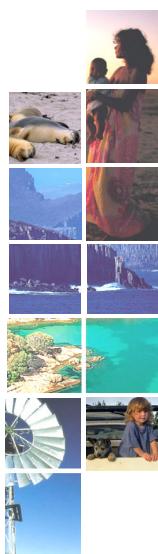


Evidence-based rural health career promotion

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INTRODUCTION

The promotion of rural health careers to rural secondary school students is a core Victorian Universities Rural Health Consortium (VURHC) project¹. One of the key ideologies or frameworks of understanding that underpins the present secondary school project is the belief that there is a nexus or relationship between having a “rural” background and an increased likelihood of rural practice as a health professional. This relationship has been relied upon to justify the commitment of considerable resources. Therefore the first step in the development of an evidence base for the VURHC Secondary School Project should be the review of the research used to underpin the rural background rural practice nexus (Cummins and Macintyre 2002). To plan future cost effective promotional work the team needs to know whether to continue to focus its promotional activities solely on rural origin students or to extend the program to encourage metropolitan and city fringe students to consider rural health careers.



EVIDENCE-BASED PRACTICE

A commitment to evidence-based practice is gaining wide acceptance not only in the area of individual patient care but also in regard to all aspects of the wider health care system and its associated service sectors (Stevens et al, 2001:1). However evidence-based practice is sometimes understood as being limited to the statistical aggregation or meta-analysis of randomised controlled trials. This narrow understanding of evidence-based practice might be contributing to the criticism of evidence-based practice by some practitioners and sociologists. Clearly a focus on meta-analysis and randomised control trials is not relevant to the non-linear and complex field of health careers promotion (Sutton, Jones, Abrams et al, 2001). However it is useful to undertake a careful qualitative analysis of studies relevant to the field. Analysis of the results should provide the best possible evidence for what is likely to be productive and what should be abandoned or modified in the field.

METHOD

Studies that reported on the relationship between rural upbringing and rural practice were sought and examined. The majority of the key studies found focused on surveying rural general practitioners. Eight studies were selected for review. Study

¹ The Victorian Universities Rural Health Consortium (VURHC) is a collaboration between the rural campuses of the University of Ballarat, Deakin University, LaTrobe University, the University of Melbourne and Monash University and the Victorian Aboriginal Community Controlled Health Organisation (VACCHO).



significance was judged by the number of times a study was quoted or used to comment on the relationship or lack of relationship between rural upbringing and rural practice. The only exception to this was the study by Wilkinson, Laven, Beilby et al, (2002). This survey is a large national study that is still under way. To make the studies more comparable reports of research on student intention to practice were excluded from this review. This decision should not be taken as indicating a criticism of student intention studies.

Murphy and Dingwall (2001:166) report that researchers undertaking evidence-based reviews are increasingly developing checklists to help them rate studies in a more systematic way (for example see Wilkinson, Laven, Beilby et al, 2002). Reviewers may rank the studies reviewed, for example by awarding points for numbers of responses and statistical methods employed in data analysis (Brooks, Walsh, Mardon et al, 2002). Following Murphy and Dingwall (2001) we do not believe that developing a checklist would necessarily make our analysis of these studies any more valid and reliable. The studies reviewed here were very heterogenous. Some are clearly larger and more sophisticated and perhaps more methodologically sound than others. However, because of the non linearity and complexity of the relationship between rural upbringing and rural practice and the difference in the cohorts studied we decided to focus on the authors' conceptualisation of the problem, the nature of the conclusions drawn from the respective studies and perhaps more importantly on what was left uncommented on in the studies' findings. It was the logic of the studies and their value for the development and implementation of an effective rural health careers promotion program that was important in this exercise. We decided to limit our study to Australian studies only. Population differentials and different medical school systems and regimes seemed to make international comparisons less relevant to our review. We have listed the studies reviewed and summarised the results so that readers can draw their own conclusions (Table 1). Where possible we have calculated the actual number of rural and non-rural origin doctors practicing in rural places.

Summarising the studies

Six of the studies used self-administered postal questionnaires, one surveyed respondents by telephone and another used structured, tape-recorded, face-to-face interviews. Rural and "urban" practitioners were surveyed in five out of the eight studies. Overall there were more responses from male rural general practitioners than from other respondents. Response rates ranged between 51% and 100%. Sample selection methods and rationale differed considerably. The current national study being carried out by Wilkinson, Laven, Beilby et al, (2002) stands out because of its large sample size and powerful methodology. The studies covered a range of locations Australia-wide and were marked by great diversity in both defining what rural upbringing or rural living meant and in quantifying the percentage or ratios of practitioners with rural upbringing who subsequently took up rural practice. Six of the studies found a strong relationship between rural upbringing and rural practice. Two studies commented on the need to attract non-rural origin students and practitioners to rural practice. None of the studies, to date, have unpacked the way that the relationship or correlation plays out. The authors of the studies were mostly general practitioners active in rural health or rural general practice.

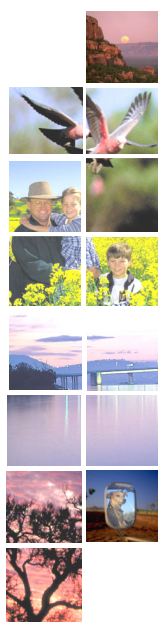


Table 1 Studies published between 1978 and 2002 that include findings on the relationship between rural upbringing and rural practice as a medical doctor arranged by year published*

| Study | Year pub. | Method | Sample and response rate (RR) | Definition of rural | Findings | Comments |
|-----------------------------------|-----------|-----------------------|--|--|---|---|
| Colditz and Elliott | 1978 | Postal survey | 171 rural Old Drs 77% RR (n=134) (Female 70%) | > 10 years as a child | 38% > 10 years as child in rural environment | Complex results as 59% had spent some time in rural areas as children |
| Kamien | 1987 | Telephone survey | 359 WA Drs 51% RR (n=182) | 2 or more years between age 5-17 | 66% of rural origin in rural practice | 43% of rural to rural Drs in this study (n= 19 rural to rural and 25 urban to rural) Numbers calculated by reviewers |
| Strasser | 1992 | Postal survey | 787 rural and 400 urban Vic Drs 75% RR (n=841) | > 10 years as a child | 63% of rural origin in rural practice | Recommended selection of a small proportion of med students with a rural background |
| Rolfe, Pearson, O'Connell et al | 1995 | Postal survey | 331 Newcastle, NSW graduates 68% RR (n=226) | Longest place of residence prior to med school | Rural origin 2.5 times more likely to take up rural practice | 44% rural to rural (n=14 rural to rural and 19 urban to rural) Numbers calculated by reviewers |
| Dickinson, Hickner and Radford | 1995 | Postal survey | 454 NSW rural Drs 65% RR (n=296) (Female 14%) | Rural = an area < 20 000 people | Rural origin Drs No more likely to practice in smaller towns <5000 | Survey intentionally skewed to "greater rurality", (n=141 rural to rural and 154 urban to rural) Numbers calculated by reviewers |
| Hays, Nichols, Wise et al | 1995 | Structured interviews | 23 North Old rural Drs 100% RR | Self assigned | 9 Drs from rural origin 62% of 487 rural Drs in Old had non-rural origin (Hays et al 1994) | Complexity demonstrated, authors conclude that it is likely that there is a need to recruit non-rural origin graduates. |
| Wilkinson, Beilby, Thompson et al | 2000 | Postal surveys (2) | 298 rural SA Drs (paid) 337 urban SA Drs (unpaid) 90% RR rural (n=268) 70% RR urban (n=236) | Self assigned | "Rural GPs were more likely to have grown up in the country (37% versus 27% P=0.02)" | Authors support the policy of promoting entry to med school for students with a rural background |
| Wilkinson, Laven, Beilby et al | 2002 | Postal survey | 4513 National rural and urban case control 71% RR (n=3083) | RRMA 1-2 (urban) RRMA 3-7 (rural) | Rural origin/background important influence | Study still under way preliminary findings "support the available evidence that rural background is an important influence" |

* Rural to rural means rural origin doctors practising in a rural area; urban to rural means non-rural origin doctors practising in a rural area.

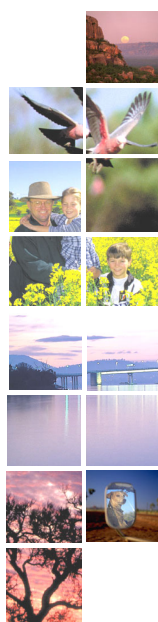
DISCUSSION

The rural urban duality

The authors seemed to be committed to a rural urban duality. Most commenced with a generalised claim along the lines of “rural areas of Australia are relatively undersupplied with general practitioners” (Dickinson, Hickner and Radford, 1995:1272). The diversity present in rural and metropolitan places seemed to be underrated (Hugo, 2002). Hugo (2002) argues that the duality rural and urban is simplistic and unhelpful. Clearly there are rural locations that are urbanised, where relatively large numbers of residents live in suburban style clusters of streets and roads. On the other hand there are metropolitan fringe locations that have more in common with rural places. Many young rural residents want to move to cities just as some metropolitan and city fringe residents have an attraction for rural places and spend vacations and weekends in the country or at the coast. However the authors seemed to stay with the familiar urban rural duality even when they clearly recognised the complexity of the field. For example Wilkinson, Laven, Beilby et al, (2002:5) report on their classification decision. They collapsed the Rural and Remote Metropolitan Areas (RRMA) (DPIE and DoHSA, 1994) classifications into two groups A, urban (RRMAs 1-2) and B, rural (RRMAs 3-7).

Definitions of rural upbringing or origin in these studies ranged from spending two years between age 5 and 17 in the country (Kamien, 1987) to more than 10 years of childhood spent in the country (Strasser, 1992) and comparative definitions like the longest place of residence prior to medical school (Rolfe, Pearson, O’Connell et al, 1995). Despite the provision of definitions it was often quite difficult to determine exactly how rural upbringing was assigned or determined as questions were rarely quoted and survey instruments were generally not attached. The studies appeared to use two ways to conceptualise and operationalise rural origin. In some cases respondents were asked to self identify as having had a rural upbringing or not. Requesting subjective judgements about rurality is probably the most accurate and valid way to assign respondents to rural or non-rural. However, this method makes it very difficult to make comparisons within and between studies. As almost all authors acknowledged there were many complexities surrounding the definition of rural and non-rural. In a small interview-based study of rural doctors that one of us undertook a number of these complexities emerged (Chesters, Han, Strasser et al, 2001). One general practitioner interviewed described Wollongong as a city while another described her rural upbringing in the horse paddocks of the outer suburbs of Brisbane (Chesters, Han, Strasser et al, 2001). The one face-to-face structured interview study reviewed here (Hays, Nichols and Wise et al, 1995) also showed there was good evidence for understanding the assignment to rural or non-rural categories as a complex issue. If respondents interpret questions about rurality in different ways then we ought to be cautious in generalising from the data (Suchman and Jordon 1994 cited in de Vaus 1999:345).

An alternative method of deciding on assigning respondents to the rural upbringing or non-rural upbringing category is to ask them to list a location or post code or indicate the size of a town or place. Researchers can then assign respondents to a category. Although this methodology has a more scientific gloss there are also a number of problems associated with it. Changes to the demographics of metropolitan

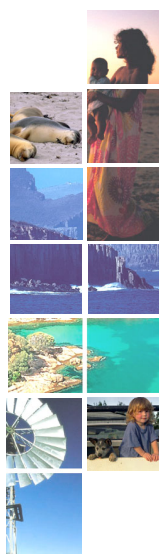


fringe locations make this system unreliable for comparisons over time. Unless respondents are also asked if they believed they did have a rural upbringing then the researcher assignment of rural upbringing may be in conflict with the respondents' own subjective view. This methodology is also more likely to collapse the very different experiences of rural and urban places respondents from different class or status backgrounds have.

The rural upbringing – rural practice nexus

Six of the studies identified the existence of a nexus between rural upbringing and rural practice and this led to support for the increased recruitment of rural students into medicine courses. Rolfe, Pearson, O'Connell et al's, (1995:516) recommendation below is similar to the recommendations of several studies in this review:

The relationship between rural background and postgraduate employment location supports suggestions that medical student selection and admission criteria should favour rural background, in order to increase the number of doctors who will work in rural areas



The extent of the nexus found differed considerably from study to study. It was also reported on in quite different ways, for example as odds ratios or percentages. This diversity is logical given the very different samples surveyed over a spread of years, and the variety of research questions operationalised. Because the nature of the nexus has never been adequately unpacked we cannot be sure of the factors or elements contained within it, nor can we be sure of the way it impacts on practice choice. Are things changing over time? Does the feminisation of medicine make a difference? Do other differences between cohorts influence practice decisions? Do decisions differ from one size of place to another or from state to state? Is it a real difference or simply a creation of the study methods and the interest of the researchers in promoting the politics of "rural health"? We simply don't know the answers to these questions. What we do know from an analysis of these studies is that while they invariably find a higher percentage or ratio of general practitioners with a rural background taking up rural practice, it seemed that in many instances the majority of rural general practitioners in these studies had an "urban" background (See Table 1 Kamien 1987, Rolfe et al 1995, Dickinson et al 1995, and Hays et al 1995).

Want a pattern see a pattern

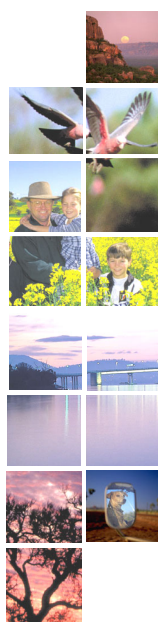
The studies reviewed here were mainly undertaken by researchers with an active involvement in rural general practice, rural recruitment or rural medical education. When they were reporting on the findings of their studies their focus was on the nexus between rural origin and rural practice even when that nexus did not comprise the most numerically significant finding. For example Kamien (1987: 63) accurately stated that "a rural background was highly predictive (66%) of future practice in a rural area". An alternative finding could have been that 57% of West Australian graduates who were working in the country in 1987 did not have a rural background. If we look at the numbers in Kamien's study rather than the percentages we find that of the 182 doctors responding to his survey 19 rural origin doctors practiced in the country, but 25 non-rural background doctors also practiced there. We should also note that Kamien's study produced one of the most optimistic percentages of rural origin practitioners taking up rural practice (Kamien, 1987).



The studies by Dickinson, Hickner and Radford (1995), Hays, Nichols, Wise et al (1995) and to a lesser extent Rolfe, Pearson, O'Connell et al (1995) were more conscious of the complexity in this field. Hays, Nichols, Wise et al (1995: 172) quoting the previous work of some of their team members noted that in 1994 "62% of the 487 rural doctors in Queensland had no rural connections prior to entering rural practice". Of the 23 rural general practitioners they interviewed nine reported having a rural upbringing. No doubt this led to their conclusion that if their findings were confirmed in larger studies then there would need to be a continued focus on recruiting non-rural origin graduates. Dickinson, Hickner and Radford (1995) did not recommend the increased recruitment of rural origin students into medical schools. Rolfe, Pearson, O'Connell et al (1995:516) did recommend that "medical student selection and admission criteria should favour rural background". However, in the context of a discussion about rural-based curriculum and future career choice they do comment that because the majority of students are from metropolitan backgrounds "positively influencing them does have the potential to pay great dividends" Rolfe, Pearson, O'Connell et al (1995:517).

Most of the studies generalise rural practice location. It is interesting to examine in more depth a study that disaggregated the rural practice location according to town size. Interestingly this study by Dickinson, Hickner and Radford (1995:1272) found that "doctors with a rural upbringing were no more likely to practice in more rural areas". They found that in towns with a population below 5000 doctors with rural upbringing and those without were about as likely to be practicing. In the towns with populations between 5001 and 10 000 and 10 001 and 15 000 a larger percentage of doctors had no rural upbringing (57% and 61% respectively). It was only in the towns with a population between 15 001 and 20 000 that the rural upbringing cohort provided more doctors (53%) than the non-rural upbringing one (47%) (Dickinson, Hickner and Radford, 1995:1278). Overall 141 doctors in this study combined rural upbringing with rural practice at the time of the study while 154 doctors with no rural upbringing were practicing in rural locations. Strasser (1992) also disaggregated the rural urban duality into suburban, fringe metro, rural town >20 000 and <20 000 and found different results for each cohort. Little reference is made in these studies to the contribution to rural general practice made by doctors without a rural upbringing.

Focusing on the importance of the relative percentages of rural origin practitioners taking up rural practice would be vital if it were possible to ratchet up the numbers of rural origin students selected. However the current Rural Undergraduate Steering Committee (RUSC) target for medical schools is that they select 25% of local origin or domestic students from rural areas RRMA 3-7 including 15% from RRMA 4-7 (RUSC, 2002). Some Universities currently have trouble meeting the 25% target and even in the best of worlds it would be highly unlikely, given the percentages of rural to non-rural in the Australian population for the percentages of rural origin students selected into medical schools to increase much more. Given this likely ceiling on rural recruitment it is a major oversight to ignore the rural practice potential of metropolitan or more especially fringe rural/metropolitan practitioners.



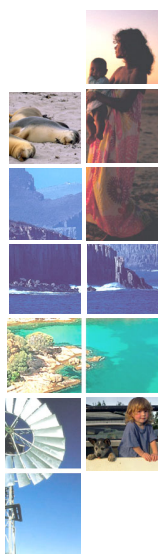
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Given the dearth of studies about the recruitment of other health professionals we must work with medical practitioner data. However we do not assume that the results are transferable. On the basis of our analysis of these studies it seems clear that we ought to promote rural health careers to all secondary school students. The need for equity means that the focus on the more remote, and especially disadvantaged, rural origin students should continue. Rural students deserve the best chance to make an informed career choice and the opportunity to see themselves as able to succeed in their chosen career. They often need extra help and support to succeed in gaining entry to health career courses. These rural origin students may return to a rural place at some stage but even if they don't they will be well placed to provide rural friendly health care wherever they practice.

While it is likely that a higher percentage of rural origin students take up rural practice the much greater numbers of urban origin students hold the key to a more equal distribution of doctors across Australia. There is evidence from the structured interview study of Hays, Nichols, Wise, et al (1995) that some urban origin practitioners have an interest in rural lifestyles and rural practice and do sometimes even see themselves as "rural". The actual numbers of urban origin practitioners in rural practice demonstrate that focusing on rural origin students only is unlikely to meet the need for rural practitioners. The tendency for studies to adopt case control methodologies while providing a better idea of the percentages of people from rural and non-rural backgrounds taking up rural or urban practice doesn't allow for accurate comparisons of numbers undertaking each kind of practice.

To ensure sufficient rural practitioners in a nation where approximately 70% of the population live in the capital cities we need to take every opportunity to recruit urban origin students who are willing to at least contemplate a period of rural practice. In terms of the VURHC secondary school promotion project that means promoting rural health careers to metropolitan students, especially metropolitan fringe students.

A commitment to rural health is our primary responsibility and therefore it is important to ensure equity for rural students, especially disadvantaged students. Our second objective is to maximise rural health professional recruitment and retention. Our analysis of these studies would suggest that we could best achieve this objective by promoting rural health careers to all students, especially those with an interest in rural lifestyles or places. Future decision making for secondary school health career promotion should consider increased resource allocation to enable promotion of rural health careers to the total student cohort.



BIBLIOGRAPHY

- Brooks, R., Walsh, M., Mardon, R., Lewis, M. and Clawson, A. "The Roles of Nature and Nurture in the Recruitment and Retention of Primary Care Physicians in Rural Areas: A Review of the Literature" *Academic Medicine*, Vol. 77, No. 8 August 2002.
- Chesters, J., Han, G-S., Strasser, S. and Ballis, H. "Doctoring Rural Towns" in Dibden, J., Fletcher, M. and Cocklin, C. Eds. *All Change! Gippsland Perspectives on Regional Australia in Transition* Monash Regional Australia Project Monash University, Melbourne 2001.
- Colditz, G.A. and Elliott, C.J.P. "Queensland's Rural Practitioners: Background and Motivations" *Medical Journal of Australia*, 1978 (2): pp. 63-66.
- Cummins, S. and Macintyre, S. "Food deserts – evidence and assumption in health policy making" *British Medical Journal* Vol. 325, 24 August 2002 pp.436-438
- Department of Primary Industries and Energy and DoHSA Health, *Rural Remote and Metropolitan Classification 1991 Census Edition*. 1994, Canberra: Australian Government Publishing Service 97.
- de Vaus, D. "Structured questionnaires and interviews" in Minichiello, V., Sullivan, G., Greenwood, K. and Axford, R. Eds. *Handbook for research methods in Health Sciences* Addison-Wesley Sydney 1999.
- Dickinson, J., Hickner J. and Radford S. "The changing characteristics of rural GPs" *Australian Family Physician* Vol 24 No7 July 1995 pp.1272-1278.
- Hays, R.B., Wise A., Craig M.L. et al. "A sampling framework for rural and remote doctors" *Australian Journal of Public Health* Vol 18 1994 pp.273-276.
- Hays, R.B., Nichols, A., Wise, A., Adkins, P., Craig, M. and Mahony, M. "Choosing a career in rural practice in Qld" *Australian Journal of Rural Health* Vol.3 No.4 November 1995 pp. 171-174.
- Hugo, G. "Australia's Changing Non-metropolitan Population" in Wilkinson, D. and Blue, I. Eds *The New Rural Health* Oxford, Melbourne 2002.
- Kamien M. *Report of the Ministerial Inquiry into the Recruitment and Retention of Country Doctors in Western Australia* Western Australia Health Department, Perth 1987.
- Murphy, E. and Dingwall, R. "Qualitative Methods in Health Technology Assessment" in Stevens, A., Abrams, K., Brazier, J., Fitzpatrick, R. and Lilford, R Eds. *Methods in Evidence Based Healthcare* Sage London 2001.
- Rolfe, I., Pearson, S., O'Connell, D. and Dickinson, J. "Finding solutions to the rural doctor shortage: the roles of selection versus undergraduate medical education at Newcastle" *Australian and New Zealand Journal of Medicine* Vol 25 1995 pp. 512-517.
- RUSC *Rural Undergraduate Support and Co-ordination Program Guidelines* 2002.
- Stevens, A., Abrams, K., Brazier, J., Fitzpatrick, R. and Lilford, R "Methods in Evidence Based Healthcare and Health Technology Assessment: An Overview" in Stevens, A., Abrams, K., Brazier, J., Fitzpatrick, R. and Lilford, R Eds. *Methods in Evidence Based Healthcare* Sage London 2001.
- Strasser, R. P. "Attitudes of Victorian rural GPs to country practice and training" *Australian Family Physician* Vol 21 No 7 July 1992 pp. 808-812.

