into a review article for a journal.

Student-Selected Modules and Electives

Almost all medical schools now offer 'student-selected' components as part of their curricula. Take every opportunity to choose modules that will give you a better insight into a surgical career and enhance your application to core surgical training. Don't worry if there are no modules in the specialty that you think you might want to do, or even in any surgical specialty itself – anything allied to surgery will be of use in informing your career and contributing to your application. For example, anaesthetics and intensive care, obstetrics and gynaecology and accident and emergency may all be useful.

Similarly, choose an elective that will give you an opportunity to demonstrate your commitment to surgery at interview. There are a number of travel bursaries available from the various colleges, including the Royal College of Surgeons of Edinburgh (<http://www.rcsed.ac.uk/fellows-members/awards-and-grants/bursaries.aspx>).

Foundation Jobs

Whilst it currently remains essential for foundation doctors to have had experience of both medical and surgical specialties, you can tailor your two years appropriately. Choose programs from which you will learn skills relevant to surgery, such as critical care (anaesthesia and intensive care), or which may have topical overlap with surgery (such as oncology). When it comes to success in the interview for core surgery, it certainly helps to have had some experience of a general surgical or trauma and orthopaedic surgical on-call.

Prizes

Prizes make an applicant stand out from their competition. This is important to remember when applying to a competitive specialty like surgery, especially in a competitive location like London. Prizes are not reserved to performing well in examinations at medical school. The Royal College of Surgeons of England (<http://surgicalcareers.rcseng.ac.uk/students/medical-students/prizes>), the Royal Society of Medicine (<https://www.rsm.ac.uk/prizes-awards/students.aspx>) and the Women in Surgery network (<http://surgicalcareers.rcseng.ac.uk/wins/women-in-surgery-prizes-1>) all provide opportunities to win prizes in a variety of competitive formats. Even if you prepare a project that does not win a prize, it will most likely be suitable for submission elsewhere (for example, to a conference or journal).

Audit

An audit is a process by which healthcare professionals aim to improve the quality of the service

they provide by measuring the current provision against a standard. The standard is an ideal set either locally by a hospital trust or more generally, by governing bodies such as NICE.

Audits are an essential part of the application system to core surgical training, as participation in an audit demonstrates an understanding of the NHS and a desire to improve the current service provision. Medical students are perfectly suited to getting involved right from the beginning of any audit process. On your surgical attachment, take note if you see any aspect of patient management that could be improved, or ask the team (ideally SHOs, registrars or consultants) whether they have any ideas. You could then be responsible for anything from data collection to analysis and write-up. If you discover widely applicable learning outcomes, the results and recommendations of the audit could be suitable for presentation at a local or national meeting. Extra points are awarded at application time for audits in which the 'cycle has been completed'. This means that an element of healthcare provision has been re-audited after the recommendations of the first audit have been implemented.

Research and Publications

As a medical student, the prospect of research may seem daunting. Involvement in research is, however, an important part of any medical career, since lifelong learning is essential. It also helps in any application processes. Doing a BSc (as above) may provide one route into research, which should ideally be published and listed on PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>).

However, you do not need to have a formal BSc project to be engaged in research. Approach a productive senior colleague in your specialty of choice as they are certain to have projects with which you could help. While simple projects like case reports are a good start and make a useful contribution, you should aim to be involved in the highest quality research available: for example, this research may involve a significant number of patients in a well-run trial or series, and address an important question. Getting anything

published in a journal takes a long time. This could be in the order of months to years once submission, revision, re-submission, re-revision and proofing takes place. Therefore you need to be prepared and start a long time ahead of any deadline or job application.

It is important to understand that engaging in research is not simply about gaining publications. Research will develop your understanding of your specialty, your critical sense and your passion for medicine. Do not believe that surgical research involves only patients. There are many surgeon scientists whose discoveries in the laboratory are influencing patient care.

Presentations

Oral or poster presentations at regional, national and international conferences are excellent experience. Often an audit or research project that is not suitable for publication may be appropriate for poster presentation instead. Find a conference based on the topic of your audit or research (through a relevant society for example) and submit an abstract for presentation.

You will gain much from attending these conferences, by learning about what is new in your specialty. After all, building a passion for science and surgery is ultimately more important than building your CV. Note that if your work is accepted for oral presentation, it helps to have had some experience of public speaking. One way of achieving this is to volunteer to present at local meetings e.g. trauma meetings, morbidity and mortality gatherings and grand rounds.

Portfolio of Cases

All surgical trainees now keep a logbook of the cases they have been involved in. The vast majority of trainees use a resource called E Logbook (<https://www.elogbook.org>), which allows you to list cases by specialty. Information required varies depending on specialty but usually involves patient ID number (NHS or hospital), date of birth, ASA (American Society of Anaesthesiologists)

grade, date of operation, nature of operation, hospital, and your personal involvement in the operation (observing, assisting or performing, for example). Medical students can sign up to E Logbook, and although signing up is non-essential for a successful application into surgical training, it gives you an organized framework for discussing your surgical experiences to date (and it is free).

Teaching and Leadership

Teaching is a common topic for discussion on application forms and at interview. It is never too early to start teaching. It may take a variety of formats including teaching elementary clinical skills to groups of early-year medical students or one-to-one basic science mentorship for students taking anatomy or physiology examinations. If you can find a way of setting up your own teaching programme, this carries more core surgical application points than participating in an already-established programme. Although some may find it intimidating, remember that teaching is an excellent way to consolidate your own learning and build confidence. Experience of leadership is also commonly assessed and this does not necessarily need to have taken place in a clinical context. Captaining a sports team, balancing a budget for a committee or providing pastoral support in your medical school all count as valid examples of leadership.

Courses

Participating in courses helps demonstrate your interest in, and commitment to, surgery. The Royal College of Surgeons of England run a number of courses geared towards medical students (<https://www.rcseng.ac.uk/courses>), including those in anatomy and basic practical surgical skills. Some hospitals now run courses in laparoscopic surgical simulation, which will certainly improve your practical skills and confidence in the operating theatre. At a postgraduate level, a number of courses are recommended

prior to core surgical application, including Basic Surgical Skills (BSS, RCS) and Advanced Trauma Life Support (ATLS®). Once qualified, remember to apply early for these as places tend to get filled up very quickly. Note that all courses can be quite financially draining and since many hospitals will offer a reasonable study budget in your foundation years, it may be worth postponing course participation until this time.

An International Perspective

Many surgical trainees now supplement their learning with time spent abroad, or even start their surgical training abroad. The USA is a particularly popular choice, either for residency (5–6 years to completion, depending upon subspecialty) or fellowship (1–2 years post-completion of specialist registrar training). Remember that a residency in the USA can be pursued at any time after graduation, but being a ‘foreign medical graduate’ (graduating from a university outside the USA) can be a significant disadvantage on your application. An excellent CV (see above), together with outstanding USMLE (United States Medical Licensing

Examination) results is essential to pursue a residency in a renowned institution. Consider also the possibility of training in Europe, as many countries (such as Germany) have the option of pursuing a residency in your desired specialty straight out of medical school. There are advantages and disadvantages to any healthcare system, so the most important factor to consider is where you ultimately want to end up practicing as a consultant. Working with charitable organisations that enhance the provision of surgery in the developing world may provide a unique opportunity to enhance your surgical experience, exchange knowledge and seek out career development in the context of helping to serve under-privileged populations.

Summary

Despite being tiring, competitive, risky, demanding and punishing, surgery remains one of the most sought-after careers in medicine. This is because it remains beautiful, challenging and requires perhaps the maximal development of our humanity and of our clinical knowledge and skill. We hope that the tips in this chapter help in your preparation for a career in surgery.