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IMPROVING WORKFORCE RETENTION: DEVELOPING AN INTEGRATED LOGIC MODEL TO MAXIMISE SUSTAINABILITY OF SMALL RURAL & REMOTE HEALTH CARE SERVICES

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PREFACE

The difficulties associated with recruitment and retention in small rural and remote health services are widely recognised. A wide range of measures have been implemented by governments and health authorities in an attempt to redress these issues. Unfortunately, adoption of a 'one-coat-fits-all' program approach and a dearth of rigorous evaluations of the effectiveness of recruitment and retention incentives and support measures have meant that many communities continue to struggle to know how best to respond to the need to attract and retain appropriate health workers in these under-served areas.

It was against this background that this research was conducted. This landmark study represents the first time health workforce retention benchmarks and recruitment costs have been identified for rural and remote primary health care services located in different geographical contexts. Its outcomes are particularly valuable because they enable health services to know what is a reasonable length of service that might be expected from health workers employed in different rural and remote contexts, what are the real costs associated with replacing staff who leave, and how the service might fashion its workforce retention strategy and incentives most appropriately to better the needs of its health workers. Additionally, this research has identified sentinel indicators which will enable health services and health authorities to better use their human resource data to monitor workforce performance and plan future retention measures designed to maximise length of service.

Given that the costs of recruitment provided here represent a conservative estimate (since they do not include all the indirect costs associated with high staff turnover or the time taken and problems associated with filling staff vacancies, for example), there is no doubt that creative and flexible workforce retention strategies can be funded by health services in a cost-neutral manner, with resulting personal and professional benefits to individual staff, savings for health services, and significant benefits to patients in terms of continuity of care from experienced health professionals.

Accessible *in situ* health care services are not only preferred by patients but arguably result in better health outcomes, whether it be in terms of more responsive treatment to acute care needs or increased likelihood of adopting health promotion and early intervention behaviours. Maximising the retention of existing health workers is the key to ensuring the maintenance of locally available, appropriate, sustainable rural and remote health services across this vast land. Despite the limitations associated with the data upon which this study is based, this research provides a rigorous evidence base upon which health services and health authorities can formulate their workforce retention strategies and monitor and evaluate their success in optimising length of service in differing geographical and health service contexts.

ACKNOWLEDGEMENTS

LIST OF ACRONYMS

ABS	Australian Bureau of Statistics
ACCHS	Aboriginal Community Controlled Health Services
AIHW	Australian Institute of Health and Welfare
APHCRI	Australian Primary Health Care Research Institute
ARIA	Accessibility/Remoteness Index of Australia
ASGC	Australia Standard Geographical Classification
CHS	Community Health Services
HR	Human Resources
IM/IT	Information management / information technology
LOS	Length of service
MPS	Multi-Purpose Health Services
NMDS	National minimum data set
PHC	Primary health care
RRMA	Rural, Remote and Metropolitan Areas classification

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BACKGROUND

The poor health outcomes characterising many rural and remote communities are compounded by inadequate access to comprehensive primary health care services.[1-3] A key factor in ensuring and sustaining the provision of appropriate, accessible, comprehensive, high quality primary health care (PHC) services in non-metropolitan areas is the need to maintain an adequate, appropriately qualified health workforce.[4]

Unfortunately, constant workforce undersupply, recruitment difficulties and high turnover of staff restrict access to appropriate primary health care for many rural and remote residents, and often compromise the continuity and quality of care. The health workforce shortage and difficulties associated with recruiting new health workers to rural and remote areas is exacerbated by the retirement of existing health workers, high levels of staff turnover, population ageing and growing demands on health services as a result of the increased burden of chronic disease.

Although governments have introduced a raft of recruitment and retention measures to improve workforce supply in rural and remote areas, there is still little evidence to suggest that sufficient new health workers are being recruited to these areas. Attention is therefore focusing on how to ensure that health services in these underserved communities can retain their health workers as long as possible and minimise avoidable turnover of staff and the associated high costs incurred by the organisation in recruiting new staff. Retaining the most valuable health workers is the key to workforce stability and the delivery of continuous, high quality health care.

AIMS & OBJECTIVES OF THE STUDY

The aim of this study is to develop and validate a workforce retention framework for small rural and remote primary health services by which they can monitor and evaluate the effectiveness of measures designed to improve staff retention. Appropriate use of such knowledge could in turn lead to increased access to sustainable primary health care and ultimately be associated with improvements in terms of health outcomes.

The specific objectives are:

i.   to identify *sentinel indicators* and develop *performance benchmarks* for measuring workforce retention within small rural and remote PHC services that take account of differences in geographical context, service type, and particular workforce groups
ii. to formulate a workforce-retention framework based on the *evidence-based logic model* incorporating these measures
iii. to apply and validate the framework with identified rural and remote PHC services to measure, monitor and evaluate the relationship between workforce measures and their performance in delivering appropriate accessible PHC services.

The framework proposed has particular relevance to policy makers, health authorities, planners and providers of PHC services, and will enable health workforce retention issues to be understood and contextualised within the full extent of PHC service delivery. The framework will:

•   help match workforce organisation and policies to specific service delivery contexts, for example in isolated and remote areas that rely on Indigenous health workers
•   assist health service managers to monitor their workforce situation with a view to intervening in a pro-active and timely manner to maximise workforce retention and configuration
•   enable policy advisors and health providers to assess the adequacy and effectiveness of current workforce planning measures in small rural and remote communities with service

performance and sustainability and, more distally, its impact on health outcomes in small rural and remote communities.

CONCEPTUAL BASIS AND RATIONALE FOR STUDY

Figure 1 shows a general evidence-based logic model based on extensive international research which has been adapted for rural and remote PHC. This model shows how the requirements for sustainable PHC services for small rural communities contribute to their performance and effectiveness in terms of key health service, population health and community outcomes.
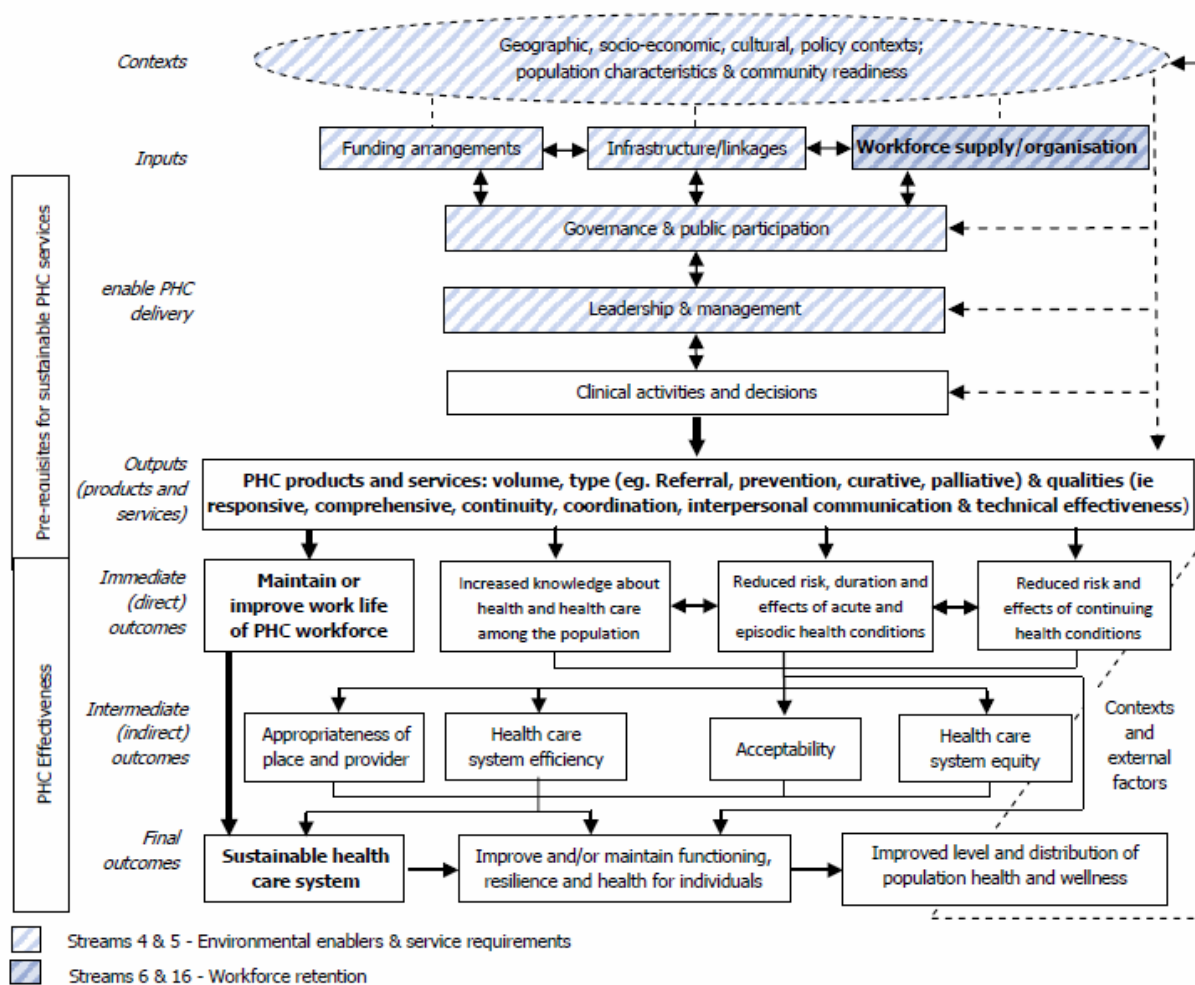
Figure 1: An evidence-based logic model for primary health care for small rural and remote communities

Our specific focus on the need for a health workforce retention framework to complement this evidence based logic model emerges from (i) the Australian Primary Health Care Research Institute (APHCRI) Streams Four and Five research describing the requirements and enablers of effective sustainable primary health services in small rural and remote communities,[5, 6] and (ii) more specifically APHCRI Streams Six and 16 research focusing on rural and remote health workforce retention.[7, 8] This research showed that minimising avoidable turnover and retaining the most valuable health workers is central to delivering high quality PHC in small rural and remote communities; and that workforce retention is a function of several critical factors - including enlightened leadership, continuing professional development, multidisciplinary teamwork, opportunities for career progression and new role development, effective recruitment and workforce succession planning and adequate infrastructure. It follows that an effective workforce retention strategy should comprise an integrated 'package' of components that take account of the

context in which it applies, the groups to which it is targeted, and the process by which it can be implemented.

Evidence has shown that dependence on mainstream health policies and programs has resulted in uneven progress in advancing rural health issues, and inadequate benchmarking of health status to assess the efficiency and effectiveness of programs in targeting improved health outcomes in rural and remote communities.[9] Application of our evidence based logic model needs to take account of the different contexts in which it is applied. For that reason it is important to identify and road-test health workforce benchmarks in different geographical and health service situations, so that they take account of any specific contextual differences that may be significant in influencing the appropriateness of policy and program responses and interventions.

WHAT IS RETENTION?

Workforce supply within a health service is a function of both recruitment and retention. An enormous body of literature has been built up over many years on the recruitment and retention of doctors and other health professionals in rural and remote areas.[10-14] 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 an important factor 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.[15]

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, or with a single employer or organisation, but refers to some minimum length of service.[8, 16, 17] 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 is dependent on the location and characteristics of the community which in turn will 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.[8]

Workforce retention is different from workforce turnover.[16] 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 service. 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.[16, 17] Thus, retention measures indicate who is staying and for how long (that is, the lack of movement within an organisation), whereas turnover reflects the degree of movement of individuals out of an organisation.[18, 19]

THE IMPORTANCE OF WORKFORCE RETENTION

In any health service some workforce turnover is inevitable and even desirable. Usually the workforce goal is to minimise excessive, particularly avoidable, workforce turnover. 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.[20] Employee longevity is important because it takes time for the worker and client to build enough trust to interact successfully, and high turnover can lead to reduced productivity or burnout from staff covering the vacant position, thereby affecting the organisation's ability to fulfil its program goals efficiently and effectively.[21] Good employee retention also results in improved patient care as managers have a more experienced group of health care workers who have a higher level of job mastery and therefore require less direct supervision. This in turn can enhance job satisfaction and result in higher productivity, higher service quality, greater patient satisfaction and lower costs.[22] 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 position. Even when there is an appropriate candidate, the recruitment of new staff is often

a costly exercise, in terms of both time and money. Inadequate service coverage due to poor staff retention contributes to the health inequities already known to exist between metropolitan areas and rural and remote areas.

DEFINITION AND MEASUREMENT

The operational definition of retention will determine how retention benchmarks are set and differentiate communities and services where retention levels are highest or alternatively where health worker turnover is greatest. Several measures exist to measure workforce turnover, and it is important to know what measures are most useful. Adopting agreed measures of retention facilitates comparisons across similar types of rural and remote communities, thereby highlighting areas that have difficulty in retaining health workers for an optimal period of time.

Various measures of retention and turnover 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 and turnover is included in Appendix 1.

- Perhaps the simplest measures are **median or average LOS** in current position which inform only about those employees who remain in employment, and therefore have no requirement for the collection of exit data. They can, however, suffer because of the skewed nature of the data (a small number of long-serving employees can greatly increase the mean LOS in current position).

- **Turnover and stability (retention) rates** are measures of personnel movements that are measured in terms of calendar time. They require relatively simple arithmetic to calculate, however they do require the collection of both entry and exit data. Turnover and stability (retention) rates complement each other and, though not reciprocal, together can be used to help track changes that may be associated with calendar time.

- **Median survival** (the average time after commencement until half the workforce has left) and **survival probabilities** at 12 and 24 months are derived from survival analysis. They measure personnel movements relative to when employees commence employment with an organisation or service. More detailed entry and exit dates are required than for turnover and stability (retention) rate calculations, and the level of sophistication of the analysis is greater. Survival analysis does, however, provide particularly useful information for enabling the setting of benchmarks which are linked to commencement of employment – such as what is a reasonable length of employment for various disciplines (median survival). Knowledge of median survival is in turn especially helpful for workforce planning (for example, targeting incentives).

It can therefore be seen that each of these measures provides different information – use of a suite of retention measures is likely to be more informative than the adoption of a single measure in isolation.

FACTORS AFFECTING WORKFORCE RETENTION

Workforce recruitment and retention 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.[8, 23-31] The starting point in developing effective workforce retention strategies is to understand how these factors affect retention and to distinguish those which are modifiable from those which are non-modifiable.

Figure 2 identifies the relationship between both work-related and personal and life-style related factors and retention. The influence of these factors on health workers depends on the overall context - the political, socio-economic and cultural environment.[32] Health workers make decisions to stay or leave their workplace on the basis of a complex set of trade-offs between different professional, personal and environmental factors. Any significant dissonance between employee

needs and workplace may reduce the level of worker satisfaction and trigger employee relocation to another job or location.[27]
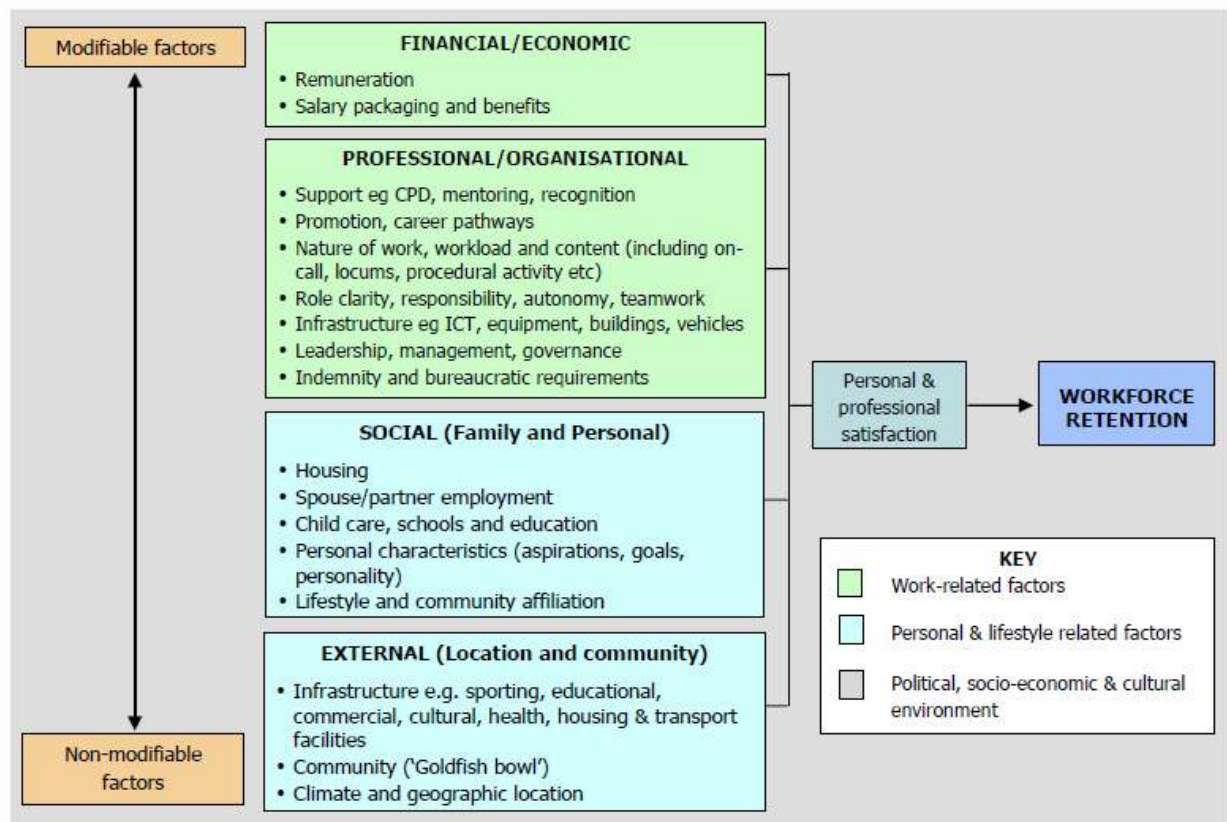
Figure 2: Factors affecting retention

Professional issues relate largely to the nature of the job itself, vocational satisfaction, support, remuneration, procedural opportunities, physical conditions, workloads, on-call ratios and locum relief for time away. Social factors relate to personal and family characteristics, including difficulties in coping with change, perceived problems with secondary education for children, lack of occupational opportunities for spouses, availability of child care, remoteness from family, poor housing, personality clashes with colleagues, jealousy by other community members and lack of time to spend with the family. External factors refer to the political, economic and social changes operating in our society that can precipitate relocation of employment. A fuller discussion of the way these factors influence retention can be found in Humphreys *et al.*[7]

COSTS OF AVOIDABLE TURNOVER

Recruitment costs vary widely across professions, organisations and workplace locations. Nonetheless, it is generally recognised that the avoidable loss of employees is expensive and often underestimated in the organisational budget. Unreasonably high turnover incurs significant **direct** costs. These include pre-employment or temporary replacement costs, recruitment costs, and post-employment costs associated with orientation and staff training of new recruits.[16, 33-45] More difficult to put a dollar cost to are the **indirect** costs incurred as a consequence of excessively high turnover. Indirect costs accrue in terms of reductions in morale, product/service quality, organisational memory, and increases in pressure on remaining staff, costs of learning, and costs of orientation and staff training of new recruits. Indirect costs may also be associated with lower initial productivity of new employees and the loss of considerable skills, expertise and knowledge.[8]

SECTION 2 - METHODS

Employers of health professionals in small rural or remote communities could benefit from the utilisation of sentinel indicators to evaluate workforce performance against benchmarks for staff retention and the impact of staff retention on service performance and health outcomes. Such indicators must be robust, and based on feasibility, data availability and relevance to the particular context in which they will be implemented. To assist with formulating the sentinel indicators and to ensure our team had maximum access to all available relevant literature and data a Reference Group was formed. This Reference Group comprised senior policy advisors and workforce data experts. Details of the membership and terms of reference are available in Appendix 2.

This study comprises the following interrelated stages:

1. **A comprehensive literature review** of rural and remote workforce and health service performance indicators and benchmarks was undertaken. The literature review strategy built on a previous APHCRI Stream 6 study outlined in www.anu.edu.au/aphcri/ Domain/Workforce/Humphreys_25_final.pdf. Essentially the team sought more recent literature (both black and grey) that focused on indicators of workforce turnover and retention for small rural and remote communities, as well as the costs of recruitment. A detailed summary of the findings is contained in Appendix 3.

2. **Analysis of existing secondary data to determine workforce retention benchmarks** for primary health services in small rural and remote communities: Without knowing what might be a 'reasonable' retention period for particular professionals in particular locations, it is difficult to set retention benchmarks by which to monitor the impact of incentives on improvements in workforce retention.

   Stage Two sought to obtain existing health workforce length of service and turnover data from State and Territory Health Authorities and Rural Workforce Agencies in order to develop appropriate workforce retention benchmarks based on an analysis of retention patterns characterising different professions and any evidence that they vary according to geographical location. Such benchmarks can then be used to underpin a workforce framework by which governments and employers can assess the adequacy and effectiveness of current workforce planning measures on small rural and remote health service sustainability and health outcomes.

   Unfortunately, despite the significant amount of health workforce data that is routinely collected by health services, professional organisations, workforce agencies, and governments, there is a surprising dearth of statistics relating to patterns of workforce retention that is in the public domain - see Appendix 4. (Exceptions include the excellent report undertaken in the Northern Territory by Garnett *et al.*[38]) A request for Medicare data from the Department of Health and Ageing proved fruitless. Greater success was achieved in obtaining good secondary data from the State and Territory Rural Workforce Agencies.

   Individual data obtained from a national cross-sectional 'snapshot' of all Australian doctors (except in South Australia) taken at 30th November 2008 were analysed using multiple linear regression methods to model the retention indicator length of service in current position. A natural logarithmic transformation of this outcome variable was required.

3. Because of the paucity of existing health workforce data, particularly survival data, from which benchmarks could be calculated, it was necessary to survey rural and remote health services to collect relevant data. Stage Three comprised the **collection of primary data on the actual lengths of service (commencement and exit dates) and costs of recruiting health workers** in small rural and remote primary health care services across Australia. Ethics approval was sought and obtained from the Flinders University Ethics Committee.

   i. **Sampling procedure**: A stratified random sample was drawn from a comprehensive listing of rural and remote health services that we developed, based on lists of rural and

remote health services obtained from the Department of Health and Ageing, Rural Workforce Agencies, the National Aboriginal Community Controlled Health Organisation, and State Health Authorities. Stratification was by jurisdiction (State or Territory), service type (MPS, ACCHS and CHS) and town size. Services were included in the list if they were situated in towns with populations 10,000 or less (ABS 2006 census[46]).

The following key criteria guided the survey sampling design:

- the focus is on **primary rural** and **remote health care services** across Australia
- the sample should include a spread of different **geographical locations** of the health service
- the sample should include a spread of **different workforce professions** practising in rural and remote primary health services (doctors, nurses, allied health professionals, health managers, and Indigenous health workers)
- the sample should include a spread of different **health service sizes** (working solo in a small service is more demanding than in a group where there is significantly more support, career opportunities are greater, and referral to other health agencies is easier)
- **different rural and remote PHC models** should be included to ascertain whether workforce retention patterns differ according to type of service.

The distribution of our sample across jurisdictions and service types is shown in Table 1. A random number table with appropriate skip interval was used to select the services from the sampling frame. Ordering the list of services by town size ensured that the sample included services in both large and small towns.

Table 1: Sampling Table

	VIC	NSW	QLD	SA	WA	TAS	NT	Total
MPS	6	7	11	3	8	2	1	38
CHS	7	6	6	3	5	3	2	32
ACCHS	3	9	3	3	4	-	8	30
Total	16	22	20	9	17	5	11	100

ii. **Survey instruments**: The survey sought data on:
- the extent to which workforce turnover is a major problem
- the movements of employees into and out of the service between 2003-2008
- recruitment costs for different health workers.

Given the logistical constraints associated with collecting the data and the high workloads of managers of small primary health services, the data collected were kept to a minimum using simplified forms shown in Appendices 5 to 7.

Each service was asked to complete three survey components - a short questionnaire, a length of service template and a recruitment cost template. The **questionnaire** defined the key workforce characteristics of each service, the nature of workforce retention, and workforce retention measures implemented by the health service (see Appendix 5). **Template A** requested that respondents provide entry and exit data about all employees providing direct health care employed in their health service at any time during the years 2003-2008 (see Appendix 6). **Templates B-F** addressed the cost of workforce replacement for nurses, doctors, allied health staff, Indigenous health workers and health service managers (see Appendix 7).

iii. **Conduct of the health service survey**: Figure 3 summarises the survey methodology. Due to the national coverage of the sample, the data collection instruments were delivered via mail, and returned in a reply-paid envelope. Following the initial mail-out, telephone contact was made with potential participants to ensure that they had received the survey, understood the purpose of the study, and to encourage them to contact one of the key researchers if they had any questions. Telephone contact with potential participants also

allowed researchers to gauge an initial response. For those services deemed unlikely to complete the survey (for example, because key staff were on leave during the survey period) or who declined to participate, a replacement service was selected systematically from the sampling list. For these replacement services the process of engagement was repeated. Reminder letters were sent out to all services agreeing to participate, with a final phone call near the closing date to remind the potential participants to return the survey. An honorarium of $A100 was offered to participating services as a token of our
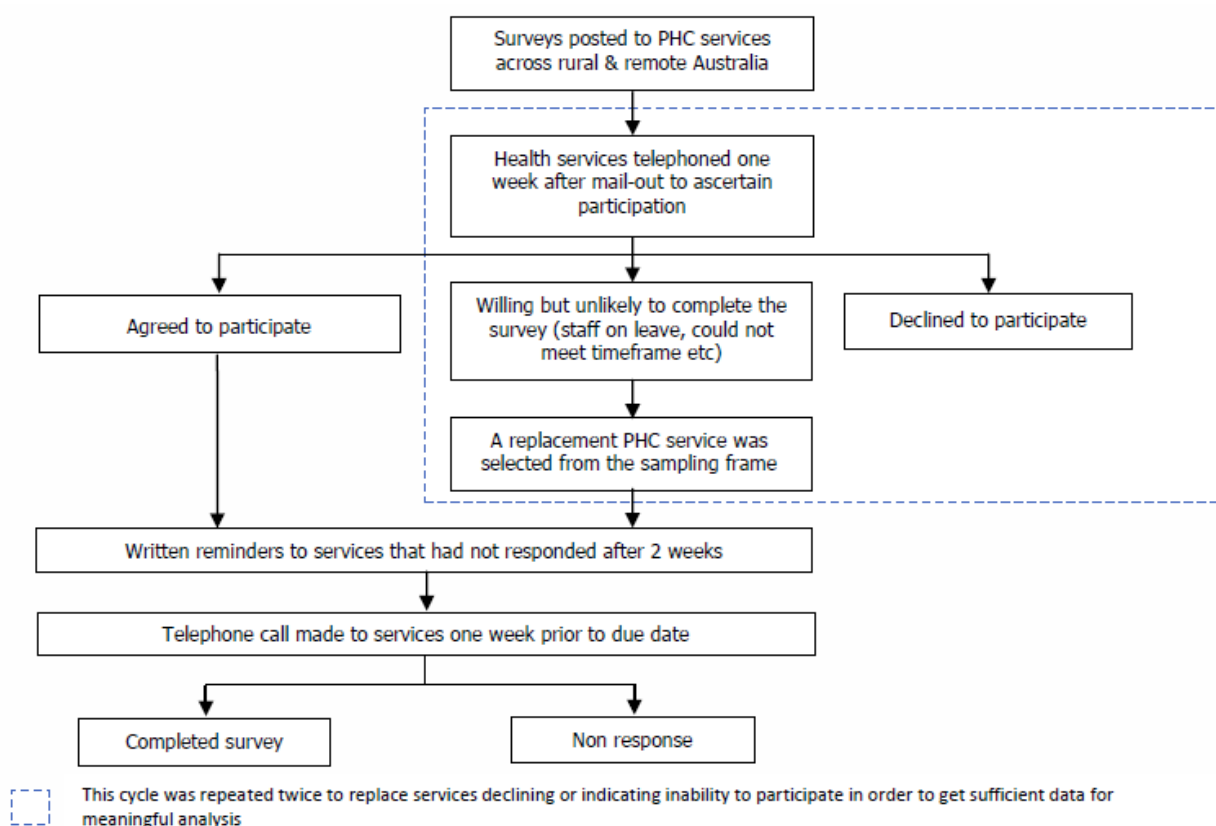
Figure 3: Summary of primary data collection process

appreciation for their participation.

4. **Validation of the workforce retention framework in the context of the logic model with different types of rural and remote health services:**

   To demonstrate its feasibility and value, the retention framework was validated in widely differing rural and remote contexts with a view to maximising effective knowledge translation into workforce and health service policies. Five health service site visits were carried out in the Northern Territory, Queensland, New South Wales and Victoria. Service model types included a rural MPS, a remote ACCHS, a rural comprehensive PHC service, an organisation supporting rural and remote discrete GP services and a remote hub and spoke service. The purpose of the visits was to provide feedback about the methodology, validity and usefulness of findings (including a comparison of the health service performance relative to other similar services) and to elicit feedback from the service in order to assist with validation of the logic model. The meetings involved senior managers, senior clinicians and HR personnel.

5. **Methodological limitations**

   Despite the comprehensive planning, the study is limited by a number of shortcomings.

   i. **Secondary data obtained from State and Territory Health Authorities:**
      • data relate to employer (State Government) rather than a health service or location

- State governments (except South Australia and Northern Territory) were reluctant to provide de-identified workforce data at the level of the individual
- health authorities may not be collecting the necessary data for calculation of sentinel indicators - exit data were especially problematic and inconsistent. For instance, the 'exit' field on the Human Resource (HR) records was utilised when employees took unpaid leave, whereas ideally records would include several exit fields - one for when an employee exits a service, another for when the organisation is exited, and a separate field for temporary exits dues to unpaid leave; and
- HR records kept by health authorities often did not include accurate information about the location in which the employee worked.

ii. **Primary data collected through the survey of small rural and remote health services**:

- **Sampling design**: Despite a sampling frame designed to ensure representation of different service types within small rural and remote communities across Australian States and Territories, certain service types and disciplines and some States were nevertheless under-represented amongst those services that responded.
- **Sample response rate**:
  - the widely dispersed nature of sampled services precluded the possibility of face-to-face visits which undoubtedly would have increased response rates. Telephone calls were made to all health services to provide assistance and encourage participation.
  - the survey timing unfortunately coincided with the end of the financial year when many health services staff were very busy and some were about to take leave.
  - some health services found the survey was too difficult to complete due to their limited access to human resources data, the lack of information management/ information technology (IM/IT) capacity to generate the data, and staff being too busy conducting their ongoing health care activities. As a result some data on workforce turnover and costs of replacement were missing or incomplete.
- **Sample response bias**: While Figure 4 shows a reasonable distribution of services by geography and service type, the respondent sample may not be representative of the wider service population.
- **Sample size**: For logistical and resource reasons, the sample was limited. Although the final response rate was pleasing, the dataset was still small and as a result limited the possible data analysis. Nevertheless the primary aim of the survey was to explore patterns and trends rather than prove or disprove specific hypotheses.

SECTION 3 – RESULTS

SURVEY OF SMALL PRIMARY HEALTH CARE SERVICES

i. **Response rates**: A total of 108 surveys comprised the final sample.[a] Their distribution is shown in Figure 4. Of this original sample, 11 health services declined outright to participate and were replaced. Another 17 services were also replaced, because, although they wished to participate in the survey, they indicated that local circumstances meant that it would be unlikely that they could provide the data within the timeframe. By the due date, 45 surveys were returned. Of the 45 health services participating in the survey, 44 completed the questionnaire (Appendix 5). Fewer services completed Template A (Appendix 6) and Templates B-F (Appendix 7). MPS (18) and CHS (20) had the highest numbers of responses, with fewer ACCHS (7). Most responses were received from Queensland (26 per cent) and Victoria (20 per cent). In terms of RRMA, 28 (62 per cent) of responses came from RRMA 5 (rural) and 17 (38 per cent) from RRMAs 6 and 7 (remote).

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[a] The number was greater than 100 because some multi-site services requested surveys for several of their sites.

ii. **Characteristics of the services in the study:**
- Thirty-six (80 per cent) of the services had more than 10 employees providing direct health care.
- Three (seven per cent) of the services provided health care to a population catchment of less than 1,000, 8 (18 per cent) to a population catchment of <2,500, 16 (36 per cent) to a population catchment of 2500-5000, six (14 per cent) to a population catchment of 5,000-10,000, and 11 (25 per cent) to a population catchment greater than 10,000.
- The distance to the nearest centre with a population of more than 10,000 was more than 200km for 32 per cent of the services. For 30 per cent of services the distance was between 100-200km and for 27 per cent of the services the distance ranged from 50 to 100 kilometres.
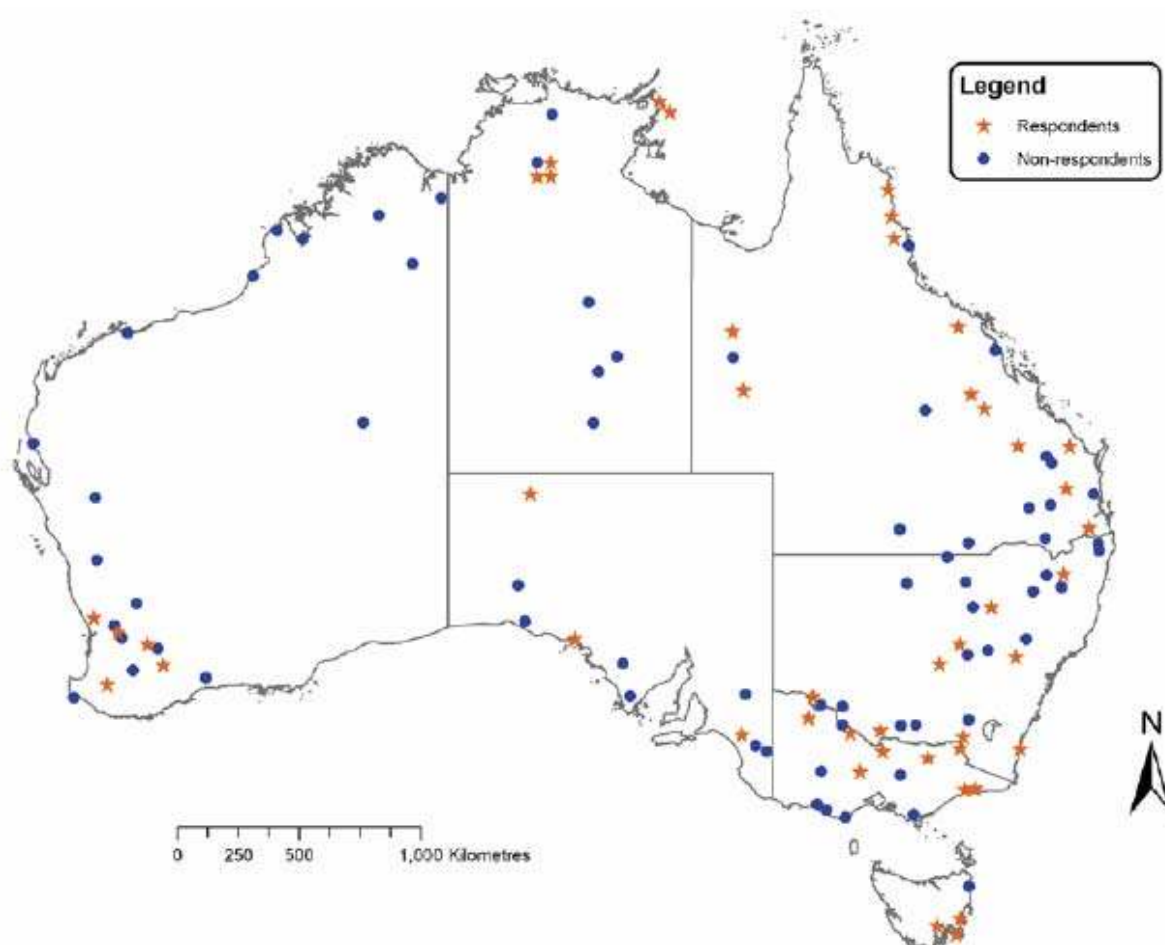
Figure 4: Location of primary health care services sampled in survey

iii. **Workforce retention**
- Most services considered two years a reasonable length of service for doctors, nurses, physiotherapists, mental health workers/psychologists, social workers, podiatrists, and Indigenous health workers, and three years was seen as reasonable for managers.
- Fifty-five per cent of health services indicated that turnover of staff was a major problem.
- Thirty-four per cent of health services indicated that retention was much more important than recruitment, 48 per cent said it was as important as recruitment, and 75 per cent agreed that turnover can be reduced by retention incentives - a finding that was maintained across town size, RRMA classifications, service types and service population catchments.

- Twenty-seven per cent of services indicated that affordable accommodation was the most effective measure in increasing length of service whilst 24 per cent said that financial incentives were most important. Other measures considered amongst the most effective included professional development opportunities, adequate workloads, recruiting the right people and helping people integrate into the community.
- Very few services directly monitor the effectiveness of workforce retention measures on length of service – 32 per cent didn't use a specific measure, 24 per cent relied on exit interviews and 20 per cent used staff satisfaction surveys.
- More than two-thirds of all health services employed flexible contracts and working arrangements, salary packaging arrangements, supportive supervision and mentoring, and continuing professional development. Half recruited rural origin workers, and employed improved infrastructure and paid housing and/or vehicle to encourage doctors and other health workers to stay longer in their health service. The least employed measures included conditional licensing, loan repayment schemes, retention incentives and allowances, annual fares to nearest capital city, grants for school education, guaranteed relief, opportunities for spouse employment, and improved living conditions.

ESTABLISHING SENTINEL INDICATORS

Despite the existence of numerous measures of workforce retention, most rural and remote health services use workforce turnover as the main indicator of workforce movement, largely due to the ease of estimation using existing human resource data. Based on our review, five sentinel indicators were identified which provide the best basis for monitoring workforce turnover and retention:

i. **Annual turnover** (see Appendix 1, #1)

ii. **Stability** (see Appendix 1, #2)

iii. **Median Length of service in current position** (see Appendix 1, #4)

iv. **Median survival** (see Appendix 1, #5)

v. **Survival probability** at 12 months and 24 months (see Appendix 1, #5)

Vacancy indicators were not considered sentinel indicators because there is a lack of any standard definition (for example the duration of vacancy), and also because vacancies can be used as a salary cost saving measure or catalyst for workforce restructuring.

Some service managers indicated the need for additional indicators - for example, measuring 'orbiting' staff who might leave the service for a period and then return at a later date. Staff also move between different professional categories within services, or they may move to other rural or remote areas.

The following tables employ these indicators which were selected on the basis of data availability, their ease of use and comparability, and the workforce retention literature. It should be understood that each indicator has its own strengths and weaknesses (as evaluated in Appendix 1). The implication is that these indicators would ideally be used collectively to capture the key aspects of workforce turnover and retention necessary for well-informed workforce management.

SUMMARY OF LITERATURE REVIEW RESULTS

Setting workforce retention 'benchmarks' is difficult in the absence of agreed indicators and when a paucity of readily available representative data for different professional groups working in different geographical circumstances exists. The widely varying results from the literature review are shown in Appendix 3. The extent to which the results shown in Appendix 3 can be extrapolated beyond their studies to serve as benchmarks for small rural and remote communities is highly questionable, with each study requiring critical appraisal in terms of validity, reliability and quality of the retention measures and analysis undertaken. Rural Workforce Agencies routinely collect some minimum data

on the medical workforce (see www.arrwag.com.au/site/index.cfm?_display=25615). However, most organisations can only provide indicative data relating to vacancies or length of service associated with current employees at best.

SUMMARY OF SECONDARY DATA RESULTS

Four State or Territory Health Authorities provided secondary data relating to health workforce turnover and retention (Tables 2 to 5). The data provided by the Northern Territory are not reported here because they could not be disaggregated to a smaller geographical unit than that of the Territory as a whole, and therefore revealed little that was useful for differentiating patterns of retention by locality.

The tables shown below indicate the best analysis that can be undertaken given the current availability of secondary data. Several significant limitations are apparent, specifically:

- Victorian health workforce data in Table 2 do not reflect the health service locality. Displaying the results by administrative regions as in the case of Victoria is of little value and ignores the wide heterogeneity characterising health services located within the regions.
- Tables 2, 3 and 5 show average length of service of employees since their first appointment within State Health Authorities - in other words, organisational tenure rather than tenure in current position in a health service, which is a more salient indicator.
- Insufficient data were provided on potential confounders or variables that might explain differences in retention (for example between young and old health workers, and between those trained overseas or in Australia). Additionally most authorities were not prepared to release individual level data which would enable analysis of the significance of such factors and the size of their impact on retention.
- Definitions of professional disciplines were inconsistent across States and Territories limiting our ability to make meaningful comparisons.

Table 2: Victoria - Average organisational tenure (years)

Active Health Sector Employees as at June 2008 by select Occupations (Figures include all ongoing, fixed term, and casual staff active as at the final pay period of June 2008).										
	Metropolitan regions				Rural Regions						
Occupation	Eastern Metro	North and West Metro	Southern Metro	Total	Barwon South Western	Gippsland	Grampians	Hume	Loddon Mallee	Total	Grand Total
Dietitians	6.1	3.9	5.6	5.0	7.0	5.0	5.2	2.3	5.3	5.0	5.0
Pharmacists	6.6	5.8	5.2	5.9	7.3	6.0	3.3	7.3	6.2	6.6	6.1
Dental Practitioners	2.5	3.0	5.9	3.4	2.1	4.1	0.5	9.0	1.8	2.8	3.1
Occupational Therapists	4.5	4.2	4.4	4.4	4.6	5.5	5.5	3.7	5.3	4.8	4.5
Physiotherapists	5.3	3.7	5.4	4.5	4.1	7.5	5.4	4.0	5.1	5.4	4.7
Podiatrists	4.8	4.5	5.9	5.0	6.1	3.7	4.2	3.0	3.9	4.4	4.7
Speech Professionals & Audiologists	4.6	6.8	6.4	6.2	5.5	10.3	4.2	2.7	3.8	8.0	6.8
Psychologists	3.5	4.4	5.6	4.3	3.3	10.5	2.9	4.1	4.0	4.4	4.3
Social Workers	4.3	5.0	5.1	4.7	4.6	5.5	5.2	4.2	4.2	4.9	4.7
Total	4.7	4.8	5.2	4.8	5.3	8.0	4.4	4.1	4.8	5.5	5.0

Source: June 2008 Workforce Data Collection, State Services Authority

Table 3: Queensland - Average organisational tenure (years) shown by ARIA category as at August 2008

Occupational Stream	Accessible	Moderately Accessible	Remote	Very remote
Managerial and Clerical	6.8	7.7	6.4	6.8
Medical including VMOs	5.9	6.2	5.8	6.4
Nursing	8.5	10.7	9.8	9.1
Operational	8.7	9.4	7.7	7.9
Professional and Technical	6.8	7.6	5.7	7.1
Trade and Artisans	9.4	11.9	4.0	2.3
TOTAL	8.1	8.3	9.4	7.9

Source: Queensland Health, August 2008

Table 4: Queensland - Annual turnover (%) shown by ARIA category 2004-2008

Stream	Accessible	Moderately Accessible	Remote	Very Remote	Grand Total
Managerial and Clerical	10.9	9.7	19.3	23.1	12.3
Medical incl VMOs	17.9	20.4	23.4	33.8	19.5
Nursing	6.6	7.0	9.8	19.0	7.9
Operational	7.6	7.3	14.8	14.5	9.2
Professional and Technical	15.1	16.4	20.2	17.1	15.9
Trade and Artisans	17.1	18.1	22.2	44.0	19.0
Grand Total	9.5	9.0	14.0	18.2	10.5

Source: Queensland Health, August 2008

Table 5: South Australia (country health data only) - Median organisational tenure (years) shown by ARIA & RRMA as at 3/4/2009

	ARIA Category									
	Accessible		Moderately Accessible		Remote		Very remote		OVERALL	
	Years	n	Years	n	Years	n	Years	n	Years	n
Nurse	6.7	1397	6.2	732	5.2	330	5.2	95	6.2	2554
Allied	2.3	129	2.8	40	2.7	36	-	3	2.3	208
Indigenous	-	2	6.0	12	-	-	-	9	5.0	14
OVERALL	6.1	1528	6.0	784	5.0	366	5.1	98	5.9	2776
	RRMA Category									
	RRMA 3		RRMA 4		RRMA 5		RRMA 7		OVERALL	
	Years	n	Years	n	Years	n	Years	n	Years	n
Nurse	6.9	216	6.2	835	6.1	1912	4.6	234	6.2	3197
Allied	1.3	36	2.3	109	3.1	173	-	8	2.6	326
Indigenous	-	-	-	4	6.0	12	-	-	5.2	16
OVERALL	6.2	253	5.7	948	5.9	2097	4.6	242	5.7	3539

Source: South Australia Health, April 2009

SUMMARY OF PRIMARY DATA RESULTS

Our primary data results that follow are characterised by a number of limitations.

- Whilst 35 services provided length of service data, 15 provided only partial data (for example data on current employees only), from which we were unable to meaningfully calculate turnover, stability etc. Most of these services provided handwritten data, a finding that confirmed the need for, and importance of, good IM/IT infrastructure and Human Resources staff to monitor workforce planning.

- Since only 20 services provided sufficiently good quality personnel data, our ability to meaningfully further breakdown the retention indicators (if analysed at the level of the service) by RRMA, profession or service type was limited – the data were simply too sparse. We therefore have provided details of analysis undertaken at the level of the individual, in order to provide an indication of any trends that occurred across RRMA, professions and service types. Differences between the figures calculated at the level of the service and at the level of the individual occur because analysis at the level of the individual gives undue influence to services that have many employees (and conversely services with the smallest numbers of staff, often in the most remote locations, are under-represented).

- More recent data (that is staff movements in the past year) appeared to be more reliable than data provided over the entire five and a half years - hence our decision to calculate turnover and stability rates only over the past 12 months for our primary data.

These limitations notwithstanding, the following tables are based on high quality data provided by the health services - that is, complete data based on inclusion of both current and past employees. The retention indicators have been analysed in two ways:

- At the level of the individual - analysis did not take account of any clustering by service.

- At level of the service - since sampling was by service, indicator analysis was done for each service and then averaged over the number of services. We used the median as the measure of central tendency as it was influenced the least by extreme values.

Table 6 provides an average or baseline for our total sample for each of the sentinel indicators that we utilised.

Table 6: Sentinel indictors for all data

	Annual Turnover (%) over past year	n	Stability over past year (%)	n	Median LOS in current position (years)	n	Median survival (years)	Survival Probability		n (failures)
								12 months	24 months	
Individual level	16.7	612	86.6	613	4.8	689	> 5 years	82.1	70.3	610
Service level	8.8	20	92.1	20	6.3	20	NA-	89.0	78.6	20

Table 7 indicates that geographical location of services influences health workforce retention. It appears that services in rural locations have less turnover and longer retention of their health workforce than services in remote locations, a finding that provides some basis for adjusting workforce retention incentives according to service location.

Table 7: Indicators by RRMA

	Annual Turnover (%) over past year	n	Stability over past year (%)	n	Median LOS in current position (years)	n	Median survival (years)	Survival Probability		n (failures)
								12 months	24 months	
Analysis at level of the individual										
RRMA 5	11.9	353	90.1	355	6.4	430	>5 years	85.8	75.6	356
RRMA 6+7	23.2	259	81.8	258	3.3	259	3.9	76.1	61.5	254
Analysis at level of the service										
RRMA 5	8.0	12	92.1	12	6.6	12	NA	91.1	81.8	12
RRMA 6+7	17.5	8	92.9	8	5.4	8	NA	76.7	58.5	8

Table 8 indicates that there are notable differences in retention across different disciplines. For example, allied health professionals have higher turnover and lower stability than other disciplines. In contrast, doctors and nurses appear to have the lowest turnover and highest stability in the past year of all disciplines, and both nurses and managers have a relatively high median length of service in their current position. We note from the survival analysis that doctors have a comparatively lower survival probability (62.4 per cent at 12 months after commencing employment) than might be indicated by the turnover and stability measured over the past 12 calendar months, suggesting that doctors' movements in employment in the past 12 months may not be representative of usual patterns. This highlights, perhaps, the perils of utilising a single turnover or retention measure when an overall picture is needed.

Table 8: Indicators by discipline: analysis at the level of the individual

	Annual Turnover (%) over past year	n	Stability over past year (%)	n	Median LOS in current position (years)	n	Median survival (years)	Survival Probability		n (failures)
								12 months	24 months	
Nurse	13.8	456	88.2	451	5.8	509	> 5 years	85.8	76.5	382
Doctor	11.5	26	100.0	23	3.4	30	-	62.4	52.6	37
Allied Health	30.5	95	76.7	103	3.2	110	2.2	73.7	52.4	166
Indigenous	20.8	24	87.0	23	2.6	25	-	75.5	72.3	14
Manager	22.2	9	81.8	11	7.0	13	-	100.0	82.5	10

Table 9 highlights both the differences in the distribution of employees across different service types in our sample (by far the majority of employees were employed at MPS - approximately 80 per cent), and also the influence of service type on turnover and retention of health workers.

Table 9: indicators by service type

	Annual Turnover (%) over past year	n	Stability over past year (%)	n	Median LOS in current position (years)	n	Median Survival (years)	n (failures)	Survival Probability	
									12 months	24 months
At level of the individual										
ACCHS	31.5	54	87.5	40	1.4	54	3.2	40	63.5	53.2
CHC	26.5	68	76.5	68	3.2	112	≈5.5	103	80.8	66.5
MPS	13.7	490	87.9	505	6.0	523	>5 years	467	83.8	72.4
At level of the service										
ACCHS	36.2	2	81.6	2	1.4	2	-	2	61.3	51.6
CHC	6.9	9	100.0	9	8.0	9	-	9	91.7	87.5
MPS	9.4	9	91.1	9	6.4	9	-	9	81.5	76.9

Figure 5 shows differences in survival curves according to geographical location (RRMA 5-7), service types (MPS, ACCHS and CHS), and health worker discipline (nurses and allied health workers). While recognising the need for caution in drawing conclusions from these data, this highlights their value in showing workforce movements over time since employee commencement and the nature of differences that are apparent when comparing different service settings and professions. In short, the results highlight the importance of ensuring that workforce retention benchmarks take account of important differences and do not adopt a 'one-coat-fits-all' approach.

COSTS OF RECRUITMENT ACCORDING TO CONTEXT AND SERVICE TYPE

Our approach to benchmarking minimum retention periods for health professionals was to calculate the actual costs of replacing health care professionals and compare these with the benefit of retaining an employee for an additional period of time. Unfortunately, because of the diverse contexts characterising small rural and remote primary health services, there is no single standard when calculating recruitment costs. Moreover many of the less tangible losses are difficult to calculate. The actual cost of recruitment varies depending on the way it has been calculated and also between different types of employees.
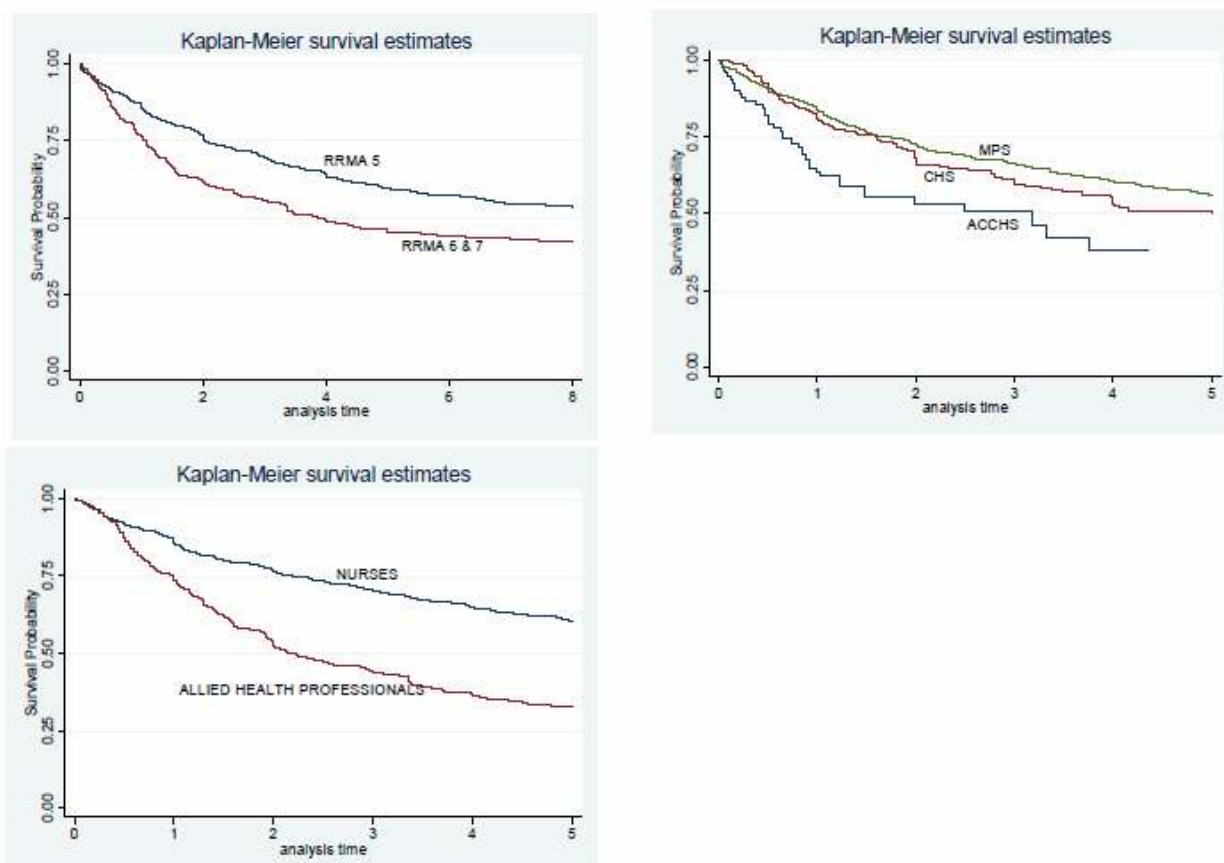
Figure 5: Survival curve analysis for small rural and remote PHC service health workers

a. Literature tables

Most published studies calculating the differential costs of replacing 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 A$155,333 up to A$264,645,[45] and for nurses from as low as A$2,500-A$3,000 to A$64,000 for speciality nurses (see Appendix 8). Closer to home, one Australian study[38] 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 and Families estimated at A$6,884,519 (see Appendix 8). Another New Zealand hospital study found that the turnover cost per nurse was A$20,000, not including costs due to lost productivity.[47] We were unable to find any published study that had attempted to calculate the cost of recruitment of health workers in different rural settings, a finding that gives added weight to the significance of the following findings.

b. Primary data collection results

Table 10 shows replacement costs associated with recruiting health workers in small rural and remote PHC services. Total replacement costs are broken down in terms of the cost of vacancy (temporary replacement costs), cost of recruitment (actual hiring costs), and the cost of orientation (induction and training). The data in this table do not take account of the significant indirect costs to employers, including losses of skills, expertise and knowledge. Moreover, the data may not include those additional costs associated with recruitment activities undertaken by centralised agencies associated with assisting in staff recruitment. Hence these figures are likely to be conservative estimates or best case scenarios!

Table 10: Health worker replacement costs in small rural and remote PHC services

	DIRECT COSTS											
	Cost of Vacancy			Cost of Recruitment			Cost of Orientation			Total Replacement Costs		
Discipline	Median $	Inter-Quartile Range $	n	Median $	Inter-Quartile Range $	n	Median $	Inter-Quartile Range $	n	Median $	Inter-Quartile Range $	n
Nurse	6,000	2,666-15,000	17	4,000	2,994-15,040	21	4,000	1,700-6,000	21	19,300	7,028 - 36,000	23
Doctor	38,250	10,000-96,900	8	20,000	7,500-31,183	9	10,000	3,250-12,000	7	74,000	66,000 - 111,312	8
Allied	7,000	1,500-21,488	10	6500	3,500-14,063	12	4,000	2,176-5,000	10	21,925	8,500 - 34,238	12
Indigenous	3,000	400-5,750	4	8,200	2,994-18,100	5	5,000	1,000-20,000	3	13,700	3,534 - 43,600	5
Manager	10,000	4,250-18,640	12	5,000	3,130-16,000	14	5,000	1,627-6,956	12	29,600	16,500 - 36,000	13

Note: Due to skewed data the median is a better measure of central tendency than mean.
Replacement Cost = vacancy costs + recruitment costs + orientation/training costs.

Unfortunately, because of the difficulty in measuring the direct costs accurately, small numbers of services completed this section of the survey. Nonetheless, several important findings emerge:

i. First, consistent with the data shown in Appendix 8, significant costs are associated with recruiting health staff.

ii. Secondly, the range in costs associated with replacing staff is very large. The large range of estimates provided is likely to be in part due to the differing contexts in which the services operated, for example, some services placed a huge reliance on locums, others managed to share employees with nearby services to cover the period of a vacancy and thus minimise costs of vacancy, and for others there are costs associated with attracting and relocating staff to remote locations.

iii. Thirdly, there is significant variation in the costs according to the health disciplines. Unsurprisingly, the total replacement costs for doctors are higher than for other disciplines. Moreover, the estimated cost of vacancy is highest for doctors in absolute terms, but also as a proportion of total replacement costs (more than half of total replacement costs) – in contrast, for example, to Indigenous health workers.

iv. Estimated costs of vacancy for allied health professionals, managers and nurses were approximately one-third of their total replacement costs, estimated costs of orientation for employees in all disciplines (except doctors) are around A$4,000-5,000, and average costs of recruitment are generally between about A$4,000 and A$8,000, for employees in all disciplines, once again with the exception of doctors.

MODELLING WORKFORCE RETENTION ACCORDING TO CONTEXT & SERVICE TYPE – REGRESSION ANALYSES

In order to model workforce retention characteristics, separate regression analyses were carried out on the National Minimum Data Set (NMDS) for doctors and on our primary survey data. Tables 11 and 12 show the results of multiple linear regression modelling undertaken on the NMDS utilising the logarithmic transformation of each doctor's length of stay in their current position as the dependent variable. Although Table 11 is based on only 1,578 doctors, it includes the largest number of significant predictor variables that were available while still maintaining a sufficient population of rural doctors. (It should be noted that not all doctors provide all data requested in the minimum data collection undertaken by the Rural Workforce Agencies). Concerned that this subset of the data may not be representative of the larger medical workforce population, the representativeness of the data from the 1,578 doctors was assessed in relation to a more complete population of rural Australian doctors (excluding South Australian doctors). This was done by comparing estimates of effect size in a model with 4 relatively complete variables (3,724 doctors) to estimates obtained from the same model with the 1,578 subpopulation of doctors. Table 12 shows the effect sizes obtained from the smaller subpopulation to be comparable to those obtained

from the larger population. Thus, we can be reasonably confident that the smaller subsample is adequately representative of all Australian doctors.

The final regression model shown in Table 11 utilised data from 1,578 rural doctors (RRMA 4 to 7) across Australia (but not South Australia), out of a total of 4,271 doctors for which we obtained some data. This comprehensive model explained over 36 per cent of the variance in the length of service that doctors have been in their current position. The inclusion of 7 additional variables (to the model with RRMA, gender, registrar status and age) only explains a further 4.5 per cent of the variance. Where data are available, additional factors affecting retention as shown in Figure 2 may merit further investigation and assessment in an attempt to improve upon this model.

Table 11: National Minimum Data Set Multiple Linear Regression Model. Dependent variable is length of service in current position.

Reference	Variable	Effect Size	p value
Ref= average for all rural doctors	RRMA 4	1.15	0.009
"	RRMA 5	1.23	0.000
"	RRMA 6	0.84	0.019
"	RRMA 7	0.85	0.045
Ref=Male	Female	1.08	0.239
Ref=Not a registrar	Registrar	0.42	0.000
Ref= No skills	Obstetric skills	1.35	0.000
Ref= No skills	Anaesthetic skills	1.35	0.000
Ref= No skills	Surgical skills	1.19	0.083
Ref=average income source	Fee-for-service	1.34	0.000
"	Government salaried no Rights to Private Practice	0.84	0.094
"	Government salaried ACCHS	0.84	0.172
"	Non Government Wage/Salary	0.96	0.529
"	Govt salaried with RPP	1.11	0.376
(for each extra week leave taken)	Weeks annual leave taken	1.02	0.000
(for each year)	Age under 55 (at 1/12/08)	1.06	0.000
(for each year)	Age over 55 (at 1/12/08)	1.01	0.053
(for each extra 8 hours worked)	General practice weekly hours worked	1.07	0.000
(for each extra 4 hours worked)	Hours per week on-call worked	0.98	0.061

n=1578
R^2=0.3616

Table 11 demonstrates that:

- A doctor who
  - has procedural skills (anaesthetics or obstetrics)
  - is of older age
  - takes more annual leave
  - works a greater number of hours each week in general practice
  - works in a fee-for-service model, or
  - works in RRMA 4 and 5

  is on average likely to have been in their current position for a longer length of time than a doctor who hasn't.

  Conversely, if a doctor is

  - a GP registrar,
  - or is working in RRMA 6 and 7

  then, on average, the length of time that they have been in their current position is shorter.

A take-home message is that doctors practising in RRMAs 4 and 5 have been in their current position for a significantly greater period of time than the average. In contrast, doctors in RRMAs 6 and 7 have been in their current position for approximately 15 per cent less than average. The number of hours a doctor works each week on-call and whether they have surgical skills are only very weakly associated with a doctor's length of service in their current

Table 12: MDS Assessing Representativeness

Reference	Variable	Model with all available data		Model with data restricted to smaller subpopulation	
		Effect Size	p value	Effect Size	p value
Ref=Average	RRMA 4	1.25	0.00	1.22	0.00
	RRMA 5	1.30	0.00	1.39	0.00
	RRMA 6	0.86	0.01	0.78	0.00
	RRMA 7	0.72	0.00	0.76	0.00
GENDER Ref=Male	Female	0.94	0.11	0.95	0.35
Ref=Not a Registrar	Registrar	0.50	0.00	0.39	0.00
AGE	Under 55	1.08	0.00	1.07	0.00
	Over 55	1.01	0.01	1.01	0.49
		n=3724 R^2=0.2967		n=1578 R^2=0.3171	

position.

Table 13 models the risk or 'hazard' of a health worker leaving a health service, based on the data collected in our survey. A number of variables were not included in the final model because they were shown not to be significant predictors of employees leaving. These variables were part-time or full-time status; conditional licensing (license to practice in exchange for service in rural area for overseas trained health workers), and service type (MPS, CHS or ACCHS). This model has taken account of the survey design, making adjustments for sampling services rather than individual health workers, and also for varying probabilities of the services being sampled across different states and service types.

Table 13: Cox Proportional Hazards Model for Length of service survey data (primary data analysis)

Reference	Covariate	Hazard Ratio	p value
<500 km to Capital	>500 km to Capital	2.46	0.000
Nurses	Doctors	2.06	0.282
"	Allied Health	2.13	0.000
"	Indigenous	0.20	0.022
"	Managers	0.63	0.281
Average age when started	Age <30	0.93	0.590
	Age 30-40	0.77	0.000
"	Age 40-50	0.89	0.344
"	Age 50+	1.56	0.000
Average number of employees	<50 employees	0.56	0.006
"	50-100 employees	1.13	0.395
"	100+ employees	1.60	0.085
RRMA 5	RRMA 6 & 7	1.57	0.051
No paid housing or vehicle	Paid housing or vehicle	0.43	0.025
Female	Male	1.37	0.091

The final model indicates that:

- Distance to capital city is highly significant (individuals employed in locations more than 500 kilometres from a capital city have about two and a half times the risk of leaving relative to individuals that are located closer than 500 kilometres to a capital city).

- Nurses, the most numerous and ubiquitous group, were used as the reference group. Health worker discipline has an important association with the risk of leaving a health service.

- Allied Health Professionals have, on average, about twice the risk of leaving relative to Nurses, and Indigenous Health Workers have, on average, about 20 per cent the risk of leaving relative to Nurses. These differences are both sizeable and significant.

- The age of an individual when they commence employment at a service is an important predictor of their risk of leaving, and adjustments should therefore be made for age when determining whether an individual has been retained for a reasonable length of time.

- The size of a service is an important predictor of the risk of employees leaving. Employees of services with fewer than 50 employees have a significantly reduced risk of leaving (almost halved) compared to the average.

- Employees in RRMA 6 and 7 have a 57 per cent increased risk of leaving their employment relative to employees located in RRMA 5. This is consistent with our main contention that location is an important determinant of retention.

- Paid housing or provision of a vehicle significantly reduced the risk of an employee leaving a service by over 50 per cent, providing supportive evidence that retention measures (notably accommodation and transport) may be effective retention strategies.

VALIDATION OF THE WORKFORCE RETENTION FRAMEWORK WITH DIFFERENT TYPES OF RURAL & REMOTE HEALTH SERVICES IN THE CONTEXT OF THE LOGIC MODEL

A very positive response to, and interest in, the results of the study was elicited from all the health services visited. The need to account for local factors in any measurement of workforce retention and turnover was recognised, including internal variation in staff retention across different delivery sites within the one health service. Managers considered the analyses to be useful both locally and at a national level, particularly the analysis of the medical NMDS. The study findings triggered constructive discussion and reflection, noting the following issues:

- All services found the evaluation of potential retention indicators in Appendix 1 useful in setting up their databases for consistent retention monitoring.

- Services commented that not all retention-related expenditure may have been captured by the data collection. For example, Australian Government incentives payments for rural doctors, and costs of orientation & training of doctors borne by another organisation, such as the rural workforce agency. Hence our recruitment costings are likely to be conservative.

- Although service managers stressed the need for some degree of pragmatism in workforce measures to meet their specific contexts, they readily acknowledged the value of results based on empirical data affirming that they are on the 'right track', for reporting measures of success back to their Boards, and for ongoing workforce planning.

- Seeing both survival analysis and expenditure data was very useful for consideration of alternative retention incentives - in the words of one manager, this information "changes the way you think about it".

- The value of having a suite of different retention indicators was acknowledged. For example, stability is useful if staff move within a single category within the health service (as is often the case). However, turnover can be complicated. Some staff move between different

categories within the same health service. Other staff leave, but continue to work in rural or remote areas. Some services have a high proportion of staff who come and go for variable but substantial periods of time. This movement may be both efficient and cost-effective because staff avoid burnout by taking time out when required, don't require orientation each time if coming back to the same community, and some staff are involved in self-funded international aid activity and return to provide 'double the value' to the health service. There needs to be an indicator that captures total work over a given period of time that will reflect these 'orbiting' staff.

- There was interest in retention changes over the life course of doctors, including the retirement effect, doctors in their 30s who may move due to children's education needs and the survival of older procedural GPs.

- The development of career pathways is important, even for small PHC services. This includes maintaining corporate memory in the form of long-serving staff who can utilise their experience in mentoring and also in service development in other regions. Turnover was also perceived as 'a reflection of quality of management'.

- One service was already considering a retention strategy that was in fact supported by the analysis of results. It proposed to provide contracts for extended periods which consist of 21 months work, 6 months paid leave for skills refreshment etc, followed by 21 months further work commitment.

In short, there was strong support from managers for empirical benchmarks based on a range of sentinel indicators that were sensitive to the differing health services contexts.

SECTION 4 - DISCUSSION AND POLICY OPTIONS

This section discusses the implications of these results for health services policy as it pertains to health workforce retention in small rural and remote communities in Australia. There are a number of immediate policy implications with respect to retention packages, workforce retention indicators and retention benchmarks. There are further medium-term policy options that relate to improving workforce data collection – what data to collect and ensuring capacity at both a local and national level to collect, aggregate and utilise data for effective workforce planning. Finally, a logic framework provides a useful systematic approach to improving understanding and improving health services at a systems level, linking inputs to outputs and health outcomes.

4.1 Policy options

i. Flexible retention packages

Staff turnover is a major problem for small rural and remote PHC services. Both the literature and our survey of health services strongly suggest that a flexible package of retention strategies is most effective. Services surveyed rank most highly the availability of affordable accommodation and financial incentives. Services currently utilise, *inter alia*, flexible contracts and working arrangements, housing and vehicle provisions, rural origin recruitment, salary packaging and supportive management practices. There are multiple sources of funding for these various activities. There would be benefit in providing consolidated information about the multiple potential sources of retention funding from both State and Commonwealth governments to all PHC services, so that they are in a better position to develop their retention packages relevant to location, discipline and local health needs. This also provides an example of how the current situation of multiple funding streams could be simplified with a single funder of PHC services, thus decreasing the complexity and transactional costs for smaller health services.

Better still, consolidation of the current piecemeal approaches into a block grant scheme to allow services to be totally flexible in devising employment packages would be more effective.

ii. Workforce retention indicators

Services expressed considerable interest in workforce turnover and retention indicators and their definitions. An agreed set of indicators would clearly be of benefit for both services to monitor their workforce performance and policy makers for assessing the effectiveness of relevant workforce programs (Appendix 1). We recommend the use of five sentinel indicators used as a package to monitor staff movements both into and out of a service. These include annual turnover, stability and median length of service (LOS) in current position all of which are relatively easily understood and simply calculated summary statistics of workforce turnover and retention). In addition, we recommend median survival probabilities at 12 and 24 months as important indicators. We do, however, recognise that these latter two indicators are derived from survival analysis, which requires a higher level of sophistication of calculations, and thus may be more feasible for state and territory health authorities rather than individual health services.

Knowledge of median survival (how long on average a health worker is likely to remain employed with a service), in combination with a calculation of the total costs of recruitment, provides the potential for more efficient use of funding to enhance retention through the provision of retention bonuses. For example, if median survival of allied health workers is two years (on average, after two years of employment half of the allied health professionals will have left) (Figure 5) and the total cost of recruiting a replacement allied health workers is A$22,000 (Table 10), a A$10,000 retention bonus offered to each allied health worker after completing two years or service may result in a net savings to the health service together with improved continuity of care. Retention bonuses could, of course, be structured in a variety of ways, including cash or in kind. For example, a retention bonus or an accommodation subsidy to the value of A$10,000 could be paid either at the end of two years of service or reclaimed if the health worker left prior to completing two years of service. When health services find the correct balance between optimum length of service and the costs of retention incentives (thereby minimising recruitment costs), they will optimise value from the workforce and enhance patient care in a cost-efficient manner.

Whatever indicators might be used, the capacity to record commencement and separation dates and aggregate these data is essential for all health services.

iii. Workforce retention benchmarks

Setting of benchmarks is a complex issue, dogged by a lack of specific, quality data. There is also considerable variation in available empirical data comparing different health professional groups, rural and remote areas and different service models. However, despite the potential difficulty, there are benefits to setting benchmarks. Considerable health service interest exists in defining what constitutes a reasonable length of service for different professional groups working in rural and remote settings. Establishing benchmarks will provide services with appropriate targets for their retention strategies. They are then able to assess their own retention performance over time, as well as in comparison to other similar services. Thereby they may learn from one another and revise retention strategies accordingly. This information is critical for effective workforce planning.

Managers estimated that a reasonable length of service for health professionals was in the order of two years, and three years in the case of health service managers. Our survey indicated that these estimates were less than median survival calculations using data obtained from workforce performance records provided by the services for nurses, but were fairly accurate for allied health workers. Actual median survival for different disciplines for rural and remote services and all models types were:

- Nurses   in excess of five years
- Allied health professionals   2.2 years

Our survey was unable to capture a sufficient number of separations amongst doctors, Indigenous health workers and managers in the five year time frame and may have been

biased towards larger services more capable of providing data and possibly more successful in retaining staff. Hence we need to exercise some caution in our utilisation of these data. Median survival for nurses and midwives in the Northern Territory has been reported to be much shorter than the figure that our data would suggest, at between 15 and 19 months.[38] We note that with this exception, survival data, which would greatly facilitate the establishment of benchmarks for workforce planning about what is a reasonable length of service, is largely absent from the literature.

Survey data and secondary data indicate differences in LOS in current position and survival between rural and remote areas. Based on our data the difference is in the order of 50 per cent - Table 13 shows the risk of leaving is 57 per cent higher in remote compared with rural areas. While the survey data also show differences in median LOS and survival between service model types (Figure 5 and Table 9), particularly ACCHS where survival was poorer, regression modelling suggested that this difference was not significant once adjustment for potential confounders (including RRMA) was made.

Best available evidence suggests that provisional, relatively conservative benchmarks for median survival for the different disciplines in rural and remote areas are:

	Rural	**Remote**
Nurses	5 years	3.5 years
Doctors	3 years	2 years
Allied health professionals	3 years	2 years
Indigenous health workers	3 years	3 years
Managers	5 years	3.5 years

Adjustment around these benchmarks could be made for additional factors shown to be significant influences on the risk of employees leaving (Table 13), including employee age, size of the service and provision of incentives such as paid housing.

Importantly, funders need to address the strengthening of capacity of services to collect and analyse these data and for a national capacity to collect and analyse data for all disciplines. This is discussed further below. These benchmarks need continuous review as more empirical data become available.

iv. National and local workforce planning – the gaps

There is a serious lack of evidence about the effectiveness of different retention strategies.[7] No new program should be implemented without a co-ordinated evaluation strategy. Moreover, there is a need for ongoing national monitoring of workforce retention. National monitoring and effective evaluation is predicated on agreed indicators, comprehensive data collection across all disciplines and the capacity and incentive for services to collect and aggregate these data. A comprehensive and effective process requires:

- agreed and relevant indicators of workforce retention
- agreed benchmarks
- data collection systems
- data analysis
- data linkage.

We have suggested median LOS in current position, annual turnover, stability, median survival and survival probabilities at 12 and 24 months, in combination with periodic quantification of recruitment costs, as key indicators out of the raft of possible retention indicators. Whatever indicators are chosen, common (standardised) data need to be collected across services, rather than the current patchy and *ad hoc* collection. Services commented on the possible need for new indicators. One relates to the significant number of experienced staff who "orbit" through a service. That is, those who work for a period, move away and then return periodically. The issue of staff who move between different categories within a service (for example, allied health professional to manager) is not

adequately captured; neither is the movement of staff to other rural or remote areas, as distinct from leaving for metropolitan centres.

At this point in time, the existence of benchmarks is more important than the actual values. Services want to know what a reasonable length of service in rural and remote areas is. We have recommended a set of provisional benchmarks with respect to median survival for different professional groups as a starting point. The values should be reviewed on an ongoing basis as more data become available.

Many services do not have the human or IM/IT capacity to adequately and reliably collect and analyse these data on a regular basis. Appropriate incentives to services should allow them to free up service managers and HR staff to routinely analyse their workforce retention and recruitment costs, and assess the impact of which retention measures work best. There is also a need for appropriate IM/IT infrastructure to enable data collection and analysis. Funders need to address these infrastructure, training and human resource requirements if consistent national data aggregation is to be a reality.

Services need to carry out regular 'in-house' analysis of workforce data and make results available to national and/or state health planning authorities, workforce agencies and university researchers as appropriate. For smaller services, they may seek assistance with analysis from workforce planning agencies and researchers. Rural Workforce Agencies should continue to maintain a lead role in maintaining their minimum data collection for doctors. Analysis of these data has been very beneficial to this project.

An ideal data collection system would improve co-ordination, and eliminate overlaps and gaps, particularly gaps in non-medical workforce data. Data collection agencies such as ABS, AIHW, Rural Workforce Agencies and Health Workforce Australia should liaise to ensure only one annual data collection of agreed items. Furthermore, proposed data linkage within agencies such as AIHW should be fast-tracked. There is also a need to free up access to existing data held by various authorities for legitimate workforce planning agencies and researchers for workforce planning.

4.2 Logic model for PHC services

This study confirms the utility of the logic model (Figure 1). Table 14 summarises the evidence-informed pre-requisites to guide workforce retention strategies for small rural and remote primary health care services in Australia. Ensuring that the requirements for an effective workforce retention strategy are met helps maintain a health service's ability to monitor its workforce retention and performance against appropriate benchmarks and in comparison with other similar services. In turn, the workforce performance feedback enables the service to adapt its workforce strategies so as to achieve optimal performance, the distal benefits of which include better patient outcomes. Hence, this logic framework provides a useful systematic approach to improving understanding and improving health services at a systems level, linking inputs to outputs and health outcomes. It also highlights the links between workforce retention policies and strategies on the one hand, and effective management practice, governance and leadership, adequate funding and adequate infrastructure on the other. These interlinking essential requirements reinforce the need to take a systematic, whole of system approach to addressing workforce retention issues.[48]

Table 14: Linking the evidence based logic model

Essential requirements for sustainable primary health service[a]	Requirements for effective retention strategy[b]	Performance framework of benchmarking and monitoring workforce retention[c]
1. **Workforce organisation and supply** • sufficient number; • recruitment strategy • retention strategy • succession planning strategy 2. **Funding** • adequate budget • sustainable • flexible financing 3. **Governance, management and leadership** • service managers with appropriate skills • human resource and finance systems • risk management plan, and IT systems. 4. **Linkages** • including IM/IT system 5. **Infrastructure** • IM/IT systems appropriate to the service • agreed monitoring and reporting needs	1. **Maintaining an adequate and (stable) staffing** 2. **Providing appropriate and adequate infrastructure** • good IM/IT & technical support • vehicle, adequate housing • air conditioning • child care & family support 3. **Realistic and competitive remuneration** 4. **Fostering a workplace culture that recognises and rewards individuals** • good communication • preceptor/mentorship • collegial support and supervision • funding for conferences • CPD opportunities • management training • engaging in research and scholarships for academic pursuits 5. **Shaping the workplace environment** • induction and orientation program • leadership and management role • degree of autonomy • opportunities for promotion • career pathways employee	**Predisposing factors** (ie: changing cultures, developing motivation, increasing knowledge and role of evidence into practice etc) • *Leadership & vision*: Recognition that retention is important and the need for workforce monitoring based on routinely collected human resources data • *Flexible use of incentives*: Recognition that minimising avoidable turnover results in benefits to the health service - workforce, patient care, savings) **Enabling factors** (Implementing the pre-requisites that facilitate effective workforce planning) • *Good management systems* • *Workforce planning strategy* having appropriate indicators and benchmarks in place • *Information management and Information Technology system* for easy workforce monitoring in place • *Good data* **Reinforcing factors** (Using the outcomes to feed-back into the quality assurance process so it becomes and integral part of the organisation's activities) • *Effective review cycle* to evaluate workforce turnover and effectiveness of incentives • *Demonstrated cost savings* to the health service resulting from improved retention can free up funds for other additional health care services and workforce support • *Evidence of retention of experienced staff* can assist the development of mentoring of junior staff and new graduates and help succession planning

[a] Based on APHCRI 4 & 5 Studies
[b] Based on APHCRI 6 & 16 studies
[c] based on APHCRI 12 study

SECTION 5 - CONCLUSION

A central objective of the study was to ascertain 'benchmarks' for rural and remote primary health services about what is a reasonable length of service that could be expected from a health worker (doctor, nurse, allied health worker, Indigenous health worker, health manager) practising at any service location. The value of such benchmarks is the benefit they bring in setting baselines against which to monitor workforce performance and the effectiveness of measures designed to improve retention.

This innovative study is unique in attempting to develop empirically-based benchmarks based on both primary and secondary data. Despite its methodological and data limitations, the results provide a basis for setting benchmarks and demonstrate their value to health services in workforce planning. Moreover, for the first time, they provide some evidence to underpin workforce retention policies and programs and highlight the need for health authorities responsible for funding retention programs to insist on rigorous monitoring and evaluation of the effectiveness of workforce incentives and strategies from the outset of their implementation.

The intrinsic difficulties evidenced from this study associated with setting workforce benchmarks indicate that considerable work is required to implement the pre-requisites for ensuring appropriate data can be routinely collected and analysed. Moreover, comprehensive workforce planning requires a range of indicators and measures to ensure that the outcomes capture adequately the specific characteristics of local contexts. However, health services regularly collect

and maintain human resource data (although few currently use it as a workforce planning tool), and we have provided some guidance on how to improve and streamline workforce data collection and analysis in our recommendations outlined above.

Perhaps what is the main obstacle to the implementation of comprehensive evaluation strategies to monitor workforce performance is motivation for undertaking such an exercise, the predisposing factors referred to in our framework. Often it is only when the value of how evidence can be used to bring about greater efficiencies, cost savings and health improvements is recognised that sufficient interest is garnered to undertake such an exercise. In the course of validating the outcomes from this research, health services fully endorsed the need for and value of such measures to assist with their workforce planning. (Health service managers also highlighted the critical need for IM/IT capacity for processing the subsequent analysis.) Arguably, the issue of 'motivation' may be reflected in the low survey response rate (despite a small financial incentive), the significant research effort required to engage health services, and the considerable variation in responses and data collected. Some evidence of health service 'resignation' exists, as the following quotation from one health service manager suggests:

> "we have moved on from thinking that we will ever again be able to recruit a full time permanent workforce, given our increasing reliance on agency staff who work varying contracts of one to three months. We continue to advertise vacant positions periodically in the hope that someone will apply but that is looking much less likely."

In contrast, however, (and supporting our position that rigorous monitoring of workforce performance is integral to maintaining sustainable PHC services and evaluating their role and performance in producing improved health outcomes), is the following statement obtained from another small rural health service:

> "we have finally achieved 100 per cent full permanent staffing as a result of the changes we have made, and there is sound evidence positive cultural change has occurred within our workplace to retain staff."

Regular and rigorous monitoring of workforce performance enables health services to better appreciate how the service is performing within its unique context, but at the same time enables the service to compare its performance against equivalent services. Moreover, knowledge of the actual costs associated with less-than-optimal recruitment and retention enables the services to examine how they might use available resources in alternative ways to provide retention incentives that yield benefits to both the individual health workers and their families as well as the health service in terms of reduced recruitment costs, less staff burnout amongst remaining staff, greater experience and skill base of staff, and improved patient benefits in terms of continuity of care.

The policy challenge is to develop a policy approach to support better retention of health professional staff in rural and remote areas that is based on actual evidence. Key tasks therefore are as follows:

- to identify an appropriate national set of benchmark indicators to measure health professional retention.

- to build these into ongoing health service management performance reporting arrangements with funding support; and to use these data in developing, evaluating and refining retention policies.

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APPENDIX 1: MEASURES OF WORKFORCE RETENTION

Measurement	Formula	What it measures	Strengths	Weaknesses	
1. Turnover Rate (Separation Rate)	Total Number of Leavers during a period x 100 Average Number employed during that period	General level of labour turnover ie this summary measure is the proportion of employees who are leaving an organisation in any given time period	• 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	• 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 (ie beneficial) turnover and that which is dysfunctional. • May be artificially high if locums, agency staff or other temporary staff are included in calculations.	18, 49
2. Stability (Retention Rate)	Number of original entrants surviving at the end of a given period x 100 Number of original entrants	Provides a measure of the proportion of employees that have remained with an organisation for a given period	• 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 (ie those employees who are often most "valuable")	• 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	18, 38, 49
3. Mean length of service (tenure) in current position	Σ Each current employee's length of service with organisation Number of current employees	Provides a summary measure of the average length of time that current employees have been employed by an organisation	• Can be calculated from cross-sectional data	• 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	• Can be calculated from cross-sectional data • Is a more appropriate measure (than mean length of service in current position) if data are skewed	• Gives no indication of patterns of employment for ex-employees	

Measurement	Formula	What it measures	Strengths	Weaknesses	
5. Survival Analysis Curve (Kaplan-Meier estimate of the survivor function) • eg median survival • eg probability of being retained past 6 months, 12 months etc.	 Failure = employee left their position Censored = employee remains in their position	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. Median survival is the time at which half the workforce have left and half remain employed.	• 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.	• 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	50
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	• High numbers of vacancies might indicate that there are problems with continuity of care and increased costs may be incurred due to temporary staffing	• Data may not be routinely collected • Lack of standard definition • (as above)	
7. Attrition Rate (Wastage Rate)	Number of leavers from a cohort of <u>original entrants during a given period</u> x 100 Number of original entrants	Provides a measure of the proportion of employees that leave an organisation within a given period	• 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	• 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	18
8. Length of service in current position (%)	Number of current employees who have remained with the <u>organisation for a given length of time</u> x 100 Total number of current employees	Provides a measure of the proportions of current employees who have been employed by an organisation for each given period of time	• Utilises cross sectional data which are easier to acquire	• Difficult to make appropriate comparisons • Gives no indication of pattern of employment of ex-employees	

Measurement	Formula	What it measures	Strengths	Weaknesses	
9.Vacancy Rate	Number of vacancies unfilled for <u>more than a given length of Time x 100</u> Number currently employed + Number of unfilled vacancies	Provides an estimate of the proportion of all positions not currently filled	• Indicator of likely difficulty faced in recruitment	• No standard definition of vacancy (eg duration of vacancy or EFT of position)	
10. For those on fixed term contracts, number leaving before completion of contract			• May indicate problems in the workplace leading to job dissatisfaction. • Shows that people are leaving before they reach job mastery.	• Unable to indicate reasons why people leave	
11. Number of professionals operating as the sole representatives in their discipline			• Can show that employees are working in isolation and isolation can be a cause of job dissatisfaction	• Doesn't show whether employees have regular access to technology which provides the means in which to communicate with professionals in their discipline	8

APPENDIX 2: REFERENCE GROUP TERMS OF REFERENCE & MEMBERSHIP

Reference Group Terms of Reference

1. To advise on the conceptualisation and methodology of the workforce retention study, particularly in relation to small rural and remote communties.

2. To assist the research team with identification of, and access to, relevant workforce retention statistical data and publications.

3. To work with the research team to develop and implement a research transfer strategy within the Australian Primary Health Care Research Institute process.

4. To comment on project outputs.

Reference Group Membership

Name	Organisation
David Dennis	Office of Rural Health, Department of Health and Ageing, Canberra
Kim Snowball	Chief Executive of Western Australia Country Health Service
Ian Cameron	Chief Executive Officer of the New South Wales Rural Doctors Network
Col White	Data/Research Manager Health Workforce Queensland
Ian McRae	APHCRI Research Fellow ANU
Steve Guthridge	Director Health Gains Unit, Northern Territory Department of Health and Families

APPENDIX 3: WORKFORCE RETENTION STATISTICS FROM LITERATURE REVIEW TURNOVER

Occupational Group	Average Annual Turnover Rate (%)	Average Annual Turnover Rate by rurality (%)			Context of data	Source of data
		Urban	Rural	Remote		
Medical	36				Queensland Health medical staff 1994-1998. Data from Staff Profile Information System (SPIS)	Queensland Health, 1999[51]
		13	14	>30	1994-1995 Australian GP's and OMP's from Medicare data	AMWAC, 1996[52]
			10 to 15	20	1985-1986 remote GP's and OMP's	AMWAC & AIHW, 1998[53]
	14				Northern Territory DHF medical employees March07-Feb08, voluntary turnover only	Department of Health and Families, 2008[54]
GP			15		Western Australian rural GP's 2006-2007	Rural Health West, 2008[55]
			from 12	up to 40	Western Australian GP's Nov 2005-Nov 2006, from Great South and Greater Bunbury Divisions up to Kimberley Division	Healthfix Consulting, 2007[56]
			4		Rural GP's in Australia averaged over 5 years	Kamien, 1995[57]
Nurse	20				Queensland Health permanent nurses Dec 1993- Sep1998	Queensland Health, 1999[51]
	55-68				Nurses and Midwives in Northern Territory employed by DHF (Dept Health & Families) between 1994-2002, numbers not stated	Garnett et al., 2008[38]
	35				Nurses and midwives in NT 2006-2007	Garnett et al., 2008[38]
	39			57	Nurses and Midwives in Northern Territory employed by DHF 2006-2007, n=1671	Garnett et al., 2008[38]
				over 80	remote health nurses employed by NT DHS 2005	
				70	Alice Springs nurse turnover	
	41 (28-92)				NT DHF nurses and midwives employed in hospitals 2006-2007, n=1209	Garnett et al., 2008[38]
	27				Northern Territory DHF nurse employees March07-Feb08, voluntary turnover only	Department of Health and Families, 2008[54]
				up to 300%	Early 1990's	Kennedy & Patterson, 2003[58]
				up to 450%	in some (unstated) areas	NRHA, 2002[59]
			110		Central Australia	Senate Standing Committee on Community Affairs, 2002[60]
	100				Junior Registered Nurses in NT	Senate Standing Committee on Community Affairs, 2002[60]
				137	Nurses at Alice Springs hospital	Senate Standing Committee on Community Affairs, 2002[60]
Dentist	33				Queensland Health dentists 1994-1998, data from Staff Profile Information System (SPIS), but only from 2 districts out of 40	Queensland Health, 1999[51]
	13				Victorian public dental health service over 3 years 1991-2001	AIHW Dental Statistics & Research Unit, 2002[61]
	2				Dental therapists employed by DHHS Tasmania in the years 2000 and 2001, denominator n=58 based on headcount 3/2002	Department of Health & Human Services, (nd)[62]

Occupational Group	Average Annual Turnover Rate (%)	Average Annual Turnover Rate by rurality (%)			Context of data	Source of data
		Urban	Rural	Remote		
Physiotherapist	28				Physiotherapists employed by DHHS Tasmania in the years 2000 and 2001, denominator n=125 based on headcount 3/2002	Department of Health & Human Services, (nd)[62]
Occupational Therapist	25				Occupational Therapists employed by DHHS Tasmania in the years 2000 and 2001, denominator n=76 based on headcount 3/2002	Department of Health & Human Services, (nd)[62]
Psychologist	6				Psychologists employed by DHHS Tasmania in the years 2000 and 2001, denominator n=55 based on headcount 3/2002	Department of Health & Human Services, (nd)[62]
Speech Pathologist	16				Speech Pathologists employed by DHHS Tasmania in the years 2000 and 2001, denominator n=31 based on headcount 3/2002	Department of Health & Human Services, (nd)[62]
Pharmacist	14				Pharmacists employed by Tasmania DHHS in the years 2000 and 2001,n=66 (14per cent of total pharmacy WF in Tas) based on headcount 3/2002	Department of Health & Human Services, (nd)[62]
Podiatrist	22				Podiatrists employed by DHHS Tasmania in the years 2000 and 2001, denominator n=18 based on headcount 3/2002	Department of Health & Human Services, (nd)[62]
Indigenous Health Worker	22				Northern Territory DHF Aboriginal Health Workers employees March07-Feb08, voluntary turnover only, n=96	Department of Health and Families, 2008[63]
Allied Health Professionals	21				Public sector employees	Struber, 2004[64]
		20	29		Queensland health Allied health employees 1995-1998	Queensland Health, 2001[65]

STABILITY

Occupational Group	Stability after 1 year (per cent)				Stability after 2 yrs (per cent)	Stability after 5 yrs (per cent)	Stability after 9 yrs (per cent)	Context	Source of Data
	Overall	Urban	Rural	Remote					
Medical			79					Queensland RRMA 4 to 7 2007-2008 n=1081	Health Workforce Queensland, 2009[66]
GP			62	lower			25	Australian rural GP and OMP's	AMWAC & AIHW, 1998[53]
			89.8					Overall retention of cohort of recipients of RRP payment in June '99 and Sept '00 n=1525 (1 to 6 year qualifying to receive RRP)	Hirsch, Calcino & Fredericks, 2001[67]
			86			65		Original cohort of recipients of rural retention program CPS (Central Payments System) payment 1999-2000, n=1621	Gibbon & Hales, 2006[68]
			66			31		Original cohort of recipients of rural retention program FPS (Flexible Payments System) payment 1999-2000, n=116 (services not captured by Medicare)	Gibbon & Hales, 2006[68]
						63		Overall retention of recipients of either CPS or FPS, n=1737	Gibbon & Hales, 2006[68]
Nurse	73			69				Nurses employed by NT Dept Health & Family Services 2006-2007 n=1763 (remote n=129)	Garnett et al., 2008[38]
	73							Hospital nurses employed by NT Dept Health & Family Services 2006-2007 n=1298	Garnett et al., 2008[38]
Allied Health Professionals		81	71					Rural Allied Health Professionals	Struber, 2004[64]

LENGTH OF SERVICE

Occupational Group	Length of service in current location (%)				Context	Source of data
	1 or less yrs	<2 yrs	2 to 5 yrs	>5 yrs		
Medical Practitioner	11	31	24	44	n=186 Survey Response rate overall 71per cent Rural and remote practitioners (RARA classification)	Harris, 1992[69]
	34			31	n=911,Qld at 30/11/03, RRMA 4 to 7, includes govt salaried MO's	Queensland Rural Medical Support Agency, 2003[70]
	21	33	21	46	Nationally at 30/11/04, RRMA 4 to 7, compiled from core data proved by RWA's, n=3801	Health Workforce Queensland & NSW Rural Doctors Network, 2005[71]
	22	34	20	46	Nationally at 30/11/07, RRMA 4 to 7, compiled from core data proved by RWA's, WA & NT data excludes salaried/govt employed GPs, n=4428	Health Workforce Queensland and New South Wales Rural Doctors Network, 2008[72]
	21			52	NSW at 30/11/08, RRMA 4 to 7, n=1268	NSW Rural Doctors Network, 2009[73]
GP	10	27	24	49	n=90 Survey response rate overall 71per cent, rural and remote practitioners (RARA)	Harris, 1992[69]
				48	WA rural GP's 2002	Rural Health West, 2008[55]
				37	WA rural GP's 2007	
Nurse	13	35	21	44	n=774	Harris, 1992[69]
	5			84	n=115, all RNs employed by 3 rural and 3 remote NSW hospitals surveyed, 73per cent response rate,	Huntley, 1995[74]
Dentist	21	37	24	39	n=38 Dental workforce	Harris, 1992[69]
Physiotherapist	20	46	30	24	n=64	Harris, 1992[69]
	19				n=289	Victorian Universities Rural Health Consortium, (nd)[75]
Occupational Therapist	20	51	27	22	n=49	Harris, 1992[69]
	35				n=116	Victorian Universities Rural Health Consortium, (nd)[75]
Psychologist	4	30	35	34	n=23	Harris, 1992[69]
	19				n=280	Victorian Universities Rural Health Consortium, (nd)[75]
Speech Pathologist	25	59	22	19	n=33	Harris, 1992[69]
	22				n=94	Victorian Universities Rural Health Consortium, (nd)[75]
Pharmacist	8	33	17	40	n=36	Harris, 1992[69]
Podiatrist	32	69	16	16	n=19	Harris, 1992[69]
	29				n=59	Victorian Universities Rural Health Consortium, (nd)[75]
Indigenous Health Worker	11	34	39	27	n=44, excluding trainee AHW's	Harris, 1992[69]
Allied Health Professionals		42	31	27	Rural and remote audiologists, dieticians, OTs, PTs, Pod, Psych,Radiographers, SW,Speech. 1650 survey responses out of 4000 printed	SARRAH, 2000[76]
		53			Western Australian	
		28			Victorian	
	21	49	22	29	n=356, dieticians, OTs, PTs, Pod, Psych,Radiographers, SW, Speech and Pharmacists	Harris, 1992[69]

AVERAGE LENGTH OF SERVICE

Occupational Group	Average Length of service in current principle practice (years)	Context	Source of data
Medical Practitioner	8.3	Nationally at 30/11/02, RRMA 4 to 7, compiled from core data proved by RWA's	Health Workforce Queensland & NSW, 2005.[71]
	9.2	Nationally at 30/11/03 RRMA 4 to 7, compiled from core data proved by RWA's	Health Workforce Queensland & NSW, 2005.[71]
	8.3	Nationally at 30/11/04, RRMA 4 to 7, compiled from core data proved by RWA's, n=3801	Health Workforce Queensland & NSW, 2005.[71]
	8.2	Nationally at 30/11/07, RRMA 4 to 7, compiled from core data proved by RWA's, n=4428	Health Workforce Queensland & New South Wales Rural Doctors Network, 2008[72]
	9.9	NSW at 30/11/03 and at 30/11/2004, RRMA 4 to 7	NSW Rural Doctors Network, 2008[77]
	10.1	NSW at 30/11/05, RRMA 4 to 7	NSW Rural Doctors Network, 2008[77]
	10.2	NSW at 30/11/06, RRMA 4 to 7	NSW Rural Doctors Network, 2008[77]
	11.0	NSW at 30/11/07, RRMA 4 to 7	NSW Rural Doctors Network, 2008[77]
	9.7	NSW at 30/11/08, RRMA 4 to 7, n=1268	NSW Rural Doctors Network, 2009[73]
	8.2	Nationally at 30/11/08	Informally from NSW RDN (email)
	7.6	Nationally (except for NSW) at 30/11/08	Informally from NSW RDN (email)
	5.8	Qld at 30/11/03, RRMA 4 to 7, includes govt salaried MO's	Queensland Rural Medical Support Agency, 2003[70]
Nurse	4.8	Dec 1993 Qld Health nurses	Queensland Health 1999[51]
	5.9	Sept 1998 Qld Health Nurses	
Dentist	8.7	rural Western Australian dentists Dec 2001 survey n=165, response rate=61per cent	Kruger & Tennant, 2003[78]
Physiotherapist	4.2	Loddon Mallee Region 5 AHP's, excluding BHCG, from anecdotal survey, period 1996-2001	Loddon Mallee Regional Support Branch, 2002[79]
Occupational Therapist	2.2	"	"
Psychologist			
Speech Pathologist	2.8	"	"
Pharmacist			
Podiatrist	1.5	"	"
Indigenous Health Worker			
Allied Health Professionals	3.0	"	"
	1.1 to 1.5	rural AHPs	Struber, 2004[64]

APPENDIX 4: EFFECTIVENESS OF DATA COLLECTION AGENCIES IN PROVIDING WORKFORCE RETENTION DATA

Organisation	Issue	Findings
Existing or secondary workforce retention data		
1. State/ Territory health authority	1. Collection of data	• Some disciplines cannot easily be defined from payroll data (eg Managers) • Data are collected on start date with the health authority (sometimes the public service) rather than start date at an agency. • Not collecting the data required for some measures of retention and length of employment
	2. Quality of data	• Variable. Data fields (especially exit dates) are used incorrectly by some health units, rendering data unreliable/unuseable. (eg record termination dates to stop payments whilst an employee is on leave without pay)
	3. Linkage of data	• Registration information (eg. country of graduation, additional qualifications) is not linked to the payroll system (payroll system collects start dates, exit dates, birth dates etc.)
	4. Loss of data	• Unable to report agency exit data because an employee's termination dates are overwritten with each change in agency.
	5. Analysis of Data	• Internal: Unknown • External: Reluctant to release existing de-identified unit record data. Therefore data is not at a scale sufficiently useful for workforce retention planning.
	6. Access to and dissemination of existing data	• Very 'risk averse' - Reluctant to release existing de-indentified unit record data • Existing data not at a scale sufficiently useful for workforce retention planning
2. Rural Workforce Agencies	1. Collection of data	• Excellent. A diverse range of relevant information is collected • Further opportunity exists for recording of additional data fields important for prediction of retention (eg. conditional licensee, recipient of retention grant).
	2. Quality of data	• Very good due to agreed principles and processes governing minimum data set. • Some variation in completeness of data across jurisdictions. • High level of quality control in maintenance of data bases • Consistency of fields across jurisdictions (mandated).
	3. Linkage of data	• Excellent. Data is held in a single database by each state/territory and compiled at a national level annually.
	4. Loss of data	• Minimal. Critical fields are maintained (eg. entry and exit dates for previous positions).
	5. Analysis of Data	• Internal: Basic analysis is being undertaken at a national level • External: Potential for more sophisticated analysis given the richness of the dataset (ie probably currently underutilised)
	6. Access to and dissemination of existing data	• Regular public dissemination of data is already in place (mandatory) • Facilitated subject to Ethics agreement governing privacy and confidentiality.
3. Australian Government	• Access to existing data	• Immensely slow process • Need to use Freedom of Information request
	• Quality of existing secondary data	• Unknown
4. Australian Bureau of Statistics	• Access to existing data	• No identifying data was retained from census data, so tracking changes in employment location was not possible between censuses
	• Quality of existing secondary data	• N/A
5. Australian Institute of Health & welfare	• Access to existing data	• Labour force surveys not linked across years for professions so no retention data available.
	• Quality of existing data	• N/A
Primary workforce retention data		
Primary Health Services	• Collection of primary data	• Available but staff in many services too busy to provide data or analyse it themselves
	• Quality of primary data	• Variable - reflecting IT systems and HR staff availability, & ability to use the data

APPENDIX 5: SURVEY

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

Rural and Remote Health Service Research

Improving workforce retention in small rural and remote health care services

This survey is being carried out in order to ascertain levels of workforce turnover in rural and remote communities and to identify how retention policies can improve the attractiveness of workplace environments and worker satisfaction so that health workforce retention is increased.

This research project is being conducted by staff from Monash University School of Rural Health in Bendigo, the Flinders and Charles Darwin Universities Centre for Remote Health in Alice Springs, and the Australian National University.

We are surveying a sample of rural and remote health services across Australia. Your participation in this survey is entirely voluntary, and you may withdraw your participation at any time. This questionnaire will take 20–30 minutes to complete.

All information will remain entirely confidential. The responses to this survey will be analysed and presented so that it will not be possible to identify any individual responses in the report. Please do not put your name or address on this questionnaire.

If you have any queries relating to this survey, please contact John Humphreys on 0417 551 494.

Thank you for your time.

ANU
THE AUSTRALIAN NATIONAL UNIVERSITY

MONASH University
Medicine, Nursing and Health Sciences

Centre for
Remote Health
A joint centre of Flinders University
and Charles Darwin University

Health workforce retention in rural and remote health services

Section 1: Your health service

1. How many employees providing direct health care currently work in this health service?

   ☐ < 5
   ☐ 5-10
   ☐ > 10

2. What is the population of your service catchment area

   ☐ < 1000
   ☐ 1,000-2,500
   ☐ 2500-5000
   ☐ 5000-10,000
   ☐ >10,000

3. What is the distance from your service to the nearest centre with a population more than 10,000?

   ☐ <50km
   ☐ 50-100kms
   ☐ 100-200kms
   ☐ More than 200 kms

4. Indicate which of the following best describes the nature of your health service by placing a a tick (✓) in the appropriate box *(choose only one)*:

	MODEL TYPE	MODEL DESCRIPTION	Examples
☐	A discrete health services	Discrete health services exist where population catchments meet essential service requirements (although some supports may be needed to address workforce recruitment and retention).	• Walk-in/Walk-out model • General practice • University clinic
☐	An integrated health services	Service integration maximises access to locally available services. Local point-of-entry to the health system helps to co-ordinate patient care and reduces the need for travel.	• Multipurpose service • Shared care model • Co-ordinated Care Trial • PHC teams
☐	A comprehensive primary health care service	Access to services in small, isolated, high-need communities is critical where few alternative ways of delivering appropriate care exist. Community participation and service flexibility is essential to meet local needs and circumstances.	• Aboriginal Controlled Community Health Service
☐	An outreach health services	This model provides access through virtual or periodic visiting services to communities too small to support permanent local services.	• Hub-and-spoke model • Visiting service • Fly-in, fly-out service
☐	Some other health service model	PLEASE PROVIDE A BRIEF DESCRIPTION	

Health workforce retention in rural and remote health services

Section 2: Workforce retention

5. What would you consider to be a *reasonable* length of stay in this service for the following health workers. (*Please place a tick (✓) in the not applicable (n/a) box if your health service does not employ any of the following health workers.*)

	Months	n/a
• Doctor (GP)		
• Nurse		
• Physiotherapist		
• Mental health worker/Psychologist		
• Social Worker		
• Podiatrist		
• Indigenous Health Worker		
• Health Service Manager		

6. Please indicate the extent to which you agree or disagree with the following statements. (*Please circle the number for your response*)

   i. Staff turnover is a major problem for this health service:

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

   ii. Staff retention is a more pressing problem than recruitment:

1	2	3	4	5
Much more important	More important	Same	Less important	Much less important

   iii. Staff turnover in the health service can be reduced by retention incentives:

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

Section 3: Workforce retention measures

7. Which **one** workforce retention measure would you consider to be the most effective in increasing the length of stay in this health service?

   ....

8. Does this health service pay financial retention allowances for a minimum period of service to any of its staff? ☐ Yes ☐ No

   If yes, provide details of the amount and time period.

   ....

9. How do you monitor the effectiveness of your workforce retention polices & incentives on length of stay?

   ....
   ....
   ....

Health workforce retention in rural and remote health services

10. What measures does your health service currently employ to encourage doctors and other health workers to stay longer in this health service? Tick all that apply.

	Doctors	Other Health Workers
Education and regulatory interventions		
• Recruitment of health workers from a rural/remote background	☐	☐
• Conditional licensing (license to practice in exchange of location in rural areas for overseas trained health workers)	☐	☐
• Loan repayment schemes (paid studies in exchange for service in rural area for a minimum period of time)	☐	☐
• Improved workplace infrastructure (eg telemedicine/telehealth)	☐	☐
• Flexible contracts and working arrangements	☐	☐
• Salary packaging arrangements	☐	☐
Monetary compensation		
• Higher salaries for rural/remote practice	☐	☐
• Retention incentives or allowances for minimum period of service	☐	☐
• Annual fares for family to nearest capital city	☐	☐
• Paid housing, vehicle	☐	☐
• Grants for school education	☐	☐
Management support		
• Supportive supervision/mentoring	☐	☐
• Guaranteed relief	☐	☐
• Support for continuous professional development, career paths	☐	☐
Environment and social support		
• Improved living conditions, including housing and child schooling	☐	☐
• Opportunities for spouse employment	☐	☐
Other (Please specify)	☐	☐

Section 4: Workforce turnover 2003-2008

11. Based on human resources data, please provide de-identified data for all employees providing direct health care in this health service 2003-2008.

    (**TEMPLATE A** IS A GUIDE SHOWING THE FIELDS TO BE INCLUDED IN YOUR SPREADSHEET.)

Section 5: Costs of workforce replacement

12. Based on human resources data or your best estimates, please complete the **TEMPLATES B to F** for each of the following:
    - Nurse *(Template B)*
    - Allied Health professional *(Template C)*
    - Indigenous health worker *(Template D)*
    - Health service manager *(Template E)*
    - Doctor *(Template F)*

THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY

Please return to either:

Professor John Humphreys	Professor John Wakerman
Monash University School of Rural Health	Centre for Remote Health
PO Box 666, BENDIGO VIC 3552	PO Box 4066, ALICE SPRINGS NT 0871
Email: john.humphreys@med.monash.edu.au	Email: john.wakerman@flinders.edu.au
Fax: 03 5440 9080	Fax: 08 8951 4777

APPENDIX 6: TURNOVER TEMPLATE

TEMPLATE A
LISTING OF ALL EMPLOYEES PROVIDING DIRECT HEALTH CARE EMPLOYED IN THIS HEALTH SERVICE 2003-2008

Discipline description (Doctor, Nurse, Allied Health Professional, Indigenous Health Worker, Manager)	Start date	Exit date (if not still employed)	Gender	Year of Birth	Country of primary qualification (if available)	EFT (1.0=Full-time)
EXAMPLES:						
Medical practitioner						
Speech pathologist						
Social Worker						
Occupational Therapist						
Podiatrist						
Physiotherapist						
Dietitian/Nutritionist						
Registered nurse						
Enrolled nurse						
Indigenous Health Worker						
Indigenous Community Worker						

Please photocopy as many of the following blank sheets as you need

APPENDIX 7: COSTS OF RECRUITMENT

TEMPLATE B - NURSE

COST OF RECRUITMENT

Calculating the costs of recruitment is sometimes difficult. For example, some organisations fund potential employees to visit their service and community and host them during their visit. In such situations you may only be able to estimate costs associated with the hours spent by employees hosting the visit and other associated entertainment costs. When completing the boxes below, **please indicate if the figure you enter represents actual costs** or your **best estimate of costs.** If estimate, please mark with an asterisk(*) alongside the figure.

Staff replacement costs			Totals
1. **Decreased productivity**	(such as lost knowledge and training, loss of morale amongst remaining staff and increased workload leading to burnout which are not easily quantifiable)		
2. **Vacancy:**	• Temporary staffing (ie: agency fees/locums)	$	
	• Overtime costs for existing staff	$	
	• Cost of patient transport/transfer	$	$
3. **Recruitment**	• Advertising	$	
	• Search firm costs ○ Screening costs: - Reviewing resumes & responding to inquiries	$	

	• Interviewing costs
	   ○ Staff time & salaries
	      - Preparation and conducting of interview
	      - Evaluating & negotiating with selected candidate
	      - Background checks
		$	

	• Relocation expenses
	   ○ Transportation & removal/storage
	   ○ Temporary accommodation costs
	   ○ Welcoming/Hosting costs
		$	$

4. **Cost of initial reduced productivity**	(such as lower initial productivity of new employee, decreased supervisor/co-worker productivity which are not easily quantifiable)		
5. **Orientation and training**	• Staff time and salaries	$	
	• Equipment	$	
	• Up-skilling programs	$	
	• Preceptor system (nursing)	$	$
		TOTAL COSTS:	$

THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY

TEMPLATE C – ALLIED HEALTH PROFESSIONAL

COST OF RECRUITMENT

Calculating the costs of recruitment is sometimes difficult. For example, some organisations fund potential employees to visit their service and community and host them during their visit. In such situations you may only be able to estimate costs associated with the hours spent by employees hosting the visit and other associated entertainment costs. When completing the boxes below, **please indicate if the figure you enter represents** <u>actual costs</u> or your <u>best estimate of costs.</u> If estimate, please mark with an asterisk(*) alongside the figure.

Staff replacement costs			Totals
1. **Decreased productivity**	(such as lost knowledge and training, loss of morale amongst remaining staff and increased workload leading to burnout which are not easily quantifiable)		
2. **Vacancy:**	• Temporary staffing (ie: agency fees/locums)	$	
	• Overtime costs for existing staff	$	
	• Cost of patient transport/transfer	$	$
3. **Recruitment**	• Advertising	$	
	• Search firm costs o Screening costs: - Reviewing resumes & responding to inquiries	$	

	• Interviewing costs
	  o Staff time & salaries
	    - Preparation and conducting of interview
	    - Evaluating & negotiating with selected candidate
	    - Background checks
		$	

	• Relocation expenses
	  o Transportation & removal/storage
	  o Temporary accommodation costs
	  o Welcoming/Hosting costs
		$	$

4. **Cost of initial reduced productivity**	(such as lower initial productivity of new employee, decreased supervisor/co-worker productivity which are not easily quantifiable)		
5. **Orientation and training**	• Staff time and salaries	$	
	• Equipment	$	
	• Up-skilling programs	$	
	• Preceptor system (nursing)	$	$
	TOTAL COSTS:		$

THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY

TEMPLATE D - INDIGENOUS HEALTH WORKER

COST OF RECRUITMENT

Calculating the costs of recruitment is sometimes difficult. For example, some organisations fund potential employees to visit their service and community and host them during their visit. In such situations you may only be able to estimate costs associated with the hours spent by employees hosting the visit and other associated entertainment costs. When completing the boxes below, **please indicate if the figure you enter represents** <u>actual costs</u> or your <u>best estimate of costs</u>. If estimate, please mark with an asterisk(*) alongside the figure.

Staff replacement costs			Totals
1. **Decreased productivity**	(such as lost knowledge and training, loss of morale amongst remaining staff and increased workload leading to burnout which are not easily quantifiable)		
2. **Vacancy:**	• Temporary staffing (ie: agency fees/locums)	$	
	• Overtime costs for existing staff	$	
	• Cost of patient transport/transfer	$	$
3. **Recruitment**	• Advertising	$	
	• Search firm costs ○ Screening costs: - Reviewing resumes & responding to inquiries	$	

	• Interviewing costs
	  ○ Staff time & salaries
	    - Preparation and conducting of interview
	    - Evaluating & negotiating with selected candidate
	    - Background checks
		$	

	• Relocation expenses
	  ○ Transportation & removal/storage
	  ○ Temporary accommodation costs
	  ○ Welcoming/Hosting costs
		$	$

4. **Cost of initial reduced productivity**	(such as lower initial productivity of new employee, decreased supervisor/co-worker productivity which are not easily quantifiable)		
5. **Orientation and training**	• Staff time and salaries	$	
	• Equipment	$	
	• Up-skilling programs	$	
	• Preceptor system (nursing)	$	$
	TOTAL COSTS:		$

THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY

TEMPLATE E - HEALTH SERVICE MANAGER

COST OF RECRUITMENT

Calculating the costs of recruitment is sometimes difficult. For example, some organisations fund potential employees to visit their service and community and host them during their visit. In such situations you may only be able to estimate costs associated with the hours spent by employees hosting the visit and other associated entertainment costs. When completing the boxes below, **please indicate if the figure you enter represents** <u>actual costs</u> or your <u>best estimate of costs</u>. If estimate, please mark with an asterisk(*) alongside the figure.

Staff replacement costs			Totals
1. **Decreased productivity**	(such as lost knowledge and training, loss of morale amongst remaining staff and increased workload leading to burnout which are not easily quantifiable)		
2. **Vacancy:**	• Temporary staffing (ie: agency fees/locums)	$	
	• Overtime costs for existing staff	$	
	• Cost of patient transport/transfer	$	$
3. **Recruitment**	• Advertising	$	
	• Search firm costs ○ Screening costs: - Reviewing resumes & responding to inquiries	$	

	• Interviewing costs
	  ○ Staff time & salaries
	    - Preparation and conducting of interview
	    - Evaluating & negotiating with selected candidate
	    - Background checks
		$	

	• Relocation expenses
	  ○ Transportation & removal/storage
	  ○ Temporary accommodation costs
	  ○ Welcoming/Hosting costs
		$	$

4. **Cost of initial reduced productivity**	(such as lower initial productivity of new employee, decreased supervisor/co-worker productivity which are not easily quantifiable)		
5. **Orientation and training**	• Staff time and salaries	$	
	• Equipment	$	
	• Up-skilling programs	$	
	• Preceptor system (nursing)	$	$
	TOTAL COSTS:		$

THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY

TEMPLATE F - DOCTOR

COST OF RECRUITMENT

Calculating the costs of recruitment is sometimes difficult. For example, some organisations fund potential employees to visit their service and community and host them during their visit. In such situations you may only be able to estimate costs associated with the hours spent by employees hosting the visit and other associated entertainment costs. When completing the boxes below, **please indicate if the figure you enter represents actual costs or your best estimate of costs.** If estimate, please mark with an asterisk(*) alongside the figure.

Staff replacement costs			Totals
1. **Decreased productivity**	(such as lost knowledge and training, loss of morale amongst remaining staff and increased workload leading to burnout which are not easily quantifiable)		
2. **Vacancy:**	• Temporary staffing (ie: agency fees/locums)	$	
	• Overtime costs for existing staff	$	
	• Cost of patient transport/transfer	$	$
3. **Recruitment**	• Advertising	$	
	• Search firm costs o Screening costs: - Reviewing resumes & responding to inquiries	$	

	• Interviewing costs
	   o Staff time & salaries
	     - Preparation and conducting of interview
	     - Evaluating & negotiating with selected candidate
	     - Background checks
		$	

	• Relocation expenses
	   o Transportation & removal/storage
	   o Temporary accommodation costs
	   o Welcoming/Hosting costs
		$	$

4. **Cost of initial reduced productivity**	(such as lower initial productivity of new employee, decreased supervisor/co-worker productivity which are not easily quantifiable)		
5. **Orientation and training**	• Staff time and salaries	$	
	• Equipment	$	
	• Up-skilling programs	$	
	• Preceptor system (nursing)	$	$
		TOTAL COSTS:	$

THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY

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APPENDIX 8: STAFF REPLACMENT COSTS FROM LITERATURE REVIEW

Overall, most studies calculating the differential costs of different staff in the healthcare environment have investigated hospital nursing staff in metropolitan locations. The results shown below indicate the magnitude of workforce recruitment costs. A major gap exists in our knowledge of turnover costs in primary health care services within the context of rural and remote locations in Australia.

Waldman *et al*. [45] calculated the cost of replacing the different staff employed in the Medical Centre in the South West of the United States using hiring, training, and the cost of reduced productivity cost categories. Table 1 indicates that it costs A$154,333 using the best case scenario in which job mastery is achieved quickly compared with the worst case scenario of A$185,254 to replace a physician, and that it costs A$23,487-A$31,486 to replace a nurse.

Table 1: Staff replacement costs

COSTS OF TURNOVER IN A MAJOR MEDICAL CENTRE					
Primary Cost Data on Health Care Turnover					
Cost (US dollars)per Person by Phase of Employment					
	To hire	To train	Cost of reduced productivity		TOTAL COST
			Best case scenario	Worst case scenario	
Physician	36,743	89,800	27,790	58,711	154,333-185,254
Nurse	1,635	15,825	6,027	14,026	23,487-31,486
Allied Health	720	1,587	4,061	10,709	6,368-13,016
Technical Staff	347	1,587	3,728	9,638	5,662-11,572
Support Staff	286	2,247	629	5,245	3,162-7,778
Administrators or Manager	276	3,650	6,105	16,102	10,031-20,028

Source: Adapted from Waldman *et al.*, 2004.

Another US study estimated that it cost A$236,383 to replace a General/Family Practice Physician, A$245,128 to replace a general Internal Medicine Physician and A$264,645 to replace a Paediatrics Physician.[34] A study of the Penn State Geisinger Health System estimated that replacing one primary care physician can result in A$20,000-A$26,000 in recruitment costs, a loss of A$300,000-A$400,000 in annual gross billings, a loss of A$300,000-A$500,000 in inpatient revenue, plus an additional loss of speciality referral revenue.[80]

The Australian study by Garnett *et al*.[38] costed the turnover for nurses employed in acute care, mental health, primary health care, community nursing and public health services in the Northern Territory. Costs were classified into five categories: recruitment (40 per cent), reduced productivity (28 per cent), vacancy (21 per cent), training (7 per cent) and termination (1 per cent). Table 2 shows that it costs on average A$10,734 to replace a nurse, with a range of A$5,963-A$22,123. The total annual cost of nursing workforce turnover for the Northern Territory Department of Health was estimated to be A$6,884,519.

Table 2: Costs of nursing staff turnover in Northern Territory

THE AVERAGE COST (AUS $) PER NURSE BY TURNOVER COSTS						
	Termination	Vacancy	Recruitment	Reduced productivity (new hire)	Training	TOTAL COST
Nurse	139	1,511	4,659	3,727	699	10,734
Range	65-309	0-5-336	2,074-7,485	755-11,484	71-2,726	5,963-22,123

Source: Adapted from Garnett *et al.*, 2008.

Several overseas studies have also examined the costs of replacing nurses. In the United States, Jones[39, 40] sampled four acute care hospitals in a southeast metropolitan area in South Carolina and found that the mean cost per nurse for the sample was A$10,198 based on both direct costs (advertising, recruiting costs, costs of unfilled positions, and hiring costs) and indirect costs (termination costs, orientation/ training costs, and costs of decreased new registered nurse productivity). Another US study calculated that a speciality nurse working in a perinatal unit in Maryland would cost A$64,000 to replace.[37] Edel & Alpers[81] state that "nursing turnover costs in the US can be as much as A$50,000 per RN"; while an earlier study estimated the replacement cost for a single registered nurse in US at A$2,500-A$3,000 in 1981.[82] Atencio *et al.*[83] noted that nurse turnover cost up to two times a nurse's salary. Closer to home, a New Zealand study conducted in 2002 measured turnover costs for a Surgical Unit and Acute Unit over a six month period and found that the turnover cost per nurse was NZA$20,000. The authors stated that it was an underestimation because they did not include costs due to lost productivity that had been found to be important in other studies.[47]