

Creating a sustainable and supportive health research environment across rural and remote Australia: a call to action

The positive impact of evidence-based practice on health service performance and health outcomes is well described.¹⁻³ Marita Titler, an expert in evidence-based practice from the United States, has observed that “only by putting into practice what is learned from research will care be made safer”.⁴ However, the consistent and widespread application of evidence-based health care is largely dependent on a health service’s research culture and the research capacity of its staff.⁵

It is therefore important to build research capacity, as this improves the ability of clinicians to apply new knowledge to improve health outcomes.⁵ In addition, strong research culture has been shown to be associated with better patient outcomes.³ This is particularly important in rural and remote contexts, where health outcomes are notably poorer, and research environments are often less developed and more stretched.

Rural and remote areas in Australia need relevant, context-specific research to inform policy and practice that will ensure stronger and healthier communities for current and future generations.⁵⁻⁸ Research in rural and remote areas is under-resourced relative to the health needs of people in those areas. For example, only 2.4% of the total National Health and Medical Research Council (NHMRC) funding in 2014 was allocated to rural health research, despite 30% of the Australian population residing outside of major cities.⁸ Research-active organisations in rural and remote settings are well positioned to generate high quality and context-specific evidence to support health policies and practices that will directly improve health outcomes and the delivery of health care in rural and remote parts of Australia.^{5,6} In this article, we use the term “rural and remote” to describe areas classified using the Modified Monash Model as MM3 to MM7⁹ (ie, all areas outside of major cities with a population of < 50 000), while acknowledging that the communities in these areas are highly heterogeneous.

Evidence from Australia and overseas has highlighted the importance of research activity in health settings in delivering high quality care, improved patient experience, reduced mortality, a culture of enquiry, and greater innovation and translation.^{2,3,10-15} Beyond the organisational benefits of research activity, clinician-led research has been shown to improve identification of problems, which reduces research waste and ensures translation of findings into policy change.¹⁶

We believe that a sustainable and supportive health research environment across rural and remote parts of Australia is part of the solution to improving health outcomes in these communities. In this article, we discuss strategies for creating and sustaining health

research environments throughout rural and remote parts of Australia. We provide an overview of the current state of play and key achievements in rural and remote health research, and recommendations for establishing positive research culture and research opportunities for rural and remote health care workers.

Current state of play and key achievements

While rural and remote health settings present unique challenges — such as geographical isolation, fewer specialist services and less professional support compared with metropolitan settings — these environments also provide great opportunities for innovation.^{15,17,18} In addition, rural and remote settings have unique opportunities for more rapid research impact, enhanced knowledge translation and sustainability.^{15,19-21}

Over the past 20 years, research activity has dramatically increased in rural and remote parts of Australia, largely through the success of university departments of rural health, rural clinical schools and regionally focused research translation centres (RTCs), and an increased recognition of the importance of place-based approaches to research.^{5,20,22,23} More recently, the NHMRC has invested in the Centre of Research Excellence for Strengthening Health Systems in Remote Australia and the federal government has funded the Rural and Regional Health Research Institute at Charles Sturt University.²⁴

Despite the challenges of generating supportive environments for research in rural and remote contexts, there have been many success stories. There is clear evidence that the network of university departments of rural health across Australia has substantially increased the focus on rural and remote health issues, and provided considerable support to rural and remote health care workers, students and place-based researchers.²³ RTCs are also achieving significant improvements in the quality and quantity of health research in rural and remote parts of Australia. RTCs focus on translating evidence into practice and developing research capacity and capability within health services, which supports locally led research options. Five of the 14 RTCs accredited by the NHMRC are solely focused on rural and remote health research, and four others have a statewide remit. With collaborations across research institutions, academic institutions and health care services, RTCs are directly enabling rural and remote health care services to lead research that addresses local level health issues.²⁵

Other successes include the Torres Strait Islander Research to Policy and Practice Hub. This initiative generates locally relevant research, based on a locally

Laura Alston¹ 

Lisa McFayden^{2,3}

Tarun Sen Gupta⁴

Warren Payne⁵

James Smith⁶

¹ Deakin Rural Health, Deakin University, Geelong, VIC.

² College of Health, Medicine and Wellbeing, University of Newcastle, Newcastle, NSW.

³ Hunter Medical Research Institute, Warrnambool, NSW.

⁴ College of Medicine and Dentistry, James Cook University, Townsville, QLD.

⁵ Western Alliance, Warrnambool, VIC.

⁶ Flinders Rural and Remote Health NT, Flinders University, Darwin, NT.

laura.alston@deakin.edu.au

driven research agenda, to support sustainable ecosystems and health in the remote Torres Strait Island region and to build local research capacity.²⁶ The Northern Australia Research Network is another example.²⁷ This is a collaborative network of local researchers, clinicians, health managers and consumers who work together to improve the health and wellbeing of people living in Northern Australia through research focused on functioning, disability and health.²⁷ A smaller scale example of a successful rural health service that is driving its own locally relevant research agenda is the Colac Area Health Research Unit in Colac, Victoria.²⁰ Key enablers for the establishment of the unit were local champions, who provided proof of concept. They did so by running a successful locally driven project that was supported by the health service leadership (who embedded the unit into their organisational strategy), the local university department of rural health and the Western Alliance Academic Health Science Centre.²⁰

Although significant progress has been made, multiple challenges and opportunities exist for further integrating research into practice in rural and remote settings. Research into the barriers to, and opportunities for, building health-related workforce research opportunities in rural and remote parts of Australia has shown that, to date, there has been heavy reliance on an individual approach (ie, research has been led by individual academics and clinicians), leading to fragmented research efforts.^{18,28} Such activity, while undoubtedly beneficial, tends to be sporadic and opportunistic, mostly due to limited resources, lack of an overarching research strategy, and lack of internal and external structural support for sustained and aligned research efforts in rural and remote settings.^{18,29,30} The challenges faced by rural and remote health care workers in engaging in research include: limited time, owing to health workforce shortages; lack of research culture, mentoring and leadership; unclear career pathways for clinician researchers; and minimal rewards for developing research capacity and undertaking research.³¹⁻³³

Recommendations for establishing positive research culture and research opportunities

To continue building supportive research environments in rural and remote communities, positive research culture and research opportunities for rural and remote health care workers are needed. We have three key recommendations for this.

States and territories should develop and implement rural and remote health research strategies

Our first recommendation is that the states and territories, as providers of tertiary public health services in Australia, should implement rural and remote health research strategies that address the specific needs of communities, health care workers, health services and researchers. A recently published Australian Academy of Health and Medical Sciences report rightly states that addressing fragmented research efforts is a key priority for advancing research

and innovation as core functions of the health system at a national level.¹⁵ However, the unique challenges and opportunities in rural and remote health research warrant dedicated state-based strategies that will address the need for research capacity and capacity building within clinical and practice-based roles. Such strategies would need to address the historical underinvestment in health research in these communities, along with critical workforce shortages that create barriers to building research capacity.²⁹ In addition, federal government involvement will be crucial; this should include funding for primary health research, and engaging and integrating primary care providers in health research.

Rural and remote health research strategies will need broad stakeholder input to ensure relevance, practicality and meaningful outcomes, plus adequate rewards and incentives for health care workers to undertake research, including research led by Aboriginal and Torres Strait Islander people. The strategies should also extend to organisations that integrate with but sit outside of the health research sector, such as local governments and not-for-profit health organisations, which are crucial partners in advancing rural and remote health. Equity of opportunity across rural and remote parts of Australia is also important, despite considerable heterogeneity in community size and population needs. Further, a focus on locally led identification of problems, co-design, implementation and translation will help ensure that new and existing evidence is embedded into practice.

Rural and remote health research strategies must also acknowledge and address the cross-cutting themes relevant to all jurisdictions, identify gaps requiring further research, and identify opportunities to address critical issues using collaborative approaches. Critical issues include workforce recruitment and retention, socio-economic determinants of health, and Indigenous health. These issues cannot be addressed broadly or sustainably without a concerted, collaborative approach from all stakeholders — governments, universities, health services, non-government organisations and communities.

To further support the integration of research in rural and remote health care services, we recommend that governments and funders embed research and translation in policy that guides critical activities such as hospital accreditation, and through the introduction of key performance indicators in research. National, state and territory policies and health funding agreements will need to prioritise research and incentivise health services to incorporate research and translation (and measurement of impact) into planning, policies and operations. This would provide structural support at individual, team and organisational levels.

Recent policy changes, such as those adopted by the Medical Research Future Fund, will have lasting effects on building research capacity in rural and remote areas and improving career opportunities for the health workforce. These changes include requirements for rural and remote investigators on

grant applications and equitable distribution of grant funds to rurally based organisations.³⁴ We encourage other research funders to consider similar policies.⁹ Although the equitable distribution of grant funds is commendable, use of the Modified Monash Model for this purpose has limitations. The model was developed to understand workforce distribution; it is not necessarily relevant to health research funding. Further research is needed to determine the most equitable methods for awarding research funding.³⁵ However, any increase in the proportion of funding allocated to rural and remote health research is positive and a key step in addressing health disadvantages in rural and remote parts of Australia.

Health research must be driven by local need

Our second recommendation is that health research must be driven by local need in rural and remote Australia. It is best done with, not to, those most affected by the outcomes. At the very least, health research should be co-designed with local communities and stakeholders. This will ensure that research is locally relevant, appropriately contextualised and feasible. It will also ensure that research findings are adopted, which is particularly important in environments where opportunity, resources and infrastructure are scarce.

Research leaders should actively involve local health care workers

Our third recommendation relates to collaboration with and support from rural and remote research, health service and community leaders.^{15,20,22,23} These are key factors in successful rural and remote health research, along with partnerships with universities and research institutions. Strengthened partnerships between health services and universities will be essential for sustaining and supporting health research environments in rural and remote parts of Australia. To this end, we recommend that research leaders proactively identify opportunities to actively involve local health care workers in any health research conducted in rural and remote areas. This will have benefits for all involved, including through building capacity, capability and partnerships.

The rise of online meeting platforms could augment these opportunities by facilitating collaborations between rural and remote health care workers, novice researchers and more established researchers. Conjoint university positions for health care workers would also support links with established research teams and assist researchers to understand the rural and remote context.

While the Australian Academy of Health and Medical Sciences has recommended a national strategy and implementation plan for building a clinician–researcher workforce, it does not outline specific recommendations for the rural and remote context.¹⁵ This is critical if the proposed national strategy is to equally benefit rural and remote parts of Australia. Addressing both the pull and push factors will give rural and remote health care workers the best

opportunity to develop their skills and participate in research.

Conclusion

Although rural and remote settings do not have the same capacity, resources, capability or critical mass as their metropolitan counterparts, there are multiple examples of success in building health research capacity and enabling research environments across rural and remote parts of Australia. However, more work is needed, and this requires much greater financial and political investment. Specifically, rural and remote health research strategies for each state and territory, with appropriate policy levers, can provide a framework and incentives for rural and remote health services and health care workers to engage in research. Strong, collaborative and respectful partnerships across health services, governments and research institutions can support high quality and impactful research and increase researchers' understanding of health care delivery in rural and remote settings. Increased and meaningful consumer and community involvement at all stages and areas of health research in rural and remote Australia can help ensure that research addresses local needs. With appropriate support and leadership, rural and remote health services can drive the research needed to improve health outcomes in rural and remote Australia.

Acknowledgements: Laura Alston is supported by a Heart Foundation Postdoctoral Fellowship (ID: 102530). Laura Alston and Warren Payne are supported by the Rural Health Multidisciplinary Training program.

Open access: Open access publishing facilitated by Deakin University, as part of the Wiley - Deakin University agreement via the Council of Australian University Librarians.

Competing interests: No relevant disclosures.

Provenance: Commissioned; externally peer reviewed. ■

© 2023 The Authors. *Medical Journal of Australia* published by John Wiley & Sons Australia, Ltd on behalf of AMPCo Pty Ltd.

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

- Cardoso D, Couto F, Cardoso AF, et al. The effectiveness of an evidence-based practice (EBP) educational program on undergraduate nursing students' EBP knowledge and skills: a cluster randomized control trial. *Int J Environ Res Public Health* 2021; 18: 293.
- Jonker L, Fisher SJ. The correlation between National Health Service trusts' clinical trial activity and both mortality rates and care quality commission ratings: a retrospective cross-sectional study. *Public Health* 2018; 157: 1-6.
- Ozdemir BA, Karthikesalingam A, Sinha S, et al. Research activity and the association with mortality. *PLoS One* 2015; 10: e0118253.
- Titler MG. The evidence for evidence-based practice implementation. In: Hughes RG, editor. *Patient safety and quality: an evidence-based handbook for nurses*. Rockville: Agency for Healthcare Research and Quality, 2008. <https://www.ncbi.nlm.nih.gov/books/NBK2659> (viewed Mar 2023).
- Moran A, Haines H, Raschke N, et al. Mind the gap: is it time to invest in embedded researchers in regional, rural and remote health services to address health outcome discrepancies for those living in rural, remote and regional areas? *Aust J Prim Health* 2019; 25: 104-107.

- 6 Alston L, Nichols M, Allender S. Policy makers' perceptions of the high burden of heart disease in rural Australia: implications for the implementation of evidence-based rural health policy. *PLoS One* 2019; 14: e0215358.
- 7 Alston L, Bourke L, Nichols M, Allender S. Responsibility for evidence-based policy in cardiovascular disease in rural communities: implications for persistent rural health inequalities. *Aust Health Rev* 2020; 44: 527-534.
- 8 Barclay L, Phillips A, Lyle D. Rural and remote health research: does the investment match the need? *Aust J Rural Health* 2018; 26: 74-79.
- 9 Australian Government Department of Health and Aged Care. Modified Monash Model. <https://www.health.gov.au/health-topics/rural-health-workforce/classifications/mmm> (viewed July 2022).
- 10 Majumdar SR, Roe MT, Peterson ED, et al. Better outcomes for patients treated at hospitals that participate in clinical trials. *Arch Intern Med* 2008; 168: 657-662.
- 11 Laliberte L, Fennell ML, Papanonatos G. The relationship of membership in research networks to compliance with treatment guidelines for early-stage breast cancer. *Med Care* 2005; 43: 471-479.
- 12 Jonker L, Fisher SJ, Dagnan D. Patients admitted to more research-active hospitals have more confidence in staff and are better informed about their condition and medication: results from a retrospective cross-sectional study. *J Eval Clin Pract* 2020; 26: 203-208.
- 13 Downing A, Morris EJ, Corrigan N, et al. High hospital research participation and improved colorectal cancer survival outcomes: a population-based study. *Gut* 2017; 66: 89-96.
- 14 Boaz A, Hanney S, Jones T, Soper B. Does the engagement of clinicians and organisations in research improve healthcare performance: a three-stage review. *BMJ Open* 2015; 5: e009415.
- 15 Australian Academy of Health and Medical Sciences. Research and innovation as core functions in transforming the health system: a vision for the future of health in Australia. Brisbane: AAHMS, 2022. <https://aahms.org/wp-content/uploads/2022/10/AAHMS-Vision-Report.pdf> (viewed May 2023).
- 16 Chalmers I, Glasziou P. Avoidable waste in the production and reporting of research evidence. *Lancet* 2009; 374: 86-89.
- 17 Walsh A, Heeley T, Furlong B, et al. Rural health research capacity building: an anchored solution. *Rural Remote Health* 2021; 21: 6162.
- 18 O'Sullivan B, Cairns A, Gurney T. Exploring how to sustain 'place-based' rural health academic research for informing rural health systems: a qualitative investigation. *Health Res Policy Syst* 2020; 18: 90.
- 19 Farmer J, Currie M, Kenny A, Munoz SA. An exploration of the longer-term impacts of community participation in rural health services design. *Soc Sci Med* 2015; 141: 64-71.
- 20 Alston L, Field M, Brew F, et al. Addressing the lack of research in rural communities through building rural health service research: establishment of a research unit in Colac, a medium rural town. *Aust J Rural Health* 2022; 30: 536-539.
- 21 Alston L, Versace VL. Place-based research in small rural hospitals: an overlooked opportunity for action to reduce health inequities in Australia? *Lancet Reg Health West Pac* 2023; 30: 100682.
- 22 Lyle D, Greenhill J. Two decades of building capacity in rural health education, training and research in Australia: university departments of rural health and rural clinical schools. *Aust J Rural Health* 2018; 26: 314-322.
- 23 Humphreys J, Lyle D, Barlow V. University departments of rural health: is a national network of multidisciplinary academic departments in Australia making a difference? *Rural Remote Health* 2018; 18: 4315.
- 24 Charles Sturt University. Rural and Regional Health Research Institute, a world-class facility to tackle health inequalities. <https://news.csu.edu.au/latest-news/rural-and-regional-health-research-institute,-a-world-class-facility-to-tackle-health-inequalities> (viewed Sept 2022).
- 25 Australian Health Research Alliance. Impact report 2022. <https://www.flipsnack.com/sydneyhealthpartners/ahra-impact-report-2022/full-view.html> (viewed Sept 2022).
- 26 James Cook University. Torres Strait Islander Research to Policy and Practice Hub. <https://www.jcu.edu.au/ierc/torres-strait-islander-research-to-policy-and-practice-hub> (viewed Sept 2022).
- 27 Northern Australia Research Network. NARN home. <https://www.crrh.jcu.edu.au/narn-home> (viewed Sept 2022).
- 28 Schmidt D, Reymont J, Kirby S, et al. The place of research in the rural health workplace structure: a content analysis of a rural health organisation's strategic and operational documents. *Rural Remote Health* 2020; 20: 5493.
- 29 Wong Shee A, Quilliam C, Corboy D, et al. What shapes research and research capacity building in rural health services? Context matters. *Aust J Rural Health* 2022; 30: 410-421.
- 30 Schmidt D, Reymont J, Webster E, et al. Workplace-based health research training: a qualitative study of perceived needs in a rural setting. *Health Res Policy Syst* 2020; 18: 67.
- 31 Gillespie J, Cosgrave C, Malatzky C, Carden C. Sense of place, place attachment, and belonging-in-place in empirical research: a scoping review for rural health workforce research. *Health Place* 2022; 74: 102756.
- 32 Wenke R, Mickan S. The role and impact of research positions within health care settings in allied health: a systematic review. *BMC Health Serv Res* 2016; 16: 355.
- 33 Wakerman J, Humphreys J, Lyle D, et al. Overcoming access and equity problems relating to primary health care services in rural and remote Australia. Canberra: Australian National University, 2015. <https://openresearch-repository.anu.edu.au/handle/1885/139217> (viewed Dec 2022).
- 34 Australian Government Department of Health and Aged Care. Rapid Applied Research Translation initiative <https://www.health.gov.au/initiatives-and-programs/rapid-applied-research-translation-initiative> (viewed Aug 2022).
- 35 Australian Government. Turning research findings and evidence-based practice into health benefits. <https://business.gov.au/grants-and-programs/mrff-2022-rapid-applied-research-translation-grant-opportunity> (viewed Dec 2022). ■