

South Australian Productivity Commission 2020 Health and Medical Research Inquiry

University of Adelaide Centre of Research Excellence Translating Nutritional Science to Good Health Submission

Background

The Centre of Research Excellence Translating Nutritional Science to Good Health is one of only three Centres nationwide to have been funded twice by the NHMRC, and the first CRE to be awarded in South Australia in 1997. Funding by the NHMRC, The Hospital Research Foundation and The University of Adelaide has been pivotal to our ongoing development as a hub that connects researchers focusing on gastrointestinal function in a number of interrelated, priority health research areas, including type 2 diabetes, obesity, critical illness, and ageing. The CRE has been, and is, underpinned by the recognition that nutritional interventions are fundamental to the prevention and management of these prominent health issues. Our location in the Biomedical Precinct of Adelaide, with an extensive involvement in the clinical services of the Royal Adelaide Hospital (RAH), as well as strong links to South Australian Health and Medical Research Institute (SAMHRI), places us uniquely for translational research. The Centre, led by Professor Michael Horowitz, currently provides an exceptional collaborative framework for research between basic and clinical researchers across the precinct and an ideal environment for the training of clinician-scientists.

Our researchers are amongst the best in their field and we continue to secure substantial Category A funding. Since our most recent CRE funding commenced in 2012, our investigators have been awarded 15 NHMRC Project Grants, and generated more 500 peer-reviewed publications (increasing from ~50 per year in 2012 to ~100 in 2019) in top journals in general medicine (e.g. N Engl J Med, Lancet), diabetes (Diabetes Care, Diabetes), gastroenterology (Gastroenterology), nutrition (Am J Clin Nutr), and critical care (Intensive Care Med, Crit Care Med). In 2018 we were the recipients of 3 NHMRC Project Grants, and a NHMRC Early Career Fellowship; two of three University of Adelaide Doctoral Research Medals were awarded to our PhD students, and we were responsible for arguably the most influential paper published by the University of Adelaide that year (N Engl J Med 2018;379(19):1823-1834). In 2019, Michael Horowitz was awarded a prestigious NHMRC Investigator Grant and Richard Young an NHMRC Ideas Grant. We are, accordingly, firmly established as the focal point for a broad spectrum of gastrointestinal and nutrition-related activities, built a network of national and international collaborators who visit Adelaide regularly, and have become pivotal to growing the next generation of clinician-scientists in the field of nutrition. Despite these achievements, our current position is highly precarious reflecting a recent substantial reduction in institutional fiscal support for core staff and the decreasing probability of success with the major grant funding schemes.

In this submission, we focus on two fundamental and interrelated issues: (i) the current lack of secure research funding for the relatively few established, and internationally recognised, research groups in South Australia to facilitate their sustainability and ongoing strategic development, and (ii) the pivotal importance of elite clinician-scientists to research outcomes and the major limitations in current support and incentives for training the next generation of clinician-scientists in South Australia. We believe that both issues must be addressed promptly and effectively for the research performance in South Australia to improve significantly and that a multifaceted approach is required.

(i) Funding for outstanding research groups

Many researchers wish to be a key member of a successful group comprised of individuals with complimentary skills and linked primarily to one institution. This represents a strength of our CRE, which certainly has not compromised collaboration. For essential, senior members of a research group to be employed by different institutions with marked individual variations in the duration of their secure employment is inherently undesirable and, by definition, promotes instability. Our CRE has secured ~\$33 million in funding since 2015 and is one of the few groups in SA that continues to be successful. However, the major funding bodies (e.g. NHMRC, MRFF) are increasingly competitive and funding is also often targeted to 'niche' research areas, which may not include important disorders, such as diabetes which is a major focus of the CRE. For example, diabetes affects some 1.3 million Australians and current funding in this area is markedly inconsistent with the impact of diabetes on the nation's health and the available research expertise in Australia. The Australian Diabetes Society (ADS) recently called on the Australian government to increase spending on research in this field.¹ Dr Sof Andrikopoulos, CEO of the ADS, requested that the government allocate specific funding for basic and clinical research from NHMRC Ideas and Synergy Grants and that the MRFF make targeted calls in diabetes basic and clinical research. Given the low probability of success in applications to the NHMRC/MRFF, even for established, high quality, research programmes, it is essential that substantial bridging support is available for research programmes to be sustainable. It should also be appreciated that the salaries of personnel that are integral to successful research groups (in the case of our CRE, a Project Manager, Biostatistician and two technical officers) may not be provided by competitive funding bodies and, hence, sustained institutional support is required.

(ii) Clinician-scientists

Our CRE provides an environment which aims to optimise opportunities for mentorship and collaboration. The most important facet of this is arguably the interface between researchers and the clinician student cohort. Medical and allied health students become successful clinicians and researchers through interactions with those have been successful at both. The CRE has actively encouraged the careers of clinician-scientists: of our 16 senior investigators, 10 work clinically. CRE investigators have supervised 30 PhD students in the last ten years and of these, 17 are active clinicians. Many of the latter have, unfortunately, left South Australia for better opportunities interstate or overseas. The letter from the ADS, referred to above, stated that 'we are witnessing the loss of researchers and their future impact on this health care burden'. An impressive review in the *New England Journal of Medicine* by Jain et al (2019) states that 'aspiring young physician-scientists see careers combining research and patient care as unattainable. As more people abandon this career path, the loss of role models for trainees further exacerbates the problem' and that 'revitalising the physician-scientist pipeline is of critical importance to overcoming current and future health challenges.'²²

Clinical practice is influenced strongly by both basic science and clinical research outcomes. It is now well established that clinicians report substantial barriers to participating in research, including lack of research skills, time, financial, resources, staff, administrative support, and expertise or training in research (Dougherty et al, 2015).³³ While holding a postgraduate degree or a doctorate and having research included in their job description may encourage clinicians to pursue research, centres such as our CRE are pivotal by providing an environment where hybrid activity is encouraged and mentored. Retention of outstanding doctoral students in postdoctoral positions is highly dependent on funding, but there is little institutional support for postdoctoral positions. Triall et al (2016) conclude their discussion of the plight of Australian physician-researchers with this observation: 'Potential solutions

include more research funding for clinicians, perhaps through the Medical Future Fund, protected research time in clinical posts, academic clinical centres, greater job security, reduced salary gaps and a more supportive workplace culture.⁴ In the post-Covid-19 environment we can only surmise that research support and the priority for research will diminish further.

Summary and Recommendations

(i) Additional support for outstanding research groups

Rationale: Research, particularly clinical research, should be embedded strongly in the public hospital system for numerous reasons, including enhancement of clinical care, but increasingly it is not in SA. Particularly because of the vagaries and increased competitiveness of the major granting bodies internationally recognised research groups, of which there are relatively few in SA, are increasingly vulnerable and, at a minimum, their development has been compromised.

Recommendation:

Outstanding research groups are identified and strategies to ensure their longer-term sustainability and development implemented promptly.

(ii) Support for clinician-scientists

Rationale: Successful clinician-scientists are, for the main part, elite graduates who have made a longer-term commitment to a university-affiliated hospital, been the recipient of high-quality mentoring to establish their career and aspired to be leaders in their field. The recruitment and retention of high-quality clinician-scientists requires effective cooperation (including financial support) and goodwill from hospitals, universities and research institutions (which may necessitate a common governance) which is currently deficient in SA. SA hospitals are not rewarded appropriately, nor provided with adequate incentives, for supporting research or research career development strongly or attracting elite researchers. That salary costs provided by hospitals to clinical academics (university-employed clinicians) are now substantial has only exacerbated this situation, as may have the establishment of 'purpose-built' research (e.g. SAHMRI) and teaching (e.g. AHMS) facilities.

Recommendations:

(i) Established researchers in SA whose performance is in the top 1-5% of their field internationally should be identified and actively supported to ensure their ongoing involvement.

(ii) Incentives, including mentorship, should be provided to facilitate the career development of individuals identified as having a high potential to be successful clinician-scientists, irrespective of their primary employer in SA.

¹ Letter from Australian Diabetes Society to Federal Health Minister, Greg Hunt, dated 10th January 2020

² Jain et al. Saving the Endangered Physician-Scientist - A Plan for Accelerating Medical Breakthroughs, *New England Journal of Medicine* (2019) 381:5

³ Dougherty et al. Why Registered Dietitian Nutritionists Are Not Doing Research—Perceptions, Barriers, and Participation in Research from the Academy's Dietetics Practice-Based Research Network Needs Assessment Survey. *Journal of the Academy of Nutrition and Dietetics* (2015) 1001:6

⁴ Triall et al. Time to research Australian physician-researchers. *Internal Medicine Journal of the Royal College of Physicians* (2016) 550:8