Engaging rural and regional health services in research: advancing the public health agenda through AHSCs

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Introduction

We are living in an extraordinary period in human history. Worldwide, population health is better than ever before. We have managed to eliminate or contain the major killers such as smallpox and polio. A large part of the world is able to gain access to clean water and sanitation, and developments and innovations in medicine have led to cures and improvements for many conditions that used to kill or debilitate people only a few short decades ago (Jonas, 2014).

We have also undergone the most extraordinary social change in the past hundred years or so. The most significant social transformation in this century is the ageing of our populations. Growth in the number and proportion of older people has implications for just about every sector in society, and planning for the economic and social shifts associated with this change is essential to ensuring health, social and economic goals can be achieved in the coming decades (United Nations, 2015).

These societal shifts are particularly relevant to 21st-century Australia. We enjoy one of the highest life expectancies in the world, and most Australians say they are delighted, pleased or mostly satisfied with their quality of life (AIHW, 2012). We are not without our own problems—having one of the highest rates of obesity comes to mind—but overall Australians can count themselves among the lucky in the world.

And yet, some groups in our society experience poorer health outcomes than the majority. These groups include Aboriginal and Torres Strait Islander people, those living with economic and social disadvantage, Australians living with severe or profound disability, and people living in regional and rural/remote locations—the further you live from a major city, the poorer your health status is likely to be.

Like other developed nations, Australia is facing a growing burden of non-communicable diseases, which threatens to overwhelm our health system and our capacity to pay for health care. This challenge is exacerbated by factors including a lack of coordination between ambulatory and hospital-based care, barriers to cost-effective management of non-communicable diseases in ambulatory settings and gaps and time-lags in the translation of scientific evidence into clinical practice.

The range of issues and challenges affecting the health of regional and rural/remote Australians includes problems of distance and available transport, and variations in workforce, socio-economic status and infrastructure (Department of Health, 2011).

There is now a strong consensus worldwide that solving the major challenges in prevention, health care and health systems will require interdisciplinary and transdisciplinary collaborations between researchers from a range of scientific disciplines and strong partnerships between clinicians, health services, policy makers, consumers and communities. While clinical trials and medical research continue to be important—and the role of research in improving and growing preventative care is not yet well defined—it is increasingly evident that significant gains are able to be made through collaborations between university, clinical and health-settings research, in mental health, population

health, health economics, epidemiology, patient safety, quality of care, health literacy, disability, end-of-life care, nutrition and exercise.

An emerging challenge for health systems and health services engaged in research is ensuring a return on investment through research translation and impact.

The *Strategic Review of Health and Medical Research in Australia—Better Health Through Research* ('McKeon Review', Commonwealth of Australia, 2013) emphasised the importance of translational research and ensuring the sustainability of the health system in the face of an epidemic of non-communicable diseases. The McKeon Review recommended that integrated health research centres (IHRCs) be established to synergise the efforts of hospital and community care networks, universities and research organisations, including a 'virtual rural IHRC'. Key themes highlighted in the review included public health and prevention, health economics and health services research—themes of increasing significance to health services providing care to communities in Victoria's western region.

This paper describes the development and implementation of an IHRC with a focus on regional and rural/remote health outcomes, and the need to undertake a meaningful evaluation of the translation and impact of research activity supported through the centre, to ensure improved health outcomes for these populations.

Method

Although there has been much discussion about research translation and its importance in ensuring both value for money and that research generates knowledge that can flow towards improvements in population health outcomes, there are few clearly defined methods available to measure research translation and impact.

A further problem is the relative 'newness' of our IHRC, and therefore a lack of data to provide a meaningful analysis.

As an interim measure, and to 'set the scene' for future monitoring and evaluation of our IHRC, we undertook a narrative review to describe the rationale, aim and implementation of this IHRC in regional and rural/remote Australia. While the review is necessarily subjective, we also attempt a critical perspective of achievements to date and propose a methodology for effective evaluation the IHRC in the near future.

As proxy measures for this interim narrative review, we counted the number of organisational partners signed up as financial partners in the IHRC, and examined participation in our scientific review and advisory groups (such as the Scientific Advisory and Partnership Team, or SALT); number and quality of submissions received in response to the annual call for research ideas; number of successful applications; number of funded pilot studies that were translated into further research funded by external competitive grants; number of research publications and conference presentations; and participation in our research training workshops, seminars and annual symposia.

Results

A business case was developed to establish a virtual IHRC with a clear geographic focus in the western region of Victoria. This focus provided base from which to explore the drivers of disparity in health outcomes from the perspective of the broader regional/ rural community and, given its similarity

to national social and demographic characteristics, suggested an ideal setting for research of significance at the national level.

Vision, mission and aim

With the business case as its foundation document, Western Alliance Academic Health Science Centre was established in March 2014. Through a workshop process undertaken with the chief executive officers of the prospective partners, together we articulated the vision of a healthier regional Australia and the mission of improving the health and wellbeing of western Victorians through collaborative health care, research, education and training.

The aim of the alliance is to improve the impact, quality and quantity of research undertaken in the western region of Victoria through establishment of a partnership between health service providers and university partners.

Number of partners engaged and governing structure

Ten major health service providers, three Medicare Locals and one major regional university established the initial partnership of Western Alliance in 2014. The following year another major health service provider and a second regional university joined the alliance. Following a restructure of the Medicare Locals by the federal government, the sole Primary Health Network covering the region subsequently became the governing partner in Western Alliance representing primary care.

The partnership was normalised through a memorandum of understanding, and a tiered model for financial contributions by the partners was established. An executive director, operations manager and administrative assistant were appointed to implement the alliance and develop its key initiatives.

Number and quality of research submissions

The major initiatives articulated in the business case included a funding program to support pilot studies to be proposed by newly formed regional multidisciplinary teams, incorporating collaborations of health services personnel and academic researchers, and a research training program informed by a needs analysis.

Following our first call in 2014 for expressions of interest for research funding, we received 71 submissions, and following a rigorous process of scientific review, three teams were successful in securing funds for collaborative studies in the region. The quality of submissions varied considerably, and from this process we identified a need to provide assistance for health professionals interested in engaging in research but having limited research experience/expertise.

In 2015 we instituted an iterative process for applications for research funding support: phase 1 invited submissions of 300 words; following scientific review of those submissions by the SALT, 12 teams were invited to phase 2, a day-long workshop at which we provided support and advice from experts in research methods, epidemiology and biostatistics; in phase 3 teams had 6 weeks to develop a full proposal, following which administrative review for eligibility and scientific review by the SALT provided recommendations to the Governing Council (which preceded the current Board of Directors) for funding support.

This process proved to be successful and yielded only positive feedback indicating a high level of support. From a pool of 22 initial submissions in 2015 and 29 in 2016, a total of 9 studies have been funded to date through the Research and People Support program. Funding support has also been provided to establish a demonstration project for the alliance's Regional Data Collaboration initiative.

Table 1 shows all projects supported by Western Alliance to date, facilitating new regional collaborations.

Table 1 Research supported by Western Alliance AHSC since 2015

Title	Year	No. of health service partners
Improving the primary prevention of heart disease in rural and regional populations: A Practice Nurse-led absolute risk assessment clinic: *HeartsFirst* Study (funded by the Heart Foundation	2015	1 + general practices across a Medicare Local Area
Ageing, chronic disease and injury (ACDI) in western Victoria: Opportunities to improve health delivery	2015	3
Integrating alcohol and drug prevention and treatment services in western Victoria: A community wide approach to reducing harm	2015	Multiple, across 6 LGAs
SEA Change: Preventing childhood obesity within the Great South Coast, beginning with Portland	2015	7
What matters most study (funded by Dept of Health)	2016-	3
Whole of systems trial of prevention strategies for childhood obesity: WHO STOPS childhood obesity (funded by NHMRC & Western Alliance)	2016-	7+
Antimicrobial stewardship in general practice	2016-	Multiple across the southwest
Does 20-minute rounding reduce the number of falls in aged care?	2016-	6
Farm-related major trauma in Victoria and both the long-term and immediate impact on recovery	2016-	NA
Development of a Grampians small towns cancer strategy	2016-	2
The Rural Acute Hospital Data Register	2017-	16
A post-hospital discharge pharmacist medication management service for high-risk patients, using telehealth	2017-	1
Developing a comprehensive hepatitis C treatment program for western Victoria	2017-	1 + general practices across the PHN region
The western Victoria Practice Nurse study	2017-	2 + general practices across PHN region
Interprofessional Graduate Transition Program for nursing / paramedicine double degree graduates—work outcomes and participant experiences in western Victoria	2017	1
Determining best practice for the management of teenage pregnancy in rural and regional health services	2017-	3

Translation

Of the research studies funded since 2015, one has been extended more broadly across the region and was successful in obtaining a 5-year partnership grant from the NHMRC—Western Alliance continues to be a cash partner in this highly visible international study. Two other studies have been successful in translation to further research with external funding support. Three PhD candidates and approximately 11 postdoctoral and novice (assistant) researchers have been supported through funding from the program.

Eleven publications have resulted from Western Alliance's support for regional research since 2015, including 7 manuscripts that have been published or accepted for publication by peer-reviewed international journals and several more in preparation, while 25 abstracts and/or conference presentations have been made.

Participation in research training

In addition to providing support for the development of novice and early career researchers, we have developed an annual program of research training workshops and seminars delivered by experts across a range of fields, including research methodologies and methods. Since inception, we have provided six targeted research-methods workshops, of which 5 have been delivered in multiple locations across the region, attracting some 200 participants from our partner organisations as well as other smaller regional health services. The Annual Symposium, held at a different regional location each year and attracting more than 100 delegates, has become a major event on the regional research calendar, to showcase regional research and to provide opportunities for networking and practice in presenting research at conferences. These events are all provided free of charge.

Our approach to development of the research training program has been informed through direct consultation with partner organisations as well as a baseline survey of the region's health workforce, undertaken by Barwon Health in 2015 and utilising the validated Research Capacity and Culture survey tool developed by Queensland Health (Holden et al. 2012). The survey reported on staff perspectives of their organisation's capacity to undertake research (research skills) as well its success in doing so. Respondents indicated that they were motivated to be involved in research to improve patient care, develop and implement evidence-based care and to advance their career prospects and professional capabilities, while barriers were reported as lack of time and funding, and clinical/other work taking priority (Gill et al., in preparation). There are plans to repeat the survey in 2–3 years as part of a broad-based evaluation of regional initiatives to increase research activity, translation and impact.

Discussion

There is no doubt that Western Alliance enjoys strong support, financially and through enthusiastic engagement of the partner organisations in the research activities and initiatives of the AHSC. All but one of the major health services in our region, public and private, have joined the alliance and continue to take a longer-term view regarding a return on their investment. While anecdotally there has been a noticeable increase in research-related activity and engagement in the health partners in Western Alliance, it is also apparent that we are just hitting the tip of the iceberg—in what is required to ensure sustainability as well as in potential. Apart from data obtained through routine governance and monitoring of research outputs, we have little evidence of translation and impact. Indeed, this is a weakness commonly described by other AHSCs in the early stages of their development, as we are.

Academic/advanced health science centres (AHSCs) and IHRCs are well established in other parts of the world—in the United States, for more than a century now, centres combining the activities of hospitals, universities and medical research institutes have been successful in producing high-quality research, education and enhanced patient outcomes. Examples there include Johns Hopkins Medicine, the Mayo Clinic and Stanford University School of Medicine; in the United Kingdom, Europe and parts of Asia there are several, also, among the better-known ones being UCL Health Partners in London, Manchester AHSC, Karolinska Institutet (Sweden), Duke–NUS Singapore.

The concept is quite new in Australia, with the first AHSCs established around 2011 in Brisbane and Sydney. Western Alliance was the first to take a geographical approach but we have since been joined in our focus on regional and rural/remote health by colleagues in the Hunter Valley and Townsville.

Whether the Australian model of AHSC will achieve the aims of integration and improved health outcomes for their respective populations remains to be seen. If the first challenge is to establish AHSCs with high engagement from health services and universities alike, the next challenge is to assess their success in delivering research translation and impact. Considering the number and range of activities undertaken by Western Alliance since 2014 to encourage and support research, translation and impact in our region, it would be timely to identify an appropriate methodology for meaningful evaluation.

Given the nature of the aims and objectives of AHSCs—to encourage research translation and impact—it's clear that a methodology will need to go beyond simple measurement. Researchers from the Hunter Medical Institute have recently developed an exemplary framework 'to both measure and encourage research translation and research impact' (Searles et al., 2016, p.15): the Framework to Assess the Impact from Translational health research (FAIT). Taking a mixed-methods approach, FAIT proposes to address the differences between the development of research outputs and their uptake in translation by measuring research impact using the Payback Framework (Buxton & Hanney, 1996), economic evaluation and case studies. We propose to adopt a similar methodology to assist the partners in Western Alliance in assessing whether their investment is proving worthwhile. This activity is planned to commence in mid-2017.

Conclusion

As a regional community we do not know or understand near enough about the health outcomes of individuals and populations—and the drivers of those outcomes—to enable adequate assessment of current models of health care. We are not alone in recognising that regional and rural health services and clinicians must play a key role in leading research. Not only to ensure the sustainability of a health system straining under economic and other pressures, but also to raise standards and to deliver continuous improvement and innovation, which have become the hallmarks of high-quality health care, worldwide as well as in societal expectations (Department of Health, 2011).

Governments are increasingly looking to the research community for innovations to meet the challenges of addressing rising community health needs and at the same time to reduce health care costs. The integrated approach offers an opportunity to smash the siloes and synergise the efforts of hospitals and community health services, universities and research organisations.

While there is plenty of support for more funding and encouragement to increase research capacity and activity, particularly in regional Australia, considerable effort is needed to ensure high-quality research translation and impact can deliver on improved health outcomes for regional and rural populations.

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Presenter

Dr Renée Otmar has broad and extensive expertise in health communications research, policy research and publication, and in program development and management. Her research interests include the use of artificial intelligence to improve health outcomes and the communication of risk across the spectrum of health care and disease. Renée's early training and qualifications led to roles in public relations, book editing and publishing and, since 2002, to senior roles in the public health and academic sectors. Her strengths are in developing and leading teams, and in analysing, synthesising and tailoring complex scientific and technical data into communications suitable for their intended audiences, across formal and informal settings, contexts and formats. In her role as Business and Communications Manager at Western Alliance, Renée provides support and advice to the Executive Director and the Board of Directors, including policy, planning and implementation, and is responsible for Western Alliance's day-to-day operations, financial management, communications and staffing. She convenes the Annual Symposium to showcase regional research in western Victoria, and administers the Centre's research funding portfolio.