



Surgical research after medical school: get registered and then get on with it

'Medicine is the only profession that labours incessantly to destroy the reason for its own existence'

James Bryce, 1914

Surgeons drive both scientific and clinical research and have the unique privilege to take scientific advances from the bench to the bedside, thereby improving patient outcomes. However, a dedicated period of medical research is not common among medical graduates with surgical ambitions, although a resurgence has been noted by some.^{1,2} For this select group of potential surgeon scientists, the question is when, not whether, to opt for a period of dedicated clinical research. This article highlights the advantages and disadvantages of incorporating a period of full-time research after achieving medical registration prior to commencing vocational training. In so doing, this article aims to illuminate an exciting, alternative career pathway for talented and ambitious young clinicians considering academic surgery.

Although the internship period (postgraduate year one) is compulsory in Australia and New Zealand, the subsequent years prior to commencement of vocational training are often unstructured and are of variable educational value. To address this gap, we have introduced a full-time clinical research option for medical postgraduates years two and above who are interested in exploring surgical academia (Table 1). Since entry into surgical training is partly dependent upon specialty-specific experience and research accomplishments, a dedicated period of clinical research may be advantageous to increase knowledge, develop research and critical thinking skills, increase research output in the form of publications and demonstrate commitment to a surgical career.³⁻⁵

The internship and prevocational training years are a transition period when important career choices are still being made. The

stressors associated with being a junior doctor are well known and can persist among senior clinicians.⁶⁻⁸ Many interns express regret at their career choice in retrospect.⁹ Thus, an opportunity to take a step back from clinical work may aid some junior doctors to gain other important skills and perspectives on their career pathways.

Undertaking surgical research also helps in the formulation of an interest in surgery as a career based on laboratory or clinical exposure to surgical mentors.¹⁰ Furthermore, undertaking a research-centred postgraduate qualification may allow flexibility of training, which is an important determinant of ultimate career choice.¹¹ Simultaneously, a research position can be coupled with undergraduate student teaching and mentoring responsibilities that broaden the research fellow's capabilities and expertise. The educational component of the research fellow's job description is a suitable preparation for a potential future in the academia while also benefiting students and relieving workload demands on senior clinical academics. Importantly, it has been recognized that medical student assessments may be most reliable and valid when conducted by junior doctors.¹²

A period of dedicated research can essentially be thought of as an intensive course in critical thinking – something that is in need of development in many newly graduated doctors. This ability, coupled with the more tangible skills of public speaking and scientific writing experience, may be regarded as beneficial for all junior doctors. Doctors who complete a formal research period are more likely to be familiar with research methodology and are able to scrutinize the medical literature with better understanding. These skills are all transferable, and, in terms of timing, a period of research prior to surgical training prevents any loss of procedural skills once gained.

Table 1 Research fellows 2004–2011

Research fellow	Degree	Current position
1.	MD – did not complete	Emergency medicine trainee
2.	PhD – completed	PGY1
3.	MD – completed	Urology-SET
4.	PhD – accepted	General surgery-SET
5.	Graduate certificate in postgraduate education	General surgery-SET
6.	PhD – accepted	Urology-SET
7.	PhD – in process	General surgery-SET
8.	PhD – in process	Applying for SET
9.	MD – in process	Post-FRACS fellowship
10.	Current – first year of research	PGY2
11.	Current – first year of research	PGY2

All except two of the 11 research fellows (2 and 9) have been PGY 2 or 3 on starting the research fellowship.
FRACS, Fellow of the Royal Australasian College of Surgeons; PGY, post-graduate year; SET, surgical education and training.

Once the decision to undertake full-time clinical research is made, it is generally advantageous to also enrol in a doctoral degree. Not only does the completion of a PhD or MD thesis embody the intensity and dedication needed for high-quality clinical research outputs, the degree itself is a key that opens doors when applying for future clinical fellowships and academic posts. The unique opportunity available to medical graduates to achieve a higher degree is aided by many academic institutions recognizing a basic medical degree as an adequate prerequisite to enrol in doctoral-level degrees. This is highly advantageous as compared with science graduates who are usually required to complete an honours or masters degree to become eligible for doctoral-level thesis degrees.

Research remains a form of international currency, and the journal of publication can often be used as a proxy for the quality of the research. Published work in high impact-factor, peer-reviewed publications is internationally recognized and can be an important asset when pursuing training or employment opportunities overseas. Research also provides an opportunity to travel to international conferences and meet with experts in the field, and thus make a wider impact at an early stage in one's medical career.

Not every medical graduate is suited to research. Following a lengthy training period in medical school, sometimes after previously gained qualifications and perhaps with significant financial debt, an understandable mindset may be to pursue clinical practice and reap the advantages of a medical degree. For some individuals, this is the prime objective of being medically qualified and many may consider full-time research at a later stage in their career, such as mid-training or post-fellowship. However, family and financial considerations may impede some doctors from completing this term or gaining a research-focused postgraduate qualification.

In summary, junior doctors who are interested in surgery as a career should be encouraged to undertake clinical research prior to commencing vocational training. This is an exciting career option that will allow suitable candidates to expand upon their interests and ambitions early on in their surgical career.

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Arman Kahokehr, MBChB
Sanket Srinivasa, MBChB
Tzu-Chieh Yu, MBChB

Andrew G. Hill, MBChB, MD, FRACS, FACS
*Department of Surgery, South Auckland Clinical School,
University of Auckland, Middlemore Hospital, Auckland,
New Zealand*

doi: 10.1111/j.1445-2197.2011.05783.x

Two for the price of one: a keystone design equals two conjoined V-Y flaps

Lower limb reconstruction continues to pose a substantial clinical problem, with inherently high venous pressures in the lower limb due to gravitational effects, potentially incompetent veins and relative dependant oedema, all contributing to lower success rates with both flaps and grafts.^{1,2} A recently published abstract in the *ANZ Journal of Surgery* and presentation at the Royal Australasian College of Surgeons annual scientific congress by Ng and Coombs described the utility of the island V-Y advancement flap for lower limb defects.³ The authors successfully demonstrate the utility of V-Y island flaps in lower limb reconstruction, and we would like

to offer some pertinent comments as to our continuing observations with related fasciocutaneous island flaps.⁴⁻⁷

The keystone-design island flap, our workhorse in lower limb reconstruction, architecturally equals two V-Y island flaps conjoined (see Fig. 1). Although the authors utilize single V-Y or double opposing V-Y flaps, the conjoined V-Y (keystone) flap offers several benefits and observations over smaller island flaps. Despite the same volume as two separate flaps, the conjoined design is able to utilize a larger volume of perforators to the entire flap and may potentially reconstruct larger defects. Furthermore,