Mandatory research projects by medical specialist trainees: suboptimal today, world-leading tomorrow?

Nicholas J Talley AC

"Clinicians know of all the problems but none of the solutions; scientists know of all the solutions but none of the problems."[1]

In Australia, the medical colleges have a monopoly on the training of specialists. If you want to be a registered gastroenterologist, a cardiothoracic surgeon, or a general practitioner, you must complete the relevant college training (or an equivalent training program) and meet the minimum expected standards, which are high in this country. Australian specialists are internationally recognised as clinically first rate, as indicated by overall health outcomes,[2] a testament to our college clinical training programs.

At most colleges in Australia and in specialty training programs in similar countries, completing a research project during training is mandatory. In this issue of the *MJA*, Stehlik and colleagues report the results of their cross-sectional survey of research project activity during training in Australia and New Zealand. The survey was sent to college trainees in eleven specialties,[3] including the Royal Australasian College of Physicians (RACP), which alone has more than 4400 advanced trainees in 2025 (personal communication). A total of 371 responses were obtained, a rather low number. The survey results are consequently not necessarily generalisable, but the results are still sobering. Almost 80% of survey respondents developed their research questions in isolation or on the basis of clinical discussions, more than 50% received little input from others regarding the study design, 85% of projects were not part of ongoing high quality research, most trainees undertook the research in their own time, and 85% of the evaluable studies submitted to the authors of the study had a moderate to high risk of bias, suggesting research waste. On the positive side, half of the projects were published, usually with the trainee as first author, almost 50% of respondents felt that the effort involved was worthwhile, and since completing their fellowships more than 70% had considered initiating new research.[3]

If producing excellent clinicians is the goal of specialty training, why should we care about the quality of research during training? One could argue that the minority with serious academic interests can pursue these after specialisation by, for example, completing a PhD or equivalent training, although most never do. Indeed, for 40 years it has been recognised that interest in careers as clinician–scientists has been steadily falling in the United States[4] and Australia.[5]

Why then should colleges retain mandatory trainee research projects? One compelling reason is that medical knowledge is growing so rapidly that keeping up is challenging.[6] Evidence-based practice is more important than ever, but this requires critical thinking and analytic skills, including how to read the literature expertly and translate new information into best practice. Arguably, unless you have had appropriate research project experience, you are unlikely to be competent in understanding bias or other serious research limitations, and will not be expert in critically appraising the literature. Other potential benefits of learning clinical research include, hopefully, more satisfied specialists who are more likely to support and engage in research when opportunities arise,[3] which may sustain career interest and reduce burnout.

How can the inclusion of research in specialty training be strengthened? Research training clearly needs to be much better integrated into college programs.[3] No-one would throw a trainee into an endoscopy suite and tell them to do endoscopy without expert supervision or proper time allocation! As with any core skill set, excellent research needs to be supported by role models and learned, but the reward is that the skills acquired will last a lifetime. Real success would require the colleges to link trainees with strong local research teams, including by providing a list of approved mentors, and have a menu of achievable projects on hand. If local opportunities are lacking, virtual research teams could be considered as a viable model for many clinical research projects. Colleges charge trainees high fees that should in part be ploughed back into directly supporting trainee research. For example, colleges could together or in collaboration with university partners provide short free mandatory online courses on research methods (eg, clinical epidemiology for clinicians interested in patient-based projects) unless equivalent course work has already been completed and examined. Colleges also have the clout to negotiate with hospitals to enforce protected research time each week or quarter, which should be formally built into the curriculum and monitored. Finally, colleges could provide more small competitive research grants aimed at supporting trainees and their research teams in under-resourced regions.

It is acknowledged overseas and in Australia that there is a pressing need for more clinician–researchers and scientists who can bridge the gap between knowledge advances and optimal clinical practice, and who can mentor and teach.[5,7,8] The COVID-19 pandemic only reinforced this need.[9] For those interested in combining research with practice and becoming clinician–scientists, integrating more comprehensive research training into specialty training is optimal, but huge barriers remain.[5] Physicians who wish to undertake a PhD while doing advanced physician training, for example, currently have limited options and must pursue full-time research either before or after advanced training (and therefore distant from the most clinically relevant experience), which is expensive, inefficient, and possibly dissuades people from this route. In the past, the RACP offered a program option in which trainees could undertake part-time advanced training and research concurrently, ending with the award of both their FRACP and PhD within as few as four years, as opposed to the currently usual alternative of a minimum of three years of clinical followed by three years of research training. The integrated clinical–PhD model is perhaps optimal because both the research and clinical training are directly

The University of Newcastle, Newcastle, NSW. nicholas.talley@newcastle.edu.au • doi: 10.5694/mja2.52612 • See Research (Stehlik)

relevant to the trainees' subspecialty experience, building rapid and deep expertise. Unlike the United States, Canada, and the United Kingdom, there is no nationally sponsored clinician–scientist fellowship or program in Australia, leaving us lagging behind world leaders in this area.[5,10]

Colleges can and should show leadership. For example, the Council of Presidents of the Medical Colleges could reach out to work with the National Health and Medical Research Council, the Australian Academy of Health and Medical Sciences, and health departments to find solutions to the major systemic challenges and establish a genuinely national clinician–scientist program for the best and brightest.[5,11]

Our medical colleges in Australia are on the right track by promoting and, preferably, requiring research during specialty training. However, the current model is failing, as indicated by feedback from trainees.[3] A fresh approach is needed to provide adequate research mentorship, relevant training, and protected time. If the colleges pay attention to this matter rather than sweeping it under the carpet, the outcomes should be even better trained and satisfied specialists, measurably better patient care, less wasteful research, and increased health system success. Surely this is worth everyone's time and effort!

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1 Hait WN. Translating research into clinical practice: deliberations from the American Association for Cancer Research. *Clin Cancer Res* 2005; 11: 4275-4277.

2 Commonwealth Fund. Mirror, mirror 2021. Reflecting poorly: health care in the US compared to other high-income countries. 4 Aug 2021. https://www.commonwealthfund.org/publications/fund-reports/2021/aug/mirror-mirror-2021-reflecting-poorly (viewed Feb 2025).

3 Stehlik P, Withers C, Bourke R, et al. Mandatory research projects during medical specialist training in Australia and New Zealand: a survey of trainees' experiences and reports. *Med J Aust* 2025; 222: 231-239.

4 Wyngaarden JB. The clinical investigator as an endangered species. *N Engl J Med* 1979; 301: 1254-1259.

5 Windsor J, Garrod T, Tan L, et al. Progress towards a sustainable clinical academic training pathway. *ANZ J Surg* 2018; 88: 952-953.

6 Hazrati H, Bigdeli S, Arabshahi SKS, et al. Visualization of clinical teaching citations using social network analysis. *BMC Med Educ* 2021; 21: 349.

7 Gordon R. The vanishing physician scientist: a critical review and analysis. *Account Res* 2012; 19: 89-113.

8 Kisely S. Can the next generation of clinician-scientists please step forward? *Australas Psychiatry* 2015; 23: 5-6.

9 Eley DS, O'Leary SP, Young A, Buttrum P. Is Australia's clinician scientist capacity appropriate for addressing the next pandemic? *Aust Health Rev* 2021; 45: 308-310.

10 Ali MJ. A global perspective of clinician scientist training programs. *Semin Ophthalmol* 2025; 40: 14-17.

11 Scheffer IE, Frazer IH. The Australian Academy of Health and Medical Sciences: an authoritative, independent voice in the Australian landscape. *Med J Aust* 2021; 214: 502-504. https://www.mja.com.au/journal/2021/214/11/australian-academy-health-and-medical-sciences-authoritative-independent-voice ■