

Recruiting and Retaining General Practitioners in Rural Areas: Improving Outcomes through Evidence-Based Research and Community Capacity-Building.

Executive Summary of the Evidence-Based Research

October, 2002

**John McDonald
Louise Bibby
Steve Carroll**

**Centre for Health Research and Practice
University of Ballarat
PO Box 663
Ballarat, Victoria, Australia, 3353.
Phone (03) 5327 9745
Email j.mcdonald@ballarat.edu.au**

This work is copyright and may not be reproduced by any means without written permission from:
Victorian Universities Rural Health Consortium (VURHC)
PO Box 2377
Rowville Vic 3178

E-mail: exec@vurhc.org.au
Website: www.vurhc.org.au



**This project has been jointly funded by
the Victorian Universities Rural Health Consortium and
the Rural Workforce Agency, Victoria.**

**The Victorian Department of Human Services is funding VURHC to carry
out the second stage of this project (2002/3)**

Contents

1. Project Rationale and Background	4
2. Project Aims and Objectives	6
3. Project Methodology	7
4. Predictors of Recruitment	9
5. Predictors of Retention	11
6. Barriers to Recruitment and Retention	12
7. Attractors to Rural Practice	14
8. Evaluation of Programs and Services	15
9. Community Capacity-Building Approaches to Recruitment and Retention	18
10. References	20

1. Project Background and Rationale

The Victorian Universities' Rural Health Consortium (VURHC) was established in 1998 to improve rural health outcomes through research and education. This collaborative project has been jointly funded by VURHC and the Rural Workforce Agency Victoria. The project aims to address a critical issue facing many rural communities: access to general practitioners (GPs).

The rationale for the project can be summarised in seven key points.

1. General practitioners are in short supply and high demand across many areas of rural Australia.

The impact of workforce shortages in rural areas includes “poor access, unmet need, potentially poorer health outcomes for patients, overworked doctors, and expensive strategy responses to the shortages by government” (AMWAC and AIHW, 1998).

2. Rural communities experience difficulties with both the recruitment and retention of general practitioners.

Recruitment refers to the problem of attracting GPs, while retention refers to the decision to remain in rural practice. Some communities cannot attract a GP while others are known to have a particularly high turnover.

3. Numerous programs have been developed to attract general practitioners to rural areas – overall with mixed results.

Commonwealth and state health departments, rural workforce agencies, divisions of general practice, universities, and rural communities themselves have all implemented numerous programs to address recruitment and retention issues. Despite these initiatives, many rural areas remain under-serviced.

4. There has been substantial national and international research into factors affecting recruitment and retention.

Factors that have been identified as barriers include: professional isolation and lack of organisational support, inadequate access to hospitals, unreasonable workloads, unsatisfactory levels of procedural work, and the lack of availability of good social and cultural facilities. Factors likely to attract medical graduates to rural areas include: childhood experience of country life, and rural internship.

5. A significant body of research has revealed that factors relate to familial, social, lifestyle or locational issues. Many of these issues are directly or indirectly within the control of the community.

Market forces affecting the distribution of the medical workforce are mediated by a complex interplay of individual, familial and environmental factors. These factors include access to continuing education, employment for one's partner, children's educations, lack of suitable housing, family and social ties and lifestyle preferences. Rural communities do have the capacity to influence these factors.

6. Research has revealed the effectiveness of community mobilisation programs.

Recent evidence indicates that rural communities can successfully campaign to attract general practitioners to their towns. Veitch (1999), for example, has adapted an effective North American program that used university-based facilitators to work with local communities.

7. The practical use of evidence-based approaches promises better outcomes for rural communities.

The international movement towards evidence-based practice provides a methodology for identifying the most effective and efficacious health interventions. This project involves the systematic review of qualitative and quantitative evidence concerning recruitment and retention.

In summary, this project utilises the best available research evidence and works with rural communities to recruit and retain general practitioners.

2. Project Aims and Objectives

The overall aim of this project is to develop an innovative, effective approach to recruiting and retaining rural general practitioners.

The project adopts an innovative solution to the problems of rural workforce management and the sustainability of rural health services: research knowledge is being integrated with a community-building approach. This project uses evidence-based health care to develop effective local programs to recruit and retain general practitioners.

The overall objectives of this project are to:

1. Complete an evidence-based assessment of the research literature to identify the predictive factors and the most effective interventions in recruitment and retention.
2. Validate this knowledge through primary data collection in rural communities.
3. Develop a community capacity-building program to promote the practical application of this research knowledge in local communities.
4. Conduct 5 regional forums with key stakeholders from a wide range of rural communities.
5. Pilot the community capacity-building approach in 3 rural communities.

This Executive Summary reports on objective one. The other four objectives are part of the second stage of the project being conducted in 2002/2003.

The information in this Executive Summary should be of interest to all organisations and individuals concerned with building sustainable rural health services.

Two other reports complement this Executive Summary:

1. a lengthy "Project Report" which presents the detailed evidence-based assessments of previous research upon which this Executive Summary is based. This report also includes an annotated bibliography
2. a "Community Resource Manual" for use by rural health services and their communities.

3. Project Methodology

This section explains the methodology used in searching for and systematically reviewing the research literature on GP recruitment and retention.

Literature Searching

To limit the search, only research published in 1990 or later was considered for review. The only exceptions were seminal studies or those that were frequently cited. No research prior to 1987 was used. Opinion articles were not reviewed. A preliminary search indicated a relative paucity of Australian material; a decision was made to supplement this with international literature.

A MedLine search was conducted, using the words “rural”, “general practitioner”, “rural general practitioner”, “rural doctors”, “rural physicians”, “rural medicine” and so on. The following databases were also searched: “Dissertation Abstracts Online”; EBSCOhost using CINAHL; Academic Search Elite; EBSCO Online Citation; Health Source: Nursing/Academic Edition; Academic Medicine Online; Infotrieve, Medical Journal of Australia Online (eMJA) and Proquest.

The National Rural Health Alliance “Rural and Remote Health Papers – 1991-2001” CD-ROM was searched for relevant articles in all issues of the Australian Journal of Rural Health (AJRH) and conference papers. Hand searching was also conducted of later AJRH issues, and other journals such as Australian Family Physician.

Other search strategies included:

- reference lists from journal publications, books and grey literature
- electronic journals such as the Canadian Journal of Rural Health
- general searches using online search engines such as Looksmart and Yahoo websites such as the Rural Workforce Agency Victoria (RWAV) and the Australian Department of Health and Ageing
- many Australian and overseas university websites were searched. Some authors were contacted personally in order to obtain research articles.

Systematic Review

The literature was categorised into 5 main areas:

1. Predictors of recruitment
2. Predictors of retention
3. Barriers to recruitment and retention
4. Attractors to rural practice
5. Evaluations of interventions (programs and services designed to improve recruitment and retention)

Every article and report was read and an annotated bibliography prepared using the following headings:

- first author
- location of study
- year of publication
- title
- publication
- study design and sampling procedures
- data analysis
- results and conclusions
- level of evidence.

A copy of the annotated bibliography is appended to the main report.

To evaluate the research findings, an evidence-based rating scale was devised. Given that most of the research was descriptive and used non-experimental

designs, the orthodox level of evidence scales were modified.

Criteria used to assess descriptive, non-experimental and qualitative studies were drawn from a range of key references (Dawes, Davies, Gray, Mant, Sears, & Snowball, 1999; Gomm, Roger & Davies, 2000; McKibbon, Eddy & Marks, 1999; Muir Gray, 1997).

The overall strength of evidence for a particular factor affecting recruitment and retention was based upon three variables:

- the evidence-based rating scale of the studies in which that factor had been identified
- the frequency of the studies that had identified that factor
- the reported strength (statistical or non-statistical) of the factor in each study.

A diagrammatic model of the factors affecting retention has been prepared (see next page). This model incorporates all the significant factors that have a positive and negative effect and weights each of them according to their overall strength of evidence.

4. Predictors of Recruitment

This section summarises the evidence about the factors that predict the likelihood of a GP practicing in a rural area. The strongest predictor is rural background. There is some evidence that rural training placements predict entry into rural practice. Other factors are also considered here.

Rural Background

There is very strong evidence – both nationally and internationally – that having a rural background is the strongest predictor of entry into rural practice. Various studies have reported that GPs with a predominantly rural childhood background are up to 4 times more likely to enter rural practice than those who grew up in urban areas. This fact has been widely recognised. However, our evidence-based analysis of Australian research revealed interesting variations to this general finding.

The sub-predictors associated with a rural background that increase the likelihood of entering rural practice include:

- having a rural primary school education (this appears to be more important than rural secondary education)
- for rural GPs with partners, the strongest independent predictor is having a partner who grew up in the country (rural GPs have been found to be 3 times more likely to have a partner with a rural background than urban GPs)
- having family living in a rural area has been found to be significantly associated with long-term plans to practise in a rural area

- the view of one's partner or spouse about living and working in a rural area.

There is conflicting evidence about the effect of the size of the town. Some research suggests that GPs raised in towns with less than 5,000 people are more likely to enter rural practice than those from larger towns. Other studies have not confirmed this relationship.

The gender of the GP is also significant. Compared to males, female GPs working in rural and remote areas are significantly more likely to have a partner with a rural background.

While rural background is the strongest predictor, it is not the only predictor. A significant proportion of rural GPs does not have a rural background.

Rural Medical Training

Undergraduate and postgraduate clinical experience in a rural setting is the second strongest predictor of rural practice. Australian research shows significant associations between a decision to do further residency training in the country and:

- length of time spent in a rural hospital
- a perception that previous rural hospital experience had enhanced theoretical knowledge
- a belief that rural training has a positive influence on a future career in rural medicine and
- an expressed desire for a career in rural medicine.

Other Predictors

Compared to their urban GP counterparts (Wilkinson, 2000), other predictors of rural practice include:

- being male (though this will probably change because females now outnumber males (1) in many medical undergraduate courses, and (2) as Royal Australian College of General Practice rural trainees)
- being older
- Australian-born
- having a partner, and
- having children under 18 years of age.

5. Predictors of Retention

- rural physicians who move to a city generally do not return to rural practice
- a good match between National Health Services Corps physicians and their communities predicts higher retention, as does greater community integration.

Studies of rural retention are beset with definitional problems. For example, how long does a GP need to stay in rural practice before we can say that they have been “retained”? Or, if a GP moves from one rural community to another, is this retention or not?

There has been relatively little Australian research on predictors of retention. The strongest evidence comes from Adikhari et al. (1993) longitudinal cohort study of Medicare data.

The key findings from this study were that:

- initial location was the best predictor of final location
- most GPs remained in their initial practices for 5 years
- the more rural the location, the more likely the GPs were to move
- having an Australian qualification predicted both initial choice of rural location and location after five years.

International research qualifies the above findings. Well-conducted studies in Canada and the United States of America indicate that:

- rural background predicts current practice location more than five years after graduation (by contrast, other research shows that rural background does not predict retention)
- heavy workload (such as sharing on-call duty with only one other physician, or solo practice), lower reimbursements and professional isolation is associated with considerations about leaving rural practice

6. Barriers to Recruitment and Retention

A substantial volume of Australian and international research has focused on identifying the factors that retard recruitment and lead to decisions to leave rural practice. Many of these studies use surveys or interviews. In general, the research designs are not strong, but the sheer number of studies and consistency of findings lends weight to the evidence-based assessment.

This section summarises the research evidence about the barriers to recruiting and retaining rural general practitioners. In descending order, the most significant barriers are:

1. Lack of access to quality secondary schooling
2. Heavy workload
3. Spouse or partner's unhappiness
4. Lack of community resources
5. Professional isolation
6. Low remuneration
7. Lack of locum relief
8. Difficulty accessing continuing medical education (CME)
9. Conflict with the medical community
10. Personal isolation
11. Lack of privacy and anonymity.

There is a strong correlation between the Australian and overseas research. Our analysis strongly suggests that none of these issues stands alone. The barriers are complex and overlapping. The barriers are sometimes reported as disincentives for entering rural practice; others are clearly triggers for leaving rural practice, or reasons for moving to a larger country town.

These barriers have been grouped into three main issues:

- professional practice issues
- personal and family issues
- community issues.

Professional Practice Issues

A range of professional practice issues are consistently cited in research studies as either a problem, or as a reason for leaving or considering leaving rural practice. In order, from most to least significant, the issues are:

- Heavy workload and/or lack of time off
Workloads are generally much greater for rural compared to urban doctors, due primarily to after-hours and on-call work. The availability of annual and other leave is also a high priority. Workload issues are rarely reported as a disincentive to entering rural practice, but are often cited as a reason for leaving rural practice.

- Professional isolation
Rural GPs frequently report professional isolation as a problem. The main aspects of isolation are not having access to other medicos, specialists or professional colleagues with whom to discuss medicine, exchange ideas or refer to. Other aspects include: restricted access to continuing medical education; a feeling that health policies and programs are city-based and do not adequately represent rural GPs' situation; and a lack of respect and support by medical authorities and teaching institutions. Being in a solo practice exacerbates these problems.

- Low remuneration
Income is important to the quality of life of rural GPs, but it is far from being the most important. Inadequate financial reward is mainly related to payment for after-hours work. These issues have been addressed to some extent with the increased pay for

after-hours work and the extension of the hours considered as after-hours work (Health Insurance Commission, 2001).

- Lack of locum relief
Lack of locum relief for holidays, emergencies and CME exacerbates the already heavy workload of rural GPs.

- Difficulty accessing continuing medical education (CME)
Problems arranging time off and lack of regular exposure to CME are important issues for rural GPs, but seem to be improving.

Other professional practice issues include the ever-increasing burden of bureaucratic paperwork, a perceived lack of respect from urban doctors, and a lack of appropriate training in rural practice.

Recent research by Wainer (2001) has identified that the particular concerns of female rural GPs are:

- flexibility in training and (part-time) work arrangements
- provision of childcare to cover CME and on-call
- safety provisions during after-hours services
- locum relief to cover after-hours work.

Personal and Family Issues

- Lack of access to quality secondary schooling

The most significant issue for GPs leaving or considering leaving rural practice is dissatisfaction with the standard of secondary schooling for children. Secondary schooling is much more of a concern than primary schooling; it is often a trigger to leave rather than just a disadvantage.

- Spouse and family issues
A spouse's opinion about rural life, their general happiness, and opportunities for professional employment are highly influential factors in recruitment and retention.

- Isolation
Isolation from family and friends, and geographical isolation from social and cultural activities in the city are important problems associated with rural practice.

Community Issues

- Poorer community resources and facilities

Aside from schooling facilities, research indicates that lack of recreational, shopping and trade services are reasons for leaving or considering leaving rural areas. Poor hospital facilities and inability to practice enough procedural work are also important.

- Conflicts with the medical community
A number of Australian studies have identified that conflicts with the hospital boards or administrators, and with other health care professionals, have prompted GPs to leave.

- Loss of privacy and anonymity
The GP is a highly visible and prominent member of a rural community. Issues of privacy and anonymity are ever-present.

7. Attractors to Rural Practice

While it is valuable to examine why doctors leave rural practice or do not enter it in the first place, it is also important to assess the reasons why they choose rural practice. By doing so, we can preserve and enhance the desirable attributes of rural practice.

Evidence from Australian and international research indicates that the most important attractors to rural practice are:

1. Sense of community
2. Rural lifestyle
3. Scope and variety of work
4. Hospital access and procedural work
5. Independence and autonomy
6. Comprehensiveness and continuity of care
7. Happiness of spouse and family.

Sense of Community

The sense of community in country towns is highly valued by rural GPs. The key elements of this include connectedness, the degree of community recognition and appreciation, and a feeling that they were making a difference to the community.

Rural Lifestyle

Not surprisingly, the love of the rural lifestyle and environment was the most salient personal attraction of rural practice. This love of a rural lifestyle encompasses the cleaner country environment, a more relaxed way of life, outdoor living, and increased safety for family members.

Scope and Variety of Work

The most important aspect of professional practice for rural GPs appears to be the scope and variety of work. GPs are expected to become multi-skilled, and they encounter a greater range of medical conditions than urban GPs.

Hospital Access and Procedural Work

The capacity to practise procedural medicine and/or do hospital work is attractive to rural GPs.

Independence and Autonomy

In professional practice, rural GPs have to rely heavily on their own knowledge, skills and medical preparedness. The inherent challenge and responsibility of rural medical practice is widely reported as an advantage. This appears to be a particular feature for GPs in towns of less than 20,000 people.

Comprehensiveness and Continuity of Care

Rural GPs report valuing the opportunity to practise ongoing, whole patient care and whole family care within a community context.

Happiness of Spouse and Family.

Spouse and family happiness, including the availability of employment for spouses, was considered an attraction or reason for staying in rural practice. The preference of a spouse for living in the country, and proximity to family and friends, are important.

8. Evaluation of Services and Programs

This section assesses the effectiveness of interventions (services and programs) that aim to recruit and retain rural GPs. In Australia, most interventions are relatively new and have been modelled on programs and services that have been operating in the United States of America and Canada. For this reason, this section relies heavily on the international literature.

Overall, there is not yet strong empirical evidence for the efficacy of any of these initiatives. The methodological problems consistently identified in our analysis were:

- no use of comparison or control groups
- an over-reliance on surveys of GPs' attitudes or intentions rather than actual behaviours
- inadequate sample sizes or unrepresentative samples and selection biases
- inconsistent use of definitions of key variables including "rural" and "retention"
- cross-sectional and retrospective designs
- insufficient information on statistical analyses
- qualitative studies that did not formally and systematically apply techniques for strengthening credibility and transferability.

Nevertheless, categorisation of the research literature indicated that there have been ten major types of interventions. Ranging from the most to the least effective, the interventions are:

1. funded student scholarships (with obligations)

2. preferred student admission (rural backgrounds)
3. rural placements
4. overseas-trained doctors
5. continuing medical education
6. locum relief
7. financial incentives
8. case management
9. university-linked rural practice
10. rurally-located medical schools

Funded Student Scholarships

Overall, an evidence-based approach showed that obligated service has the strongest evidence available based on several high quality pieces of research into recruitment and retention. Obligated service demonstrates a good impact on recruitment while the recipients are under obligated service. However, in comparison to other non-obligated GPs, retention is lower and obligated GPs are less likely than non-obligated GPs to remain in their initial practice.

Preferred Student Admission (Rural Background)

Studies examining the impact of a rural background have also produced some strong findings. In the United States, there is evidence that shows greater recruitment and retention rates for medical students with a rural background, compared to their city counterparts. Rural background combined with rural placement also produces a strong cumulative effect on recruitment and retention. In Australia, programs need to be in operation for a longer period of time to assess the impact.

Rural Placements

Rural placements have also improved recruitment to rural practice. Medical students in the United States who undertake a rural placement are more likely to practise in a rural area, although it is unknown if this greater likelihood is statistically significant. In Australia, it is too early to determine the effect of rural placements on medical students due to the short period of time the policy has been in operation. At this stage, those students that have participated in rural placements have responded positively and indicated a greater intention to practise in rural areas than those students who have not completed a rural placement.

Overseas Trained Doctors (OTDs)

Evidence shows that OTDs do make an important contribution to rural and remote areas. Initial findings suggest that recruitment is particularly strong in underserved areas. There is not yet strong evidence about retention. Although it has been suggested that OTDs add to the oversupply of GPs in both Australia and the United States, if OTDs were abolished, there is no established program that could adequately compensate for the resulting shortfall in GP supply in rural areas.

Continuing Medical Education

Lack of access to continuing medical education (CME) has been identified as a major disincentive to rural practice. CME programs that target rural GPs have been positively evaluated, and doctors report that that this enhances retention (though

there is no behavioural evidence to support these opinions).

Locum Relief

Locum relief has been positively evaluated by those GPs involved in the programs. It is reported to have a greater effect on retention than recruitment. However, more research is needed to demonstrate that it has a statistically significant effect on GP recruitment and retention.

Financial Incentives

Financial incentives packages are widely used, and it has been reported that they do attract GPs to rural practice. However, there is a lack of solid evidence to demonstrate direct attribution. Generally, a program includes more than one initiative (which makes it difficult to isolate the effect of a single intervention such as financial incentives).

Case Management

A range of case management and recruitment officer programs exist in Australia and overseas. They report some success in recruiting GPs including OTDs, but the evidence is not strong (for example, pre- and post- measures, and comparison groups, are rare). There is no evidence about the impact of case management on retention.

University-linked Rural Practice

One Australian study shows a positive impact of university-linked rural practice on recruitment and retention. More rigorous research is required to conclusively demonstrate effectiveness.

Rurally-located Medical Schools

No evaluations were available, but it is claimed that these initiatives have a positive impact on admissions of students from a rural background.

9. Community Capacity-Building Approaches to Recruitment and Retention

What is Community Capacity-Building?

Community capacity refers to the attributes of communities that determine their capacity to identify, mobilise, and address social and public health problems McLeroy (1996). Capacity-building aims to foster the conditions that strengthen the attributes of communities that enable them to plan, develop, implement, and maintain effective community programs (Poole, 1997). In the context of this project, community capacity-building is an approach that rural communities can use to recruit or retain a general practitioner.

Why Use Community Capacity-Building?

The justification for using this approach is:

1. Communities have some degree of control in addressing many of the known barriers to recruitment and retention.
2. Further, communities have some degree of control over the known predictors of and attractors to rural practice.
3. Community capacity-building has been used successfully to address a wide range of health problems, including GP workforce issues (Amundson and Rosenblatt, 1991; Fleming, McRae and Tegen, 2001; House and Hagopian, 1994; Veitch et al., 1999).

4. Capacity-building, when combined with an evidence-based approach to addressing barriers, predictors and attractors, offers rural communities a strategic advantage in successfully recruiting and retaining a general practitioner. Communities can develop and implement strategies based on rigorous research knowledge about the most effective interventions.
5. Community capacity-building can – and should – be used by rural communities in conjunction with other existing recruitment and retention programs. Capacity-building does not replace other programs currently run by Rural Workforce Agencies, Divisions of General Practice, or the Commonwealth Department of Health and Ageing. However, community capacity-building puts the community at the centre of the effort to recruit and retain a GP; communities develop local solutions to their problem.

Does Community Capacity-Building Work?

There are many different approaches to community capacity-building, so it is difficult to conclude that all community-building is equally effective. Moreover, because capacity-building is lengthy and time-consuming, it is generally carried out with only a small number of communities that are receptive to the idea. Therefore, there is no definitive answer to the question about whether it works.

However, the research evidence on capacity-building reveals a number of consistent factors associated with improved outcomes in GP recruitment and retention.

Amundson and Rosenblatt (1991) have identified seven factors that contributed to

positive outcomes for the six Pacific Northwest and Alaskan communities they worked with. The factors are:

1. The involvement of outside organisations in fostering community change.
2. A high degree of community commitment and investment in all stages of the process.
3. Comprehensive identification of problems in the health care system by outside consultants.
4. The use of periodic meetings of communities confronting similar issues.
5. Identification and development of local leadership.
6. Concurrent experiential learning opportunities.
7. Enhancing teamwork among local health care providers.

Aspects of Amundson and Rosenblatt's (1991) project that could have been improved were: broader, community-wide participation in health service planning; greater participation from medical staff; and clarifying responsibility for implementing strategic plans.

Fleming, McRae and Tegen (2001) have worked with South Australian communities to identify the key ingredients to developing sustainable, community-owned solutions to address rural medical workforce issues:

1. Need for a driver or champion
2. Community ownership
3. Community awareness
4. A 'multi-system' response
5. Sharing the knowledge base – capacity-building.

Finally, House and Hagopian (1994) have described the fundamental tenets of their program as:

1. The problems facing rural health systems (and their solutions) are local.
2. Community is the key.
3. Working with (instead of for) communities.
4. Use of a flexible methodology.
5. Use of outside consultants.
6. Demonstration that small, rural health care systems can be efficient.
7. The quality of rural health care is high.

This project builds upon the collective experience of other community capacity-building programs. The accompanying Community Resource Manual outlines the process of community capacity-building in more detail.

10. References

Adikhari, M., Calcino, G. and Dickinson, J. (1993) Geographical mobility of general practitioners. Proceedings of 2nd. Australian National Rural Health Conference, 185-191.

Amundson, V. and Rosenblatt, R. (1991) The WAMI Rural Hospital Project. Part 6: Overview and Conclusions. The Journal of Rural Health, 7(5), 560-574.

Australian Medical Workforce Advisory Council and Australian Institute of Health and Welfare (1998) Influences on Participation in the Australian Medical Workforce. <http://amwac.health.nsw.gov.au/corporate-services/amwac/female98.html> [31 March 2000]

Dawes, M., Davies, P., Gray, A., Mant, J., Sears, K. and Snowball, R. (1999) Evidence-based Practice: A primer for health care professionals. Churchill Livingstone, London.

Fleming, J. McRae, C. and Tegen, S. (2001) From the ground up – Successful models of community capacity building to address recruitment and retention of GPs in rural South Australia. Sixth National Rural Health Conference. National Rural Health Alliance, Canberra.

Gomm, R. (2000) Making sense of surveys. In Using Evidence in Health and Social Care by R. Gomm and Celia Davies (eds.). Sage Publications, London.

House, P. and Hagopian, A. (1994) Community Health Services Development Program: History, experience and findings. Seattle: Community Health Services Development Program, University of Washington.

McKibbin, A., Eddy, A. and Marks, S. (1999) PDQ: Evidence-based Principles and Practice. B.C. Decker, Hamilton, Ontario.

McLeroy K. (1996) Community capacity: What is it? How do we measure it? What is the role of the Prevention Centres and CDC? Paper presented at the Sixth Annual Prevention Centres Conference, National Centres for Disease Control and Prevention, National Centre for Chronic Disease Prevention and Health Promotion, Atlanta.

Muir Gray, J.A. (1997) Evidence-based healthcare: How to make health policy and management decisions. Churchill Livingstone, London.

Poole D. (1997) Building community capacity to promote social and public health: Challenges for universities. Health and Social Work, 22(3): 163-171.

Veitch, C., Harte, J., Hays, R., Pashen, D., and Clark, D. (1999) Community participation in the recruitment and retention of rural doctors: Methodological and logistical considerations. Australian Journal of Rural Health, 7, 206-211.

Wainer, J. (2001) Female Rural Doctors in Victoria. Rural Workforce Agency Victoria. Melbourne.

Wilkinson, D. (2000) Selected demographic, social and work characteristics of the Australian general medical practitioner workforce: Comparing capital cities with regional areas. Australian Journal of Rural Health, 8, 327-334.