Original Scientific Paper

How are rural funding initiatives impacting on rural general practice?

Felicity Goodyear-Smith and Ron Janes

Correspondence to: f.goodyear-smith@auckland.ac.nz

ABSTRACT

Aim

To examine the impact of specific rural funding initiatives on retention and recruitment of rural GPs since implementation of the Primary Health Care Strategy.

Method

Self-completed quantitative and qualitative postal questionnaire surveys distributed to rural general practice managers, general practitioners and nurses.

Results

206/217 rural general practice managers (95% response rate), 445/682 rural nurses (65% response rate) and 358/559 rural GPs (64% response rate) returned surveys. Receipt of Reasonable Roster Funding was reported by 76 (37%) and Rural Workforce Retention Funding by 134 (65%) of the practices in the previous year. Initiatives included advertising to recruit GPs from overseas, assistance to new staff or to locums such as provision of housing and a car, improving staff pay or providing for holiday or sabbatical leave, employment of additional staff for specific tasks, paying for education or funding out-reach activities. Despite the support of NZLocums®, many practices were still struggling with locum issues or had difficulties replacing departing GPs.

Conclusions

While rural general practices report significant benefits from targeted rural funding initiatives aimed at supporting retention and improving recruitment, the rural workforce shortage is far from resolved.

(NZFP 2007; 34: 101–107)

Introduction

A worldwide shortage of rural doctors is challenging the sustainability of health care in the rural regions of many Western countries, including New Zealand (NZ). The problems of retaining and recruiting doctors to work in rural areas are well documented.[1] The inability to retain rural GPs produces an ongoing need to attract more doctors into rural practices.[2] In 2001 the NZ Primary Health Care Strategy (PHCS) recognised that *'misdistribution of workforce is a particular issue for rural areas'* and *'the difficulties of attracting and retaining basic health services in rural communities have not lessened in recent years'*.[3] Existing initiatives to recruit doctors into rural general practice were noted to have had little impact. Internationally, various strategies are being employed to deal with this rural workforce shortage. Research into

Felicity Goodyear-Smith *has been a practising GP since the late 1970s. She currently works eight-tenths as an Associate Professor at the Department of General Practice and Primary Health Care, The University of Auckland.*

Ron Janes *has been practising in Wairoa since 1991, and his rural medical roles include GP, hospital doctor, teacher, researcher, and PHO trustee.*

retention and recruitment has been particularly active in Australia and Canada, two Western countries with large land masses containing scattered small isolated rural and remote communities.

Retention

The first priority for sustaining a rural workforce should be retention of existing practitioners.[4] Maintaining a stable rural workforce is more desirable and potentially less expensive than having to continually recruit and orient new GPs. This approach also allows for development of cohesive primary health care teams, ensures continuity of care, permits the accreditation of staff as rural teachers, and provides for positive stable rural role models. Research has been conducted into a variety of interventions to increase the retention of the rural workforce.[5] The NZ Rural General Practice Network Inc. (NZRGPN) published a list of recommendations regarding recruiting and retaining rural GPs.[6] Recent NZ retention initiatives include redistributing the Rural Bonus payments, Rural Workforce Retention Funding, Reasonable Rostering Funding, Primary Response In Medical Emergencies (PRIME) scheme, and a government-subsidised locum service (NZLocums®).

Rural Bonus

In 1999 the historical 'rural bonus' (an additional 10% payment of the general medical services claimed from the government by the GP) was redistributed among NZ rural GPs according to the newly developed Rural Ranking Scale (RRS) which defined who was and who was not 'rural'.[7] GPs scoring 35 points or more on the scale were deemed to be 'rural' for purposes of receiving the 'rural bonus' payment, with more isolated GPs with a higher score receiving a higher payment (those scoring <35 points ceased to qualify for a rural bonus payment).

Rural Funding

In implementing the PHCS[8] in 2001, the NZ MOH acknowledged that rural NZ faced extra challenges in the provision of services, and that special consideration needed to be given to rural problems.[9] In 2002 the MOH provided $32 million over three years, from the primary health care funding package, to support the retention and recruitment of rural primary health care workforce via two innovative funding streams: the Rural Workforce Retention Fund and the Reasonable Rosters Fund.[10] These funding streams were extended in October 2004 by $10.9 million to further help rural areas retain GPs, nurses and other health care professionals.

The first priority for sustaining a rural workforce should be retention of existing practitioners

Rural Workforce Retention Fund: Initially this flexible resource for supporting and retaining the primary health care team was paid directly to rural GPs. However, once Primary Healthcare Organisations (PHOs) were established, District Health Boards (DHBs) were required to allocate the Rural Workforce Retention Fund to their PHOs, to enable them to address urgent primary health care retention and recruitment needs through a range of strategies.[10] These included time off duty, a supportive professional working environment, access to continuing professional development and peer support, financial incentives and the ability to enter and leave rural practice with minimal restrictions.[11]

Reasonable Rosters Funding: This funding was specifically targeted at supporting those GPs experiencing onerous on-call arrangements (1:1, 1:2 or 1:3 on-call rosters).[12] For 2002/03 only, primary health care providers needed to apply to their DHB for this funding, who forwarded applications they supported on to the MOH. From 2003/04 onwards, only providers that were part of PHOs, or planned to become part of PHOs, were eligible for reasonable roster funding. Applications to DHBs could be made by practitioners experiencing onerous rosters themselves or by organisations on their behalf. Applicants needed to propose a cost-effective and sustainable approach to achieving or making progress towards reasonable rosters. These included (but were not limited to) upskilling and remunerating nurses to share rosters, weekend locums, shared locum services, or, in some cases, where there was sufficient workload to justify it, assistance towards the recruitment of an additional GP. For the purposes of calculating a GP's RRS, the on call duty is calculated on the number of GPs available to take part in an after-hours service. This does not include locums or nurses, so unless the reasonable roster funding results in an additional GP to share the roster, the RRS is not affected by improved roster arrangements.

PRIME

The PRIME scheme was first developed in 1995 to support rural GPs and nurses to provide a more coordinated and consistent response to the management of trauma and medical emergencies in rural localities. It was piloted in the Southern Regional Health Authority in 1998 and extended nationally in 1999.[13] The key objectives of PRIME are primary assessment, essential resuscitation, and the rapid and safe delivery of patients to the appropriate place of definitive care. GPs and nurses who choose to become PRIME providers must first complete a PRIME training course which is approved and funded by the Accident Compensation Corporation (ACC) and delivered by the Order of St John. Providers must also undertake PRIME refresher courses every two years. They are provided with a PRIME medical kit and a means of communication (pager, cell-phone or ambulance radio). The PRIME scheme requires the service provider to respond within a local roster system

that provides 24 hour a day, 365 days a year cover. PRIME providers receive a monthly retainer as a contribution towards call-out costs. While trauma (accident) call-outs are covered by ACC claims on a fee-for-service basis, medical (non-accident) call-outs are unpaid, unless the PRIME provider bills the patient directly.

NZLocums®

Since 2001, the New Zealand Rural General Practice Network Inc. (NZRGPN) has managed NZLocums®, a government-subsidised scheme to provide short-term (two week) locums to all rural GPs, as well as long-term recruitment assistance to rural practices.[14] NZRGPN[15] membership includes both rural GPs and nurses.

Recruitment

There are two ways to recruit GPs to work in rural NZ: attract overseas trained doctors to come to NZ, or grow your own through medical training. Historically, NZ has relied on the former,[16] however recent international research shows how to produce more home-grown rural GPs. A rural origin or background correlates positively with a student's subsequent intention to work in a rural area.[17] Specific initiatives with positive results include recruiting students from rural areas into medical schools,[18] rural-orientated medical curricula,[19] undergraduate learning experiences in rural community orientated primary care,[20] and exposure to positive rural practitioner role models.[21] A Canadian study found trainee doctors undergoing rural internships were more likely to consider rural practice.[22] In Australia it has been shown that medical students who have a long-term rotation in one rural centre where they get to feel part of the community and become a contributing member of the health care team are more likely to enter rural general practice.[23] While attitudes and values of academic staff can positively influence career choice towards rural practice,[24] a recent NZ study found that the negative attitudes of hospital clinicians towards general practice as a career deterred many students from considering this specialty.[25] In 2001, two-thirds of NZ GP registrars surveyed stated they would be more likely to consider rural practice if incentives were offered. The inducements they would most prefer were reduced on-call work, guaranteed time out of the practice, and consideration of options for partners and children.[26]

Recent NZ initiatives aimed at improving the recruitment of rural doctors through training include the Rural Origin Medical Preferential Entry (ROMPE) which provides an additional 20 places in medical school intake at both medical schools (Otago and Auckland) for students from rural backgrounds.[27] There are also opportunities for rural rotations during post-graduate training as a house surgeon or GP registrar. Up to 24 second year house surgeons can elect to spend three months training in a rural general practice,[28] and rural scholarships are available for up to 15 GP registrars choosing to train in rural areas.[29]

Accurate data are needed to assess current trends in the NZ rural health workforce. Annual Rural Workforce Surveys were published by the Centre for Rural Health in Christchurch for 2000,[30] 2001[31] and 2002[32] but the Centre closed at the end of 2002. In 2005 the MOH recognised *'the need to continue the annual rural workforce survey... This is because the provision of accurate data is an important part of managing rural workforce issues, particularly in areas where government funding has been targeted to relieve workforce issues.*'[10]

The aim of this study was to examine the uptake and impact of specific targeted rural funding initiatives: Rural Workforce Retention Funding, Rural Rosters Funding, PRIME and NZLocums®, and to identify specific examples of innovative initiatives that have assisted in the retention and recruitment of rural GPs since the introduction of the PHCS.

Method

Data for this study were derived from a 2005 national survey of rural general practices, specifically their managers, GPs and nurses.[33] General practices were defined as 'rural' if a rural GP worked in the practice (i.e. the GP had a RRS score =35 or the GP had been assigned a 'notional' RRS =35 by their DHB).[12] Rural primary health care nurses were nurses working at these rural general practices.

Workforce questionnaires were developed using existing knowledge on issues identified from the literature, in conjunction with input and feedback from the researchers, other consultants and professional bodies. Ethics approval was obtained from the University of Auckland Human Participants Ethics Committee. Databases from relevant professional bodies were utilised to distribute questionnaires, which were disseminated in November 2005. Practice managers, GPs and nurses were contacted (and followed up) by a combination of postal, fax, email and telephone approaches.

The survey questions requested quantitative and qualitative (free text) data, and specifically asked for ways that practices may have changed since implementation of the PHCS in 2001. The practice managers were asked to give examples of innovative recruitment and retention initiatives that had been undertaken in the 12 months to September 30, 2005.

The free text data analysis used a general inductive approach with individual text responses analysed to identify themes. The data were collated into table form and analysed for emerging categories.

Results

For the overall study, a total of 217 rural practices were deemed eligible and sent questionnaires. Two hundred and six practices returned completed surveys giving a response rate of 95%. Surveys were sent to the 682 rural nurses identified by the practices and were returned by 445 (65% response rate). These nurses represented 194 of

the 206 rural practices returning surveys. Surveys were returned by 358/559 rural GPs (64% response rate).

Rural Funding: Rural Workforce Retention Funding had been received by 134 of the practices (65%) and Reasonable Roster Funding by 76 of the practices (37%) in the previous 12 months. Practices reported a wide variety of innovative recruitment and retention initiatives using this funding.

Table 1. Sources of GP and nurse locums by 206 rural practices in 2005

Source of locum	GP locum	Nurse locum
Did not have a locum	21	120
NZLocum®	130	0
Personal network	111	45
Private locum scheme	14	4
Overseas locum scheme	11	0
'Other' (specified)	21	7

Rural Workforce Retention Funding

Recruitment

Many practices used the funding for recruitment initiatives, such as to advertise for overseas-trained GPs. One engaged in *'an Internet advertising campaign which netted us our new doctor who is from the USA'* and another *'advertised via Internet and* BMJ. *Recruited a GP from England.'* Practices also advertised via their own websites (*'Website advertising and distribution of revamped annual report'*). One practice was *'offering weekend accommodation at tourist hotel for prospective recruits'* and another *'Assisted the GP and family to relocate. Provided housing and vehicle.'* Recent arrivals were helped to feel at home with *'Welcome parties and collegial support for new recruits.'*

The funding also enabled employment of more staff, such as doctors (*'Employed three permanent assistants. Increased number of casual shifted staff to improve workload implications in winter'*) and nurses (*'Hired additional nurses to look after chronic disease sufferers to reduce burden of disease and acute episodes – reduced pressure on practice team'*). Auxiliary staff were also employed, such as *'a business consultant to do recruitment'* or *'a local person to help patients lose weight, get fitter or stop smoking'.*

Retention

One practice was able to retain a recently qualified NZ GP *'by paying off student loan by practice – on a four year contract.'* Others used the money to increase salaries which assisted in retaining both nurses (*'We increased the nurse's salary and she agreed to stay on'*) and GPs (*'Increased pay package for GPs to remain competitive'*), while some practices offered *'Staff bonuses and payments'* to improve retention. Funding was also used to improve working conditions (*'installation and running of email and Internet access obtained for all GPs on computers in consulting rooms'*) or alternatively to *'support sabbatical periods for GPs'.* One practice used the money to *'fund team building meetings and evening for the whole practice team and staff'.*

After-hours

Ninety-two per cent (191/207) of GPs who were partners or owners of a practice provided after-hours call, compared with 86% (43/50) of salaried doctors, 80% (16/20) of associates and only 51% (35/68) of long-term locums. In 32 of the 206 practices (16%) short or long-term locum GPs provided at least some of the after-hours call, and locum nurses in five practices.

A number of initiatives were aimed at improving the on-call burden of GPs, an important retention strategy. These included recruiting additional staff (*'Employment of rural nurse specialist to provide out of hours cover'*; *'Used funding for holiday and after hours relief'*); improving telephone triage (*'Used Healthline for after hours'*); or improving on-call conditions by *'Providing meals when on call and paying for travelling doctors' petrol'.*

Locums

Providing adequate locum relief was another retention initiative. To attract locums one practice offered *'accommodation costs to our locums, a vehicle for their use, provide the essentials to set them up in a flat such as furniture, bedding, towels, pots, pans, fridge, etc.'*

Table 1 shows the sources of GP and nurse locums used during the year. Ten per cent of practices did not employ any GP locums nor 58% any nurse locums. Fifty-six per cent (130/206) of the practices used the NZLocum® scheme of two weeks relief a year. Under 'other' arrangements practices explained that GPs covered each other, used registrars or obtained medical locums through private advertising or the DHB. 'Other' sources of nurse locums included practices having their own relief pool to draw on, and again the DHB.

Although Rural Workforce Retention and Reasonable Rosters Funding was a great assistance in recruiting and retaining clinical staff, and 56% of practices reported obtaining locums from NZLocums®, many practices were still struggling with locum issues (*'Finding locums is a major problem'*; *'Having to pay very expensive locums. Hourly rate not proportional to practice income'*; *'After hours on call and weekend on call make it very difficult to recruit locums'*), and finding replacements for departing GPs (*'Unable to attract replacement for retiring GP aged 79 years'*).

Education

Providing clinical staff with assistance for ongoing education was another retention theme to emerge (*'all staff/practitioners are encouraged to attend all CME, CNE education'*). In particular, practices were offering more educational opportunities for their nurses (*'Paid study leave for RN completing post grad study'* and *'More training for our nurses so they can alleviate work pressure from doctors by being able to provider services to patients that the doctors have done in past'*).

Although not directly related to on-call rosters or workforce recruitment, some practices used this flexible funding to improve services to their patient population, especially through out-reach. One practice manager wrote *'Workforce retention monies have allowed outlying clinics to be maintained (otherwise would be unsustainable)'*, and another *'Endeavouring to set up a clinic at the local marae etc. with all possible help as required'*.

PRIME

Eighty-one per cent (290/358) of the GPs were providing after-hours cover, of whom 159 held PRIME contracts. Of the 68 GPs who identified themselves as long-term locums in the practice, 28 were PRIME providers. One quarter (117/445) of the nurses were PRIME trained, although only 50% of these (58) were doing any after-hours on-call.

Discussion

The key message to emerge from these data is that rural general practices report significant benefits from the targeted rural funding initiatives aimed at supporting retention and improving recruitment. These benefits include reduced on-call workloads, increased ability to recruit locums and replacement staff, and improved educational opportunities. However, despite these significant benefits, many practices are still reporting a workforce shortage and problems attracting GPs, especially NZ-trained doctors. The issue is compounded by the increasing feminisation of the medical workforce,[16,34–36] combined with women choosing to work fewer sessions per week, meaning greater numbers of rural doctors will be needed to replace those full-time male GPs leaving the workforce.[33] Few women chose to purchase practices, which has serious implications regaring future ownership of rural practices. General practice, let alone rural general practice, is not the vocation of choice for the majority of medical students. A 2005 survey of Otago and Auckland medical students found that only 19% were intending to pursue a career in general practice.[25]

Rural general practices report significant benefits from the targeted rural funding initiatives aimed at supporting retention and improving recruitment

The introduction in 1999 of the Rural Ranking Scale (RRS) provided an agreed definition of a 'rural GP'. This permitted the first census of NZ rural GPs which identified a total of 469.[30] This 2005 workforce survey has used this definition of a 'rural GP' to also define both rural general practices (those with rural GPs) and rural practice nurses (those working with rural GPs). Without a clear definition of 'rural', it is not possible to have meaningful data on the rural workforce.

A qualitative study of rural GPs in 1999 identified the positive aspects of rural general practice: forming strong relationships with both patients and the community, and the ability to practise the full spectrum of general practice. Negative issues impacting on retention included *'heavy workloads, frequent on-call, inability to get time off, and feeling undervalued and underpaid by funders'*.[37] Those surveyed suggested specific retention solutions included better pay, more salaried positions with guaranteed working conditions, and better rural continuing medical education (CME).[18] Recruitment solutions suggested by these rural GPs included reducing barriers for overseas doctors to enter NZ, establishing a rural GP career pathway and increasing the number of rural GP registrars.[18] The specific rural initiatives examined by this report have been introduced as part of the PHCS in an effort to address some of these concerns.

Reasonable Roster Funding and Rural Workforce Retention Funding had been accessed in the previous 12 months by 37% and 65% of the practices, respectively. While only those practices with '1-in-1', '1-in-2', or '1-in-3' on-call rosters were eligible for the Reasonable Roster Funding, all rural general practices had previously been receiving Rural Workforce Retention Funding. That a third of practices did not report receiving any of this funding, suggests that some PHOs may be applying this funding to other workforce retention projects and not passing any of it directly to their rural general practices. These two rural funding sources were used for a wide range of strategies to improve working conditions, especially on-call, and hence promote retention and recruitment. Retention initiatives included salary increases, reduced on-call hours, improved resources such as computers and Internet access, more time off for holiday and study, or even providing meals for doctors on-call. Staff recruitment strategies included promoting the practice overseas (such as web-based advertising with photographs of what the area had to offer), assisting with transfer and set-up costs, providing accommodation and transport, and welcoming them into the community.

PRIME

Despite being a national initiative across rural NZ, the uptake of the PRIME scheme has been patchy at best. Although designed to support rural GPs and nurses doing on-call, many

have chosen not to participate which may relate to funding and triage problems with the scheme.[13, 38]

NZLocums®

NZLocums® was the largest provider of locums to rural GPs, with 56% reporting using this government-funded service to source a locum in the previous 12 months. Fifty-four per cent used personal networks, with smaller percentages using other sources (e.g. overseas locum agencies). Only 10% of rural GPs reported not having a locum in the previous 12 months. It is not known whether this was the GP's choice, because locums were already fully booked when they wanted them (e.g. summer holidays), or they were unable to give NZLocums® sufficient lead time to find them a locum.

A significant finding from this survey is that, since the introduction of the PHCS, many practices have reported reducing their on-call workloads. Changes have included applying extra rural funding to engage more staff to share the workload, sharing on-call rosters more widely with neighbouring practices, and even withdrawing from on-call provision entirely by arranging for after-hours patients to be seen in nearby urban towns (e.g. A&M centres or base hospital emergency departments).[39] Participating in a rural on-call roster is a prerequisite for eligibility for the RRS which, with a score of ≥35 points, provides for a range of 'rural' funding for both the GP and their PHO. Because providing on-call contributes such a significant part of the RRS score, these practices theoretically will have experienced significant reductions to their RRS scores. Some GPs may have been allocated discretionary RRS points by their DHBs to enable them to retain their rural status and hence their eligibility for rural incentive payments. It is especially unclear whether those rural GPs who have managed to offload some or all of their on-call to urban centres have in fact had their RRS scores reduced. Some may even have ceased to qualify for the rural funding designed to compensate them for the on-call burden. The NZ Rural General Practice Network and the MOH are aware of these dynamic changes and a review of the RRS is occurring in early 2007.

While the NZ government has introduced many of the recruitment and retention strategies suggested by international research,[17,19,20,22–24,40] there is still only minimal training of medical undergraduates in rural community-based programmes, and no specific postgraduate rural GP career pathway. Despite the rural initiatives introduced over the last few years, a 2004 analysis of the NZ GP workforce indicated that most Territorial Local Authorities (TLA) had sustained losses of GPs over the previous four to six years, and in particular a net loss of rural GP full-time equivalents (FTEs) with the more remote areas experiencing the greatest losses.[41] Geographical information system mapping has been used to show that NZ rural populations residing more than 30 minutes from their nearest GP continue to have the poorest access to primary health care, and within these rural populations access is even worse for Maori and those with high levels of socio-economic deprivation.[42] While it may just be too early yet to pick up positive trends from these important government rural funding initiatives, this 2005 workforce survey still shows that many practices are still struggling to retain staff and attract locums.

Acknowledgements

The 2005 Rural Health Workforce Survey was funded by the Ministry of Health and conducted by the New Zealand Institute of Rural Health with the primary academic input provided by Dr Felicity Goodyear-Smith. Ms Robin Steed, Chief Executive Officer, New Zealand Institute of Rural Health was involved in the administration, study design and data collection for this project. Mr Andrew Tucker (Tucker Consulting Ltd), Mr David Mitchell (Contract Manager of the Pharmacy Guild), Ms Chris Millar (Professional Nurse Advisor of the New Zealand Nursing Organisation) and Dr Martin London (rural general practitioner) were also involved in the study design.

Disclaimer

Any views expressed in this paper are personal to the authors and are not necessarily the views of the New Zealand Ministry of Health. The Ministry of Health accepts no responsibility or liability in respect of the contents of this paper.

Competing interests

None declared.

The full 2005 Rural Health Workforce Survey (as a PDF file) can be downloaded from the Ministry of Health Website at: http://www.moh.govt.nz/moh.nsf/by+unid/A7F0BB37CF895C39CC25721200012A2C?Open

References

1. Curran V, Rourke J. The role of medical education in the recruitment and retention of rural physicians. Medical Teacher 2004;26(3):265-72.
2. Gilbert GE, Blue AV, Basco WT, Jr. The effect of undergraduate GPA selectivity adjustment on pre-interview ranking of rural medical school applicants. Journal of Rural Health 2003;19(2):101-4.
3. Ministry of Health. The Primary Health Care Strategy. Wellington; 2001 Feb.
4. Bellman L. Whole-system evaluation research of a scheme to support inner city recruitment and retention of GPs. Family Practice 2002;19(6):685-90.
5. Shortt S, Green M, Keresztes C. The decline of family practice as a career in Ontario: a discussion paper on interventions to en-

hance recruitment and retention. Kingston, Canada: Queen's University; 2003 November.
6. Rural General Practice Network Inc. Recommendations for Recruiting and Retaining Doctors to Work in Rural New Zealand. Wellington; 2001 March.
7. Health Funding Authority. Variation of Advice Notice Pursuant to Section 51 of the Health and Disability Services Act 1993. Wellington; 1999.
8. London M. Rural general practitioner recruitment and retention in New Zealand: a report to the Ministry of Health on the first phase of analysis of surveys to assess the state and fluctuations of the rural general practitioner workforce 1995-1999. Christchurch: Centre for Rural Health; 2001.
9. Rural Expert Advisory Group to the Ministry of Health. Implementing the Primary Health Care Strategy in Rural New Zealand. Wellington: Ministry of Health; 2002.
10. Ministry of Health. Established Primary Health Organisations (PHOs) Wellington: 2005 [updated 1 April 2005; cited 22 June 2005]. Available from: http://www.moh.govt.nz/moh.nsf/wpg_index/-Primary+Health+Care+Established+PHOs+by+DHB
11. District Health Boards of New Zealand. Workforce Retention Funding Service Specification. Wellington: Ministry of Health; 2003 November.
12. Ministry of Health. Funding for rural primary health care workforce retention and recruitment Wellington: 2004 [cited 2006 11 September]. Available from: http://www.moh.govt.nz/moh.nsf/wpg_index/News+and+Issues-Funding+for+rural+primary+health+care+workforce+retention+and+recruitment#ref3
13. Hore T, Coster G, Bills J. Is the PRIME (Primary Response In Medical Emergencies) scheme acceptable to rural general practitioners in New Zealand? New Zealand Medical Journal 2003;116(1173):U420.
14. NZLocums. NZ locums website Wellington: 2005 [cited 2005 5 September]. Available from: http://www.nzlocums.com
15. New Zealand Rural General Practice Network Inc. RGPN website Wellington: 2005 [cited 2005 5 September]. Available from: http://www.rgpn.org.nz/
16. Medical Council of New Zealand. The New Zealand medical workforce in 2000. Wellington; 2000 December.
17. Silagy CA, Piterman L. Attitudes of senior medical students from two Australian schools towards rural training and practice. Academic Medicine 1991;66(7):417-9.
18. Rabinowitz HK, Diamond JJ, Hojat M, Hazelwood CE. Demographic, educational and economic factors related to recruitment and retention of physicians in rural Pennsylvania. Journal of Rural Health 1999;15(2):212-8.
19. Rabinowitz HK, Diamond JJ, Markham FW, Paynter NP. Critical factors for designing programs to increase the supply and retention of rural primary care physicians. JAMA 2001;286(9):1041-8.
20. Glasser M, Stearns MA, Stearns JA, Londo RA. Screening applicants for a rural medical education program. Academic Medicine 2000;75(7):773.
21. Roberts A, Foster R, Dennis M, Davis L, Wells J, Bodemuller MF, et al. An approach to training and retaining primary care physicians in rural Appalachia. Academic Medicine 1993;68(2):122-5.
22. Basco WT, Jr., Buchbinder SB, Duggan AK, Wilson MH. Associations between primary care-oriented practices in medical school admission and the practice intentions of matriculants. Academic Medicine 1998;73(11):1207-10.
23. Denz-Penhey H, Shannon S, Murdoch C, Newbury J. Do benefits accrue from longer rotations for students in rural Clinical schools? Rural and Remote Health 2005;5:414.
24. Hays RB. Choosing a career in general practice: the influence of medical schools. Medical Education 1993;27(3):254-8.
25. Minogue M, Goodyear-Smith F. The black hole of GP manpower. New Zealand Family Physician, 2005;October.
26. Hill D, Martin I, Farry P. What would attract general practice trainees into rural practice in New Zealand? New Zealand Medical Journal 2002;115(1161):U161.
27. University of Auckland. Medical & Health Sciences MBChB entry requirements 2007 Auckland: 2006 [cited 2006 10 December]. Available from: http://www.health.auckland.ac.nz/undergrad/medicine/entry.html#rompe
28. Clinical Training Agency. Specifications for rural rotations during PGY2. Wellington: Ministry of Health; 2000 December.
29. Royal New Zealand College of General Practitioners. More training places for general practitioners. ePulse 2006;8(26).
30. Janes R, London M. Rural general practitioners in New Zealand: November 1999 census. New Zealand Family Physician 2001;28(4):244-249.
31. London M. New Zealand annual rural workforce survey 2002: Rural Health Consultancy; 2003.
32. British Medical Association. General Practitioners - recruitment and retention issues in England. London; 2004 April 2004.
33. Goodyear-Smith F, Janes R, New Zealand Institute of Rural Health. The 2005 Rural Health Workforce Survey. Wellington: Ministry of Health; 2006 October. Report No.: 4322.
34. Medical Council of New Zealand. The New Zealand medical workforce in 2003. Wellington; 2005 17 May.
35. Medical Council of New Zealand. The New Zealand medical workforce in 2002. Wellington; 2004 23 July.
36. Medical Council of New Zealand. The New Zealand medical workforce in 2001. Wellington; 2003 25 February.
37. Janes R, Dowell A. New Zealand Rural General Practitioners 1999 Survey—Part 3: rural general practitioners speak out. New Zealand Medical Journal 2004;117(1191):U815.
38. Janes R. New Zealand rural after-hours primary care provider survey: the impact of oncall on providers and their families. Wellington: New Zealand Rural General Practice Network (Inc); 2006 September.
39. Planning and Funding Division. Rural Health in Canterbury DHB. An Action Plan: Background information, and a proposal for the way forward. Christchurch: Canterbury DHB; 2003.
40. Rabinowitz HK, Diamond JJ, Markham FW, Hazelwood CE. A program to increase the number of family physicians in rural and underserved areas: impact after 22 years. JAMA 1999;281(3):255-60.
41. New Zealand Medical Association. An Analysis of the New Zealand General Practitioner Workforce. Wellington; 2004 May.
42. Brabyn L, Barnett R. Population need and geographical access to general practitioners in rural New Zealand. New Zealand Medical Journal 2004;117(1199):U996.

Tympanostomy tubes

'...for otherwise healthy children who are younger than three years of age and have asymptomatic middle-ear effusion that is persistent, as defined in our study, prompt insertion of tympanostomy tubes does not improve the developmental outcomes as compared with delayed insertion in children in whom effusion continues unremittingly. Accordingly, in children such as those we studied, watchful waiting for at least six additional months when effusion is bilateral and for at least nine additional months when effusion is unilateral is the preferred management option.'

Paradise JL, Feldman HM, Campbell TF et al. Tympanostomy Tubes and Developmental Outcomes at 9 to 11 Years of Age. N Eng J Med 356;3:260.