



**AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE
ANU COLLEGE OF MEDICINE, BIOLOGY & ENVIRONMENT
THE AUSTRALIAN NATIONAL UNIVERSITY**

SCHOOL OF RURAL HEALTH, MONASH UNIVERSITY, BENDIGO

CENTRE FOR REMOTE HEALTH, ALICE SPRINGS

MT ISA CENTRE FOR RURAL AND REMOTE HEALTH

**RETENTION STRATEGIES & INCENTIVES FOR
HEALTH WORKERS IN RURAL & REMOTE AREAS:
WHAT WORKS?**

John Humphreys

John Wakerman

Dennis Pashen

Penny Buykx

November 2009

RETENTION STRATEGIES & INCENTIVES FOR HEALTH WORKERS IN RURAL & REMOTE AREAS: WHAT WORKS?

John Humphreys¹, John Wakerman², Dennis Pashen³, Penny Buykx¹

1. School of Rural Health, Monash University, Bendigo
2. Centre for Remote Health, a joint Centre of Flinders University and Charles Darwin University, Alice Springs
3. Mt Isa Centre for Rural and Remote Health

ACKNOWLEDGEMENTS

The research reported in this paper is a project of the Australian Primary Health Care Research Institute, which is supported by a grant from the Australian Government Department of Health and Ageing. The information and opinions contained in it do not necessarily reflect the views or policies of the Australian Primary Health Care Research Institute or the Australian Government Department of Health and Ageing.

The research team would like to acknowledge the Australian Primary Health Care Research Institute for funding this study. Particular thanks go to its Director, Robert Wells, and Institute Manager, Rebecca Pallavicini.

We are grateful for the assistance of all those rural and remote health workforce stakeholders who provided advice and material relevant to this project. We also acknowledge the contribution of Lisa Lavey at Monash University in Bendigo and Terry Dunt at the Flinders and Charles Darwin Centre for Remote Health in Alice Springs. Thanks to Marita Chisholm, Pam Harvey, and Shari Siegloff of the Monash University School of Rural Health for their helpful comments on an earlier draft of this report.

Australian Primary Health Care Research Institute (APHCRI)

ANU College of Medicine, Biology and Environment

Building 62, Corner Mills and Eggleston Roads

The Australian National University

CANBERRA ACT 0200

T: +61 6125 0766

F: +61 6125 2254

E: aphcri@anu.edu.au

W: www.anu.edu.au/aphcri

PREFACE

The recruitment and retention of health workers in under-served areas is an international problem affecting both developed and developing countries. There has been a surfeit of literature, conferences, workshops and other meetings focusing on the issue of workforce undersupply, recruitment and maldistribution. Until recently, however, relatively less attention has focused specifically on workforce retention of health workers in underserved areas. Frequently, retention is vaguely defined, discussed interchangeably with recruitment or is equated with turnover rather than some measure of length of stay. Moreover, there are few rigorous evaluations of strategies designed to improve retention. Based on a comprehensive review of the workforce retention literature, this report seeks to overcome this gap in our knowledge about the effectiveness of workforce retention measures in relation to rural and remote areas.

It is important to be clear about the scope of this study. This review considers only those measures that are offered to workers after take up of rural or remote practice. No attention will be paid to bonding or educational and training aspects such as specific rural and remote scholarships to support students from a rural background into health courses, specific student selection streams, rural immersion or placement programs, or any other aspect of medical and health education and training (such as University Departments of Rural Health [UDRH], Rural Clinical Schools [RCS] or devolved training) prior to take-up of practice. Significant evidence already exists on these topics.¹⁻³

It is important to balance the need to make a review like this 'do-able' within given resources with its usefulness for its intended audience. The short timeframe within which this study was funded did not allow for an exhaustive systematic review of all published material. Emphasis was placed on the peer-reviewed published literature, such that readers can follow up on any studies about which they require more specific detail. In particular, the short time frame limited our ability to scope, retrieve and review all the grey literature that abounds in government departments and on the websites of professional organisations. Difficulties were experienced in obtaining some material, including evaluations undertaken by government, and the researchers were required to use Freedom of Information legislation to obtain one report.

Given its interest to Australian policymakers, the focus of the study is on Australia, since the application of the knowledge generated by this work is intended to target those rural and remote health services that continue to struggle to attract and retain health workers. While considerable international literature was reviewed, much of that relating to developing countries was not relevant to Australia. This report is based on the best available evidence to inform and guide the development of rural health workforce retention policies in this country.

LIST OF ACRONYMS

CAN	Central Australian Nurse Management
CPD	Continuing Professional Development
CPS	Central Payments System
FPS	Flexible Payments System
GP	General Practitioner
ICT	Information and Communication Technologies
IMG	International Medical Graduate
MLIC	Middle and Low Income Countries
RCS	Rural Clinical Schools
RRMA	Rural Remote and Metropolitan Area
RRP	Rural Retention Program
PHC	Primary Health Care
UDRH	University Departments of Rural Health
WHO	World Health Organisation

TABLE OF CONTENTS

RETENTION STRATEGIES & INCENTIVES FOR HEALTH WORKERS IN RURAL & REMOTE AREAS: WHAT WORKS?

ACKNOWLEDGEMENTS	2
PREFACE	3
LIST OF ACRONYMS	4
TABLE OF CONTENTS	5
EXECUTIVE SUMMARY	6
POLICY CONTEXT	6
KEY FINDINGS	6
SECTION ONE - WORKFORCE RETENTION	7
INTRODUCTION	7
WHAT IS RETENTION?.....	7
WHY IS RETENTION IMPORTANT	8
RELATIONSHIP WITH RECRUITMENT.....	8
SECTION TWO - FACTORS AFFECTING RETENTION	9
FINANCIAL/ECONOMIC	9
PROFESSIONAL AND ORGANISATIONAL.....	10
SOCIAL (FAMILY & PERSONAL).....	11
EXTERNAL (GEOGRAPHIC LOCATION & COMMUNITY).....	11
REGULATORY CONDITIONS	12
STRATEGIES TO IMPROVE WORKFORCE RETENTION	12
STRATEGIES ADDRESSING MULTIPLE RETENTION FACTORS.....	12
SECTION THREE - EFFECTIVENESS OF WORKFORCE RETENTION STRATEGIES	15
REVIEW METHODS	15
REVIEW FINDINGS	16
SUMMARY OF FINDINGS ARISING FROM THE EVIDENCE.....	24
SECTION FOUR - POLICY IMPLICATIONS	27
ISSUES FOR WORKFORCE RETENTION STRATEGIES.....	27
ISSUES FOR FURTHER RESEARCH & EVALUATION	29
CONCLUSION.....	31
REFERENCES	32
APPENDICES	37
APPENDIX 1 WORKFORCE RETENTION INDICATORS.....	37
APPENDIX 2 METHOD FOR CONDUCTING REVIEW	40
APPENDIX 3 RECORDING TEMPLATE.....	44
TABLES	
TABLE 1 CATEGORIES OF INTERVENTIONS USED TO IMPROVE RETENTION.....	14
TABLE 2 SUMMARY OF EVALUATION STUDIES.....	18
TABLE 3 SUMMARY OF REVIEW STUDIES	21
TABLE 4 SUMMARY OF RECOMMENDED WORKFORCE RETENTION FRAMEWORK.....	28
FIGURES	
FIGURE 1 FACTORS AFFECTING RETENTION.....	9
FIGURE 2 SYSTEMATIC REVIEW PROCESS	15

EXECUTIVE SUMMARY

POLICY CONTEXT

Many rural and remote communities worldwide experience a shortage of health workers, high levels of staff turnover and significant problems in recruiting new health workers. Various measures involving direct financial and non-financial incentives have been implemented to retain existing health workers. However, there have been few rigorous evaluations of the effectiveness of retention measures and incentives in improving length of stay of health workers. This study examines what sorts of retention strategies and incentives have been implemented to entice health workers to remain in practice in rural and remote areas, and which have proven to be effective in increasing length of stay of health workers and reducing avoidable turnover in rural and remote areas.

KEY FINDINGS

1. Workforce retention is different from turnover - one is a measure of stay, whereas the other measures number of terminations.
2. Many studies fail to differentiate between recruitment and retention.
3. The costs of poor workforce retention and high turnover are considerable, including restricting access to appropriate care and loss of skills and experience, compromising the continuity and quality of care and resulting in high recruitment costs.
4. A wide range of individual, organisational and contextual factors impact upon workforce retention.
5. Despite the lack of rigorous evaluations measuring the effectiveness of retention incentives, it is clear that no one measure alone is likely to be sufficient to improve retention.
6. Most retention responses focus on remuneration incentives.
7. Evidence suggests that non-financial incentives, such as housing and improved working conditions, have the potential to improve retention.
8. Strategies incorporating some form of health worker obligation are effective for the duration of, but probably not beyond, the agreement.
9. Incentives 'bundled' in a strategic workforce retention strategy are likely to be the most effective.
10. Retention strategies should be sufficiently flexible to target the specific needs of health workers practising in different contexts.
11. Health services should be able to pool available workforce funding to target retention in ways that best suit their circumstances with appropriate indicators built in for monitoring the effectiveness of the incentives and measures adopted.
12. Whatever the retention incentive adopted, a rigorous evaluation strategy using pre- and post-intervention baseline measures should be employed from the outset.
13. Benchmark retention rates are required for different primary health care professions working in rural and remote communities.

SECTION ONE - WORKFORCE RETENTION

INTRODUCTION

Sustaining an adequate, appropriately qualified health workforce is a key element for ensuring the provision of accessible, comprehensive, high quality Primary Health Care (PHC).⁴ Globally, workforce undersupply, recruitment difficulties and high levels of workforce turnover are most problematic in rural, remote and other under-served areas where health needs are greatest and access to services poorest.⁵⁻⁷ In Australia, the recent *Report on the Audit of the Health Workforce in Rural and Regional Australia* highlighted the shortage of doctors and other health professionals in non-metropolitan communities.⁸ Various strategies involving direct financial and non-financial incentives have been implemented in both developed and developing countries to address these problems of workforce shortage and geographical maldistribution.⁹

Although most research has focused on ways to increase workforce recruitment in order to overcome the impact of health workforce shortage in rural areas, poor retention and high turnover can be equally significant in restricting access to appropriate primary care for many rural and remote inhabitants. Poor workforce retention results in loss of considerable skills and experience, often compromises the continuity and quality of care, and results in high recruitment costs. Unfortunately, a major gap exists in our knowledge of the nature, effect and costs associated with poor workforce retention in PHC services in rural and remote communities.

The factors that impact upon labour turnover and workforce retention, particularly in rural and remote areas, are complex and require a multi-sector response.¹⁰ While considerable literature exists on workforce recruitment, significantly less attention has focused on how length of stay of health workers varies according to profession, location of employment, workplace activity and nature of the organisation. Nor has there been significant rigorous evaluation of the effectiveness of retention measures and incentives on improved length of stay of health workers outside of the private sector.

This study seeks to address two main questions:

1. What sorts of retention strategies and incentives have been implemented to entice health workers to remain in practice in rural and remote areas?
2. What workforce retention strategies have proven to be effective in increasing length of stay of health workers and reducing avoidable turnover in rural and remote areas?

WHAT IS RETENTION?

Workforce retention refers to the length of time between commencement and termination of employment. Retention does not imply indefinite length of service in one location, employer or organisation, but refers to some minimum length of stay.¹¹⁻¹³ Exactly what constitutes this minimum is unclear and likely to vary according to whether it is defined by the profession, position, or health service, and depending on the location and characteristics of the community which affect the ease with which the health worker can be replaced. Retention thus implies some notion of adequacy or sufficiency of length of service, possibly measured in terms of a return on the investment costs associated with training and recruitment or the effects on patient care that are considered to be optimal.¹¹

Workforce 'retention' is different from workforce 'turnover'.¹² Retention refers to the time between engagement to a service and separation or departure from that service, and thus is a measure of the length of stay. In contrast, turnover refers to the number of terminations in a specified time period divided by the number of active workers in the same category.^{12,13} Thus, retention indicates who is leaving, who is staying and for how long, whereas turnover reflects the degree of movement of individuals coming into or leaving a service.^{14,15} Because retention is hard to measure

and must be tracked over long periods of time, most of the literature has focused on workforce turnover. Usually the workforce goal is to minimise avoidable workforce turnover.

Various measures of retention have been developed across a wide range of disciplines to encompass different aspects of workforce availability and performance. A listing of the most common measures used to measure workforce retention is included at **Appendix 1**. These measures, however, are not used consistently in the workforce literature.

WHY IS RETENTION IMPORTANT?

Retention of health workers, particularly in rural and remote areas, is important for several reasons. Good workforce retention is vital to ensuring well-functioning health services capable of delivering improved health outcomes.¹⁶ Longer duration of employment may be associated with increased experience, local knowledge and skills, and provides continuity of service and care. When a health worker leaves an organisation these benefits are lost and there may be a shortage, or even complete absence, of suitably qualified candidates to fill the vacant role. Even when there is an appropriate candidate, the recruitment of new staff is often a costly exercise, in terms of both time and money. New staff members are not optimally productive until fully inducted into the workplace. Inadequate service coverage due to poor staff retention contributes to the health inequities already known to differentiate metropolitan areas from rural and remote areas.

The distinction between retention and turnover is important because we need to measure what we want (retention) instead of what we don't want (turnover). Retention should be the focus because an experienced employee is more valuable than a newly-hired one. Where the workforce is experienced the quality of care is better due to fewer errors, and long-term employees minimise the cost of reduced productivity. Low retention indicates that not many people are staying long enough to achieve job mastery.¹⁷

The avoidable loss of employees is expensive and often underestimated in the organisational budget. Unreasonably high turnover incurs significant **direct** costs (replacement, recruitment and selection, temporary staff, management time) and **indirect** costs (in terms of morale, pressure on remaining staff, costs of learning, product/service quality, organisational memory) to employers, as well as a significant loss of considerable skills, expertise and knowledge.¹¹

Most studies calculating the differential costs of health workers have investigated hospital staff in metropolitan locations. Studies in the US have differentially estimated the costs of replacing physicians from a low of US\$155,333 up to US\$264,645,¹⁷ and for nurses from as low as US\$2,500-\$3,000 up to US\$64,000 for speciality nurses. Closer to home, one Australian study showed that it costs between A\$5,963-22,123 (on average A\$10,734) to replace a nurse, with the total annual cost of nursing workforce turnover for the Northern Territory Department of Health estimated at A\$6,884,519.¹⁸ Another New Zealand hospital study found that the turnover cost per nurse was NZ\$20,000, not including costs due to lost productivity.¹⁹ The authors of this review are currently engaged in a major Australian Primary Health Care Research Institute study examining workforce length of stay and recruitment costs in small primary health services across rural and remote Australia.

RELATIONSHIP WITH RECRUITMENT

An enormous literature has built up over many years on the recruitment and retention of doctors and other health professionals in rural and remote areas.²⁰⁻²³ **Recruitment** is a concept closely related to, but distinct from, **retention**. Recruitment involves the attraction and selection of staff to a particular organisation or role and is a pre-requisite for retention. Well-targeted recruitment strategies and selection criteria are important in subsequent retention as the better matched an individual is to a role and organisation, the longer they are likely to remain, independently of the effect of additional retention strategies.³ Indeed, Pathman et al²⁴ argued that health workforce shortages in underserved rural areas are primarily a function of poor recruitment rather than poor

retention. However, these authors also suggest that many of the factors which influence recruitment such as background and lifestyle preference are 'immutable', whereas the workplace factors most relevant to retention are 'modifiable' and therefore suitable for intervention.²⁴

SECTION TWO - FACTORS AFFECTING RETENTION

In order to implement incentives and support measures designed to increase length of stay of health workers in small rural and remote health services, it is necessary to understand the factors affecting retention and how they operate to trigger a decision to stay or leave. **Figure 1** identifies the relationship between both work-related and personal and lifestyle related factors and retention. This relationship is mediated by personal and professional satisfaction.

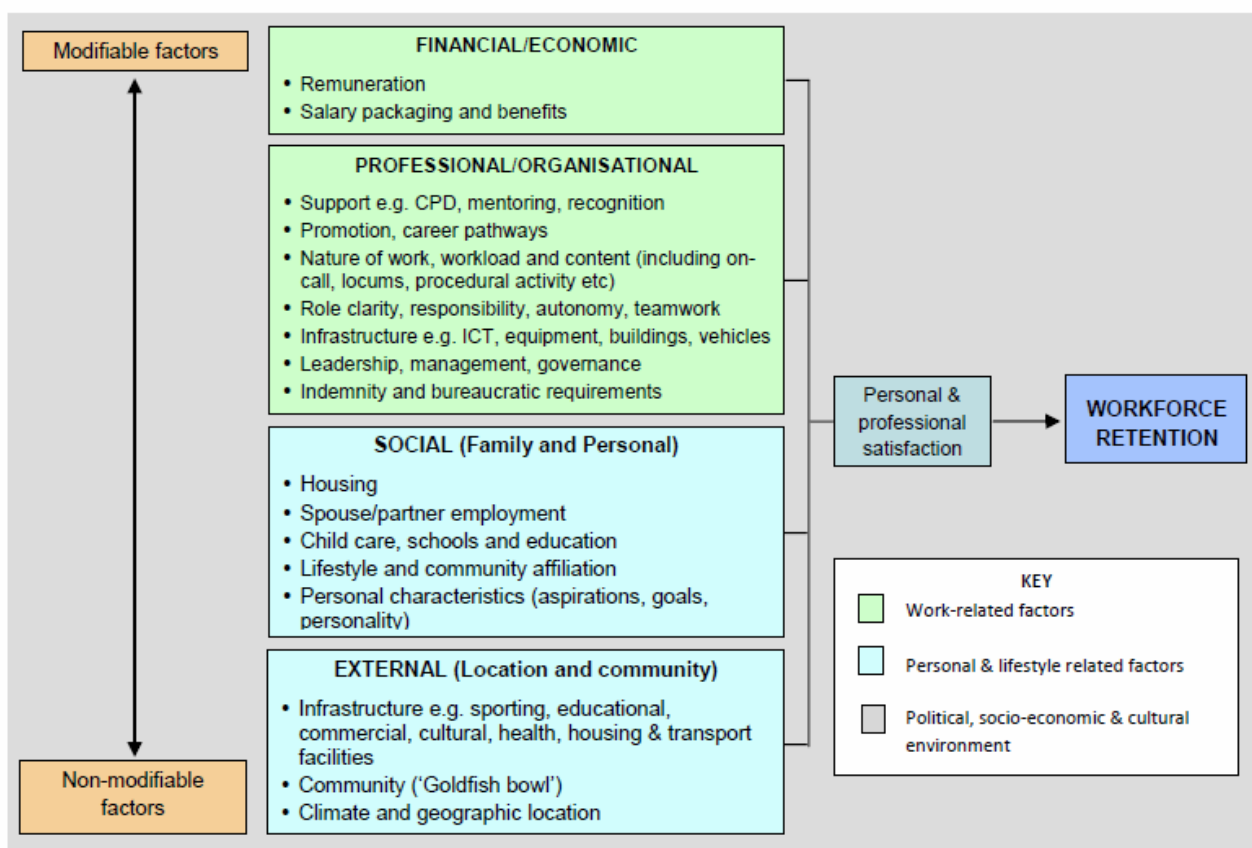


Figure 1: Factors affecting retention

Evidence indicates a relationship between retention and job satisfaction,^{16,25} although Pathman's²⁶ study showed that only some areas of satisfaction and dissatisfaction were associated with retention. Any significant dissonance between employee needs and workplace may reduce the level of worker satisfaction and trigger employee relocation to another job or place.²⁷ Workforce recruitment, retention and satisfaction are influenced by a number of factors operating at different levels - the health system at the macro-level, the health facility or workplace at the micro level, and health worker characteristics at the individual level.^{11,27-35} The influence of these factors on health workers depends on the overall context - the political, socio-economic and cultural environment.¹⁶

FINANCIAL/ECONOMIC

Financial considerations have been identified by workforce surveys as relevant in the decision of health workers to move to rural or remote areas.^{18,30,31} However, financial rewards may be more

effective as recruitment, rather than retention, incentives.³⁰ Financial and economic incentives that may be offered to attract and retain staff include service-linked scholarships, education loan repayment programs and direct financial incentives (such as higher salary and allowances).^{3,36-41}

In Australia, a key plank of the Australian Government program to bolster the numbers of doctors in rural and remote areas has been the payment of retention grants through the Rural Retention Program (RRP). The scheme graduates payments according to the geographical location of GPs (based until very recently on the Rural Remote and Metropolitan Area [RRMA] classification) and the length of time they have been practising there. The RRP is intended to contribute retention bonus payments to long-serving medical practitioners in rural and remote areas through the provision of financial incentives.⁴² There are two components to the RRP – (i) a Central Payments System (CPS) – this payment is administered through Medicare and is determined on the basis of location and length of service; and (ii) a Flexible Payments System (FPS) – this smaller component is run by state/territory rural workforce agencies and is intended to make up any shortfall some doctors receive under CPS (e.g. because services are not captured by Medicare data, do not meet CPS criteria, etcetera). The RRP cost A\$22 million in the 2007-2008 Budget.⁴³ The post hoc evaluation was unable to determine the program's effectiveness as a retention strategy.⁴²

PROFESSIONAL & ORGANISATIONAL

According to Dussault and Franceschini:

“...economics is just one factor affecting a health professional's decision as to where to locate...Professional, personal, educational and social/lifestyle-related factors can greatly influence job-related decisions.”²⁹

While professional autonomy, responsibility, and variety have been identified as positive aspects of rural practice,^{18,28,34,35} the comparative isolation of health workers in rural and remote locations may also limit professional development. Survey studies have revealed lack of continuing professional development (CPD) opportunities and limited career pathways contribute to the decision of health workers to leave an area.^{29-31,34,35,44} However, where these opportunities and resources are available, these factors have been associated with the decision to stay.^{18,32,34,44}

A number of strategies have been used to address the professional development needs of rural health workers including traineeships, CPD outreach, telehealth, distance learning and library access.⁴⁵ Newly emerging technologies can assist with distance learning which in turn may help reduce the sense of professional isolation for rural and remote health workers.^{29,46} Other professional development and support activities such as provision of clinical supervision and mentoring have also been suggested as possible retention strategies.⁴⁷

Dussault and Franceschini²⁹ found that several aspects of the organisational environment contribute to workforce shortages in some areas. They argue that workers are less likely to remain in organisations with poor management and which lack equipment, supplies and other important infrastructure. Survey data support these assertions with negative workplace factors such as stress, workload, inflexible working hours, poor quality work environment, lack of managerial support, and lack of locum relief and/or qualified assistants associated with poor retention in rural and remote areas.^{27,28,31,32}

Professional and organisational factors known to influence retention have been addressed by a 'bundle' of retention strategies in several programs. For example, one US program included a practice management advisory service, rural leadership development opportunities, employment of a rural network development specialist, financial incentives and increased availability of development capital through infrastructure loans in an effort to address workforce issues.⁴⁸ A hospital in rural Victoria trying to attract and retain psychiatrists reorganised workloads, altered rostering to better meet the needs of staff, and introduced an orientation program incorporating cultural training for international medical graduates.⁴⁹ The Central Australian Nurse Management

(CAN) model included a CPD package involving pre-employment, orientation and maintenance components.⁵⁰ The CAN model also incorporated two organisational elements: the Best Practice Framework for Remote Area Nursing Services which aimed to improve the working environment by providing a framework in which nursing activity was clearly linked to organisational goals and philosophy, and the Partnership in Practice Scheme which provided reliable and consistent relief for nurses working in remote locations. Wilkinson et al⁵¹ describe the establishment of a network of university-linked family practices in South Australia. Among the retention strategies aimed at professional development were support for higher degrees, conference attendance and teaching commitments, and sessional and academic appointments. The network attempted to overcome organisational barriers to retention through providing infrastructure support for general and information communication technology facilities.⁵¹ Leave and locum support were also incorporated into the program.

SOCIAL (FAMILY & PERSONAL)

Individual characteristics such as gender, beliefs, values and career aspirations influence the choice of location among health workers.²⁹ Longer duration of stay has been associated with being older, having attended school locally, owning or purchasing a home, living with family, enjoying the rural lifestyle and establishing professional and community networks,^{28,31,34} while a sense of social and personal isolation may contribute to the decision to leave a rural area.⁴⁴

Aside from social connectedness,³⁰ the personal needs and circumstances of other family members are likely to be influential in career decisions. It has been argued that in rural settings it is often a whole family that is recruited to an area, not just an individual, and that the needs of other family members should be taken into account.⁵² Support in securing housing and spousal employment have been suggested as mechanisms which may help attract and retain health workers.^{49,51,53,54} Survey data indicate that limited educational opportunities for children may contribute to the decision of health workers to leave an area.^{32,53}

EXTERNAL (GEOGRAPHIC LOCATION & COMMUNITY)

Dussault and Franceschini state that:

“Community and local resources, conditions and opportunities can either draw or repel health professionals to or from a given area. Access to social, cultural, educational and professional opportunities increase preference to settle in particular areas.”²⁹

Location-specific factors also play a role in determining both where a health worker chooses to practise and how long they remain. These factors include geographical location (eg climate, proximity to capital city, etcetera) and the profile of the local community. The travel times and distances involved in rural practice have been identified by some as a drawback,^{18,34,35} although the local geography may also contribute to the decision to stay because, for example, of an appreciation of the natural environment¹⁸ or a shorter commute to work than in urban areas.⁵²

It has been suggested that rural communities wishing to attract health workers should actively promote the advantages of their area, such as natural beauty or a welcoming community, and further, that local leaders should be actively involved in the recruitment process.⁵² A community participation process was adopted in two small Queensland communities to develop an action plan to attract and retain medical staff.⁵⁴ However, no studies could be found where the effectiveness of such community promotion, participation or development activities on recruitment and subsequent retention were assessed.

REGULATORY CONDITIONS

The length of employment in a particular location may be ensured by mandating a minimum period of service for health workers. Examples of such regulatory measures include bonded scholarships for medical students and restricted visa conditions for overseas trained doctors. The Australian Government has identified a particular shortage of doctors and nurses in regional areas.⁵⁵ The Department's website encourages visa applications from overseas trained health professionals to address local health workforce shortages. Programs in Australia have supported overseas trained doctors and nurses to serve in rural or remote areas by providing assistance with immigration processes.^{29,51,56} Programs have also been implemented in the US which impose visa conditions to restrict practice to rural, remote or other underserved areas for a specified period.⁵⁷

STRATEGIES TO IMPROVE WORKFORCE RETENTION

The financial, professional, social and external conditions required to optimise workforce retention are unlikely to be met in every workplace. This is particularly true of many rural and remote locations where the factors contributing to workforce turnover are compounded by distance and isolation. In these locations, it is therefore imperative that effort be made to retain a sufficient health workforce to provide for the health needs of communities.

Governments and many health services provide a range of workforce recruitment and retention incentives and support measures to influence the decision-making of health workers regarding going to, staying in, or leaving rural and remote areas, although few systematically monitor their effectiveness in improving workforce supply and length of stay. The Australian Government Office of Rural Health website (www.health.gov.au/ruralhealth) lists and/or provides links to the many workforce programs funded by the Commonwealth, State and Northern Territory governments. Two recently published documents also provide useful summaries of rural and remote health workforce programs.^{43,58} Retention measures are also often implemented at an organisational level. It is important that the effectiveness of such programs in achieving their intended goals (namely improving workforce supply, reducing avoidable turnover and improving length of employment) is thoroughly evaluated to ensure their cost is justified. However, there is little evidence available to show that sufficient new health workers are taking up practice or staying longer in areas workforce shortage as a consequence of retention incentives and supports. Therefore, greater attention is required to determine how health services in these underserved communities can minimise avoidable turnover of staff, the costs of which are very high.

STRATEGIES ADDRESSING MULTIPLE RETENTION FACTORS

In general, most governments and health authorities have focused workforce retention responses largely on remuneration incentives. Financial incentives include salary packaging, salary loadings and specific retention bonuses. However, as noted above, the ongoing shortage of doctors and nurses in rural and remote regions is caused by multiple factors.⁴³ Several authors have concluded that because workforce retention is a function of several interrelated factors, the strategies to address them should reflect this complexity.^{10,28,30,33,35,53,59} Lehmann et al argue that "...because of the complex interaction of factors impacting on attraction and retention, there is a strong argument to be made for bundles of interventions which include attention to living environments, working conditions and environments, and development opportunities".³³ Several programs have been described which incorporate multiple strategies addressing different retention-related factors.^{48-51,54} Not all have been comprehensively evaluated, and of those which have, measuring the relative impact of each component remains a challenge.

Individual targeted policies occur without due regard to how interventions can improve the attractiveness and sustainability of workplace environments and worker satisfaction, so that triggers to leave are minimised. Focusing attention on single incentives such as remuneration often ignores the need to maintain adequate staffing, provide appropriate infrastructure, maintain

realistic remuneration, to shape the workplace environment and foster a workplace culture that values and rewards employees. Recently, the World Health Organisation (WHO)¹⁰ concluded from several overseas case studies that a broad platform of measures is required to improve the retention of health workers - including targeting rural background employees, professional and community support, adequate working conditions, participation in decision-making, supportive leadership and management and professional development (See **Table 1**).

Table 1: Categories of interventions used to improve retention of health workers in remote and rural areas.

CATEGORY OF INTERVENTION	EXAMPLES
<ul style="list-style-type: none"> • Education and regulatory interventions 	<ul style="list-style-type: none"> • <i>Targeted admission of students from rural background</i>
	<ul style="list-style-type: none"> • <i>Recruitment from and training in rural areas</i>
	<ul style="list-style-type: none"> • <i>Changes/improvements in medical curricula</i>
	<ul style="list-style-type: none"> • <i>Early and increased exposure to rural practice during undergraduate studies (diversification of location of training sites)</i>
	<ul style="list-style-type: none"> • <i>Education outreach programs</i>
	<ul style="list-style-type: none"> • <i>Community involvement in selection of students</i>
	<ul style="list-style-type: none"> • <i>Compulsory service requirements (bonding schemes)</i>
	<ul style="list-style-type: none"> • Conditional licensing (license to practice in exchange of location in rural areas for foreign doctors) • Loan repayment schemes (paid studies in exchange of services in rural areas for 4-6 years) • <i>Producing different types of health workers (mid-level cadres, substitution, task shifting)</i> • <i>Recognise overseas qualifications</i>
<ul style="list-style-type: none"> • Monetary compensation (direct and indirect financial compensation) 	<ul style="list-style-type: none"> • Higher salaries for rural practice
	<ul style="list-style-type: none"> • Rural allowances, including installation kit
	<ul style="list-style-type: none"> • Pay for performance
	<ul style="list-style-type: none"> • Different remuneration methods (fee-for-service, capitation etc)
	<ul style="list-style-type: none"> • Loans (housing, vehicle)
	<ul style="list-style-type: none"> • Grants for family education
<ul style="list-style-type: none"> • Management, environment and social support 	<ul style="list-style-type: none"> • Other non-wage benefits
	<ul style="list-style-type: none"> • General improvement in rural infrastructure (housing, roads, phones, water supplies, radio communication etc)
	<ul style="list-style-type: none"> • Improved working and living conditions, including opportunities for child schooling and spouse employment, ensured adequate supply of technologies and drugs
	<ul style="list-style-type: none"> • Supportive supervision
	<ul style="list-style-type: none"> • Support for continuous professional development, career paths
	<ul style="list-style-type: none"> • Special awards, civic movement, and social recognition
	<ul style="list-style-type: none"> • Flexible contract opportunities for part-time work
	<ul style="list-style-type: none"> • Measures to reduce the feeling of isolation of health workers (professional/specialist networks, remote contact through telemedicine and telehealth) • Increased opportunities for recruitment to civil service

(Source: WHO, 2009:13.¹⁰ **Note:** The measures that are in italics were not evaluated in this review as they fall outside the scope of study as noted in the Preface. This review considers *only* those measures that are offered to entice workers to remain in rural or remote practice after their education and training).

SECTION THREE - EFFECTIVENESS OF WORKFORCE RETENTION STRATEGIES

REVIEW METHODS

A comprehensive literature review was undertaken with the aim of identifying specific studies which have evaluated the effectiveness of any strategies intended to improve retention among rural health workers. Although the time constraints of the project prevented a full systematic review from being conducted, a systematic review methodology was adopted. **Figure 2** details the literature search strategy results. The method for conducting the review is described in detail in **Appendix 2**.

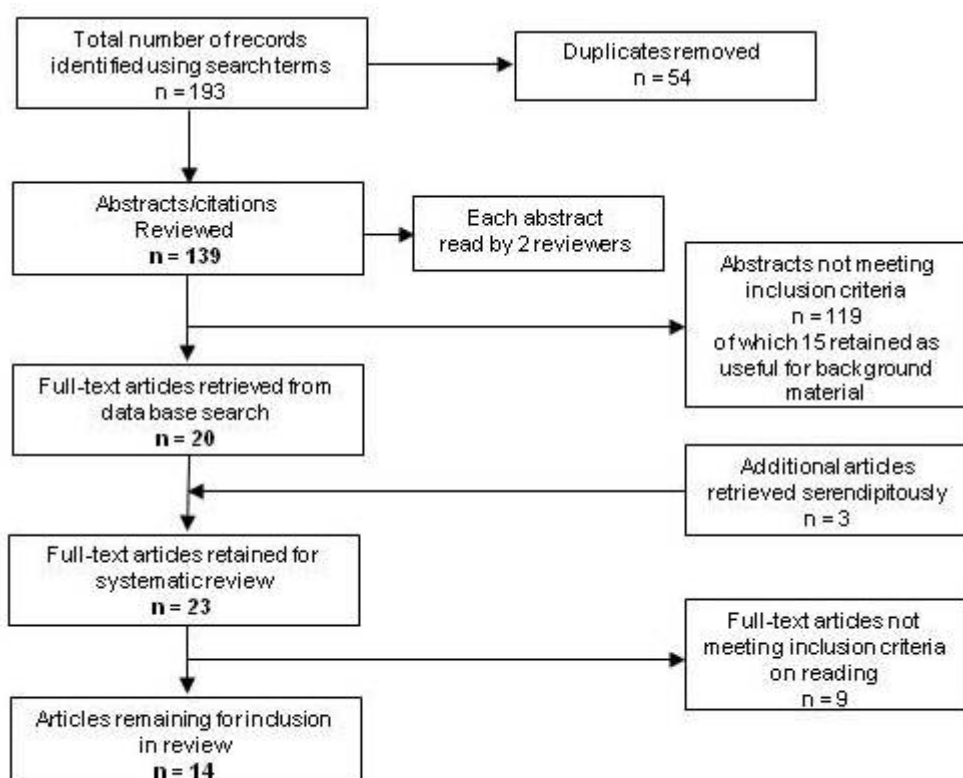


Figure 2: Systematic review process

Briefly, both black and grey English-language literature were sought from the last 10 years (1999-2009). The initial black literature search yielded 139 potential peer-reviewed publications. The total number of papers was reduced to 20 after considering the abstracts against inclusion and exclusion criteria detailed in **Appendix 2**. Three additional papers were identified through bibliographic searching (n=1) and serendipity (n=2).⁶⁰ All 23 papers were then read by two independent reviewers. Nine full-text papers were discarded because they did not meet the inclusion/exclusion criteria. Of the 14 papers retained, six were program evaluation studies and eight were review studies.

A considerable amount of grey literature exists relating to health and medical workforce recruitment and retention. A pragmatic approach was adopted in locating and reviewing the grey literature. Relevant material was identified from works already known to the researchers, correspondence with key stakeholders involved with rural and remote workforce organisations, from references cited in the black literature, and searches of websites of government departments,

workforce agencies, professional associations, universities and similar organisations. Some additional material was sourced from internet searches using relevant keywords. Emphasis was placed in particular on any known evaluations of workforce retention strategies and measures. One researcher reviewed all documents.

Evidence collected via a systematic review methodology can be of great use in policy formation, due to the rigour with which information is gathered and the reduction in potential bias in the selection of material for inclusion.⁶¹ However, it is also acknowledged that the methodology may have limitations when applied to complex social problems such as rural and remote health workforce retention. Such problems are not 'pure', as they are impacted upon by multiple interrelated factors which are variable between different contexts. Overly simplistic conclusions derived from a systematic review may not necessarily capture the complexity of the environment in which the problem is situated. Furthermore, the nature and quantity of information returned via a systematic review depends upon the construction of the search terms and the inclusion and exclusion criteria applied. An overly broad search may return an unwieldy amount of material, much of only peripheral relevance, while a very narrow search risks excluding critical information. Given the limitations of the methodology when applied to complex problems, Humphreys et al argue that "...the evidence gained from any systematic review of health services can only ever partly contribute to the policy outcome."

REVIEW FINDINGS

Black literature

Of the six evaluation studies identified in the black literature, five related to medical practice (four general and one psychiatry), and one related to nursing. Three evaluated bundled retention strategies, two evaluated financial incentive programs and one a visa-waiver program (**Table 2**).

The review studies were generally intended to cover multiple health professions, although in reality, the articles primarily concerned medical practitioners. Most of the reviews were international, with evidence drawn primarily from studies in developed countries, although one focused on middle and low income countries (MLIC).³³ Two reviews were specific to financial incentives and return of service schemes, while the rest considered both recruitment and retention strategies more generally. Three review articles provided no detail regarding the method for identifying articles for inclusion (**3**).

Grey literature

An initial international scoping of grey literature was undertaken, revealing many papers discussing issues associated with workforce retention. However, it was soon evident that most of the retention strategies relevant to developing countries had little relevance to the Australian context – for example, a paper by Kanyesigye and Ssendyona⁶² studied the payment of a lunch allowance to health workers, an incentive unlikely to influence the job-related decisions of Australian health workers. For this reason they were excluded. Due to limited time, scoping of grey literature was confined to western developed countries. Most of the grey literature on health workforce retention relating specifically to Australia comprised reports and proceedings from conferences and meetings, relatively unsubstantiated statements about determinants of, and solutions to, recruitment and retention (often undifferentiated), or discussion papers or position statements being advocated by organisations on behalf of their members.^{58,63-68}

Two grey literature reports were identified as potentially being of particular relevance to this study. Both were Australian consultancies auspiced by the Commonwealth Department of Health and Ageing - the *Review of the Rural Retention Program*⁴² and *Rural and Remote Attraction and Retention Study Final Report*.⁶⁹ Access to the latter report (commissioned by the Australian Government Department of Health and Ageing) was obtained by the research team under the Freedom of Information Act.

The Gibbon and Hales (2006)⁴² evaluation of the RRP addressed the effectiveness, appropriateness and efficiency of the rural medical workforce retention program from 1999/00-2004/05. Over the period of the evaluation the number of RRP payment recipients increased by 16.2 per cent and costs by 68.6 per cent. Five-year retention rates were estimated at 63 per cent, however, no baseline data were available against which to evaluate the effectiveness of the program in improving retention. Interview data suggested that while the payments were regarded by GPs as an appropriate retention incentive, the payments alone were not seen as sufficient and that other non-monetary factors relevant to length-of-stay should also be addressed. The authors acknowledged that the impact of the RRP cannot be isolated from other schemes at the national, state and local level. Further, without baseline and ongoing evaluation data they were unable to determine the effectiveness of the program. Despite this, the authors recommended the program be retained as it may contribute to rural and remote retention by improving the 'morale' of grant recipients. They suggested that withdrawal of retention payments would have a negative impact on the workforce with practitioners leaving, retiring early or seeking greater remuneration to compensate.⁴²

NOVA Public Policy were contracted to prepare a report to overview the policies used across Australia to address rural and remote workforce issues.⁶⁹ Of particular interest was monetary compensation to attract and retain rural and remote workforces, although non-financial incentives were also considered. Professions included teachers, solicitors, geologists, civil engineers, nurses, geophysicists, accountants, mining engineers and oil rig workers. Four types of incentive strategy were identified; direct remuneration, job and workforce design, professional/career development, and personal/family/community benefits, and brief examples of each provided. While the body of the report includes a series of tables listing the benefits/incentives/conditions offered by sector, many of the benefits listed appeared to be single case examples so it is impossible to tell whether such strategies are widespread or not, and there is no evidence regarding their impact on retention. The method employed by Nova Public Policy does not give confidence about the comprehensiveness and accuracy of the information contained in the report.

Table 2 Summary of EVALUATION studies concerning the effectiveness of strategies intended to improve rural and remote workforce retention

Authors	Country (state)	Target health profession	Program type	Program dates	Study details	Findings	Limitations
Jackson <i>et al.</i> ^{37*}	USA (West Virginia)	Medical - general	Financial incentive programs (loan repayment or retention grant)	Variable from 1991 onwards	Compared the length of stay at the site of first practice of physicians obligated to serve in rural area (due to participation in one of four financial incentive programs – two student programs and two graduate programs, n=44) versus non-obligated physicians (n=107). Data from survey of physicians.	Financial obligation appears to work as a retention strategy as long as under obligation. Once obligation complete, no apparent residual effect on retention.	Participants in all four programs combined for analysis therefore cannot determine individual program effects. No test of significance.
Crouse & Munson ⁵⁷	USA (Wisconsin)	Medical - general	Visa-waiver program	1996-2002	Investigation of length of stay of doctors holding a visa-waiver to permit practice in rural area (n=72, or 69% of those in program) versus physicians recruited by traditional means (n=58). Data from survey of CEOs/HR of 37 hospitals and clinics.	Visa waiver may assist with retention for the period of obligation, but possibly not beyond. Promising results at 2 years, but decline in retention by 5 years. CEOs/HR indicated waiver recipients were regarded as 'very satisfactory' by patients, and regarded them as having integrated 'well' into the medical community. A slightly lower average ranking was given for how well waiver recipients integrated into general community and this was seen to be predictor of leaving.	No information provided on individual's length of follow up from program uptake. Judgments of patient satisfaction and community integration made by CEO/HR only. No information on where leaving physicians relocated to - may have been to another under-served area.

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

Authors	Country (state)	Target health profession	Program type	Program dates	Study details	Findings	Limitations
Pathman <i>et al.</i> ^{38**}	USA (Multiple)	Medical - general	Financial incentive programs (various)	Variable from 1991 onwards	Investigation of 69 state funded programs intended to increase recruitment of physicians to rural and medically underserved areas. Evaluated completion rates of 5 types of program: scholarship (n=20), service option loan (n=12), loan repayment (n=24), direct incentive (n=7) and resident support programs (n=6). Also compared retention rates, area of practice, and satisfaction of obligated (n=434) versus non-obligated (n=723) physicians.	Service completion rates vary according to program type. Highest for loan repayment, direct incentive and resident support programs (all >90%), but lower for scholarship (67%) and service option loan (45%) Higher levels of retention among obligated physicians (in service practice) than non-obligated (in first job) (obligated = 71% at 4 years and 55% at 8 years, non-obligated = 61% at 4 years, 52% at 8 years). Obligated also more likely to serve in area of need and to report higher level of work and community satisfaction.	Not all programs were able to provide complete program information or participant details to researchers
van Haaren & Williams ⁵⁰	Australia (NT)	Nursing	Retention program (bundled)	1997-1998	The Central Australian Nurse (CAN) Management Model involved (1) Best Practice Framework to link activity to organisational philosophy and goals, (2) professional development program including pre-employment, orientation and maintenance components, and (3) support/relief for nurses working in remote areas. Data source not specified.	All previous job vacancies filled, agency nurses no longer required, staff intention to stay for 2 years (3 left prior to contract completion)	Poor quantification of pre and post measures of staff numbers, vacancies, length of stay, participation in CPD program, etc. No way of independently assessing effect of each component strategy.

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

Authors	Country (state)	Target health profession	Program type	Program dates	Study details	Findings	Limitations
Wilkinson <i>et al.</i> ⁵¹	Australia (SA)	Medical - general	Recruitment & retention program (bundled)	1995-1999 (some sites started later)	Network of 4 university-linked rural/remote family practices established from 1995 onwards. Recruitment strategies included widespread advertising, personal networking, relocation and accommodation assistance, academic appointment, assistance with registration and immigration process for overseas graduates. Retention strategies included relief, flexible appointments, teaching remuneration, ICT support, conference support, and support to undertake higher degree. Data relating to length of stay from staff records.	17 doctors recruited, 24% overseas trained. Only 4/17 since resigned (average length of service 20 months). Average annual turnover of 6%. Of the 13/17 remaining in service, the average length of service at time of writing was 15 months – this includes most recent recruits.	No before/after comparison (though may not be possible as newly configured services) Different lengths of follow up. No way of independently assessing effect of each component strategy.
Wilks <i>et al.</i> ⁴⁹	Australia (VIC)	Medical - psychiatry	Recruitment & retention program (bundled)	1994-2006	A rural hospital introduced package of professional and social/family strategies to attract psychiatrists e.g. supporting CPD, reorganisation of workloads, establishment of a Professorial Chair of Psychiatry, support for family needs (e.g. schooling housing) and an orientation program including cultural training for international medical graduates. Data from interviews and record audit, but few details provided.	FTE increased from 1 to 11. Average length of stay increased from 18 months to 48 months.	Method of data collection and calculation poorly described. No way of independently assessing effect of each component strategy. No evidence provided to support the assertion that establishment of Chair of Rural Psychiatry contributed to recruitment/retention.

* This article was cited in two review articles^{36,70}

* This article was cited in three review articles^{36,41,70}

Table 3 Summary of REVIEW studies concerning the effectiveness of strategies intended to improve rural and remote workforce retention

Authors	Country	Target health profession	Program type reviewed	Period of review	Review details	Findings	Other considerations
Barnighausen & Bloom ³⁶	International (mainly developed countries: US= 34 studies, Japan=5, Canada=2, New Zealand=1, South Africa=1)	Multidisciplinary (mainly medical)	Financial incentives/ return of service [†] in underserved areas.	Up to 31/01/2009 (earliest program ran from 1930)	Systematic review plus bibliographic and other searches. Of initial 10,495 hits, full text obtained for 125 papers, 43 retained. All studies reviewed had observational only design.	Financial incentive programs appear to assist recruitment. Participants do not stay longer in original location of practice than non program-participants but may stay longer in any underserved community.	Selection bias into financial incentive programs limits causal inferences that can be made about their impact.
Sempowski ³⁹	International (mainly developed countries: US= 6 studies, Canada=3, New Zealand=1)	Medical - general	Financial incentives/ return of service in rural and other underserved areas.	1966-2002	Systematic review plus bibliographic and other searches. Of initial 516 hits, full text obtained for 50 papers, 10 retained– 2 cohort studies, 8 surveys.	Quality of available evidence low. Commonly used outcome measures were initial recruitment, buy-out rates of financial commitment and long-term retention (i.e. still in service at follow-up). Concluded that obligation may assist with recruitment and short-term retention, but not long-term.	Review limited by quality of evidence available.
Grobler <i>et al.</i> ⁷⁰	International	Multidisciplinary	General recruit/ retention strategies [†] in rural and other underserved areas	Up to June 2007	Cochrane systematic review plus bibliographic/other searches. Of initial 1,844 database hits, 0 papers retained as none met the methodological criteria (i.e. randomised controlled trial, controlled trial, controlled before-after study, or interrupted time series).	There are no well-designed studies to provide evidence for any particular intervention. 'Evidence-based' policy in this area most likely relies on the results of observational studies. A summary table is provided of the retention strategies described in the literature and the type of evidence available to support them e.g. survey studies.	There is a need for well-designed trials of retention strategies that take into account the issues of bias and confounding.

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

Authors	Country	Target health profession	Program type reviewed	Period of review	Review details	Findings	Other considerations
Lehmann <i>et al.</i> ³³	International (focus middle and low income countries[MLIC])	Multidisciplinary	General recruit/retention strategies for remote rural areas of MLIC countries	1997-2007	'Narrative/iterative' review of the published literature. Of initial 600 hits, 55 papers retained.	The review indicated that bundled [†] intervention strategies addressing (1) recruitment and training, (2) incentives/compulsory service, (3) working conditions, and (4) living conditions are necessary. Integrated program requires intersectoral collaboration. Few programs address more than one or two factors. Very limited evidence regarding impact of programs on retention.	Recruitment and retention effects not always clearly distinguished. MLIC focus limits relevance to Australia. No measure of retention strategy impact provided.
Wilson <i>et al.</i> ⁴¹	International	Multidisciplinary	Recruit/retention strategies [†] in rural remote areas	Not specified	PubMed search for 'rural/remote' and 'recruitment/retention'. Of initial 1261 hits, 110 retained. Few prospective studies, therefore also included retrospective, observational and survey studies. Classified studies by intervention; selection, education, coercion, incentives and support. Evidence rated as convincing, strong, moderate, weak, or absent.	Evidence in relation to strategies mostly weak or absent. Best evidence for selection and education strategies, with some evidence for incentive and support schemes. Coercion fills short term recruitment gap, but not long-term retention.	Recruitment and retention effects not always clearly distinguished. Review limited by quality of evidence available.
Allan & Ball ⁷¹	Australian (and some international) literature reviewed	Multidisciplinary - PHC focus	Recruit/retention strategies [†] in rural remote areas	Not specified	Non-systematic review. Method for conducting review not described.	The review authors conclude that 'the few existing retention strategies are inconsistently applied and unevaluated' (p.110).	The usefulness of the review is limited by the omission of any details regarding the method used to locate literature or regarding inclusion/exclusion criteria.

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

Authors	Country	Target health profession	Program type reviewed	Period of review	Review details	Findings	Other considerations
Stretton & Bolon ⁵²	North America	Hospital administrators	Recruit/retention strategies [†] in rural remote areas	Not specified	Non-systematic review. Method for conducting review not described.	The review authors argue that the governing boards of rural hospitals should pay attention to largely the same individual, organisation and community factors that are relevant to clinical staff when trying to recruit and retain administrative staff. No original evidence provided.	The usefulness of the review is limited by the omission of any details regarding the method used to locate literature or regarding inclusion/exclusion criteria.
Schoo <i>et al.</i> ⁴⁴	Predominantly Australian and North American literature reviewed	Allied health	Reasons for staying in or leaving rural remote areas	Not specified	Non-systematic review and conceptual model building. Method for conducting review and model building not described.	The authors identify personal, organisational and community factors as relevant to recruitment/retention (three main for allied health professionals working in South-western Victoria are lifestyle, career and family ties, while the most important factors for leaving are lack of career path, personal and social isolation).	The usefulness of the review is limited by the omission of any details regarding the method used to locate literature or regarding inclusion/exclusion criteria. No evidence regarding the effectiveness of retention strategies provided.

* Scholarship requiring service, education loan requiring service, education loan with service option, education loan repayment program, and direct financial incentives

[†] Any educational, financial, regulatory, or professional or personal support strategy

SUMMARY OF FINDINGS ARISING FROM THE EVIDENCE

Three main points arise from the limited number of studies identified:

1. The amount and scope of evidence measuring the effectiveness of workforce retention strategies

Despite the vast literature on medical workforce recruitment and retention in both developed and developing countries, multiple authors have lamented the lack of research evaluating the effectiveness of recruitment and retention strategies to address rural health workforce shortages.^{9,70} For example, following their review of published literature, the WHO¹⁰ concluded there is very little evidence of the impact, effectiveness and sustainability of various interventions and the quality of much of what exists is weak. A WHO report states that “there is very little rigorous evidence to support any financial, regulatory, education and management interventions to improve access to health workers in rural and remote areas”.¹⁰ Another WHO report cites many other authors who conclude that “little has been written on what works and what does not”.¹⁶ Further, Allan and Ball note that “the few existing retention strategies are inconsistently applied and unevaluated”.⁷¹ And again, “There is a dearth of information on the effectiveness of strategies”.¹⁶ In short, there is a paucity of systematic evaluations of retention programs and incentive schemes.

2. The quality of evidence measuring the effectiveness of workforce retention strategies

Where evaluations of the effectiveness of retention measures and incentive schemes to address rural health workforce shortages have been conducted, the quality has generally been poor.⁷⁰ For example, many studies fail to distinguish between recruitment measures (ie selection, education & training, placements, bonding, etcetera) and retention measures (ie servicing workforce needs). While clearly there is some overlap, there are also distinct differences.¹¹ As put by Cutchin⁷², “the decision to locate in a rural practice setting occurs largely from outside that setting. The decision to remain takes place from within the practice setting and arises from the stream of experience there.” Furthermore, the quality of much existing evidence makes it difficult to attribute the impact of specific retention measures independent of other confounding factors.

In Australia, the recent performance audit undertaken by the Australian National Audit Office⁴³ highlighted the lack of effective evaluations of rural health workforce programs and workforce outcomes and recommended improved program monitoring, development of effective indicators and an appropriate performance information strategy, and the need for an up-to-date geographical classification scheme as the basis for providing incentives to health professionals working in rural and remote areas of Australia.

Evaluation must be built into retention programs from the outset. Wilson et al⁴¹ claim there exists “...a dire need to evaluate in a scientifically rigorous fashion the impact of interventions and policies that aim to redress the inequitable distribution of health care professionals to rural and remote areas”. An obvious starting point is to undertake a proper and rigorous evaluation of the RRP in terms of linking financial expenditure on retention grants to length of employment **in situ**. Ideally, future evaluation of any retention strategy should incorporate pre and post-intervention measures.

The literature is unclear about what are the ‘best’ or most useful measures of retention, and there are no benchmarks evident. Thus there is a need to decide and measure what retention outcome is important, and to establish retention benchmarks for rural and remote health professionals. Length of stay may be a relevant and appropriate measure of retention. However, particularly in remote and rural areas, staff move between jobs within the same service, between services in the same location and between different remote and rural locations over time. This raises the question of ‘length of stay where?’ There is virtually no

literature explicitly identifying a 'reasonable' or 'optimal' length of stay. Establishing benchmarks for remote and rural locations is essential for health service managers, funders and those measuring the impact of retention strategies.

3. What works

The review highlights several key findings in relation to the effectiveness of workforce retention strategies:

- A wide range of workforce retention measures and incentives have been employed by different health authorities and health services. These range from 'coercion' (mandating outcomes), such as restricting the location of practice, through to 'rewards' to recognise extended length of stay or significant service within a community.
- Putting the ethical issues aside, the most compelling evidence available from studies examining the effectiveness of specific workforce retention measures, albeit limited, is for strategies incorporating some form of obligation. This may be in the form of either visa conditions restricting practice for International Medical Graduates (IMGs) or financial obligation such as loan repayment. Obligation to provide service in specific locations appears to be effective for the duration of the agreement, although retention beyond this period is less certain. Future studies of obligated service strategies need to track continued service in other underserved areas, not just the initial location of practice, as movement to another such area may be regarded as a positive workforce retention outcome.
- Despite the attractiveness of financial incentives from a policy and program perspective, and contrary to Hutten-Czapski's⁷³ claim that "all that is needed is money and people", care should be taken in relation to the use of financial incentives. Financial incentives are integral to employment contracts, and comprise both basic salaries or remuneration and additional payments or bonuses associated with performance or maximising length of stay. Some evidence suggests that in developing countries, where salaries are poor, financial incentives are essential and can have dramatic, immediate effects.⁷⁴ Elsewhere evidence has shown that financial incentives are "neither the first or the most important factor in the decision to leave or stay in a remote or rural area"^{10,14} or "have shown mixed results".⁹ Non-financial incentives, such as housing and improved working conditions, have the potential to make attractive incentives.¹
- The best available evidence indicates that 'bundles' of retention incentives are most likely to be effective.^{33,49,51} "Retention strategies need to be multifaceted".¹⁶

"As causes for retention are likely to be rooted in both personal and work-related factors, strategies must address these multiple causes simultaneously. Interventions can take place at the macro or health-system level, such as HR policy and planning, rural recruitment and training and bonding. They can also take place at micro or facility level, aimed at improving job satisfaction by addressing working conditions, providing incentives and offering professional development. Interventions can also aim to improve the living conditions of individual workers, or address the needs of specific groups."¹⁶

Thus, to be effective, a comprehensive workforce retention strategy that bundles incentives is required. The package might include financial, accommodation, educational and family related incentives. Given vastly different rural and remote contexts, the need to be able to flexibly prioritise retention responses and measures according to need in these different contexts is

ⁱ Evidence from another Australian Primary Health Care Research Institute study investigating retention strategies for small primary health services in Australian rural and remote communities has shown that provision of adequate housing (rated by 23 per cent of health services) outranked financial incentives (20 per cent).

paramount. For example, housing is overwhelmingly the most important issue for many health workers in isolated and remote areas.

A small number of programs which have bundled interventions have been published in the evaluation literature, and a larger number mentioned in the review literature. However, the evaluation of these programs has been limited by the poor quantification of pre and post-intervention measures such as length of stay and retention rates. It is also difficult to determine from the available evidence the relative importance of different components of the strategies implemented.

- Much of the literature and research evaluating the effectiveness of retention strategies concerns retention incentives for doctors. In the context of workforce shortages generally and the need for a greater focus on disease prevention, current Australian Government policy has a strong focus on multidisciplinary team practice, particularly in the area of chronic disease management and prevention at the level of PHC.⁷⁵ Future retention initiatives for remote and rural Australia should reflect the multidisciplinary focus of current policy.
- By far the majority of workforce retention studies address, by definition, modifiable factors. As indicated earlier in this report, there are many other non-modifiable factors related to health professionals and their families, as well as the under-served communities in which workforce needs are greatest. Health professionals and their families have social, recreational, spousal employment and educational needs and preferences. Communities have differing characteristics in these and other social domains. There is evidence that 'matching' health professionals and their families to communities results in improved retention.⁷⁶ In the case of IMGs who are bonded to a service location, the evidence indicates a need to better match these health professionals with their communities so that they stay beyond the compulsory period.^{77,78} An appropriate bundling of incentives may contribute to extending their period of service in remote and rural locations.
- Workforce retention is only one aspect of health services associated with a range of effective organisational human resource management activities.^{50,59} These include systemic features such as rigorous selection processes, adequate orientation and induction programs, ongoing communication and effective performance management processes, preceptorship and mentoring and facilitation of career development. There is evidence that across the entire health system⁷⁹ and in remote and rural areas,⁸⁰ health services management is inadequate. This results in a systemic barrier to improved staff retention. There is a need for improved recognition of the importance, preparation and education of health service managers to undertake these critical human resource functions.

SECTION FOUR

POLICY IMPLICATIONS

What are the policy implications of these findings? Two broad areas emerge that warrant a policy response:

- Implications for workforce retention strategies.
- Implications for further research and evaluation.

ISSUES FOR WORKFORCE RETENTION STRATEGIES:

1. 'Bundling' retention incentives within an overall workforce retention strategy:

Generally there is strong support in the literature for 'bundling' retention measures and incentives within an overall package that addresses individual level determinants, the organisational or workplace context, and the social and cultural context.

Consistent with our summary of the determinants of workforce retention, **Table 4** provides a summary of the recommended retention framework showing the six essential components that must be included within such a bundle and why they are deemed to be the factors upon which greatest leverage might be obtained through policy and program intervention. The six essential components are: (1) maintaining an adequate and stable staffing, (2) providing appropriate and adequate infrastructure, (3) maintaining realistic and competitive remuneration, (4) fostering an effective and sustainable workplace organisation, (5) shaping the professional environment that recognises and rewards individuals making a significant contribution to patient care, and (6) ensuring social, family and community support. Naturally, the retention framework recommended here focuses largely on factors that can be influenced or modified by health authorities and services – hence the dominance of workplace organisational and professional factors. Examples of specific strategies within each component are identified in **Table 4**, although it is important to note that these are not exhaustive of all possible strategies. Where evaluation evidence exists to support a specific strategy the relevant reference is listed in the table.

The notion of bundling incentives provides a challenge to governments as funding for various components of a retention package may arise from different program areas, with differing criteria and different timeframes for implementation. Additionally, these components may arise from both Commonwealth and State/Territory governments. A retention funds pooling mechanism, analogous to the Co-ordinated Care Trials or Multipurpose Service program, could allow for the flexibility and coordinated response required by health services to respond to local contextual conditions and the varying needs of individual practitioners.

2. Retaining flexibility to adjust retention measures according to context:

Given vastly different rural and remote settings, it is vitally important to allow health services to prioritise and bundle appropriate retention incentives according to needs. The retention package needs to be sufficiently flexible to respond to both differing remote and rural contexts, as well as to individual and family circumstances. For example, housing is overwhelmingly the most important issue for many health workers in isolated and remote areas. Health services should be able to vary retention measures and incentives according to the difficulty of recruiting and retaining staff without being constrained by a 'one-coat-fits-all' retention policy mandated by health authorities for all services within their jurisdiction. A flexible retention funding pool would allow this.

Table 4 Summary of the recommended workforce retention framework to underpin specific retention strategies for rural and remote health services.

Rural and remote health workforce retention framework	Why is this important?	Evaluation evidence of effectiveness of targeted strategy
1. Maintaining an adequate and stable staffing	<ul style="list-style-type: none"> Staff shortage and high turnover results in frustration and burnout for remaining staff. 	
<ul style="list-style-type: none"> Appropriate recruitment – selecting the right person 	<ul style="list-style-type: none"> Matching new recruits to positions minimises early exit.^{3,18,24,42,48,51,52} 	
<ul style="list-style-type: none"> Adequate relief/avoiding burnout 	<ul style="list-style-type: none"> Adequate time-out minimises burnout and professional dissatisfaction.^{28,32,51,53} 	van Haaren & Williams ⁵⁰ Wilkinson et al., 2001 ⁵¹
<ul style="list-style-type: none"> Mandated service/visa waiver 	<ul style="list-style-type: none"> <i>Quid pro quo</i> demonstrates employee is highly valued.^{24,33,37,39,56,57,70} 	Crouse & Munson, 2006 ⁵⁷ Jackson et al., 2003 ³⁷ Pathman et al., 2004a ²⁴ Sempowski, 2004 ³⁹
2. Providing appropriate and adequate infrastructure	<ul style="list-style-type: none"> Adequate infrastructure is a requirement for all employees.^{29,48} 	
<ul style="list-style-type: none"> Ready access to good quality Information and Communication Technologies (ICT) and technical support 	<ul style="list-style-type: none"> Robust ICT is essential for quality performance.^{29,46,51,52} 	Wilkinson et al., 2001 ⁵¹
<ul style="list-style-type: none"> Ready access to vehicle 	<ul style="list-style-type: none"> Quality service delivery depends on mobility to respond to needs. 	
<ul style="list-style-type: none"> Adequate housing 	<ul style="list-style-type: none"> Adequate, affordable accommodation is a basic requirement for all staff.^{18,33,49,51,54,56} 	Wilkinson et al., 2001 ⁵¹
<ul style="list-style-type: none"> Air conditioning 	<ul style="list-style-type: none"> Harsh climatic extremes require amelioration. 	
3. Maintaining realistic and competitive remuneration	<ul style="list-style-type: none"> Remuneration level is a sensitive indicator of employee mobility.^{18,24,28-33,36,39-42,70} 	Barnighausen & Bloom, 2009 ³⁶ Pathman et al., 2004a ²⁴ Sempowski, 2004 ³⁹
<ul style="list-style-type: none"> Packaging benefits 	<ul style="list-style-type: none"> Provides some flexibility within salary award levels. 	
<ul style="list-style-type: none"> Retention bonuses 	<ul style="list-style-type: none"> Indicates value and rewards employees for good service.⁴² 	
4. Fostering an effective and sustainable workplace organisation	<ul style="list-style-type: none"> Employees seek career paths within successful organisations. 	
<ul style="list-style-type: none"> Good communication 	<ul style="list-style-type: none"> Necessary for effective teamwork. 	
<ul style="list-style-type: none"> Leadership management role 	<ul style="list-style-type: none"> Highlights scope for career advancement. 	
<ul style="list-style-type: none"> Employee induction and orientation 	<ul style="list-style-type: none"> Initial entrée can determine employee perception of whether the job is for them.^{49,50} 	van Haaren & Williams, 2000 ⁵⁰ Wilks et al., 2008 ⁴⁹
<ul style="list-style-type: none"> Leadership 	<ul style="list-style-type: none"> Successful organisations reflect vision and strategic leadership. 	
<ul style="list-style-type: none"> Management and supervision 	<ul style="list-style-type: none"> Efficient management is necessary for effective workplaces.^{18,29-31,34,42,44,47,48,70} 	
5. Shaping the professional environment that recognises and rewards individuals making a significant contribution to patient care	<ul style="list-style-type: none"> Employees want to be valued for their contribution.^{18,28-31,34,35,44} 	
<ul style="list-style-type: none"> Preceptor/mentor ship program 	<ul style="list-style-type: none"> Confidence can be built and career advancement can be enhanced.³⁰ 	
<ul style="list-style-type: none"> Collegial support and supervision 	<ul style="list-style-type: none"> A supportive and harmonious workplace increases professional satisfaction. 	
<ul style="list-style-type: none"> CPD & conference opportunities 	<ul style="list-style-type: none"> CPD increases professional satisfaction, competencies and efficiency.^{18,29,30,32,35,44,49-52,70} 	van Haaren & Williams, 2000 ⁵⁰ Wilkinson et al., 2001 ⁵¹ Wilks et al., 2008 ⁴⁹
<ul style="list-style-type: none"> Engaging in research and scholarships for academic pursuits 	<ul style="list-style-type: none"> Enhances opportunities for professional satisfaction and career advancement.⁵¹ 	
<ul style="list-style-type: none"> Degree of autonomy 	<ul style="list-style-type: none"> Enhances confidence and role.^{18, 28, 34, 35} 	
<ul style="list-style-type: none"> Opportunity for promotion and career pathway within organisation/service 	<ul style="list-style-type: none"> Career advancement is an important trigger to move.^{18, 29, 30, 34} 	
6. Ensuring social, family and community support	<ul style="list-style-type: none"> Fulfilling the needs and satisfaction of other household members is an important aspect of work-life balance.^{18, 30, 31, 49, 52-54} 	Wilks et al., 2008 ⁴⁹
<ul style="list-style-type: none"> Child care and family support 	<ul style="list-style-type: none"> Health workers with family commitments may be unable to work without support services such as childcare 	

3. The importance of multidisciplinary workforce retention strategies:

Given the overwhelming importance for the PHC approach to address the health needs of rural and remote populations across Australia,^{81, 82} it is important to recognise and address the workforce needs of all health professionals and not just those of medical practitioners. Previous research indicates the need to ensure that all health professionals (regardless of discipline) working in rural and remote areas are provided with essential requirements for them to deliver sustainable high quality care in a way that is professionally satisfying.⁸⁰ The need for a multidisciplinary team approach to service delivery and therefore retention initiatives also provides a challenge to governments. Again, there are multiple programs and divided responsibilities between Commonwealth and State/Territory governments for the different disciplines. A coordinated national approach is required to enable services to design and flexibly implement retention packages for all of their staff.

4. The importance of community engagement:

Strategies that link the incorporation of the health professional into the local community need to be identified and incorporated into the bundle of professional retention strategies. Cutchin's^{72, 76} research in North America has outlined the significance of community engagement, as has the work of Han and Humphreys^{77, 78} in relation to IMGs in Australia. A study in western Victoria adopted a case-management approach to the recruitment of general practitioners. This included ongoing regular contact with newly recruited GPs while they and their families developed their own network in the local community.⁸³ Engagement strategies may require careful matching of health professionals with rural and remote communities. Rural workforce agencies and other government funded or supported recruitment services should be required to account for how they implement a matching process and monitor the effectiveness of this measure.

5. Health service management practice and workforce retention:

Previous research has highlighted the significant role in PHC services in rural and remote areas of good governance, strong and visionary leadership, and sound management.⁸⁰ These attributes contribute immensely to how workforce supply, recruitment and retention issues are addressed, and the performance of the workforce over time. Another research project commissioned by the Australian Primary Health Care Research Institute demonstrates that those small PHC services in rural and remote areas that meet these requirements are also monitoring their workforce in terms of its professional satisfaction and retention within the organisation as an integral part of human resource activity. Improved human resource management should result from improved recognition of managers as integral to the health team and enhanced preparation and education for managers. There are implications in terms of the need for accreditation of managers and increased opportunities for professional development, particularly of clinicians moving to management roles. These are issues that should be placed on the agendas of the new national registration system and for Health Workforce Australia.

ISSUES FOR FURTHER RESEARCH & EVALUATION:

1. Workforce retention monitoring and evaluation as an integral part of human resources activity:

Health service managers and funders need better evidence about what works and what doesn't with respect to workforce retention. Given the dearth of reliable data, and given current policy and investment that aims to improve access and bolster rural and remote workforce, there is a strong need for well designed and rigorously implemented evaluations of retention strategies.

Health services, in collaboration with researchers, should strengthen their monitoring and evaluation activities in order to redress the lack of knowledge about what workforce retention

interventions are most effective. The importance of rigorous program evaluation should not be underestimated:

“Evaluations can assist managers and other decision-makers: to assess the continued relevance and priority of program objectives in the light of current circumstances, including government policy changes; test whether the program is achieving its stated objectives; ascertain whether there are better ways of achieving these objectives; assess the case for the establishment of new programs, or extensions to existing programs; and decide whether the resources for the program should be continued at current levels, be increased, reduced or discontinued. Evaluations also have the capacity to establish causal links”.⁴³

2. Strengthening workforce retention evaluation methodologies:

Further research is needed into several methodological issues associated with evaluating workforce retention strategies and their success in reducing workforce turnover, absence and vacancies, as well as the effectiveness of specific retention measures targeting specific groups and various stages of their career.

- (a) It is important from the outset to ascertain what retention outcomes are being measured - for example, is it length of stay on the same job, the same service or organisation, in the same community or a similar area of need? Astute employers recognise the importance of career paths and facilitate the movement of employees within an organisation at appropriate times. Sometimes, in the absence of a local opportunity, an employee may relocate to a similar health service still within a rural or remote area of need, so that their skills are not lost from underserved communities. However, the human resources statistics may record the change in employment status in terms of termination of an employee, a vacancy, and/or a new recruit, thereby affecting the length of stay measure used to assess workforce retention.
- (b) Agreed, consistent sentinel evaluation indicators and benchmarks are required. Health services require clear and consistent measures and benchmarks to be able to monitor their own organisational efforts in attracting and retaining health professionals to areas of demonstrably high health needs.
- (c) There is a need to contextualise retention benchmarks. Given that “effective interventions must operate on the set of key determinants, and will need to address local contextual factors as well as broader sectoral factors that are affecting worker motivation at the local level”,¹⁰ it is important that ongoing research takes account of the wide diversity of rural and remote settings that characterise the Australian environment. There is a need to establish some baselines for comparison – to identify what is a reasonable or optimal length of stay in a particular employment situation, and what is the difference between length of stay achieved with, compared to without, retention incentives. Some early career graduates may leave a rural or remote community service to pursue their career and education elsewhere but return upon completion of their experience because the service offered a retention package that remains attractive.
- (d) Care is needed when attributing cause and effect. The task of evaluating the effectiveness of workforce and workplace interventions is problematic because incentives are often part of a broader employment package, so inevitably there are difficulties in attributing outcomes to one particular element of the package. Moreover, in attributing any impact to specific retention measures, it is important to control for many confounding factors operating in the workplace and community in which the health professional operates.

CONCLUSION

Since workforce is the greatest asset of any health service, workforce strategies designed to maximise recruitment and retention represent an investment in a resource that is increasingly valued and in short supply. Too often, specific incentives and measures are adopted to target some aspect of employment after a workforce turnover or retention problem has arisen, rather than as an integral part of a package designed to optimise professional satisfaction and thereby ensure associated optimisation of length of stay.

Our study has highlighted the paucity of rigorous evaluations of workforce retention measures and incentives, and the consequent dearth of evidence to inform policies guiding the implementation of retention strategies. What is required is to ensure that any workforce retention strategy is accompanied by a robust and rigorous evaluation from the outset. This evaluation should employ pre and post-intervention baseline measures and appropriate indicators as the basis for demonstrating the effectiveness of any interventions on improvements in workforce retention.

There is emerging evidence to suggest that health services should be allowed to develop a response to workforce retention that meets their specific circumstances. That is, rather than being locked into one national 'one-coat-fits-all' retention program (be it financial remuneration or other measures), health services should be eligible for funding support and able to pool available workforce funding in order to develop a bundle of measures most likely to target those particular workforce needs that are amenable to intervention and likely to result in increased length of employment with the health service. This move towards evidence-based practice, increased flexibility to take account of differences in health service contexts, and need for greater accountability in terms of intervention effectiveness is consistent with the reform directions mooted in the recent national health reform strategies.

REFERENCES

- 1 Laven G, Wilkinson D. Rural doctors and rural backgrounds: How strong is the evidence? A systematic review. *Australian Journal of Rural Health* 2003; 11(6): 277-284.
- 2 Ranmuthugala G, Humphreys J, Solarsh B, et al Where is the evidence that rural exposure increases uptake of rural medical practice? *Australian Journal of Rural Health* 2007; 15(5): 285-288.
- 3 Thistlethwaite J, Shaw T, Kidd M, et al Attracting health professionals into primary care: Strategies for recruitment. Canberra: Australian Primary Health Care Research Institute; 2007. www.anu.edu.au/aphcri/Domain/Workforce/Thistlethwaite_25_FINAL.pdf (accessed Oct 2009)
- 4 World Health Organisation. The World Health Report 2006: Working Together for Health. Geneva: WHO; 2006.
- 5 Humphreys J, Dixon J. Access and equity in Australian rural health services. In: Healy J, McKee M, eds. *Health Care: Responding to Diversity*. Oxford: Oxford University Press 2004:89-107.
- 6 Humphreys J, Solarsh G. At-risk populations: rural. In: Heggenhougen HK, ed. *The International Encyclopaedia of Public Health*. London: Elsevier 2008:242-253. www.sciencedirect.com/science/referenceworks/9780123739605 (accessed Sept 2009)
- 7 Productivity Commission. Australia's Health Workforce, Research Report. Canberra; 2005.
- 8 Australian Government Department of Health and Ageing. Report on the Audit of the Health Workforce in Rural and Regional Australia. Canberra: Commonwealth of Australia; 2008.
- 9 Lagarde M, Blaauw D. A review of the application and contribution of Discrete Choice Experiments to inform human resources policy interventions. *Human Resources for Health* 2009;62doi:10.1186/1478-4491-1187-1162 www.human-resources-health.com/content/1187/1181/1162 (accessed Sept 2009).
- 10 World Health Organisation. Increasing access to health workers in remote and rural locations through improved retention, Background paper. Geneva: WHO; 2009.
- 11 Humphreys J, Wakerman J, Wells R, et al Improving primary health care workforce retention in small rural and remote communities - How important is ongoing education and training. Canberra: Australian Primary Health Care Research Institute; 2007. www.anu.edu.au/aphcri/Domain/Workforce/humphreys_1_final.pdf (accessed Sept 2009)
- 12 Waldman J. Change your metrics: if you get what you measure, then measure what you want-retention. *Journal of Medical Practice Management* 2006; 22(1): 13-19.
- 13 Waldman JD, Arora S. Measuring retention rather than turnover: a different and complementary HR calculus. *Human Resource Planning* 2004; 27(3): 6-9.
- 14 Australian Department of Labor and Immigration. Labour Turnover. Canberra: Australian Government Publishing Service; 1974.
- 15 Pettman B. Labour Turnover and Retention. Essex: Gower Press; 1975.
- 16 World Health Organisation. Improving Health Worker Performance: in Search of Promising Practices. Geneva: WHO; 2006.
- 17 Waldman JD, Kelly F, Aurora S, et al The shocking cost of turnover in health care. *Health Care Management Review* 2004; 29(1): 2-7.
- 18 Garnett S, Coe K, Golebiowska K, et al Attracting and Keeping Nursing Professionals in an Environment of Chronic Labour Shortage: A Study of Mobility Among Nurses and Midwives in the Northern Territory of Australia. Darwin NT: Charles Darwin University Press; 2008.

- 19 North N, Rasmussen E, Hughes F, et al Turnover amongst Nurses in New Zealand's District Health Boards: A National Survey of Nursing Turnover and Turnover Costs. *New Zealand Journal of Employment Relations* 2005; 30(1): 49-62.
- 20 Hoyal F. The retention of rural doctors. *Australian Journal of Rural Health* 1994; 3: 2-9.
- 21 Kamien M. Staying in or leaving rural practice: 1996 outcomes of rural doctors 1986 intentions. *Medical Journal of Australia* 1998; 169: 318-321.
- 22 Richards A. Physician recruitment & retention: shortage and utilisation. *International Journal of Health Care Quality Assurance Incorporating Leadership in Health Services* 2001; 14(1): vii-xiv.
- 23 Rourke J. Politics of rural health care: recruitment and retention. *Canadian Medical Association Journal* 1993; 148(8): 1281-1284.
- 24 Pathman DE, Konrad TR, Dann R, et al Retention of primary care physicians in rural health professional shortage areas. *American Journal of Public Health* 2004; 94(10): 1723-1729.
- 25 Lu H, White A, Barriball K. Job satisfaction among nurses: a literature review. *International Journal of Nursing Studies* 2005; 42: 211-227.
- 26 Pathman D, Williams E, Konrad T. Rural physician satisfaction: Its sources and relationship to retention. *The Journal of Rural Health* 1996; 12(5): 366-377.
- 27 Humphreys J, Jones J, Jones M, et al A critical review of rural medical workforce retention in Australia. *Australian Health Review* 2001; 24(4): 91-102.
- 28 Alexander C, Fraser J. Medical specialists servicing the New England Health Area of New South Wales. *Australian Journal of Rural Health* 2001; 9(1): 34-37.
- 29 Dussault G, Franceschini M. Not enough there, too many here: understanding geographical imbalances in the distribution of the health workforce. *Human Resources for Health* 2006; 4(1): 12.
- 30 Gillham S, Ristevski E. Where do I go from here: we've got enough seniors? *Australian Journal of Rural Health* 2007; 15(5): 313-320.
- 31 Hall DJ, Garnett ST, Barnes T, et al Drivers of professional mobility in the Northern Territory: dental professionals. *Rural & Remote Health* 2007; 7(1): 655.
- 32 Kruger E, Tennant M. Oral health workforce in rural and remote Western Australia: practice perceptions. *Australian Journal of Rural Health* 2005; 13(5): 321-326.
- 33 Lehmann U, Dieleman M, Martineau T. Staffing remote rural areas in middle- and low-income countries: a literature review of attraction and retention. *BMC Health Services Research* 2008; 8: 19.
- 34 Perkins D, Larsen K, Lyle D, et al Securing and retaining a mental health workforce in Far Western New South Wales. *Australian Journal of Rural Health* 2007; 15(2): 94-98.
- 35 Williams E, D'Amore W, McMeeken J. Physiotherapy in rural and regional Australia. *Australian Journal of Rural Health* 2007; 15(6): 380-386.
- 36 Barnighausen T, Bloom D. Financial incentives for return of service in underserved areas: a systematic review. *BMC Health Services Research* 2009; 9(1): 86.
- 37 Jackson J, Shannon CK, Pathman DE, et al A comparative assessment of West Virginia's financial incentive programs for rural physicians. *Journal of Rural Health* 2003; 19 Suppl: 329-339.
- 38 Pathman DE, Konrad TR, King TS, et al Outcomes of states' scholarship, loan repayment, and related programs for physicians. *Medical Care* 2004; 42(6): 560-568.
- 39 Sempowski IP. Effectiveness of financial incentives in exchange for rural and underserved area return-of-service commitments: systematic review of the literature. *Canadian Journal of Rural Medicine* 2004; 9(2): 82-88.

- 40 Thaker S, Pathman D, Mark B, et al Service-linked scholarships, loans, and loan repayment programs for nurses in the southeast. *Journal of Professional Nursing* 2008; 24(2): 122-130.
- 41 Wilson NW, Couper ID, De Vries E, et al A critical review of interventions to redress the inequitable distribution of healthcare professionals to rural and remote areas. *Rural and Remote Health* 2009; 9(1060 (online)).
- 42 Gibbon P, Hales J. Review of the Rural Retention Program. Kent Town, South Australia: Health Outcomes International Pty Ltd for the Australian Government Department of Health and Ageing; 2006.
- 43 Australian National Audit Office. Rural and Remote Health Workforce Capacity - the contribution made by programs administered by the Department of Health and Ageing, Audit Report No.26 2008-09. Canberra: Commonwealth of Australia; 2009. www.anao.gov.au/uploads/documents/2008-09_Audit_Report_26.pdf (accessed Oct 2009)
- 44 Schoo AM, Stagnitti KE, Mercer C, et al A conceptual model for recruitment and retention: allied health workforce enhancement in Western Victoria, Australia. *Rural & Remote Health* 2005; 5(4): 477.
- 45 Curran VR, Fleet L, Pong RW, et al A survey of rural medical education strategies throughout the medical education continuum in Canada. *Cahiers de Sociologie et de Demographie Medicales* 2007; 47(4): 445-468.
- 46 Duplantie J, Gagnon M-P, Fortin J-P, et al Telehealth and the recruitment and retention of physicians in rural and remote regions: a Delphi study. *Canadian Journal of Rural Medicine* 2007; 12(1): 30-36.
- 47 Lynch L, Happell B. Implementing clinical supervision: Part 1: laying the ground work. *International Journal of Mental Health Nursing* 2008; 17(1): 57-64.
- 48 Felix HC, Wootten EB, Stewart MK. The Arkansas Southern Rural Access Program: strategies for improving health care in rural areas of the state. *Journal of the Arkansas Medical Society* 2005; 101(12): 366-368.
- 49 Wilks CM, Oakley Browne M, Jenner BL. Attracting psychiatrists to a rural area - 10 years on. *Rural and remote health* 2008; 8(1): 824-824.
- 50 van Haaren M, Williams G. Central Australian Nurse Management Model (CAN Model): a strategic approach to the recruitment and retention of remote-area nurses. *Australian Journal of Rural Health* 2000; 8(1): 1-5.
- 51 Wilkinson D, Symon B, Newbury J, et al Positive impact of rural academic family practices on rural medical recruitment and retention in South Australia. *Australian Journal of Rural Health* 2001; 9(1): 29-33.
- 52 Stretton DV, Bolon DS. Recruitment and Retention of Rural Hospital Administrators: A Multifaceted Approach. *Hospital Topics* 2009; 87(1): 10-14.
- 53 Alexander C. Why doctors would stay in rural practice in the New England health area of New South Wales. *Australian Journal of Rural Health* 1998; 6(3): 136-139.
- 54 Veitch C, Harte J, Hays R, et al Community participation in the recruitment and retention of rural doctors: methodological and logistical considerations. *Australian Journal of Rural Health* 1999; 7(4): 206-211.
- 55 Department of Immigration and Citizenship. Doctors and Nurses. Undated. www.immi.gov.au/skilled/medical-practitioners/ (accessed Sept 2009)
- 56 Francis K, Chapman Y, Doolan G, et al Using overseas registered nurses to fill employment gaps in rural health services: quick fix or sustainable strategy? *Australian Journal of Rural Health* 2008; 16(3): 164-169.

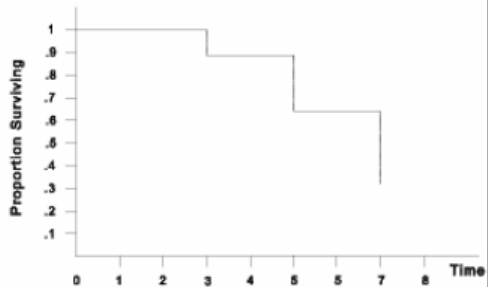
- 57 Crouse BJ, Munson RL. The effect of the physician J-1 visa waiver on rural Wisconsin.[see comment]. *Wisconsin Medical Journal* 2006; 105(7): 16-20.
- 58 Australian Medical Association. State and Territory Rural Workforce Programs and Initiatives. Canberra: AMA; 2007. www.ama.com.au/node/4111 (accessed Sept 2009)
- 59 Humphreys J, Wakerman J, Wells R, et al 'Beyond workforce': A systematic solution for primary health service provision in small rural and remote communities. *Medical Journal of Australia* 2008; 188(8): S77-S80.
- 60 Greenhalgh T, Peacock R. Effectiveness and efficiency of search methods in systematic reviews of complex evidence: audit of primary sources. *British Medical Journal* 2005; 331(7524): 1064-1065.
- 61 Humphreys J, Kuipers P, Wakerman J, et al How far can systematic reviews inform policy development for "wicked" rural health service problems? *Australian Health Review* 2009; 33(4): 592-600.
- 62 Kanyesigye E, Ssendyona G. Payment of a lunch allowance: A case study of the Uganda health service, Joint Learning Initiative: Human Resources for Health and Development Working Paper 4-2; 2003.
- 63 Australian Rural and Remote Workforce Agencies Group. How can we keep doctors in the bush? 2005 National Forum Proceedings. Carlton Victoria: ARRWAG; 2005.
- 64 Australian Rural and Remote Workforce Agencies Group. Recruitment, recognition and retention of Overseas Trained Doctors for the rural and remote medical workforce in Australia. Carlton Victoria: ARRWAG; 2005.
- 65 Department of Health. Engaging Rural Doctors: Final Report 2007: WA Country Health Service, Government of Western Australia; 2007.
- 66 Dolea C. Increasing access to health workers in remote and rural areas through improved retention. *9th WONCA Rural World Health Conference*. Crete 2009.
- 67 NSW Rural Doctors Network. General practice ownership in rural and remote NSW: its impact on recruitment and retention. Newcastle, NSW; 2003.
- 68 Wells R. Underserved Communities - Australia. *5th International Medical Workforce Conference*. Sydney 2000.
- 69 Nova Public Policy Pty Ltd. Rural and Remote Attraction and Retention Study Final Report. Canberra: Nova; 2008.
- 70 Grobler L, Marais BJ, Mabunda SA, et al Interventions for increasing the proportion of health professionals practising in rural and other underserved areas. *Cochrane Database of Systematic Reviews* 2009; (1): CD005314.
- 71 Allan J, Ball P. Developing a competitive advantage: considerations from Australia for the recruitment and retention of rural and remote primary health workers. *Australian Journal of Primary Health* 2008; 14(1): 106-112.
- 72 Cutchin MP. Community and self: concepts for rural physician integration and retention. *Social Science & Medicine* 1997; 44(11): 1661-1674.
- 73 Hutten-Czapski P. Rural incentive programs: a failing report card. *Canadian Journal of Rural Medicine* 1998; 3(4): 242-247.
- 74 Dambisya Y. A review of non-financial incentives for health worker retention in east and southern Africa: Regional network for Equity in Health in east and southern Africa (EQUINET) Discussion Paper Number 4; 2007.

- 75 Australian Government Preventative Health Taskforce. Australia: The Healthiest Country by 2020 - National Preventative Health Strategy - the roadmap for action. Canberra: Commonwealth of Australia; 2009.
[http://www.health.gov.au/internet/preventativehealth/publishing.nsf/Content/CCD7323311E358BEC A2575FD000859E1/\\$File/nphs-roadmap.pdf](http://www.health.gov.au/internet/preventativehealth/publishing.nsf/Content/CCD7323311E358BEC A2575FD000859E1/$File/nphs-roadmap.pdf) (accessed Oct 2009)
- 76 Cutchin MP. Physician retention in rural communities: the perspective of experiential place integration. *Health & Place* 1997; 3(1): 25-41.
- 77 Han G, Humphreys J. Overseas Trained Doctors in Australia: Community integration and their intention to stay in a rural community. *Australian Journal of Rural Health* 2005; 13(4): 236-241.
- 78 Han G, Humphreys J. Integration and retention of international medical graduates in rural communities: a typological analysis. *Journal of Sociology* 2006; 42(2): 189-207.
- 79 Garling P. Final report of the Special Commission of Inquiry: Acute Care Services in NSW Public Hospitals. Sydney: NSW Government; 2008.
www.lawlink.nsw.gov.au/lawlink/Special_Projects/ll_splprojects.nsf/pages/acsi_finalreport (accessed Oct 2009)
- 80 Wakerman J, Humphreys J, Wells R, et al The features of effective primary health care models in rural and remote Australia: a case study analysis. *Medical Journal of Australia* 2009; 191(2): 88-91.
- 81 Australian Government Department of Health and Ageing. Primary Health Care Reform in Australia. Canberra: Commonwealth of Australia; 2009.
- 82 Australian Government National Health and Hospitals Reform Commission. A Healthier Future for all Australians, Final Report. Canberra: Commonwealth of Australia; 2009.
- 83 MacIsaac P, Snowdon T, Thompson R, et al Case management: a model for the recruitment of rural general practitioners. *Australian Journal of Rural Health* 2000; 8(2): 111-115.

APPENDIX 1: MEASURES OF WORKFORCE RETENTION

Measurement	Formula	What it measures	Strengths	Weaknesses	
1. Turnover Rate (Separation Rate)	$\frac{\text{Total Number of Leavers during a period}}{\text{Average Number employed during that period}} \times 100$	General level of labour turnover i.e. this summary measure is the proportion of employees who are leaving an organisation in any given time period.	<ul style="list-style-type: none"> • Simplicity • Widely used in Australia (and elsewhere) for comparative purposes (eg: ABS annual labour turnover surveys) • More complex employee turnover indices can complement Crude Turnover Rates 	<ul style="list-style-type: none"> • Overall measure which doesn't identify subgroups • No conclusions can be drawn about the leaver's length of service • Includes all leavers, even people who left involuntarily due to dismissal, redundancy or retirement, but does not distinguish between functional (i.e. beneficial) turnover and that which is dysfunctional • May be artificially high if locums, agency staff or other temporary staff are included in calculations 	[1,3]
2. Stability (Retention Rate)	$\frac{\text{Number of original entrants surviving at the end of a given period}}{\text{Number of original entrants}} \times 100$	Provides a measure of the proportion of employees that have remained with an organisation for a given period.	<ul style="list-style-type: none"> • Useful to relate labour turnover to length of service • Can provide a "running record" of workforce losses • Once cohort established it is easy to maintain • Indicates the retention rate of experienced employees (i.e. those employees who are often most "valuable") 	<ul style="list-style-type: none"> • Successive cohorts required to trace changes in stability over time • Increased complexity • Tend to concentrate on short-service employees • Can be difficult to make appropriate comparisons 	[1,2,3]
3. Mean length of service (tenure) in current position	$\frac{\sum \text{Each current employee's length of service with organisation}}{\text{Number of current employees}}$	Provides a summary measure of the average length of time that current employees have been employed by an organisation.	<ul style="list-style-type: none"> • Can be calculated from cross-sectional data 	<ul style="list-style-type: none"> • May be an inappropriate measure if data are skewed • Gives no indication of patterns of employment for ex-employees 	
4. Median length of service (tenure) in current position	The midpoint of the set of values (arranged in order of increasing magnitude) which are each employee's length of service in their current position.	Provides a summary measure of the average length of time that current employees have been employed by an organisation.	<ul style="list-style-type: none"> • Can be calculated from cross-sectional data • Is a more appropriate measure (than mean length of service in current position) if data are skewed 	<ul style="list-style-type: none"> • Gives no indication of patterns of employment for ex-employees 	

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

Measurement	Formula	What it measures	Strengths	Weaknesses	
5. Survival Analysis Curve (Kaplan-Meier estimate of the survivor function) <ul style="list-style-type: none"> e.g. median length of service e.g. probability of being retained past 6 months, 12 months etc. 	 <p>Failure = employee left their position Censored = employee remains in their position</p>	Provides an estimate of the probability that an employee will remain employed beyond any given time. Time origin is defined as when each employee commences with an organisation. The event of interest (end-point) for workforce retention purposes is when the employee leaves the organisation.	<ul style="list-style-type: none"> Useful for making comparisons between subgroups Facilitates assessment of whether apparent differences are significant Appropriate account is taken of incomplete observation of the time till an employee leaves Regression analysis may be used to model the data, enabling assessment of the impact of a single factor once adjustments are made for other factors 	<ul style="list-style-type: none"> Higher level of complexity again Utilises cohort data and therefore requires the collection of additional information identifying the time at which each employee leaves the organisation (or whether they are still employed) Conceptually is more difficult to analyse and interpret (requires a statistical package and training in its use) Makes assumptions including that employees leave their employment independently of each other 	[5]
6. Vacancy	Number of vacancies unfilled after 3 months, 6 months and 12 months	Provides a summary measure of the number of vacancies unfilled after a period of time.	<ul style="list-style-type: none"> High numbers of vacancies might indicate that there are problems with continuity of care and increased costs may be incurred due to temporary staffing 	<ul style="list-style-type: none"> Data may not be routinely collected Lack of standard definition (as above) 	
7. Attrition Rate (Wastage Rate)	$\frac{\text{Number of leavers from a cohort of original entrants during a given period}}{\text{Number of original entrants}} \times 100$	Provides a measure of the proportion of employees that leave an organisation within a given period.	<ul style="list-style-type: none"> Useful to relate labour turnover to length of service Can provide a "running record" of workforce losses Once cohort established it is easy to maintain 	<ul style="list-style-type: none"> Successive cohorts required to trace changes in attrition over time Increased complexity Tend to concentrate on short-service employees Can be difficult to make appropriate comparisons 	[1]
8. Length of service in current position (%)	$\frac{\text{Number of current employees who have remained with the organisation for a given length of time}}{\text{Total number of current employees}} \times 100$	Provides a measure of the proportions of current employees who have been employed by an organisation for each given period of time.	<ul style="list-style-type: none"> Utilises cross sectional data which are easier to acquire 	<ul style="list-style-type: none"> Difficult to make appropriate comparisons Gives no indication of pattern of employment of ex-employees 	
9. Vacancy Rate	$\frac{\text{Number of vacancies unfilled for more than a given length of Time}}{\text{Number currently employed} + \text{Number of unfilled vacancies}} \times 100$	Provides an estimate of the proportion of all positions not currently filled.	<ul style="list-style-type: none"> Indicator of likely difficulty faced in recruitment 	<ul style="list-style-type: none"> No standard definition of vacancy (e.g. duration of vacancy or EFT of position) 	

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

Measurement	Formula	What it measures	Strengths	Weaknesses	
10. For those on fixed term contracts, number leaving before completion of contract			<ul style="list-style-type: none"> • May indicate problems in the workplace leading to job dissatisfaction. • Shows that people are leaving before they reach job mastery. 	<ul style="list-style-type: none"> • Unable to indicate reasons why people leave 	
11. Number of professionals operating as the sole representatives in their discipline			<ul style="list-style-type: none"> • Can show that employees are working in isolation and isolation can be a cause of job dissatisfaction 	<ul style="list-style-type: none"> • Doesn't show whether employees have regular access to technology which provides the means in which to communicate with professionals in their discipline 	[4]
12.Amount committed to CPD/CPE as a percentage of total salary and budget			<ul style="list-style-type: none"> • Has been shown to have an impact on job satisfaction and workforce retention 	<ul style="list-style-type: none"> • Doesn't indicate the quality or appropriateness of the CPD/CPE 	[4]

REFERENCES

- 1 Australian Department of Labour and Immigration, 1974: *Labour Turnover*, Canberra, Australian Government Publishing Service.
- 2 Garnett S, Coe K, Golebiowska K, Walsh H, Zander K, Guthridge S, Li S & Malyon R, 2008: *Attracting and Keeping Nursing Professionals in an Environment of Chronic Labour Shortage: A Study of Mobility Among Nurses and Midwives in the Northern Territory of Australia*. Darwin, Charles Darwin University Press.
- 3 <http://www.cipd.co.uk/subjects/hrpract/turnover/emptumretent.htm>
- 4 Humphreys JS, Wakerman J, Wells R, Kuipers P, Jones J, Entwistle P & Harvey P, 2007: *Improving primary health care workforce retention in small rural and remote communities – How important is ongoing education and training*, Canberra, Australian Primary Health Care Research Institute. Available at http://www.anu.edu.au/aphcri/Domain/Workforce/humphreys_1_final.pdf
- 5 Collett D, 2003: *Modelling Survival Data in Medical Research*, London, Chapman& Hall/CRC.

APPENDIX 2: METHOD FOR CONDUCTING REVIEW

For this study both black literature (i.e. peer-review published articles) and grey literature (e.g. technical reports) relating to the efficacy of recruitment and retention strategies implemented in rural and remote areas were considered.ⁱⁱ As demonstrated by Greenhalgh & Peacock,⁶⁰ protocol driven electronic database searching may yield only a portion of the total available black literature on a complex topic. Therefore in this study considerable effort was made to utilise other search methods to identify relevant information and to document the search process.

Data sources

The data sources used in conducting this review included:

Black literature	Grey literature
<ul style="list-style-type: none"> • Systematic academic databases • Journal searching • Citation tracking / reference tracking • Internet search engine e.g. Google • Personal knowledge / contacts • Serendipity 	<ul style="list-style-type: none"> • Grey literature databases • Health organisations • Research institutes • Government • Key stakeholder bodies • Peer-reviewed conference proceedings • Personal knowledge / contacts • Serendipity

Inclusion and exclusion criteria

For both the black and grey literature the following inclusion and exclusion criteria applied:

Criteria	Inclusion	Exclusion
Time period	<ul style="list-style-type: none"> • Within last 10 years 	<ul style="list-style-type: none"> • 'Historical' literature
Language	<ul style="list-style-type: none"> • English 	<ul style="list-style-type: none"> • Non-English
Place of study	<ul style="list-style-type: none"> • International - to be filtered to take account of transferability: <ul style="list-style-type: none"> ➢ across nations at different stages of development ➢ different health systems ➢ different degrees of rurality 	<ul style="list-style-type: none"> • Not transferable to the Australian context
Geographical delimitation	<ul style="list-style-type: none"> • Defined within the study as 'rural or remote' (ie no standardised definition set by review team) 	<ul style="list-style-type: none"> • No relevance to rural and remote
Aspect of health care	<ul style="list-style-type: none"> • Must specifically deal with 'retention' • Must identify some form of 'intervention' – ie support measure or incentives specifically targeting increased length of stay or reduction in workforce turnover • Must include evidence of impact 	<ul style="list-style-type: none"> • Secondary or tertiary health care (unless specifically articulated or supporting primary care) • Pre-vocational education and training • Personal 'coping' strategies

ⁱⁱ In order to be published in the black literature, an article should generally add something new to the existing body of evidence on a given topic. In contrast grey literature may or may not add new knowledge. However grey literature reports often contain more detailed program descriptions than is possible within the word limits of a journal article, and provide greater detail on implementation and evaluation processes. Therefore both sources of information have a place in systematic reviews of evidence.

As the grey literature is vast, additional parameters were applied to limit the material sourced to a manageable amount. The type of material included was restricted to evaluation reports of retention programs. Power point presentations, flyers/brochures, non-peer-reviewed conference abstracts and program descriptions were excluded.

Quality criteria

Effort was also made to apply quality criteria for inclusion of literature in the review. While judgements of quality are largely subjective, it was thought important to differentiate between well-conducted studies and those of such poor quality that little confidence could be put in the outcomes. Therefore only those studies judged by the research team to have the following qualities were included in the review:

- Relevant (ie representative of target population)
- Clearly defined intervention with adequate exposure
- Clear objectives, indicators and outcomes (ie unbiased - internally valid, appropriate analysis, outcome reliable and relevant to purpose)
- Limitations of study acknowledged (ie consideration given to confounders, generalisability, etc)

Academic database searching

In May 2009 a search was conducted of several academic databases (Medline, PsychINFO, CINAHL, All EBM reviews, EMBase, AMED, MetaSearch) using key words and synonyms relevant to the review topic. The key words searched were: Health AND Workforce AND Recruitment AND Retention AND Rural/Remote AND Strategy. Synonyms used were:

Health	Health OR Healthcare OR Health care OR Health service* OR Medical care OR Medical service*
Workforce	Employee OR Human resource* OR Manpower OR Personnel OR Professional OR Provider OR Staff OR Workforce OR Worker
Recruitment	Recruitment OR Selection
Retention	Labo(u)r mobility OR Retain OR Retention OR Turnover OR Turn over
Rural/remote	Deprived OR Frontier OR Medically underserved area OR Non-metropolitan OR Remote OR Rural OR Underserved
Strategy	Allowance OR Incentive OR Strateg*

A search using the above terms returned 193 records (). After removal of duplicates there were 139 unique records remaining. The abstracts of each of these were independently considered by two members of the research team against the inclusion/exclusion criteria, with articles judged as either (i) meeting the inclusion criteria for the review, (ii) not meeting the inclusion criteria for the review but potentially useful for background information, or (iii) not meeting the inclusion criteria for the review and not otherwise useful (e.g. irrelevant to the topic). There was a high level of agreement between the two team-members with differences resolved by discussion. The full-text version was obtained for those articles meeting the review criteria and published within the previous ten years (20 papers), abstracts were downloaded for those considered background information only (15 papers), and the remainder were discarded (104 papers).

Table 1 Academic database search results for 'Workforce' AND 'Recruitment' AND 'Retention' AND 'Health' AND 'Rural/remote' AND 'Strategy' (and synonyms)

Search results	Database							Total
	Medline from 1996	PsychINFO from 1987	CINAHL from 1987	All EBM reviews	EMBase from 1987+	AMED from 1985	Meta Search ⁺⁺	
Total number of records returned	65	15	44	29	16	2	22	193
Duplicates from other databases removed		9	25	1	8	1	10	54
Unique records remaining	65	6	19	28	8	1	12	139
Download								
Full paper	16	0	1	0	1	0	2	20
Abstract only	13	0	1	0	0	0	1	15
Discard	36	6	17	28	7	1	9	104

⁺ This search omitted the term 'strategy'

⁺⁺ This search was conducted using 'MetaSearch' which allows a broad search of all medical databases. Search terms were 'recruitment' and 'retention'. The automatically generated subset pertaining to 'rural' was examined.

Full text articles retrieved

In addition to the 20 full text-articles identified via academic database searching, an additional two review papers for inclusion were brought to the attention of the researchers during the project via email alerts.^{36, 41} One additional evaluation paper was located via reference checking.³⁸ There were therefore a total of 23 articles considered for inclusion in the review.

Critical appraisal of the black literature

As material for inclusion in the review was sourced, team members read each item and summarised its contents with the use of a recording template developed specifically for the project (**Appendix 3**). The form included space to record the following information about each study: identification, context and population, design and methods, retention strategy, outcome measures, quality assessment, and other comments. Two team members working independently completed the form for each item of literature and then cross-checked the forms for consistency. Where significant differences were apparent on any key aspect of the review form, a third reader was employed. This person provided independent ratings and these were assessed against the others to determine the majority view of the readers. This process was required in only two instances where the original readers differed in their assessment of the quality of the papers.

In terms of quality, each study was rated on its relevance (low, moderate, high) to other rural/remote settings. The studies were also rated on five other indicators of quality; **description** of intervention, clearly stated **objectives**, clearly defined **indicators**, **measurable** retention outcomes, and acknowledgement of **limitations** (where 0=inadequate quality, 1=only adequate quality, 2=high quality).

Of the 23 articles identified published within the last ten years, there were six evaluations, eight review articles, five health workforce survey reports, and four program descriptions. All the evaluation studies were retained, as were eight review articles. The remaining program descriptions and survey reports were discarded because they were of limited relevance to the project as they did not present evidence regarding the effectiveness of specific retention strategies.

APPENDIX 3: RECORDING TEMPLATE

Identification

Reviewer

JH / DP / JW / PB

Author name/s	Year published	Title

Context and population

Year/s of study	Place of study (<i>tick one</i>)	Country study conducted (and state/region)
	<input type="checkbox"/> Rural <input type="checkbox"/> Both <input type="checkbox"/> Remote <input type="checkbox"/> Not stated	
Service (<i>tick all that apply</i>)	Profession (<i>tick all that apply</i>)	
<input type="checkbox"/> Primary health care <input type="checkbox"/> Hospital <input type="checkbox"/> Other (<i>specify</i>) _____	<input type="checkbox"/> Doctor <input type="checkbox"/> Nurse <input type="checkbox"/> Allied Health (<i>specify</i>) _____	
	<input type="checkbox"/> Indigenous Health Worker <input type="checkbox"/> Manager <input type="checkbox"/> Other (<i>specify</i>) _____	

Design and methods

Study size/scope (<i>e.g. n cases, n services</i>)	Period retention strategy trialled
Method (<i>tick one</i>)	
<input type="checkbox"/> Qualitative <input type="checkbox"/> Quantitative <input type="checkbox"/> Mixed methods <input type="checkbox"/> Review article	
Design (<i>tick all that apply</i>)	Data source
<input type="checkbox"/> RCT <input type="checkbox"/> Quasi-experimental <input type="checkbox"/> Descriptive <input type="checkbox"/> Case study <input type="checkbox"/> Content analysis	<input type="checkbox"/> Interview <input type="checkbox"/> Survey <input type="checkbox"/> Focus group <input type="checkbox"/> Record audit <input type="checkbox"/> Database/s
<input type="checkbox"/> Narrative analysis <input type="checkbox"/> Participant observation <input type="checkbox"/> Ethnography <input type="checkbox"/> Mathematical modelling	

Retention strategy (*tick all that apply*)

Financial	Professional	Organisational	Social and family
<input type="checkbox"/> Retention grant <input type="checkbox"/> Remuneration <input type="checkbox"/> Salary package <input type="checkbox"/> Loan repayment <input type="checkbox"/> Higher salary <input type="checkbox"/> Other (<i>specify</i>) _____	<input type="checkbox"/> Career pathway <input type="checkbox"/> Mentoring <input type="checkbox"/> CPD <input type="checkbox"/> Relief <input type="checkbox"/> Job restructure (changed hours, load, variety etc) <input type="checkbox"/> Other (<i>specify</i>) _____	<input type="checkbox"/> Supervision <input type="checkbox"/> Infrastructure <input type="checkbox"/> Teamwork <input type="checkbox"/> Recognition <input type="checkbox"/> Other (<i>specify</i>) _____	<input type="checkbox"/> Schooling <input type="checkbox"/> Spouse job <input type="checkbox"/> Housing <input type="checkbox"/> Paid flights <input type="checkbox"/> Car <input type="checkbox"/> Visa waive <input type="checkbox"/> Other (<i>specify</i>) _____

Outcome measures

Measures of retention
How was retention measured?
What evidence was there that retention strategy(ies) worked? <i>(include specific metric used if quantitative)</i>
Were there any negative/inconclusive findings?
Other outcomes
Was there evidence of cost and savings?
Any other finding of interest?

Quality assessment

Relevance	Rating <i>(tick one)</i>		
Relevance of study to other rural/remote health services/settings	<input type="checkbox"/> Low	<input type="checkbox"/> Moderate	<input type="checkbox"/> High
Indicator of quality	Rating ⁺ <i>(tick one)</i>		
Description of intervention	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Clearly stated objectives	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Clearly defined indicators	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Measurable retention outcomes	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Acknowledgement of limitations (e.g. confounders, generalisability)	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2

⁺ 0 = inadequate, 1 = only adequate, 2 = high quality

Other comments

E.g. what is important to the APHCRI study from this article