Training and Retaining Physician–Scientists in Dermatology: Australia

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We read with great interest the article by Li et al. (2022) on the delicate subject of "Training Physician-Scientists for Careers in Investigative Dermatology." Pathways leading to academic dermatology and the training of clinician–scientists and particularly their maintenance in the academic workforce raise concerns that are very broadly shared in Australia. In fact, many of the aspects highlighted in this article are experienced globally, and we discuss below some that are specific to the Australian context.

The legacy

Australia enjoys a resourceful and well-developed higher education sector with remarkable research-intensive universities ranking among the top globally (Academic Ranking of World universities 2021, www.shanghairanking.com). This higher education sector is a major strength in the Australian economy and one of its main exports, recruiting large numbers of international students in addition to domestic candidates. This environment has been conducive to large and ever-growing medical schools surrounded by a rich culture of basic and translational research for the most part. A growing proportion of medical schools offer a postgraduate MD program and have developed MD–PhD or MD–MPhil pathways allowing medical students to experience and actively participate in research. However, this enthusiasm for research and for clinician–scientist pathways has not traditionally been fully embraced by the health sector in Australia. Indeed, in many cases, public or not-for-profit hospitals where medical teaching takes place emphasize research but do not make it a requirement for medical staff on par with service provision. Understandably, in a public sector under major strain regarding funding and health care provision to a large fraction of the population, the immediate benefits of supporting research are not prioritized.

These general considerations are particularly acute in dermatology. The large bulk of dermatology activity is nowadays restricted to outpatients. Compounding this and in contrast to some other countries, dermatology training is a separate pathway to the physicians training required for other medical specialties. There is a lack of full-time hospital-based practitioners in dermatology departments across Australia, with a lack of on-site presence in hospitals and a resulting decrease in clinical and research interactions with other medical specialties. Dermatology has thus become a somewhat invisible specialty to the general medical research community. These hospital-based practitioners are more likely to be dedicated to research and research supervision. Only two of the leading research-intensive universities have a chair in dermatology. Similarly, the number of college-accredited dermatologists who spend >50% of their time in research is limited to a few. When considering dermatologists who lead or work in a research laboratory, this number is reduced to a handful. Overall, dermatology departments do not offer the mentors, role models, or supervisors who can help clinician–scientists. After medical school, most dermatology candidates take at least 4 years before they are selected into the 4-year dermatology training program, such that they are in their mid-30s by the time they complete training and the very rigorous examinations with an 80% pass rate, without which they cannot practice dermatology. This places time and financial pressure on candidates, particularly those who are interested in research and particularly for individuals interested in starting a family.

With <600 practicing dermatologists Australia wide, many skin conditions are left to be taken care of by other specialties. Fewer than 10% of melanomas in Queensland are diagnosed by dermatologists as opposed to by general practitioners, general surgeons, or plastic surgeons. In some states where the dermatology workforce is low, immunologists and rheumatologists routinely take care of atopic dermatitis or psoriasis. Although this could suggest the need to focus on more service provision, we envision that our discipline, more than ever, needs to be leading innovation in skin health and disease to remain a relevant and dominant specialty in medicine. This has been recognized widely, and measures highlighted below are required to remedy the current situation.

The future in perspective

Recent years have witnessed a large range of initiatives in Australia in support of developing a clinician–scientist workforce. This started with the

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establishment of Advanced Health Research and Translation Centres regrouping universities, research institutes, and health services. These new entities encourage collaboration and reduce the administrative burden of research governance. It also signaled a cultural change for many health service providers and administrators, acknowledging the leading role of research in improving clinical practice. The visibility of these large centers has gained attention among the younger generation of healthcare providers and has further encouraged them to undertake research for higher degrees offered by the university sector.

Another major change in the past decade has been the establishment of the Medical Research Future Fund (MRFF). This fund was created in recognition of the need for clinical and translational research. This fund adds to all existing sources of funding for research and de facto allowed the clinical research sector to flourish through the support of investigator-initiated clinical trials or the funding of Australian participation in international trials. Moreover, the MRFF has a mechanism to support early-career clinician–scientists. Although access to funding remains highly competitive, with success rates often below 10%, this new resource allowed for an additional half-billion dollars of research annually for the past few years, nearly doubling biomedical research expenditure in less than a decade.

Finally and more specific to dermatology, the Australasian College of Dermatologists (ACD), the body in charge of training and continuing medical education of dermatologists in Australia, has adopted research as an integral part of its strategy. Classically, on finishing medical school and completing internship, candidates for the ACD training program undergo a rigorous selection process. To remain competitive, many candidates undertake research, often in the form of a higher research degree (MPhil or PhD). Research in dermatology is now an integral part of the criteria considered during the selection process. Once in the training program, a PhD–Fellowship pathway has been established to allow candidates to combine clinical and research training. In any case, all trainees must complete at least one research project and undertake training in evidence-based medicine as part of their requirements to be allowed to sit the final ACD examination. The college also has a scientific research fund allowing fellows to support some of this research activity. These changes have resulted in an unprecedented number of ACD trainees to graduate with a higher research degree, mostly based on research conducted before selection into dermatology.

Challenges

Despite the successes of the recent decade, challenges remain. In their new article Li et al. (2022) place particular emphasis on the need for a nurturing environment for recent clinician–scientists to flourish. Indeed, many of the recent dermatology graduates with a research higher degree do not find the support they need and leave for private practice despite their incredible talent. This reality is even more striking for laboratory-based clinician–scientists where research funding and infrastructure are even more critical. The ACD examination process is also an extenuating endeavor that does not allow much room for research activities during the last 2 years of the training program. As a result, in the term of their 4-year training, many have not published for a long period of time, making them unsuitable for existing competitive funding. Of note, some of the graduates and practitioners with research experience undertake industry-sponsored research and contribute to advancing dermatology in this setting. Although this pathway is certainly useful and of interest, in our view, it does not compensate for the need for the discipline's independent thinking and innovation. This form of research also, in most cases, does not allow graduates to fully benefit from their research training, given the minimum input usually allowed in study design and conduct.

Despite the challenges of education debt, family obligations, and better income in the private sector, we authors cannot help wondering what would happen if these early-career dermatologist–researchers were offered a true career alternative. This would be in the form of a secure 3–5 year clinician–scientist early-career fellowship or junior-faculty position in research-intensive departments offering adequate mentoring, 70–80% protected time for research while maintaining a reasonable income commensurate with their level of training. Such a period would offer these early-career researchers the time to start a scientific career, establish their footprint in an area of interest, and gain independence through funding. Currently, the academic dermatology departments across Australia do not have the human and funding resources to support such positions, and competitive funding is not suited to dermatology trainees despite their immense talent. This sums the challenges ahead and the need for investment in this area. Such commitment to academic dermatology would have long-lasting impacts on our discipline and trigger a virtuous circle over several generations for the benefit of our patients.

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CONFLICT OF INTEREST

HB is an employee at Australasian College of Dermatologists. VM has National Health and Medical Research Council (NHMRC) Early Career Fellowship and honoraria from Novartis, Merck, and Bristol Myers Squibb. HPS is a shareholder of MoleMap NZ Ltd and e-derm consult GmbH and undertakes regular teledermatological reporting for both companies. HPS is a medical consultant for Canfield Scientific Inc, MoleMap Australia Pty Ltd, Blaze Bioscience Inc, and Revenio Research Oy and a medical advisor for First Derm. HPS holds an NHMRC Medical Research Future Fund Next Generation Clinical Researchers Program Practitioner Fellowship (APP1137127). The remaining authors state no conflict of interest.

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