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Inequities in research engagement between rural, remote and metropolitan health care providers

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Introduction

Australia has a well-developed health and medical research (HMR) sector that has significantly contributed to improvements in health and wellbeing in Australia and across the globe.¹ There is growing recognition, however, that Australia can do better in translating research findings into tangible outcomes and that better integration of research with health service delivery can deliver a more efficient and effective health system and improve patient outcomes.² To this end, there are a number of significant policy initiatives that are driving research activity in the health care sector. These include the Medical Research Future Fund (MRFF), the National Health and Medical Research Council's Advanced Health Research Translation Centres and Centres for Innovation in Regional Health and the allocation of funds for research to public hospitals as a component of National Health Reform Agreement funding. If rural and remote health care providers are unable to effectively engage with these national initiatives to embed research into health service delivery, there is a real risk that this will contribute to a further widening of the gap in patient experience and outcomes between rural/remote and metropolitan areas of Australia.

Research and the health system

Within Australia, much of the current policy focus on embedding research activity in the health care sector can find its genesis in the 2013 Strategic Review of Medical Research, led by Simon McKeon, AO ('the McKeon Review'). The McKeon Review outlines a vision for 'better health through research' and provides 21 recommendations to embed HMR in the health system and help deliver a more efficient and sustainable health system.²

The McKeon Review acknowledges that whilst HMR is one of Australia's strongest fields of research, with publication citation rates above the average of comparable European country benchmarks, there is significant scope to further leverage this expertise to improve healthcare delivery. Overwhelmingly, the message received in preparing the review was that there was a lack of sufficiently strong connections between HMR and the delivery of healthcare services. This disconnect between those areas which predominantly carry out the research and those areas where services are delivered impedes the translation of research findings into better healthcare practice and products. Although Rural Clinical Schools (now part of the Rural Health Multidisciplinary Training Program³) have played an invaluable role in enhancing the rural health agenda and creating research partnerships in rural and remote areas⁴, it is likely that ongoing workforce shortages in rural and

remote areas^{5,6} continues to exacerbate the disconnect between research and service areas identified in the McKeon Review.

The McKeon Review calls for research to be routinely performed as part of healthcare delivery and for greater linkages between healthcare providers and research organizations. The Review's 21 recommendations provide a blueprint to achieve this integration, covering key aspects of the HMR sector, including investment strategies, leadership, governance, workforce, priority-setting and infrastructure. Although no formal, comprehensive response to the McKeon Review was ever received from Government, its influence can nevertheless be seen in many of today's HMR policy initiatives. For example, Recommendation 20 calls for greater investment in HMR and for the HMR investment mix to be rebalanced towards translation. This sentiment is clearly echoed in the subsequent establishment of the research investment fund the Medical Research Future Fund (MRFF), with the MRFF Australian Medical Research and Innovation Strategy 2016-2021 explicitly stating that the MRFF will build on the McKeon Review vision of 'better health through research and the importance of strong links between biomedical, clinical, public health and health services research.'⁷

The McKeon Review also acknowledges the NHMRC proposal to develop Advanced Health Research Centres; partnerships between universities, hospitals and medical research institutes. Although supportive of this approach, the McKeon Review expresses concern that without an injection of funding, designation itself was insufficient for genuine centres to form and deliver impact. The McKeon Review then goes on to extend this concept further by proposing the establishment of Integrated Health Research Centres (IHRCs), including a rural and remote IHRC.² Whilst these IHRCs have not been developed, the NHMRC has since gone on to deliver its proposal in the form of Advanced Health Research Translation Centre (AHRTCs) and Centres for Innovation in Regional Health (CIRHs).⁸ These schemes echo many of the core themes of the McKeon review and notably, all designated AHRTCs and CIRHs have received funding from the MRFF upon designation.⁹

The McKeon Review also acknowledges the implementation of Activity Based Funding for Teaching, Training and Research activities as part of the *National Health Reform Agreement 2011* (NRHA). Recommendation 1 is a call to manage and refocus current state and territory Local Hospital Network HMR investment, using the NRHA to strengthen and build upon existing HMR investment in the health system.² Although this has not yet occurred, the focus on research in the health system remains and many Local Health Networks in rural and remote areas have sought to maximize their research activity through their involvement in initiatives such as the NHMRC AHRTCs and CIRHs.

Quantifying research activity

Although the McKeon Review's vision of 'better health through research'² can be seen throughout the current HMR landscape, accurately quantifying what research occurs within the health system remains elusive. Unlike the University and independent medical research institutes who have clear mechanisms by which to report their research activity (Higher Education Research Data Collection, Australian Research Council Excellence in Research Australia, Association of Australian Medical Research Institutes Members Reports), comparable mechanisms are not available for the health system. This is despite a commitment under the National Health Reform Agreement to transition to Activity Based Funding for teaching, training and research activities¹⁰.

In 2011, the Commonwealth and State and Territory Governments entered into the landmark National Health Reform Agreement ('the Agreement'). This Agreement sought to provide long-term certainty around hospital funding with a clearly outlined basis for the level of Commonwealth

contribution. It also sought to improve the efficiency of public hospitals through the use of Activity Based Funding (ABF) for patient services and for teaching, training and research activities. ABF ensures that hospitals are paid for the number and mix of patients they treat, and the volume and type of teaching, training and research activities they undertake.¹⁰

The Independent Hospital Pricing Authority (IHPA) was tasked with developing a classification system for teaching, training and research that would enable ABF of this activity. However, during the development of this classification system it became evident that there was insufficient data available to define a research classification system. As a result, there is currently no national classification system for research activity in Australian hospitals.¹¹ The IHPA Teaching, Training and Research Costing Study ('the Costing Study'), however, provides some insights into the research activity of regional, rural and remote hospitals.

The Costing Study investigated the teaching, training and research activity of 19 health care providers categorized by peer group. It found that over 95% of total reported research activities took place in principal referral hospitals (consisting of Major City area hospitals), almost 5% in Public Acute group A hospitals (consisting of Inner Regional and Major City hospitals) and a negligible amount in Public acute group B hospitals (Inner Regional, Outer Regional and Remote area hospitals).¹² Although this is a limited sample size, it provides some evidence to suggest levels of inequity in research engagement between regional/rural/remote and metropolitan health care providers.

It is unclear in the future how research may be funded within the hospital sector, but it is likely that it will be funded under some type of block arrangement, largely informed by existing levels of research activity. For metropolitan healthcare providers with existing and established programs of research who can engage with other national initiatives to integrate research into health care, such as the MRFF, this mechanism of funding may have minimal negative impact. However, the lack of ABF for research activity may disproportionately impact rural and remote healthcare providers who are seeking to establish or build their research activity to improve health service delivery. In this respect, initiatives such as the NHMRC CIRH may be crucial vehicles for rural and remote healthcare providers to enhance their research activity.

NHMRC AHRTCs and CIRHs

AHRTCs and CIRHs aim to 'encourage excellent health research and translation in Australia by bringing together researchers, healthcare providers, education and training to improve the health and well-being of patients and the populations they serve, including in regional/remote areas for CIRHs.'¹³ These schemes not only draw on key themes of the McKeon Review, but reflect a growing global trend of the 'Academic Health Science Centre', which share a tripartite mission to delivery high quality research, health professional education and clinical care.¹⁴

To date, the NHMRC has recognised seven AHRTCs and two CIRHs. Although the designation process for AHRTCs or CIRHs does not include any funding from the NHRMC, these designated centres have become vehicles for MRFF funding as part of its Rapid Applied Research Translation initiative, which has provided \$8M to the seven AHRTCs and \$2M to the two CIRHs.⁹

In addition to the two recognised CIRHs, there are a number of potential CIRHs in development. Table 1 provides details of these groups.

Table 1 Academic Health Centres in Australia with an explicit regional, rural or remote focus

Name	Membership	Research themes or objectives	CIRH Designation?
Central Australia Academic Health Centre	Aboriginal Medical Services Alliance Northern Territory Baker Heart and Diabetes Institute Central Australian Aboriginal Congress Aboriginal Corporation Central Australia Health Service Charles Darwin University Flinders University Menzies School of Health Research Ngaanyatjarra Health Service Aboriginal Corporation	<ul style="list-style-type: none"> Chronic conditions Health determinants and risk factors Health services research Policy research and evaluation Workforce and capacity building 	Yes
New South Wales Regional Health Partners	NSW Hunter New England Local Health District NSW Central Coast Local Health District NSW Mid North Coast Local Health District Hunter New England and Central Coast Primary Health Network Hunter Medical Research Institute Calvary Mater Newcastle University of Newcastle University of New England	<ul style="list-style-type: none"> Funding research into evidence translation. Building consumer and community capacity to contribute to, and benefit from, research. Educating clinicians and researchers in evaluation and implementation science. Building collaborations between clinicians, consumers, managers, researchers and community. Advancing funders and policy makers' understanding of evidence translation. 	Yes
Tropical Australian Academic Health Centre	Cairns and Hinterland, Mackay, North West, Torres and Cape and Townsville Hospital and Health Service, the Northern Queensland Primary Health Network and James Cook University	<ul style="list-style-type: none"> Service delivery to regional, rural, remote and Aboriginal and Torres Strait Islander populations; Non-communicable diseases with high regional prevalence; Innovative health workforce models; Infectious diseases and biosecurity. 	No

The CIRH initiative is important for a number of reasons: it provides much needed recognition of rural, remote and regional Australia as a place where excellence in research, education and health care can thrive; it provides a compelling incentive to formalise nascent research relationships or develop new research partnerships; and it has provided a vehicle to access MRFF funding to embed research into health service delivery in regional, rural and remote areas.

It is evident that CIRHs have had an effect in establishing relationships between universities, research institutes and the health system in regional, rural and remote areas. However, the discrepancy between the number of designated AHRTCs and CIRHs may indicate a broader lack of capacity in regional, rural and remote areas to successfully establish these types of relationships. Moreover, there is little evidence to indicate how successful CIRHs have been in encouraging health research and translation, as neither the NHMRC nor MRFF have released any performance data regarding the centres. Whilst CIRHs are a welcome recognition of the capacity of rural and remote healthcare providers to undertake high quality research, there is an outstanding need for evidence that indicates CIRHs are an effective means to engage rural and remote healthcare providers in collaborative research activities.

The Medical Research Future Fund

The Medical Research Future Fund (MRFF) was announced by the Australian Government as part of the 2014-2015 Federal Budget. The purpose of the MRFF is to provide an additional secure source of revenue for health and medical research and innovation. It is the single largest boost to research funding in Australia's history and will reach its full capitalization value of \$20 billion in 2020-2021.¹⁵ It is significant not only for its scale, but for the opportunity it provides to fund research of a translational nature. With an explicit focus on priority-focused translational research that sits alongside and complements the largely investigator initiated research funded by the NHMRC, the MRFF is an opportunity for a broader range of sectors and organizations, including rural and remote healthcare providers, to access substantial funding for health and medical research activity that may not be readily funded by the NHMRC.⁷

The *Medical Research Future Fund Act 2015*, gives effect to the establishment of the independent Australian Medical Research Advisory Board, which is tasked with determining the Australian Medical Research and Innovation Strategy (every five years) and related Priorities (every 2 years) to inform Government decision making on MRFF disbursement.¹⁶ It is important to note that whilst the Advisory Board is responsible for the development of the Australian Medical Research and Innovation Strategy and Related Priorities, the Health Minister is only required to consider the Priorities when putting forward proposals to Government for MRFF funding distribution. The Advisory Board has no direct role in specifying funding disbursements. The Act also allows a large degree of flexibility in how MRFF funds can be distributed by Government. Funds can be distributed by an approach to market, an independent expert selection process or by direct funding to any eligible organisation. Funds can also flow through a corporate Commonwealth entity, or under an agreement with states and territories.⁷

The Australian Medical Research and Innovation Strategy 2016-2021 sets out **six strategic platforms** that provide a broad framework for the Priorities to improve research capacity and capabilities in the research sector.⁷ Priorities for the period 2016-2018 and 2018-2020 have been released. Although neither of these Priorities explicitly make mention of rural and remote health, the 2018-2020 Priorities do encompass areas that are of relevance and interest to rural and remote health care providers, such as *inter alia* Primary Care Research, Clinical Researcher Capacity, Aboriginal and Torres Strait Islander Health and Consumer-Driven Research.¹⁷

Several key stakeholders have raised concerns regarding a lack of transparency in how MRFF funds have been distributed.^{18, 19} Although the Department of Health maintains a dedicated MRFF web page, detailed information regarding funding allocation is scarce. Little to no information is provided as to how funds have been disbursed, how the disbursed funds align with the Strategy and associated Priorities or how funds are being expended by recipient organisations.

Table 2 outlines MRFF funding disbursement to date, as listed on the Department of Health website. It is apparent that many of these MRFF initiatives have the potential to drive improvements in health in rural and remote communities. However, it is less apparent how rural and remote health care providers, clinicians and researchers might directly engage in these initiatives and lead translational research within the health system. Many of the initiatives appear to have been provided to established, metropolitan based institutions and little detail is given regarding the process for access to funding. Given the considerable funding that will reside in the MRFF, there is significant potential to increase the transparency of funding processes and to accommodate an explicit rural and remote focus in future Strategy and Priorities.

Conclusion

Since the publication of the McKeon Review in 2013, there has been increasing recognition of the importance of embedding research in the health system to deliver a more efficient and effective system and improve patient outcomes. Although initiatives such as the MRFF, NHMRC AHRTCs and CIRHs and the National Reform Agreement seek to integrate research into the health system, there is little evidence to suggest how effective these initiatives have been in achieving this integration. For rural and remote communities who continue to experience poorer health outcomes than their metropolitan counterparts, there is a real risk that an inability to effectively engage with these initiatives will contribute to a further widening of the gap in patient experience and outcomes between rural/remote and metropolitan areas of Australia. It is imperative that we continue to leverage the ongoing evolution of the HMR since the release of the McKeon Review and ensure that landmark initiatives such as the MRFF and NHMRC CIRHs can deliver real improvements in health for communities across regional, rural and remote Australia. To that end, it is the recommendation of this paper that:

- The National Health Reform Agreement commitment to ABF for research activities is maintained and a national classification system for research is developed;
- Transparency in MRFF funding application and disbursement is increased, with detailed information maintained on the Department of Health webpage; and
- The NHMRC reviews the performance of designated AHRTCs and CIRHs against the aim and criteria of the scheme and provides a public release of these results or a summary thereof.

Table 2 MRRFF funding disbursements as listed by the Department of Health²⁰

Research Initiative	Description
Accelerated Research Investment	<p>\$5 million to CanTeen to support new clinical trials for adolescents and young adults with cancer</p> <p>\$2 million to the Cure4MND Foundation to support new clinical trials for adults with motor neuron disease (MND)</p> <p>\$2 million to the Australian Epilepsy Research Fund to support their SYNGAP-1 research project</p> <p>\$2.5 million to the Jean Hailes Foundation to support research priorities identified under the National action Plan for Endometriosis.</p>
Australian Medical Research Advisory Board	<p>\$20M over 4 years to support the Australian Medical Research Advisory Board. The Board will oversee the direction of the National Health and Medical Industry Growth Plan, including the 10 year \$500M Genomics Health Futures Mission and the \$240M Frontier Health and Medical Research Program</p>
Biomedical Translation Bridge	<p>\$22.3 million over 4 years to organisations to support researchers in developing their early and innovative health and medical research ideas. Applications closed on 21 August 2018 and are currently being assessed.</p>
BioMedTech Horizons	<p>\$35 million to fund proof-of-concept to commercial development of biomedical and medical technologies (biomedtech). This funding is being administered by the Medical Technology and Pharmaceutical Industry Growth Centre. \$10M in projects are already being funded.</p>
Boosting Preventative Health Research	<p>\$10 million to promote better health choices, prevent disease and keep people out of hospital. The Australian Preventative Health Partnership Centre, a nationally accredited organisation, is leading this research.</p>
Clinical Trial Activity: Rare Cancers and Rare Diseases and Unmet Needs	<p>\$36.6 million to stimulate clinical trial and registry activity. Research into rare cancers and rare diseases are getting priority funding. Funding recipients: University of Sydney, Monash University, University of Melbourne, Murdoch Children’s Research Institute, The University of Queensland, The University of Adelaide, University of New South Wales, Australian National University, La Trobe University, and University of Western Australia.</p>
Frontier Health and Medical Research	<p>\$240 million over 5 years to establish a landmark program for researchers and collaborators for ‘out of the box’ ideas and discoveries.</p>
International Clinical Trial Collaborations	<p>\$42 million over 5 years to support international clinical trial collaborations. Applications currently open via the NHMRC.</p>
Keeping Australians out of Hospital	<p>\$18.1 million to support preventive health research with a focus on implementation science. The program will involve competitive and targeted grant opportunities. Applications via the NHMRC closed 30 Jan 2019.</p>
Lifting Clinical Trials and Registries Capacity - Clinical Trials Networks	<p>\$5 million over 4 years in the Australian Clinical Trials Alliance to build the capacity of new and existing Clinical Trials Networks.</p>
Maternal Health and First 2000 Days	<p>\$17.5 million to support research that shapes healthier and more prosperous futures for Australians.</p>

Research Initiative	Description
Million Minds Mental Health Research Mission	The Mission is commencing in 2018-19 with \$125 million in funding being provided over ten years. Applications close 20 February 2019
National Health and Medical Industry Growth Plan	\$1.3 billion in a Health and Medical Industry Growth Plan to drive a new era of better health care, fuel jobs and support economic growth.
National Security Against Pandemic Risk	\$2 million over 2 years to the Coalition for Epidemic Preparedness Innovations (CEPI).
Next Generation Clinical Researchers	\$78 million in clinical researcher fellowships. This funding is being administered by the National Health and Medical Research Council (NHMRC) using existing targeted schemes.
Rapid Applied Research Translation	\$10 million in accredited AHRTCs and CIRHs
Researcher Exchange and Development within Industry	\$32 million will be invested over 4 years to bring industry and academia together. Applications close 9 April 2019.
Tackling Antimicrobial Resistance (AMR) in aged care facilities	\$5.9 million in research to help tackle the threat of antimicrobial resistance (AMR) in aged care facilities. Recipient institutions: South Australian Health and Medical Research Institute, University of South Australia, University of Queensland, Monash University
Targeted Health System and Community Organisation Research	\$39.8 million to support research that addresses specific health system questions which compare the effectiveness of health services and practice.
Targeted Translation Research Accelerator - chronic conditions - diabetes and heart disease	\$125 million over 9 years to establish a Targeted Translation Research Accelerator in chronic conditions, particularly diabetes and heart disease.

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Presenter

Bonnie Eklom works in the Division of Tropical Health and Medicine at James Cook University as a Policy Officer, where she co-creates and supports the development and delivery of key projects, particularly those relating to enhancing collaborative research activity between the University and the health sector in northern Queensland. This includes the development of the Tropical Australian Academic Health Centre, a research collaboration between James Cook University, five hospital and health services in northern Queensland and the Northern Queensland Primary Health Network. She also supports initiatives addressing health workforce capacity in rural, remote and tropical communities. Her PhD study investigates geographic variations in efficiency and productivity of hospital and health services across Queensland. Bonnie has previously worked at IPAustralia in patent examination and in grants management at the National Health and Medical Research Council. She has a comprehensive understanding and interest in the innovation and health research environment in Australia, with a particular focus on health research and delivery in rural, remote and tropical areas.