

A proposed surgical training pathway for the 21st century

ABSTRACT

Numerous problems have been identified with current UK surgical training. These include the balance between generalist and specialist practice, service provision and training time, and work–life balance. This article proposes modifications to the current training pathway. A three-stage training model is discussed using modular training to clearly identify training aims and endpoints and allow flexibility in training and working practices. This will help with workforce planning and work–life balance and support high quality patient-focused surgical training in the 21st century.

Surgical training has evolved considerably in the last 25 years. The Calman report, the European Working Time Directive (Morris-Stiff et al, 2005), Modernising Medical Careers and more recently the Shape of Training review (Fuller and Simpson, 2014) have all contributed to changing the way surgeons in training work. The effects of these changes are still being seen, and are arguably compounded by simultaneous evolution of the surgical curriculum and devolution of surgical subspecialties (Intercollegiate Surgical Curriculum Project, 2017).

Traditional training paradigms are failing to keep up with changes in working practices and new technological developments. The competing priorities of service provision and training, and the balance between generalist and specialist practice are also a challenge. Surgical training does not exist in a vacuum and there is a clear need for flexibility to allow the demands of family life, academic practice and alternative career structures to be successfully incorporated into training programmes. The fall in the number of applications per post to core surgical training may reflect the perceived challenges associated with surgical training; modifying

surgical training to provide a more stable working environment may help reverse these changes (Kennedy, 2015).

The problem

In response to the profound concerns raised by the Modernising Medical Careers programme, Sir John Tooke conducted an independent review (Tooke, 2008). The report recognized that flexibility was lacking in medical training, there was no clear consensus on the role of doctors at various stages of training and the objectives of postgraduate medical training were unclear. The report's recommendations concluded:

‘The structure of postgraduate training should be modified to provide a broad based platform for subsequent higher specialist training, increased flexibility, the valuing of experience and the promotion of excellence.’

More recently the Shape of Training report (Greenaway, 2013) also identified concerns with medical training, picking up five distinct themes:

1. Patient needs drive how we must train doctors in the future
2. Changing the balance from generalists to specialists
3. A broader approach to postgraduate training is needed
4. There is a tension between service and training
5. More flexibility in training is needed.

Internationally the nature of surgical training is also gaining importance. A 2016 study on global surgical oncology training identified wide variations in the duration and structure

of training programmes (Are et al, 2016a); given the mobile and international nature of medicine this variation caused concern and prompted calls for a global curriculum in surgical oncology (Are et al, 2016b). The German Society for General and Visceral Surgery identified workload, poor work–life balance and long training duration as particular problems affecting surgical training (Johannink et al, 2016).

This article proposes a training pathway that seeks to address some of the concerns about surgical training in the UK while recognizing the need to ensure that surgeons completing training are able to provide the excellent care expected by their patients.

Training model

General surgical training in the UK comprises an 8-year programme consisting of 2 years of core training and 6 years of specialist training. Progress from year to year is determined by satisfactory performance at annual review. Entry to surgical training is by a competitive interview to enter core training and a second competitive interview to allow progression to the third year of training and on to completion.

There are a number of perceived problems with the current training pathway. There is no guarantee that a trainee starting the specialist training will have a specific job at the end of training. This can lead to a situation where a surgeon has invested time in training for a specific role but he/she will be unable to use these skills at consultant level. There are no natural breaks in the 6 years of specialist training, so any activities that take a surgeon away from the defined training create difficulties. There is no way of joining surgical training other than at the beginning of training or at the beginning of specialist training so experience gained outside of a defined training scheme including time spent overseas cannot be easily recognized.

The proposed surgical training pathway is a deliberately modest refinement of the current and past structures, and is divided into three stages comprising 2 years of core training,

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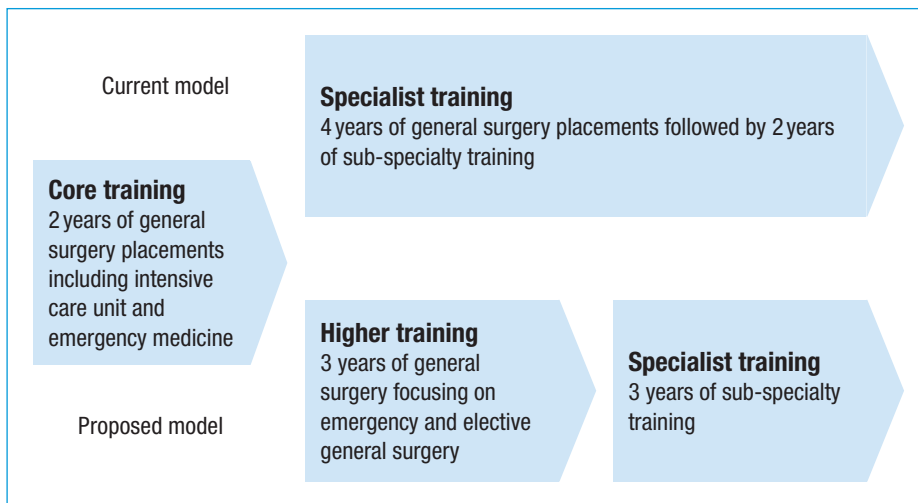


Figure 1. Core training common to both training pathways.

3 years of higher general training and 3 years of specialist training. *Figure 1* demonstrates the two pathways. Within the programme training will be divided into modules with defined training aims and identifiable endpoints, aligned to the curriculum.

The proposed pathway would provide a combination of time and competence-based training incorporating general surgical clinical training, academic training and assessment, simulation-based training and non-technical training including clinical leadership, management and education. Each of these different activities would be provided in a modular format, such that curriculum- and trainee-specific objectives are attainable, and service delivery is achieved.

The staged training pathway is inherently flexible allowing entry and exit from training for professional or personal reasons at several points, thus not disadvantaging any defined group of surgeons during their training.

Reasons might include out of programme activity and military or civilian deployments abroad. A three-stage programme allows workforce planning to better match trainee numbers to service provision, training opportunities and consultant workforce requirements. Modular training allows trainees to adapt their training to their future role and also allows deficiencies in training to be quickly identified and addressed.

Discussion

In the UK a general surgical training programme starting from completion of foundation training (currently 2 years) to anticipated completion of training is 8 years. General surgery includes gastrointestinal surgery, hepatobiliary surgery, breast, endocrine (thyroid and abdomen) and transplant surgery. Vascular surgery has a separate curriculum and training although there is overlap with general surgery.

Intercollegiate Membership of the Royal College of Surgeons and Fellowship of the Royal College of Surgeons examinations are important milestones in surgical training and could be used as markers for progression to higher training and progression to specialist training. Assuming a 6-year undergraduate degree started aged 18 years, start of foundation year 1 aged 24 years of age and start of surgical training aged 26 years, the expected completion of training would be at the age of 34 years. This would obviously be increased if the trainee undertook less than full time training, maternity or paternity leave, research, additional training time or other optional activities.

Successful entry to higher training would give access to training through to completion, subject to satisfying all the necessary conditions. Access to specific posts and subspecialties can be tailored to workforce requirements. So, for example, at the start of higher surgical training an individual knows he/she will be trained in general surgery but a hepatobiliary or liver transplant training post is not guaranteed. *Table 1* gives an overview of the proposed pathway with examples of the training undertaken at each stage.

The proposed model allows for specialist run-through training from core years if required but could allow crossover between training pathways. The model also allows for entry to training at three time points: at the start of core training, at the start of higher training and at the start of specialist training. Individuals who have completed some training in other parts of the world would then have the opportunity to have their prior experience assessed to allow, for instance, direct entry into specialist training if they

Table 1. Three-stage surgical training pathway

Core 1	Core 2	Higher 1	Higher 2	Higher 3	Specialist 1	Specialist 2	Specialist 3
<p>2 years of general surgical training at a junior level</p> <ul style="list-style-type: none"> Membership of the Royal College of Surgeons as a completion exam required before moving to next stage of training Gastrointestinal surgery, breast, endocrine, transplant surgery, vascular, critical care, emergency medicine, paediatric surgery, orthopaedics, plastics 		<p>3 years supervised training to achieve competence in emergency and elective general surgery</p> <ul style="list-style-type: none"> Incorporating education, research and management Focus on being emergency safe Rotating through gastrointestinal surgery (upper and lower), vascular surgery, breast, endocrine, transplant, paediatrics, trauma Fellowship of the Royal College of Surgeons part 1 general paper required to progress On calls to be on general surgery rota not specialty rota 			<p>3 years of supervised specialist training to achieve consultant standard</p> <ul style="list-style-type: none"> Specified sub-speciality, upper gastrointestinal, hepatobiliary, lower gastrointestinal, vascular, breast, endocrine, major trauma Fellowship of the Royal College of Surgeons part 2 specialty paper required for completion On calls may be on a specialty rota but can be on a general rota as required for training or service provision Acute care surgery could be incorporated into this training with the addition of critical care modules or specific acute care surgery training including ambulatory care, day-case surgery 		

met the required standard. Surgeons who may be put off by the prospect of starting at the beginning of a 6-year programme having already done some higher surgical training might only have to do 3 years and so be more willing to join a UK training programme.

The three-stage model allows additional training opportunities to be added, for instance academic training or structured higher degrees, management placements, military deployments or training for regular and reserve forces medical personnel. This may also allow individuals to plan family commitments or achieve some of their training as a less than full time trainee in a structured fashion.

Modular training

Modular training is widely used in undergraduate medical training. Some postgraduate specialities, such as anaesthetics, structure training in a modular fashion. The three-stage model could follow traditional 6-month or year-long jobs but a more novel modular training programme could also be developed. For example an emergency surgical module might be 6 months long while a basic endoscopy training module might be 3 months which could then be combined with a 3-month management or education post. Some modules could run concurrently (a general colorectal module alongside an emergency surgery module), intermittently (an academic module and an endoscopy module where 4 days a week is research and 1 day a week is endoscopy), or sequentially (basic laparoscopic surgery module followed by a laparoscopic colorectal module).

Modules would be divided into core, specialist and elective and the speciality advisory committees and specialty associations in collaboration with the relevant stakeholders would specify the combination of modules required to be eligible for completion of training.

Higher degrees could be considered as modules, for example an MD or PhD could be counted towards an advanced research module.

The modules would be matched to speciality advisory committee curriculum requirements and the relevant training stakeholders would define which modules are required for completion of training. The employer stakeholders may also wish to specify skills that could be incorporated into the modular training concept.

Table 2. Example training pathways

	Consultant laparoscopic colorectal surgeon with a teaching interest	Consultant trauma and emergency general surgeon with an academic post
Core modules	Basic surgical skills Basic laparoscopic skills General surgery outpatients Critical care Introduction to clinical teaching Introduction to NHS management General surgical on call Introduction to research Introduction to clinical governance	Basic surgical skills Basic laparoscopic skills General surgery outpatients Critical care Introduction to clinical teaching Introduction to NHS management General surgical on call Introduction to research Introduction to clinical governance
Specialist modules	Benign colorectal Colorectal cancer Surgical oncology Emergency colorectal Emergency general Specialist laparoscopic skills Colonoscopy Pelvic floor	Advanced trauma surgery Surgical critical care Emergency colorectal Emergency upper gastrointestinal Emergency general surgery Emergency vascular surgery
Elective modules	Advanced teaching Advanced management Advanced clinical governance Simulation teaching Non-technical skills teaching Mentorship Praeceptorship Educational supervision	Advanced academic module Advanced teaching Advanced management Advanced clinical governance

The modular training could be extended to post-completion of training. This would include formal training fellowships or more informal continuing professional development activities such as higher management training or structured subspecialty training undertaken after a period of time working as a consultant, incorporating the concept of credentialing as suggested in the Shape of Training report (Greenaway, 2013). *Table 2* gives examples of the modules that surgeons would undertake during training.

Conclusions

This article presents a proposal for a surgical training pathway aiming to address recognized shortcomings in the current system using a combination of modular training within a three-stage pathway. Surgical training should be flexible and robust, providing high quality patient-focused training that addresses the changing needs of the health service in the

21st century. Changes in training need to be subtle enough to be comprehensible by all and easily integrated into the current system, yet provide a significant enough benefit to be worthy of implementation. The formation of modules would provide a clean training structure and specified time to focus on achieving defined training aims and identifiable endpoints aligned to the curriculum. It would also allow for a tailored training programme to deliver consultants qualified not only in service delivery but also in disciplines in academic, educational or medicolegal arenas. This not only benefits medical advancement and the NHS, but may also improve recruitment, morale and retention of surgeons. **BJHM**

Conflict of interest: This article represents the authors' own opinions and does not represent the official view of any organization. There are no financial, professional or personal conflicts of interest to be declared.

Are C, Caniglia A, Malik M et al (2016a) Variations in training of surgical oncologists: proposal for a global curriculum. *Ann Surg Oncol* 23(6):

1769–1781. <https://doi.org/10.1245/s10434-016-5238-8>

Are C, Berman RS, Wyld L, Cummings C, Lecoq C, Audisio RA (2016b) Global curriculum in surgical oncology. *Ann Surg Oncol* **23**(6): 1782–1795. <https://doi.org/10.1245/s10434-016-5239-7>

Fuller G, Simpson IA (2014) Modernising Medical Careers to Shape of Training - how soon we forget. *BMJ* **348**: g2865. <https://doi.org/10.1136/bmj.g2865>

Greenaway D (2013) Shape of Training—Securing the future of excellent patient care: Final Report of the Independent Inquiry Review. www.shapeoftraining.co.uk/reviewsofar/1788.asp (accessed 10 July 2017)

Intercollegiate Surgical Curriculum Project (2017) *Specialty_year_syllabus* London 2017 (accessed

20 May 2017)

Johannink J, Braun M, Gröne J et al (2016) What is needed for surgical training? *Eur Surg* **48**(3): 143–148. <https://doi.org/10.1007/s10353-016-0423-3>

Kennedy C (2015) Specialty training applications for entry in 2016: competition ratios and the application process. http://careers.bmj.com/careers/advice/specialty_training_applications_for_entry_in_2016%3A_competition_ratios_and_the_application_process (accessed 20 May 2017)

Morris-Stiff GJ, Sarasin S, Edwards P, Lewis WG, Lewis MH (2005) The European Working Time Directive: one for all and all for one? *Surgery* **137**(3): 293–297. <https://doi.org/10.1016/j.surg.2004.11.002>

Tooke J (2008) *Aspiring to Excellence: Final Report of*

KEY POINTS

- Current surgical training programmes lack flexibility.
- Splitting training into core, higher and specialist blocks would allow better workforce planning.
- Modular training would allow specific training needs to be identified and addressed.

the Independent Inquiry into Modernising Medical Careers. MMC Inquiry, London

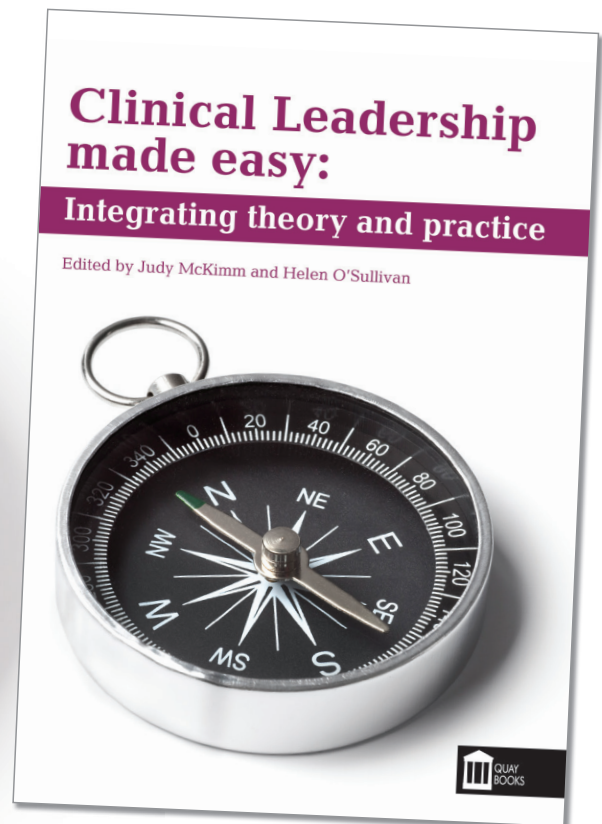
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