



Career choices in 21st-century healthcare: Aiming for a moving target

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Modernising Medical Careers (MMC) has introduced a training pathway in which surgical trainees are required to commit to their desired specialties at an increasingly early stage.¹ For many this is a frightening prospect. Medical students and junior doctors are, however, offered reassurance in the form of common ST1 and ST2 stems for higher sub-specialty training. Against this background, early decisions need only concern fundamental choices between careers in medicine, surgery or general practice.

Whilst it is true that some trainees may select their prospective careers by the nature of the job, with preferences towards medical or surgical lifestyles; many will be drawn towards their career by an affinity, not towards the job *per se* but rather towards the treatment of a particular disease process or group of patients. Previously medics have been able to make the informed decisions necessary before dedicating their lives to a given specialty. With recent advances in technology, many specialties have been the subject of 'turf wars'; in particular, many surgical operations have been threatened by equally effective minimally invasive procedures. This competition has resulted in a haze of uncertainty over the direction of many specialties, jeopardising accurate choices by applicants.

The innovations of Charles Dotter, widely considered the father of interventional radiology, set in motion an endovascular revolution that has transformed the treatment of peripheral vascular disease. Predictions that endovascular techniques will constitute 60–90% of vascular procedures in the future,² have resulted in competition between vascular surgeons and interventional radiologists, which threatens to become a destructive force for vascular surgery and ultimately patients. Percutaneous revascularisation of the renal arteries, for example, has almost entirely replaced open surgical management of patients with atherosclerotic renovascular disease (ARVD).³

The management of ischaemic heart disease has faced similar uncertainty. Cardiothoracic surgeons were traditionally the guardians of the coronary arteries, bypassing diseased coronary arteries and inserting grafts. When patients were offered the alternative of angioplasty, a procedure thought to be equally effective⁴ but significantly less invasive, the cardiologists took ownership of these vessels. The debate regarding the best treatment of ischaemic heart disease is ongoing. Recent trial data suggesting higher re-stenosis

rates after percutaneous intervention with drug-eluting stents,⁵ coupled with advances in 'off-pump' CABG,⁶ may forecast a shift back to a predominantly surgical management. Of course, such decisions must consider cost- as well as clinical effectiveness, which further complicates matters. Although unimaginable a decade ago, the reality of percutaneous valve repair has become an additional concern to the cardiothoracic surgeon.⁷ The issue regarding the most suitable qualified practitioners capable of carrying out these procedures is currently the subject of heated debate.⁸

The challenge that specialties face is to adapt or suffer substantial 'turf' incursions. The fate of vascular surgery has been aptly compared to Darwinian principles of evolution.⁹ Using the theory of natural selection, the specialty must be thought of as a species, subject to environmental forces that threaten its survival. Selection forces, including technological improvements in catheter guidewire-imaging techniques, are well established and are driving change. In reality there is considerable overlap between the specialties in the skills required for endovascular procedures, leaving room for a multidisciplinary, symbiotic pathway forward. Indeed, the Vascular Society of Great Britain and Ireland (VSGBI) and the British Society of Interventional Radiologists (BSIR) have proposed a joint training pathway in vascular surgery and interventional radiology under the joint auspices of the Royal College of Radiologists and the three Royal Colleges of Surgeons.¹⁰ The curriculum represents a break-out from general surgical training and the end-product will be a distinct entity – the vascular specialist. Whether a similar collaborative approach will result in the emergence of a 'cardiac specialist' remains contentious. If such changes are implemented, it is conceivable that we shall witness the abolition of traditional demarcations between the surgeon and the physician.

The MMC approach does not give trainees sufficient flexibility to change direction as specialties evolve. Therefore, rather than selecting careers on the basis of current practice, surgical trainees must try to foresee the future of specialties. For individuals whose career aspirations are dictated by interests towards particular organ systems, it is essential to keep up to date with the principal determinant of 21st-century healthcare: technology. Of course, whilst we wish to pursue those careers which we find interesting, we must welcome change which is in the interest of our mutual goal across all specialties: the care of our patients. With reference to ourselves, the undergraduate authors, one has career aspirations in vascular surgery and the other in cardiology; we can remain friends for the time being.

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References

1. Delamothe T. Modernising Medical Careers: final report. *BMJ* 2008;**336**:54–5.
2. Veith FJ. Metamorphosis of vascular surgeons to endovascular specialists: must vascular surgery have an independent board and can we get there? *J Endovas Ther* 2005;**12**:269–73.
3. Gray BH. Intervention for renal artery stenosis: endovascular and surgical roles. *J Hypertens Suppl* 2005;**23**:S23–9.
4. King SB, Lembo NJ, Weintraub WS, Kosinski AS, Barnhart HX, Kutner MH, et al. A randomized trial comparing coronary angioplasty with coronary bypass surgery. *N Engl J Med* 1994;**331**:1044–50.
5. Hannan EL, Wu C, Walford G, Culliford AT, Gold JP, Smith CR, et al. Drug-eluting stents vs. coronary-artery bypass grafting in multivessel coronary disease. *N Engl J Med* 2008;**358**:331–41.
6. Shekar PS. On-pump and off-pump coronary artery bypass grafting. *Circulation* 2006;**113**:e51–2.
7. Rosengart TK, Feldman T, Borger MA, Vassiliades Jr TA, Gillinov AM, Hoercher KJ, et al. Percutaneous and minimally invasive valve procedures. a scientific statement from the American Heart Association. *Circulation*; 2008. CIRCULATIONAHA.107.188525.
8. Wood S. Excitement builds for transcatheter valves, despite barriers to widespread use [Online] Available from: <http://www.theheart.org> [Accessed 9.03.08].
9. Veith FJ. Presidential address: Charles Darwin and vascular surgery. *J Vas Surg* 1997;**25**:8–18.
10. Markham G, Watkinson T, Kessel D. A joint training pathway in interventional radiology and vascular surgery [Online] Available from: <http://www.bsir.org>; 2007 [accessed 9.03.08].