

# Workforce retention in rural and remote Australia: determining the factors that influence length of practice



John S Humphreys, Michael P Jones, Judith A Jones and Paul R Mara

THE SUPPLY OF general practitioners is pivotal to the delivery of healthcare to rural and remote communities in Australia. Currently, there continues to be an undersupply of rural doctors, despite implementation at all levels of medical education, training and practice of specific regulatory and incentive-based programs and initiatives to enhance rural medical workforce recruitment and retention.<sup>1-3</sup> While most effort to date has focused on recruitment, medical workforce retention has received significantly less attention in Australia, with few detailed empirical studies performed (notable exceptions are those of Kamien<sup>4</sup> and Hays et al<sup>5</sup>). There has also been little attempt to distinguish between the factors influencing rural medical workforce recruitment and those affecting retention.<sup>6</sup>

The 1998 review of general practice recommended the payment of retention grants based on length of service and rural location as one means of encouraging GPs to remain longer in rural and remote practice than they do now. Funding for these grants was provided in the 1999–2000 Budget.<sup>1</sup> However, the formulas for allocating these retention grants proved to be contentious. This was largely because of a lack of empirical evidence identifying (i) the factors most relevant in determining how long a GP would remain in a rural or remote location, (ii) the relative weighting of each retention factor, and (iii) whether the weightings varied in

## ABSTRACT

**Objectives:** To ascertain which factors are most significant in a general practitioner's decision to stay in rural practice and whether these retention factors vary in importance according to the geographical location of the practice and GP characteristics.

**Design:** National questionnaire survey. The method of paired comparisons was used to describe the relative importance of the retention items.

**Setting:** Non-metropolitan Australia, September 2001.

**Participants:** A stratified sample of all rural GPs practising during April–June 2001.

**Main outcome measures:** A rank ordering of factors influencing how long GPs stay in rural practice, and an index of their relative perceived importance.

**Results:** Professional considerations — overwhelmingly, on-call arrangements — are the most important factors determining GP retention in rural and remote areas. Rural doctors consistently ranked on-call arrangements, professional support and variety of rural practice as the top three issues, followed by local availability of services and geographical attractiveness. Proximity to a city or large regional centre was the least important factor. Retention factors varied according to geographical location and GPs' age, sex, family status, length of time in the practice, and hospital duties.

**Conclusions:** A broad, integrated rural retention strategy is required to address on-call arrangements, provide professional support and ensure adequate time off for continuing medical education and recreation.

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significance in different rural and remote settings.

Consequently, the specific objectives of our study were:

- to identify which retention factors are most important in the decision to stay in practice in a rural or remote community;
- to develop and test an empirically derived measure (rather than an ordinal

ranking) for determining the importance of selected retention factors; and

- to determine whether, and if so in what ways, the weightings attributed to each retention factor vary according to the remoteness of the practice and other practitioner characteristics.

The two classifications of rurality and remoteness used in our study are compared in Box 1.

## METHODS

### Survey

In September 2001, we conducted a national survey of GPs practising in rural and remote communities in April–June 2001. Our survey comprised a stratified sample of 1400 GPs obtained from the Health Insurance Commission after approval from the Statistical Clear-

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ing House.<sup>10</sup> To ensure a representative spread across the diversity of rural and remote communities, the sample was stratified according to the Rural, Remote and Metropolitan Areas (RRMA) classification categories 3–7 (Box 1).<sup>8</sup>

**Factors influencing rural medical workforce retention**

An extensive search of the current Australian and international literature was conducted to identify the factors influencing rural medical workforce retention.<sup>6</sup> In general, factors affecting retention and turnover fall into three broad categories: professional issues, social factors relating to personal characteristics and the family, and external factors relating to the community and its geographical location.

GPs were asked to consider the importance of six professional, social or community workforce retention factors:

- The *variety of rural practice*, including procedural activity;
- The *availability of professional support* from local, well qualified colleagues and specialists, and from professional organ-

isations through continuing medical education (CME);

- *Good on-call arrangements*, including time off for holidays;
- *Local availability of services*, including education for children and opportunities for spouse employment;
- *Proximity to a city or large regional centre*; and
- *Local geographic attractions*, such as proximity to the coast or national parks, or opportunities for a rural lifestyle.

**Ethics approval**

Ethics approval was obtained from the Monash University Standing Committee on Ethics in Research Involving Humans.

**Statistical analysis**

The Bradley–Terry model of paired comparisons was used to elicit the importance of workforce retention factors. The model is a logit form of a log-linear model for quasi-symmetry.<sup>11</sup> The model parameters represent the relative probability of selection for each retention factor compared with a reference choice.

The paired-comparisons technique requires respondents to evaluate all possible pairs of (in our study) retention factors, and, in each case, to choose one over the other. Each factor is paired with every other factor in all possible combinations, with no equal choices allowed. To reduce bias, pairs of alternative retention factors are arranged so that each appears equally on the right and left side of the questionnaire page, alternates from right to left, and does not appear consecutively, but rather is spaced as far apart as possible.<sup>12</sup>

Given a set of *n* alternatives,  $n(n-1)/2$  comparisons must be made by each respondent. To avoid the effect of respondent fatigue, only a relatively small number of factors can be included.

The result was a preference scale of alternatives as rated by the participants. Importantly, both the rank order of importance of retention factors and an estimate of the interval separating the factors were obtained. Because the values for each factor reflect the characteristics of the data, the origin of the scale is arbitrary. To facilitate comparison, the scaling is transformed to a base of zero by ranking the least important factor as zero.

**RESULTS**

A total of 677 usable questionnaires was returned from the 1344 eligible practising rural and remote GPs, representing a 50% response rate (Box 2).

**2: General practitioner sample and number (%) of valid responses by Rural, Remote and Metropolitan Areas (RRMA) classification**

RRMA category	Eligible GPs*	Responses†
3	386	168 (43.5%)
4	388	189 (48.7%)
5	387	227 (58.7%)
6	86	41 (47.7%)
7	97	52 (53.6%)
Total	1344	677 (50.4%)

\*Reasons such as "return to sender", "moved from place of residence" reduced the sample from 1400 to 1344 GPs.

†Usable returned questionnaires.

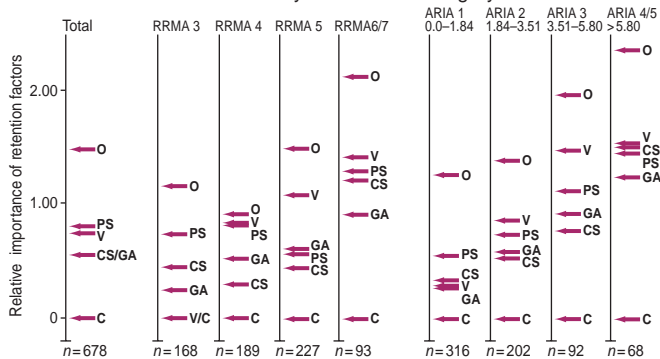
**1: Comparison of the categories for rural and remote of the Rural, Remote and Metropolitan Areas (RRMA) classification and the Accessibility/Remoteness Index of Australia (ARIA)<sup>7-9</sup>**

The RRMA, which was developed in 1994, uses Statistical Local Areas, and is primarily based on population numbers and an index of remoteness. The ARIA, commissioned by the then Department of Health and Aged Care in 1998, uses geographic information systems technology and determines the degree of remoteness of a community by the level of accessibility to services measured along the existing road network (<http://domino.ama.com.au/AMASWeb/GeneralP.nsf/GP?OpenView>). The Department of Health and Ageing is currently moving away from the RRMA classification and towards classifications such as ARIA for determining rurality and remoteness.

RRMA classification	ARIA categories
<i>Rural zone</i>	
RRMA 3 – Large rural centre (population, 25 000–99 000)	Highly accessible (ARIA score, 0–1.84) — relatively unrestricted accessibility to a wide range of goods and services and opportunities for social interaction
RRMA 4 – Small rural centre (population, 10 000–24 999)	Accessible (ARIA score, > 1.84–3.51) — some restrictions to accessibility of some goods, services and opportunities for social interaction
RRMA 5 – Other rural area (population, < 10 000)	Moderately accessible (ARIA score, > 3.51–5.80) — significantly restricted accessibility to goods, services and opportunities for social interaction
<i>Remote zone</i>	
RRMA 6 – Remote centre (population, 5000 or more)	Remote (ARIA score, > 5.80–9.08) — very restricted accessibility of goods, services and opportunities for social interaction
RRMA 7 – Other remote area (population, < 5000)	Very remote (ARIA score, > 9.08–12) — very little accessibility of goods, services and opportunities for social interaction

**3: Relative importance of each of six factors in GPs' decisions to remain in rural practice**

**A: Variation in retention factors by remoteness category**

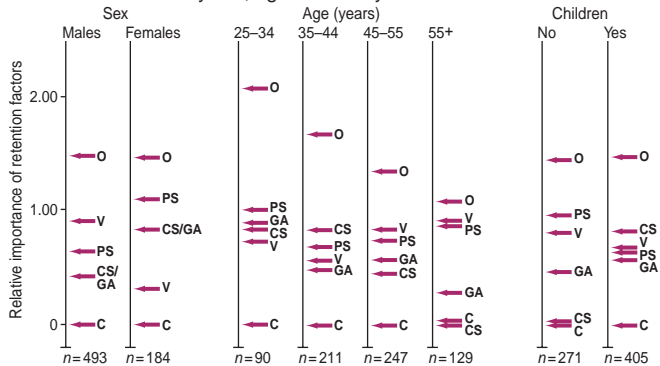


**A: Importance of retention factors by rurality or remoteness.**

Both RRMA categories and the Accessibility/Remoteness Index of Australia (ARIA) were used.<sup>8,9</sup> Some categories (invariably RRMA 6 and 7, and ARIA 4 and 5) were combined if there were too few responses for statistical reliability. Although the RRMA and ARIA categories are not strictly comparable (Box 1), the results display significant consistency for both measures of remoteness.

- Almost without exception, professional factors were more important than social or external factors.
- Good on-call arrangements were overwhelmingly the most significant factor for all rural and remote regions, regardless of respondent age, sex or practice location.
- The significance of on-call arrangements in influencing how long a GP stays in practice in their current community increased with increasing rurality or remoteness.
- Proximity to a city or large regional centre was, in contrast, almost without exception the least important consideration.
- The significance of variety of rural practice increased with increasing rurality or remoteness, as did local geographical attractions.
- Although availability of professional support and variety of rural practice tend to be consistently more important than either local availability of services or local geographic attractions, these scores show less clear-cut priority, suggesting that participants often find it difficult to separate their importance from each other.

**B: Retention factors by sex, age and family status**

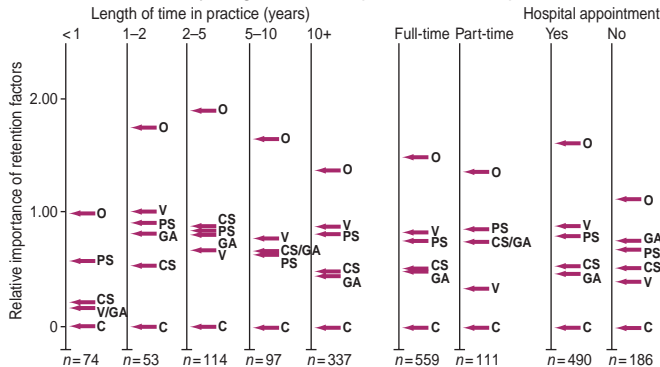


**B, C: Retention factors by demographic and practice characteristics.**

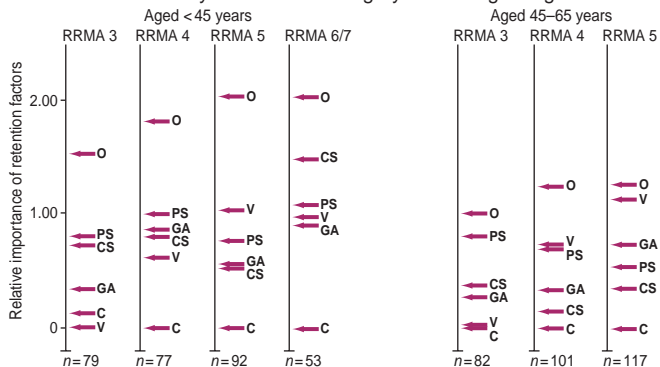
These identified a somewhat different order of priorities — most notably for younger, female GPs, with children or part-time.

- For GPs who are younger, female, with children or part-time, good on-call arrangements and availability of professional support are still generally the most important factors, but local availability of services and local geographic attractions assumed greater importance, moving up to third and fourth places.
- Part-time doctors and those with children indicated greater need for local community services and geographic attractions
- Variety of practice was clearly more important for male than female rural GPs.
- Retention factors converged markedly with age, suggesting that either GPs find ways of adapting to the on-call demands and meeting their needs for professional support, or that recent medical graduates have different expectations from those of established rural GPs.
- Although good on-call arrangements remain consistently the dominant factor, their significance varies with GPs' age and duration of stay in a practice.
- The separation of professional from other factors became most clear-cut for those GPs with the longest duration of stay in a practice.

**C: Retention factors by length of time in practice and hospital status**



**D: Retention factors by remoteness category controlling for age**



**C** Proximity to city or large regional centre  
**CS** Local availability of services  
**GA** Local geographic attractions  
**O** Good on-call arrangements  
**PS** Availability of professional support  
**V** Variety of rural practice

**D: Retention factors by age and rurality or remoteness.**

Because of small numbers, only two age groups were used.

- Good on-call arrangements remain the most significant factor for all groups, but the importance of the six retention factors converge noticeably for older-age GPs.
- Variety of practice is also ranked more highly for the older group.

The results of the paired-comparison analyses (Figures A–D) are shown in Box 3. The vertical axes represent an open-ended index of the perceived importance of each factor relative to the reference factor “proximity to city or large regional centre”, which is set at zero. Positive values of the index indicate greater perceived importance. In interpreting our findings, priority was given to the rank order of factors and the magnitude of the differences in the parameter estimates.

Some indication of whether the differences in importance could be due to chance was obtained from 95% CIs, but to preserve clarity these are not shown in Box 3. Statistical significance was of secondary importance to order and magnitude of the difference in values. (Detailed tabular versions of the Figures in Box 3, including CIs, are available from us on request.)

## DISCUSSION

Until the recent introduction of retention payments, relatively little had been done to encourage rural doctors to stay in rural practice. Although there is undoubtedly some overlap between the factors influencing recruitment and retention, important differences exist that warrant consideration.<sup>6,13</sup> Ours is the first comprehensive Australian study identifying the importance of factors influencing how long rural GPs are likely to stay in their communities. Our results support the assertion that, while “the decision to locate in a rural practice setting occurs largely from outside that setting . . . the decision to remain takes place from within the practice setting and arises from the stream of experience there”.<sup>14</sup>

The overwhelming importance of professional factors as determinants of length of practice in rural areas is confirmed. The key workforce problem for rural doctors is inability to get time away for recreational leave and family considerations, and for emergency relief and relief to complete CME programs. The difficulties providing an after-hours service and ensuring reasonable on-call arrangements relate to the size and location of the community. Currently, the problem is most acute in the smaller rural and remote communities. In the

absence of good on-call arrangements and professional support, the unrelenting nature of after-hours care imposes an excessive workload, with negative effects both on GPs’ (and their families’) health and well-being, and on their opportunities to enjoy their rural location.

Currently, rural retention grants provide some reward for duration of stay in a practice. The results of our study provide a sound empirical basis for weighting the retention-grant allocation formulas to ensure that these grants reflect the varying importance of factors determining length of stay.

Additionally, however, a strategic, long-term solution is required to ensure acceptable on-call and after-hours arrangements and to provide appropriate professional support, thereby minimising the onset of triggers that may lead to doctors leaving a rural practice prematurely. Interventions not affecting on-call and related professional issues will not solve the key problem. A broad strategic solution incorporating several measures is required, including:

- *Recruiting more rural doctors* to help provide a reasonable on-call ratio and ensure comprehensive after-hours care. History shows, however, that the recruitment of rural doctors is no easy task. Recruiting female doctors (who now comprise over half of the medical school intake and have a different set of expectations in terms of practice activities) will be particularly challenging.

- *An appropriate locum strategy* guaranteeing the provision of locums at an affordable price. To date, governments, through Rural Workforce Agencies and Divisions of General Practice, have focused on providing locums as the mechanism for providing leave. However, a locum-based strategy alone is not a sustainable long-term solution, particularly given the large number of locums required to provide adequate relief for all doctors working in rural and remote Australia. Moreover, use of locums raises issues about suitability of their training for rural and remote practice, continuity and standards of patient care, practice maintenance and the inevitable requirement to source the bulk of these locums from overseas.

- *The development of regional medical practice models* in appropriate rural set-

tings. This may facilitate a reduction in on-call ratios and enhance opportunities for professional support. In this way, communities currently supporting a solo practice can support another doctor, two-GP towns can become three-GP towns, and so on, so that the facility to cover after-hours and relieve pressure is built into the local practice staffing and organisation arrangements.<sup>15</sup>

The importance attributed to variety of rural practice as a factor influencing the length of time in rural practice should not be overlooked. Many doctors move to rural areas because of the opportunity to practise procedural and comprehensive care. The factors that determine opportunities to engage in a variety of rural medical practices are complex, including other support staff, availability of facilities, changing technologies, improving transportation and changed community expectations. Nonetheless, it should be recognised that health policies (driven largely by economic imperatives) resulting in reductions in procedural and hospital activity not only affect the length of time that GPs will remain in practice, but also the ability to recruit doctors to rural and remote practice. Similarly, the disincentive of increasing medical indemnity payments for rural medical proceduralists is now widely recognised.

Measures to improve rural medical workforce retention must not be introduced at the expense of a viable and attractive practice income for existing local doctors. Hence, any move to relieve onerous on-call commitments by bringing another doctor into a small town, normally serviced adequately by one GP, must take into account the effect on (or threat to) the economic sustainability of the practice.

The challenge is to develop an integrated rural medical workforce retention strategy which

- takes account of the nature, complexity, and context of rural and remote general practice;

- provides professional support and remuneration appropriate to skills and responsibilities; and

- enables the doctor to spend a reasonable amount of time away from the practice.

Such a strategy will not only meet the needs of existing rural practitioners, but also serve to enhance the attractiveness of rural practice to prospective rural practitioners.

**COMPETING INTERESTS**

None declared.

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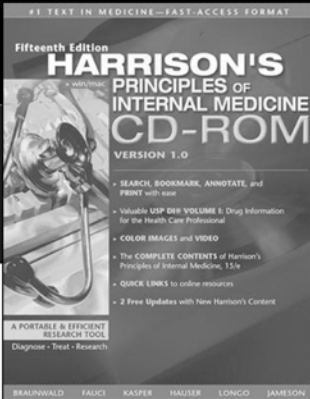
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