

Maximizing opportunities at medical school to support a career in surgery

ABSTRACT

Introduction: During medical school, students have numerous opportunities to develop their portfolios for a career in surgery, such as undertaking additional surgical placements and participating in surgical research. However, at present, there is little guidance available for medical students on how to build a strong portfolio for the UK core surgical training application. This article outlines work undertaken to provide concise guidance to support future surgeons, via application of the competency-based CanMEDS framework to the current UK core surgical training specification.

Materials and methods: A pre-conference meeting was arranged for medical students at the Society of Academic and Research Surgeons annual conference in January 2018. Self-selected research enthusiasts from different university years discussed practical approaches to pair the CanMEDS model with the core surgical training specification, with support from the STARSurg Collaborative committee to facilitate discussion. A nominal group-based method was adopted in order to reach areas of consensus.

Results: Practical tips and recommendations for each respective CanMEDS domain (communicator, collaborator, leader, health advocate, scholar, professional) were made in relation to the core surgical training specification. These included key action points and named opportunities that are currently available to UK medical students.

Conclusions: A consensus approach was taken to address key areas of competence across each CanMEDS domain. This informed the development of a guidance framework to support students to develop a strong portfolio for a core surgical training application. This framework can be followed by medical students, equipping them with the skills necessary to succeed in their future surgical career.

opportunities to increase success in surgical training (Walker et al, 2019). While some students are able to identify supportive surgical mentors early in their medical school careers (often by chance), those who are unable to access this support are left disempowered. There is a need for an accessible framework to support early career development in surgery and to democratise access to structured advice and mentorship.

The Royal College of Physicians and Surgeons of Canada published a six-point framework (CanMEDS) that describes the comprehensive development of a modern medical professional (Frank, 2005). An informal consensus discussion was held to inform the use of the CanMEDS model framework for medical students pursuing surgery, with the aim of producing a high yield and practical approach for students to follow to prepare for a surgical career.

What is the CanMEDS model?

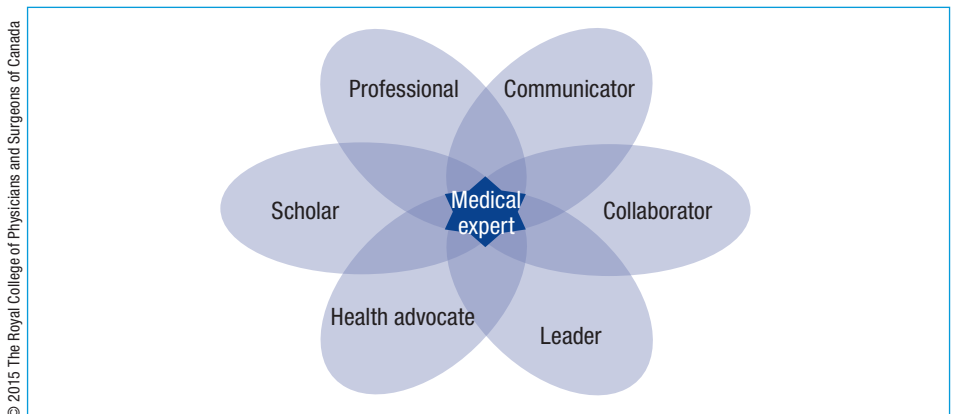
The CanMEDS model is a framework developed in Canada in the 1990s following the Educating Future Physicians for Ontario project (Neufeld et al, 1998). The model provides a competency-based framework for doctors in their pursuit of medical expertise to meet the health-care needs of society. CanMEDS describes six fundamental domains of the attributes required to achieve this (Figure 1):

of clarity as to the accessibility, relevance and importance of attaining these requirements even as a medical student.

Senior mentorship can offer invaluable insight and expertise to guide medical students to undertake high yield activities to bolster their personal development, can encourage career progression, and can offer

In the UK and Ireland, an increasing focus on research, innovation and entrepreneurship is prompting a shift towards early specialization in medical training (Taylor et al, 2005). Medical students are navigating towards specific career paths earlier within their training than ever before. To remain competitive at specialty selection, surgically-minded students must develop evidence of early skills development for their portfolios (McNally, 2008), with core surgical training applications due just 14 months after commencing postgraduate practice. While published person specifications exist for surgical specialty training (Health Education England, 2019), there is a stark lack

Figure 1. The CanMEDS model of six domains of medical expertise. From Royal College of Physicians and Surgeons of Canada (2015).



STARSurg Collaborative

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1. Communicator
2. Collaborator
3. Leader
4. Health advocate
5. Scholar
6. Professional (*Figure 1*).

The model is currently in its seventh phase of development and has been formally incorporated as the basis of educational standards in Canada, acting as a standard set for both specialty training and continuing professional development (Frank, 2005). Application of the CanMEDS model to the Health Education England core surgical training person specification provides a clear, holistic summary of the essential attributes of a future surgeon (Health Education England, 2019). Medical students can adopt this framework for personal development planning, in partnership with educational supervisors and their local surgical champions.

Methods

A pre-conference meeting for medical students was held by the STARSurg Collaborative (<http://starsurg.org>) at the Society of Academic and Research Surgeons conference, Nottingham, January 2018. Participants had to be medical students in order to provide expertise and insight into current opportunities available to them. Before the session, students were notified that the CanMEDS model would be used for discussion and were provided with the basic framework.

A nominal group approach was taken to reach consensus, with students grouped per domain of CanMEDS, although all students were able to contribute towards all six domains. Silent reflection was encouraged, followed by group contribution and discussion. Discussion was facilitated by the steering committee in order to reach consensus. The session lasted approximately 1 hour.

These initial ideas were gathered, with a subgroup volunteering to form the writing group. Write up took place electronically to allow national collaboration with frequent teleconferences. The final product was then sent for review by all authors and the steering committee of STARSurg Collaborative.

Results and discussion

Out of the 23 delegates who attended the session, 12 volunteered to be in the writing group. Each CanMEDS domain was taken in

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turn and practical suggestions were made, to inform and inspire fellow medical students. *Table 1* summarizes key action points related to the six domains of surgical expertise.

Communicator

Effective communication is pivotal to modern surgical practice. Ability to communicate effectively with patients and health colleagues in theatre, taking consent, balancing surgical risk and managing the patient journey through the hospital, is paramount. Taking opportunities for verbal communication also allows the surgeon to increase the impact of his/her audit and research, increasing the likelihood of benefit to patients. Presentations can be given at grand rounds, journal clubs, regional and national scientific conferences. Many medical schools will have specific funding available for national or international presentations which should be explored.

To improve their written communication, medical students can participate in special study unit modules with written components as part of their medical degree or complete summer studentships within academic departments (such as those funded by the INSPIRE scheme from the Academy of Medical Sciences). Outside of the clinical environment, involvement in written communication through blogs or local university newspapers can expedite skill development. Through actively participating in these platforms frequently during medical school, students can develop pivotal communication skills at an early stage, which is essential to demonstrate personal skills (Health Education England, 2019).

Collaborator

Collaboration allows medical students to gain maximum utility from a given task; the paradigm ‘many hands make light work’ has never been more relevant. Collaboration is a great way of demonstrating leadership and teamwork capabilities, which are essential traits for aspiring surgeons applying for core surgical training posts.

Students have accessible opportunities to collaborate on high-quality, impactful

research by working with surgical research collaboratives. Organizations such as the STARSurg Collaborative represent a great opportunity for students to participate in prospective, multicentre studies which have the potential to lead to significant impact on patient care (Ahmed et al, 2019). Specialty-specific collaboratives also exist across the UK, Ireland and internationally, allowing students to tailor their experience towards a specific area of interest (<https://www.asit.org/resources/national-trainee-research-collaboratives/trainee-research-collaboratives/res1137>). By participating in these types of projects, candidates have the opportunity to fulfil the academic skills section of the core surgical training person specification (Health Education England, 2019) ‘demonstrating their interest and commitment to the speciality beyond the mandatory curriculum’.

Leader

Leadership skills are a fundamental aspect of applications to surgical training programmes. Opportunities to grasp leadership roles in medical school are easy to find, with roles often going unfilled. Examples include organizing teaching programmes, committee positions in surgical, research or other university societies, student representative roles, and conference organization responsibilities. Leadership-related qualifications also exist for those pursuing a more formal approach (e.g. the Edward Jenner programme, Healthcare Leadership Academy). Opportunities to demonstrate leadership could include becoming involved with a research collaborative, as regional lead for a national multicentre study.

Leadership roles in any capacity should be considered, such as team sports, event organization and part-time jobs. These activities show candidates to be well rounded and versatile, while providing evidence of leadership skills. This addresses ‘evidence of effective leadership in and outside medicine’ within the core surgical training person specification, and should not be underestimated (Health Education England, 2019).

Health advocate

At medical school, students are taught how to implement positive health interventions

in their patient consultations. The crux of health advocacy is to empower patients through access to knowledge; informed

patients make better health choices. Global surgery advocacy groups such as InciSioN (www.incisionnetwork.org) provide

Table 1. Summary of key guidance points across CanMEDS domains

CanMEDS domain	Relevant core surgical training specification criteria	Actions and evidence
Communicator	<p>Demonstrates clarity in written/spoken communication, and capacity to adapt language to the situation, as appropriate</p> <p>Able to build rapport, listen, persuade and negotiate</p> <p>Capacity to operate under pressure</p> <p>Demonstrates initiative and resilience to cope with changing circumstances</p>	<p>Attend and deliver presentations at conferences or grand rounds</p> <p>Develop writing skills through local student newspaper or formal research projects, seek out surgical journal clubs</p> <p>Write reflective pieces in relevant situations where you have seen communication skills being used</p> <p>Maximize clinical exposure to develop clinical communication skills, and ask patients to feed back to you</p>
Collaborator	<p>Able to work in multiprofessional teams and supervise junior medical staff</p> <p>Ability to show leadership, make decisions, organize and motivate other team members; for the benefit of patients through, for example, audit and quality improvement projects</p> <p>Capacity to work effectively with others</p>	<p>Contact and join surgical research collaboratives, such as the Student Audit and Research Society in Surgery (STARSurg) student collaborative</p> <p>Attend multidisciplinary team meetings in relevant specialities</p> <p>Ask your local department if you can get involved in local projects</p> <p>Obtain written evidence of your efforts for your portfolio</p>
Leader	<p>Evidence of organizational skills – not necessarily in medicine, e.g. grant or bursary applications, organization of a university club, sports section</p>	<p>Take opportunities within:</p> <ul style="list-style-type: none"> ■ Student representative roles ■ University surgical society ■ Conference organization ■ Collaborative research ■ Sports and other university societies ■ Health Leadership Academy ■ Other activities, e.g. part-time work <p>Complete formal leadership courses such as the Edward Jenner programme</p>
Health advocate	<p>Understands, respects and demonstrates the values of the NHS Constitution (e.g. everyone counts; improving lives; commitment to quality of care; respect and dignity; working together for patients; compassion)</p> <p>Demonstrates knowledge of evidence-informed practice</p>	<p>Join a local student society advocating for good health in your local community, such as Sexpression, Anthony Nolan, and various other charities, or organize a charity event</p> <p>Undertake a socially responsible elective placement or project</p> <p>Participate in a widening access to medicine scheme at your local university</p> <p>Remember that there is potential to be a health advocate in every patient consultation</p>
Scholar	<p>Evidence of relevant academic and research achievements, e.g. degrees, prizes, awards, distinctions, publications, presentations, other achievements</p> <p>Evidence of involvement in an audit project, a quality improvement project, formal research project</p> <p>Demonstrates understanding of research including awareness of ethical issues</p>	<p>Submit research for peer-reviewed publications and presentations (international posters and national oral presentations)</p> <p>Apply for essay prizes, elective prizes and conference prizes, including those provided by your medical school</p> <p>Undertake an intercalated degree, if you have a specific area of interest which you would like to develop</p> <p>Keep and review written feedback from presentations and teaching sessions</p>
Professional	<p>Demonstrates an understanding of NHS management and resources</p> <p>Evidence of effective multidisciplinary team working and leadership, supported by multisource feedback</p> <p>Evidence of participation in extracurricular activities and/or achievements relevant to surgery throughout career progression, e.g. membership of relevant surgical bodies or societies, attendance at relevant courses and conferences, surgical elective, logbook and undergraduate or postgraduate surgical projects</p>	<p>Understand theatre etiquette and good practice to make the most out of theatre experience</p> <p>Maintain a surgical e-logbook</p> <p>Attend additional courses, for example foundation surgical skills, non-technical skills for surgeons</p> <p>Join a professional surgical organization as a student member (Association of Surgeons in Training, British Medical Association)</p> <p>Keep certificates from courses attended</p>

opportunities to become an advocate for access to high quality surgery worldwide. Elective projects can be designed to involve health advocacy and every student will have an opportunity to undertake one. Student societies are also a great place to start. From educating pupils at local schools about sexual health to encouraging the general public to join the organ donation register, student societies provide a platform to advocate for health and wellbeing. Education can also be advocated via widening access schemes that often take on student mentors.

Scholar

Independent research is integrated within all UK medical school curricula, as outlined in the General Medical Council's (2015) *Outcomes For Graduates*. Formal research blocks allow development of critical thinking, understanding of study designs and development of statistical skills. Work completed in research blocks can lead to formal peer-reviewed publications and oral or poster presentations (both national and international). In addition, essay prizes, society prizes and conference prizes can be sought; these are available from a number of surgical societies and associations. Intercalated degrees offer dedicated time for students to research an area that they are passionate about. Being tenacious, opportunistic and a self-motivated student is a key to success in completing projects and maintaining a research output alongside the rigour of medical studies.

Finally, the role of the student 'scholar' also involves education of peers. Teaching and disseminating knowledge to colleagues is an important part of developing as future surgeon scholars, and is expected to be formally evidenced in portfolios through feedback summaries, certificates and printed programmes.

Professional

It is important to observe and understand how surgeons use professionalism in their everyday practice. Professionalism as a medical student can be demonstrated by joining professional training organizations such as the Association of Surgeons in Training as a student member and attending local courses in management. Professionalism can also be demonstrated by taking on committee roles in other national

organizations such as the British Medical Association student committee.

Moreover, by maintaining an eLogbook (www.elogbook.org), students can demonstrate their involvement with and passion for surgery. A feature of the eLogbook is that it highlights the time passed between the date of the case and when it was logged. Contemporaneous logging demonstrates organization and understanding of clinical governance. Furthermore, candidates are expected to have a surgical logbook within their portfolio at core surgical training interviews. Reflecting on experiences in theatre using eLogbook demonstrates commitment to developing professionalism as a modern surgeon. In addition, it also directly evidences the individual's commitment to surgery, which is an essential criteria for core surgical training (Health Education England, 2019).

Completion of quality improvement projects within a local surgical team demonstrates understanding of clinical governance, and a commitment to improve patient care. Students can look for opportunities to improve care during a surgical placement.

Conclusions

During medical school, students have numerous opportunities to develop their portfolios for a career in surgery, but lack guidance about where to target their efforts. An increasing focus on early specialization in medical training, along with the competitiveness of surgical training posts, means that students should prepare early if they are to succeed in this career pathway.

The CanMEDS model can be used as a framework at medical school for medical students who aspire to a career in surgery to equip them with the skills necessary to become an adept future surgeon. The model can support students to develop a portfolio across its six domains, which will demonstrate competence as a communicator, collaborator, leader, health advocate, scholar and professional. **BJHM**

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KEY POINTS

- The CanMEDS framework can be used as a tool to develop a surgical portfolio at early stages of a doctor's career.
- By demonstrating competencies as a communicator, collaborator, leader, health advocate, scholar and professional, medical students can meet many of the core surgical training application requirements.
- The authors recommend that this guide is adopted by UK medical students in order increase the quality of their applications.

Society in supporting STARSurg as a platinum partner. Figure 1 is reproduced from CanMEDS (<http://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e>) with permission of the Royal College of Physicians and Surgeons of Canada.

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