Improving rural health: research activity can build capacity and make a difference

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What is known about this topic?

Despite suggestions that investing in research capacity can improve the organisational performance of health services, a recent systematic review of the benefits of a strong research culture in a health service revealed no studies in the Australian context.

What does the paper add?

This landmark Australian study reveals that research embedded in a rural health service has both direct and indirect benefits in relation to its performance, its staff and the broader community.

What are the implications for practitioners?

Active engagement in evaluation research yields lasting benefits within a health service over and above the usual measureable improvements such as generating and disseminating new knowledge through publications.

Abstract

Aim: Since 2007, a longitudinal evaluation of the Elmore Primary Health Service (EPHS), as a single-entry point, comprehensive, multidisciplinary rural primary health care service, has been undertaken. This study, the first Australian study of its kind, assesses the extent to which the presence of research activity has fostered a research culture which contributes towards improved service performance, capacity building within its workforce, and health improvements for the community.

Method: This mixed-methods study included review and critical appraisal of documented quantitative data collected throughout the duration of the study, and analysis of recorded and transcribed qualitative data obtained through face-to-face interviews with EPHS staff.

Results: The process of embedding research in a rural health service progressed from a stage of formal initiation and apprehension (because of the rigorous data collection processes required), through one of acceptance, to full-integration of a research culture as a necessary part of daily activities.

Both direct and indirect benefits for the health service, its staff and the broader community were evident. The EPHS management increasingly valued the empirical evidence generated by the ongoing research to inform accreditation and forward strategic planning, including grant and other funding applications. As clinical staff came to better understand what the quantitative data meant, they were able to modify individual practice. Research also assisted in recruiting doctors, who were referred to published evidence of EPHS excellence, such that the service became sought after by registrars and medical students. Practitioners, in turn, gained greater confidence and professional satisfaction.
Participation in research helped inform the expansion of EPHS into a ‘networked’ regional model, simultaneously improving service accessibility and increasing practice viability. Patients of EPHS and the broader community also experienced greater confidence in service quality, as research evidence was published in newsletters, on the EPHS website and in the wider media, particularly when it received a range of health service awards.

**Conclusion:** This landmark Australia study suggests significant associations between the development and embedding of a research culture within EPHS and a number of lasting organisational benefits relating to efficiencies in service delivery, staff recruitment, enhanced service viability and accessibility, and increased patient satisfaction.

**Background**

The advent of evidence-based practice dictates that health policies, services and care should be underpinned by the best available evidence emanating from rigorous research. Accordingly, over recent years, more attention has focused on the transfer and application of research knowledge into health education, training, and service delivery activities, such that now a vast literature exists on the topic of knowledge exchange, transfer and implementation. During the past two decades, until recently, the Australian government has funded two key organisations to support primary health care research and its translation into practice—the Australian Primary Health Care Research Institute (APHCRI) and the Primary Health Care Research and Information Service (PHCRIS), respectively. Australian health authorities have also actively encouraged primary health care workers to participate in research-related activities, particularly research directly relevant to their practice, in order to foster better patient care and increase efficiencies of service delivery.

Undoubtedly, a key aspect of maintaining and improving the health status of rural communities is knowing what primary health care services “work well, where and why” as the basis for delivering quality health care equitably. Since locally available primary health care services frequently represent the first point of entry into the Australian health care system, the nature, accessibility and quality of care they provide are key to improving rural health outcomes. Unfortunately, in Australia, there currently exist few comprehensive longitudinal rural health studies which monitor how well a service and its processes of delivering care are targeting the changing health needs and service demands of catchment populations over time.

One exception, however, is the empirical study of the Elmore Primary Health Service (EPHS). The EPHS model is a single-entry point, comprehensive primary health care service, located in the small rural community of Elmore (population 668 in 2011), located 170 kilometres from Melbourne. Formed through a funding partnership between the private medical practice and the public Bendigo Community Health Service in 2005, EPHS currently provides primary care to approximately 2000 patients from Elmore and its surrounding districts.

Since 2007, in conjunction with academics from Monash University in Bendigo, health staff from the EPHS have participated in a comprehensive longitudinal evaluation of the role and impact of this rural health service on the health of its catchment population. Drawing on Donabedian’s quality of care paradigm showing that structure, process and outcomes are linked, this evaluation sought to examine three inter-related service components: (i) the performance characteristics which determine the service’s ability to provide accessible, appropriate and responsive health care that meets the needs of patients and provides continuity of care; (ii) the ability of the service to sustain itself in an environment
characterised by ongoing change; and (iii) the service activities and quality of care that are provided across the health promotion, treatment and rehabilitation spectrum (Figure 1).

Several academic papers have already outlined in detail the development, rationale and methodology underpinning the EPHS longitudinal study\(^\text{11,12}\), together with some of the major empirical findings of the study to date.\(^\text{13-16}\) These papers highlighted the important pre-requisites that underpin the delivery of high quality primary health care, and which ensure a sustainable service. Moreover, throughout this longitudinal study, the planning, collection and extraction of data (including, but not limited to, audit data), analysis and interpretation and dissemination of and action upon research findings, both within and external to EPHS, have been incorporated into the performance and activities of the EPHS. For example, as a result of the research, more efficient data management systems are now in place to collect, monitor and provide the evidence to inform improvements in day-to-day performance of health services provided. These research activities have, thereby, directly ensured systematic and ongoing quality improvement cycles have occurred, enabling incremental improvements in the way primary health care is delivered to the community.

One additional aspect remains to be addressed, specifically: To what extent has the presence of this research activity in the EPHS over an extended period fostered a research culture which contributes, either directly or indirectly, towards improved service performance, capacity building within its workforce, and health improvements for the community? Despite the value of knowing whether and how the presence of a research culture affects health service organisational performance, to date, no such studies have been conducted in the Australian context.\(^\text{17}\) The aims of this paper, therefore, are to investigate and illustrate some of the indirect effects of research that have now become integrated into the day-to-day activities of delivering local primary health care services.
Methodology

The methodology employed in the overall EPHS longitudinal study has been documented in detail elsewhere. Essentially it comprised developing a conceptual framework to guide the research and subsequent health service evaluation which required regular and ongoing reporting on a number of sentinel indicators to monitor changes in health service performance, quality, and sustainability. Staff from the EPHS and community residents participated throughout the nine-year study. The assessment of the indirect impact of the research activity that follows is based on the key researchers’ perspectives following a review and critical appraisal of documented quantitative data collected throughout the duration of the study, as well as qualitative data provided by EPHS staff and key stakeholders. Ethics approval was gained from the Monash University Ethics Committee (CF14/3468-2014001803; CF08/0419-2008000176).

Results

Both the direct and indirect impacts of the integrated research process and of the research findings can be understood in terms of benefits to the health service itself, improvements in workforce, and benefits to the patient and community at large. Table 1 provides a summary of these findings. While there were substantial direct benefits of research engagement for the EPHS, its workforce and the Elmore community (shown in column 2), it is the indirect impacts, shown in column 3, that are the main focus of this paper, since their importance is often not recognised.

Table 1 Assessing the direct and indirect impact of the research process (P) and research findings (F) on a small rural health service

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<th>Area of impact</th>
<th>Direct impact</th>
<th>Indirect impact</th>
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<td>Health service</td>
<td>• Financial benefits resulted from improved electronic data entry and record keeping. As a result the EPHS improved regular income generation, such as with Practice Incentives Payment funding. (P)</td>
<td>• Value of accrued evidence when seeking competitive funding. The knowledge and information from the longitudinal nature of the study contributed hugely to funding success—in excess of $500k. The statistics and publications provided indisputable proof of service sustainability. (F)</td>
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<td>• More efficient and effective data management systems in place to monitor and provide the evidence to inform improvements in day-to-day performance of health services provided. (P)</td>
<td>• Research initially perceived as demanding, particularly around data extraction and ensuring excellent communication between EPHS staff and the research team. (P)</td>
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<td>• Research publications put things on paper and documented the ‘facts’ of what the EPHS is like, so that all staff learned what the service is doing and how it can improve. This also helped other practices in the regional network. (F)</td>
<td>• Value of data collection for accreditation and forward strategic planning. Staff came to better understand what the statistics and quantitative data mean; and then used them, such as in applications for funding and accreditation. (P)</td>
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<td>• In-kind resourcing required for research purposes. (P)</td>
<td>• The research helped inform the viability and expansion of EPHS to becoming a ‘networked’ model. (P&amp;F)</td>
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<td></td>
<td>• The research helped inform the viability and expansion of EPHS to becoming a ‘networked’ model. (P&amp;F)</td>
<td>• Acceptance of research processes as routine and diminished need for frequent, formal communication with researchers. (P)</td>
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<td></td>
<td>• Recognise the many substantial benefits to EPHS of an academic partner (P&amp;F)</td>
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The indirect impacts of the EPHS longitudinal study are discussed firstly in terms of how the process of conducting the research over the extended time period indirectly affected EPHS, its staff and catchment population. Secondly, the indirect effects of the research findings themselves, are discussed.

The indirect impact of the research process

Hardly surprisingly, our review since the inception of the study revealed significant evidence that the process of conducting a comprehensive longitudinal study affected both the EPHS and community. Despite our early quest to ensure that the study activities intruded minimally on patient care activities within the EPHS, the research was sometimes perceived as intrusive, and somewhat demanding in the detail associated with setting up data collection protocols and collecting information, the conduct of meetings and the need for good communication between all parties engaged in the study. Although the research grant covered basic research costs, significant additional in-kind resources were

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<td>Health workforce</td>
<td>- The study improved workforce knowledge of how and why data are recorded, and the benefits of compliance and pitfalls of not doing so. Doctors were educated to enter data in correct fields rather than place everything in patient progress notes. The increased computer literacy enabled proper data documentation. (P)</td>
<td>- Research is a good selling point for recruiting new staff, especially doctors. The research assisted recruitment because potential recruits looked at research being done. The service becomes sought after by registrars and medical students. (F)</td>
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<td>- The study also increased the desire of some members of the medical workforce to seek out new information to better understand and improve their individual patterns of practice. (P)</td>
<td>- Research initially approached with apprehension and perceived as demanding and intrusive as practitioners necessarily became involved in educational quality improvement initiatives related to data entry. (P)</td>
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<td>- Greater confidence and professional satisfaction as a practitioner. (P&amp;F)</td>
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<td>- Transition to a workplace culture which approaches research processes as a necessary and helpful part of routine practice (P)</td>
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<td>Patients and community</td>
<td>- Research contributed to improved quality of care available locally and minimised patient leakage to practices outside of Elmore. This was assisted by:</td>
<td>- Greater confidence of patients and the broader community in the quality of the services they receive, as exemplified through</td>
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<td>- Regular surveys identifying community needs and EPHS responses in meeting needs so most needs can be met locally;</td>
<td>- Research evidence linked to EPHS website helped ensure that the community has 100 per cent confidence in the service; and</td>
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<td>- Improved utilisation because it is easy to come to one service that can deal with many aspects of health; and</td>
<td>- The Elmore community and EPHS became better known, and were shortlisted for awards such as Bendigo Excellence award; GP award; and Practice Manager award. (P&amp;F)</td>
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<td>- Better monitoring of patient utilisation and recalls enhancing opportunities for regular screening and preventive measures. (P)</td>
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<td>- The research helped to put Elmore on the map. The community became better informed of what is available as new services were promoted, and having the Monash Imprimatur meant that &quot;If Monash is interested it must be good&quot;. (P&amp;F)</td>
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<td>- Community health literacy improved, because patients benefited from improved patient records and seeing how their performance meets national standards. The research publications helped change culture—it’s something you do—by helping to educate the community about why it is useful to improve services. (P&amp;F)</td>
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necessary from both service providers and academics to ensure that the good communication and rigor required for scientific research was applied at all times.

As the study progressed, the importance of accurate data collection with analysis and feedback to health service managers and health service providers came to be understood and accepted as a routine and necessary part of the annual cycle of activity within the service. This comprised an important change in workplace culture at all levels. Feedback cycles included ongoing education of practitioners on the importance of identifying and using correct fields in the clinical software for different pieces of clinical information so that meaningful data could be easily extracted. Indeed, ongoing quality assurance increasingly used data to drive important changes, underpin new funding and activity initiatives, and support changes associated with meeting accreditation requirements. As an illustrative example, a community survey helped identify community need for a dentist and a physiotherapist. These research data then provided important evidence which helped support the sourcing of appropriately skilled health professionals to fill identified service gaps. Bi-annual reference group meetings, too, provided valuable direct feedback of stakeholder and consumer perceptions of EPHS, enabling EPHS to take appropriate and specific action to meet the needs of these groups.

In its most recent stages, communication between all parties has become less formal and research has continued as a matter-of-course, without the need for so many formal meetings. Research progress, new initiatives and findings are regularly communicated between researchers, EPHS management and with practitioners, local community residents and the wider rural community. In short, the research process progressed from a stage of formal initiation and apprehension, through one of regular acceptance, to one of full-integration of a research culture as a necessary part of daily service activities. This process of maturation was assisted by employment stability and commitment of senior research academic and management staff and senior clinical and management staff at EPHS and associated with increasing recognition of the benefits of partnering with a leading academic organisation to undertake ongoing research.

A final, yet important, indirect impact of well-developed research processes was in helping inform the expansion and evolution of EPHS as it became a ‘networked’ model of practices, providing primary care services in multiple locations. Prior involvement in the research process gave EPHS management confidence that they had a good understanding of the existing health services, and the skills to plan ahead and identify which data were needed at each new site and the ability to independently collect and interpret these data.

The indirect impact of research findings
Aside from the significant benefits associated with understanding the role and impact of the research process on EPHS, Table 1 also highlights the ways in which the research findings themselves had an indirect impact on EPHS, its health workforce and the community of Elmore. Staff from the EPHS learned to better appreciate the use and value of quantitative data, longitudinal analysis and empirical evidence in ensuring service sustainability, accessibility and high quality performance. Statistics from published research provided critically important, peer-reviewed evidence to support successful funding applications, enabling expansion of services. Further, through research involvement, staff developed an appreciation of how current literature can be integrated into provision of care. Managers from other Australian primary health care services, on reading about EPHS, made direct contact to learn how they might do things better, with opportunities for two-way flows of information and mutually beneficial outcomes. Communities across Victoria struggling to recruit doctors have also read about the long-term service sustainability and expansion of EPHS in the broader media and contacted
EPHS for assistance, whether it be as a request for EPHS to provide services in their area, or for more general advice on medical recruitment.

The value of increasing public visibility though research translation activities including publications and conference presentations became increasingly apparent to EPHS management through the course of the research program, as research findings supported successful nominations for a range of professional awards. This success, in turn, gave patients and the broader Elmore community increased confidence in, and satisfaction with, their health care.

Research outputs also helped build human resource capacity, something which had previously proved very difficult in Elmore. As an example, potential medical recruits, whether domestically or internationally trained, were told about the active academic research partnership and directed to the multiple research publications. This resulted in EPHS becoming increasingly sought after as a practice location for GP Registrars and medical students. This improved pipeline of future GPs enhances succession planning options for EPHS and the Elmore community, reducing the likelihood that Elmore will be left without a GP as happened in 1994-1998.

Discussion

This study is the first of its kind to be undertaken in the Australia context. The longitudinal nature of the research has enabled the researchers to monitor and assess the direct and indirect impact of the research on the health service, its staff and the broader community. The evidence suggests a clear association between EPHS’s involvement in a longitudinal research program and a number of organisational benefits relating to efficiencies in service delivery, staff recruitment, and increased patient satisfaction. However, it should be remembered that many other factors have also operated to influence the performance of the EPHS, including for example external policies relating to resource allocation and workforce supply as well as internal factors such as local leadership and staff retention.

Nonetheless, the presence and maintenance of a well-developed research culture has undoubtedly acted as an important catalyst for improving service performance and possibly, health outcomes. The importance and value of regularly and systematically collecting and analysing good quality data relating to practice activities should not be underestimated, an activity which over time has become integral to the day-to-day activities of the service. Practice accreditation requirements and quality improvement initiatives have been facilitated. Moreover, it is noteworthy, that visiting staff from the newly-created Primary Health Network (a new Commonwealth initiative designed to drive the co-ordination and delivery of comprehensive primary health care to rural communities in its catchment), commented that the EPHS was “ahead of the game” in terms of how well it was collecting and using patient data to review and generate improved health outcomes in the community.

Conclusion

“In God we trust, all others bring data”, a line attributed to William E Deming, the father of modern quality management, was first uttered almost half a century ago. Undoubtedly, this study shows that involvement in a comprehensive, evidence-based rural health service evaluation process, as well as the evidence generated by such research, has a substantial impact on the health service, its workforce capacity and on the residents of the community.

Through building local capacity, staff and community both came to realise their potential, such that small rural health services no longer have to “rely on the cavalry” in their quest to ensure high quality,
accessible health care. This article provides one, albeit micro-scale example, of how research can contribute indirectly to building community and health service capacity within small rural communities, thereby bringing about important changes in both capacity building and behavior of practitioners and patients.

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References


Presenters

Lisa Lavey is the Research Administration Manager for the School of Rural Health at Monash University and was previously the Project Manager for the Centre of Research Excellence (CRE) in Rural and Remote Primary Health Care. Lisa has extensive administration experience working in universities, government departments and not-for-profit organisations and has managed whole-of-school research, teaching and other portfolio programs. She has extensive skills in office management, program presentation and marketing, human resources, finance and IT. During her appointment as Project Manager for the CRE, Lisa developed a database to capture the research activities and demonstrate research impact of the CRE over time. This database has been provided to many organisations, both nationally and internationally, under a license agreement with Monash University, free of charge. In collaboration with another CRE Project Manager, a document entitled “Establishment and Management of a Multi-Institutional Centre of Research Excellence—Tips for New Players” was produced and has been made available to assist new multi-institutional collaborations in establishing and managing their collaboration. A journal article has also recently been published in the Journal of Research Administration on Multi-Institution Research Centers: Planning and Management Challenges.

Deborah Russell is a Research Fellow at Monash Rural Health, Bendigo and came to academia with a background as a rural general practitioner. Her specific academic interests include rural and remote health services research (models of care, understanding and measuring access to health care) and health workforce supply, distribution, recruitment and retention. Her PhD ‘The patterns, determinants and measurement of rural and remote primary health care workforce turnover and retention’ positioned her as an emerging leader in her field. Her publications have significantly influenced current thinking about rural medical workforce retention methodology and rural workforce policy more broadly. Deborah remains passionate about improving equity of access to health care resources, currently having important roles on an ARC grant ‘Assessing the impact and cost of short-term health workforce in remote Indigenous communities in Australia’ and in the rural stream of the MABEL CRE in medical workforce dynamics.