



Is the PRIME (Primary Response In Medical Emergencies) scheme acceptable to rural general practitioners in New Zealand?

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Abstract

Aim To ascertain the level of acceptance of the PRIME (Primary Response In Medical Emergencies) scheme by rural general practitioners (GPs) in New Zealand.

Methods A nationwide, anonymous, postal/email questionnaire was sent to 536 rural/semi-rural GPs, inquiring as to their involvement in and opinions of emergency care, and the acceptability of the PRIME scheme.

Results The overall response rate was 42%. PRIME training courses and PRIME equipment were regarded as excellent. However, concerns were raised by both PRIME and non-PRIME groups regarding the quality of triaging information given during emergencies and levels of remuneration for call-outs (especially medical call-outs). Additional concerns included lack of flexibility with the PRIME contract in some areas. Some GPs were also concerned that their involvement was less about providing a higher skill level in resuscitation than about filling the gaps in the already-stretched rural ambulance services, which was not the intention of the PRIME scheme.

Conclusions The inclusion of rural GPs in emergency care teams needs to be recognised and adequately remunerated, and these issues should be reflected in the ongoing development of pre-hospital emergency service contracts.

Before the development of a nationally consistent plan to manage medical emergencies in the pre-hospital setting, the provision of emergency services in rural New Zealand was often dependent on finding the best local solutions through the knowledge and goodwill of concerned rural community members and local health professionals. In many areas, a strong collegial relationship developed between the emergency services, in particular volunteers and the rural general practice team, who provided advanced resuscitation skills. However, this produced inconsistencies in standards and practices between different regions.¹

The 1993 health reforms introduced competitive contracting that began to undermine the cohesiveness and goodwill of the rural emergency team. The contracting process did not take into consideration the important role played by rural GPs and, in some areas, advanced rural nurses. Centralised emergency communication centres, familiar with the urban model, using paramedics for advanced skills, generally did not see a role for GPs. They also did not see a need to notify rural GPs of an emergency in their local community, despite the absence of paramedics in rural areas. Dedicated rural GPs were isolated from the new communication systems, which perpetuated poor communication between the local emergency services and rural GPs, although this was often not the wish of the local ambulance services. Inconsistency of training,

knowledge and skills in the emergency situation played some part in the reluctance of the ambulance services to acknowledge the GP role.

The PRIME (Primary Response In Medical Emergencies) scheme was developed in 1995, the objectives being to provide both a coordinated response and consistent, appropriate management of trauma and medical emergencies in rural locations. The Southern Regional Health Authority (SRHA) funded the creation and development of the scheme as Stage One of their regional Trauma Service Plan. The scheme embraced the pre-hospital emergency care recommendations of the Royal Australasian College of Surgeons Trauma Committee.² This scheme would incorporate the rural GP (and, in some areas, advanced rural nurses) with standardized training into the pre-hospital emergency team. The scheme was trialled in 1998 in the SRHA region, funded jointly by the Accident Compensation Corporation (ACC) and SRHA with the support of Hon. Bill English (then Minister of Health); it was extended to the rest of the nation in 1999.

The PRIME scheme was incorporated into the Ministry of Health 'Roadside to bedside' strategy published in 1999. This document highlighted a concern regarding the integration of health services, stating:

'It is also important that integration does not inhibit flexibility in the approach and mode of service delivery, especially in rural areas where there are special challenges caused by distance, geography and population size.'³

The PRIME service provider is required to have undertaken a PRIME training course (approved by ACC), within a maximum of two years after signing up with the scheme, followed by a two-day refresher training course for trauma and medical emergencies (approved by ACC) at least once every two years. The PRIME service provider is also required to have access to the PRIME medical kit and a form of communication (eg, pager, cellular phone or ambulance radio). The PRIME scheme requires the service provider to respond within a local roster system that provides cover 24 hours a day, 365 days of the year. 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.

The PRIME scheme utilises the skills of rural GPs and/or rural nurses (RNs) in areas where an ambulance crew (two ambulance officers, where one is a paramedic) is more than 20 minutes away (40 minutes in the South Island). There are currently 266 PRIME service providers in New Zealand (including both rural GPs and RNs). The PRIME network is activated via a pager, in most cases, by the regional communications centre (RCC) following a 111 call, where the nearest paramedic response is more than 20 minutes away. Remuneration for call-outs is dependent upon whether the call results from trauma or a medical condition. PRIME providers receive a monthly retainer for medical call-outs, while trauma call-outs are covered by an ACC claim.

This paper presents the findings of our research, which aims to ascertain the level of acceptance of the PRIME scheme by rural GPs in New Zealand.

Methods

An anonymous postal questionnaire was sent to New Zealand rural GPs inquiring as to their level of involvement in and opinions of emergency care. Questionnaire design and content were the result of

consensus among a panel comprising rural GPs, executive members of the Institute of Rural Health and the NZ Rural GP Network Inc. The questionnaire contained a mixture of tick boxes, Likert scales and open-ended questions, designed using Microsoft Forms™. Likert scales ranged from 1 to 5. A ranking of 1 was equivalent to a ranking of 'excellent' or 'strong agreement' with the statement, while a ranking of 5 was equivalent to a ranking of 'poor' or 'strong disagreement' with the statement. The resulting averages were then compared between groups for statistical significance where possible. Ethical approval was obtained from the University of Auckland Ethics Committee. Rural and semi-rural GPs were identified using a database provided by the Department of General Practice and Public Health, Christchurch School of Medicine and Health Sciences, University of Otago. Questionnaires were sent to 536 rural/semi-rural GPs; 105 GPs received the electronic questionnaire via email and the remaining 431 GPs received the questionnaire via normal post. Questionnaires were sent out during mid to late December 2001 and a reminder notice was sent out to non-respondents in mid January 2002.

In compensation for the time taken to complete the questionnaire, a letter of acknowledgement for Maintenance of Professional Standards (MOPS) accreditation was sent to those GPs who responded. This letter allowed the respondents to claim one MOPS point from the Royal New Zealand College of General Practitioners (RNZCGP). To maintain anonymity, the GPs were asked to confirm/provide return address details on a slip with the completed questionnaire. A third party (not involved with the research) then separated the completed questionnaire from the return address slip. Questionnaires returned via email were stored separately from their email addresses so that no association could be made between the questionnaire and the respondent.

The questionnaire sought demographic information, previous experience in emergency medicine, opinions regarding emergency resources/services, and level of involvement in emergency healthcare in the respondents' respective regions. PRIME GPs' opinions were canvassed as to their experience and satisfaction with various aspects of the PRIME scheme. Non-PRIME GPs were asked to clarify their reason(s) for not signing a contract to be involved in PRIME.

Results

A summary of the results is presented in Figure 1.

Figure 1. Summary of results from questionnaire

- PRIME GPs are extremely satisfied with the quality of training and equipment provided by the PRIME scheme
- Many rural GPs regard the PRIME scheme as being inflexible regarding availability of the scheme and on-call commitments
- PRIME GPs are concerned with the quality of triage information
- Some rural GPs are concerned they may replace the need for ambulance services in their area. This, however, is not the intention of the PRIME scheme
- PRIME and non-PRIME GPs are concerned about remuneration for call-outs, especially non-trauma call-outs

Overall, 290 replies were received. Completed questionnaires were received from 224 rural/semi-rural GPs (24 via email, 200 via normal post), providing an overall response rate of 42%. Eight were late/incomplete questionnaires, and 58 were returned stating relocation or retirement (9 via email, 49 via normal post). Of the completed questionnaires, 91 (41%) were from PRIME GPs (P group) and 133 (59%) from non-PRIME GPs (NP group). Currently, there are 266 registered PRIME providers (196 GPs and 70 Registered Practice Nurses); therefore, we were able to sample 46% of PRIME GPs.⁴ The majority of rural GPs were male (74.6%) with no gender difference between the two groups. Mean age of rural GPs was 45.6 years, with P group significantly younger than NP group. The overwhelming majority of

rural GPs were NZ European for both groups. The average Rural Ranking Scale (RRS) was 47.3 points, with a higher RRS for P group.

Table 1. Demographic profile of rural/semi-rural GPs who completed the questionnaire

| | PRIME GPs (n=90)* | Non-PRIME GPs (n=134)* | 1999 NZ Rural GP Survey ¹ (n=338) |
|---|--------------------------------|--------------------------------|--|
| Gender (%) | | | |
| Male | 74.4 | 74.6 | 72.2 |
| Female | 25.6 | 25.4 | 27.8 |
| Age in years | 43.2 [†] SD [6.9] | 51.4 [†] SD [8.6] | 44.1 |
| Ethnicity (%) (may choose multiple) | | | |
| NZ European | 91.2 | 88.1 | 93.0 |
| Maori | 2.2 | 3.0 | 2.4 |
| Pacific Islander | 1.1 | 0 | 0.6 |
| Indian | 0 | 0.7 | N/A |
| Other | 5.5 | 7.4 | 5.8 |
| Career length as rural GP (%) | | | |
| <5 years | 18.7 | 15.8 | <10 years = 13.9 |
| 5–9 years | 23.1 | 21.8 | |
| 10–19 years | 41.8 | 30.8 | |
| 20–29 years | 15.4 | 24.1 | |
| >30 years | 1.1 | 6.8 | |
| Rural Ranking Score | 54.2 [†] SD [16.0] | 42.4 [†] SD [16.2] | N/A |

*number of respondents varies due to non-response to some questions.

[†]statistically significant, p = <0.001

A significantly greater proportion of NP group (22%) are reliant on work experience as their only source of emergency medical training compared with P group (2%). Other sources of emergency medical training included the Rural Trauma and Emergency Care Roadshow, RNZCGP courses, Goodfellow Unit courses and training courses in anaesthesia. NP group contained 4% who had trained as PRIME GPs and since left the scheme. The PRIME training courses were distributed throughout New Zealand and were regarded as outstanding by the majority of P group (1.7 on five-point Likert scale). P group (1.7) also regarded PRIME retraining as highly desirable. Almost all rural GPs carried some form of basic medical emergency equipment, such as a stethoscope, sphygmomanometer, gloves, bandages, analgesia and inotropes. However, there were some marked differences between both groups regarding the carriage of advanced medical emergency equipment. For instance, a significantly greater proportion of P group (82.3%) carried a chest drain than NP group (19.5%). The majority of P group (93.7%) carried a laryngoscope; fewer carried one in NP group (60.2%). Therefore, a greater proportion of P group are able to provide advanced airway support. Regarding advanced life support, a greater proportion of P group (45.6%) carried a defibrillator than NP group (22.0%). Also, a greater proportion of P group (79.7%) carried cervical collars than NP group (41.5%). In light of these differences, P group (2.0) were slightly more confident than NP group (2.8)

regarding adequacy of medical equipment for attendance at any emergency call-out. P group carried more equipment than NP group, as identified from a selected list of emergency medical equipment.

The PRIME scheme is still in its infancy and some GPs are inadequately informed to consider joining. Some are ineligible for the PRIME scheme. Many among NP group declared they were too busy within their practice, local rural hospital and with commitments outside of work to join. Some GPs within NP group are willing to join but cannot do so because other doctors in the area are not willing to be part of the PRIME scheme roster. Difficulties in attending PRIME training courses were also quoted as being a problem. Additional reasons included lack of communication between PRIME coordinators and GPs; living too far away from the practice at which they would be on call; lack of willing among other practices to share after-hours emergency cover; and reluctance to encroach on the role of the St Johns ambulance service.

Table 2. Reasons given by non-PRIME GPs for not joining PRIME scheme

| Reason | % (n=125)* |
|---|---------------|
| Remuneration for time on call in the PRIME scheme is inadequate. | 36.8 |
| The demands at my practice are already too great to consider participating in PRIME | 33.6 |
| Remuneration for a medical emergency call-out in the PRIME scheme is inadequate | 33.6 |
| The PRIME scheme does not apply to my region | 28.8 |
| Remuneration for an accident emergency call-out in the PRIME scheme is inadequate | 27.2 |
| I don't know enough about the PRIME scheme | 26.4 |
| I am too busy outside of work to have looked into the option of participating in PRIME | 14.4 |
| I am unable to attend PRIME training courses | 14.4 |
| I am interested, but other doctors I work with are not willing to participate in the PRIME scheme | 12.8 |
| I am on call for my rural hospital. | 12.0 |
| I was involved in the PRIME scheme in the past [all for less than 1 year], but have since withdrawn | 11.2 |
| Other | 8.8 |

*number of respondents varies due to non-response to some questions

On average, both groups thought there was a good level of communication with other emergency services. However, there was some concern by P group (2.5) regarding the level of communication with the regional communications centre (RCC) in the notification of the emergency. Both P group (3.1) and NP group (2.9) were concerned by the quality of triage information supplied to them in the event of a medical emergency. Due to poor triage information, many GPs believed they were being called out inappropriately. GPs in both groups regard the level of triage information to be a major concern within the PRIME scheme. Of the NP group, 11% had been involved with the PRIME scheme in the past, all participants having been affiliated with the scheme for less than one year. Reasons for leaving included poor triage information and increased workload. On average, both groups believed they had usually been of some benefit at the last 10 emergencies they attended. P group (3.3)

shared mixed views as to the level of feedback from PRIME coordinators after a PRIME call-out.

Remuneration was thought to be insufficient overall, however P group believed that remuneration for equipment used and trauma call-outs is considerably better than remuneration for time on call and medical call-outs. This reflects a positive funding aspect of the PRIME scheme. For many of NP group, inadequacies in remuneration for time on call, medical call-outs and trauma call-outs are acknowledged as the reason(s) for not joining the PRIME scheme.

Table 3. Remuneration under the PRIME scheme

| Level of remuneration is sufficient for the following:* | PRIME GPs (n=91) [†] | Non-PRIME GPs (n=132) [†] |
|---|----------------------------------|--|
| Equipment used | 2.9 [‡] | 4.4 [‡] |
| Time on call | 4.0 [‡] | 4.6 [‡] |
| Medical call-out | 4.4 | 4.4 |
| Trauma call-out | 2.8 [‡] | 4.5 [‡] |

*Likert scale: 1=strongly agree; 5=strongly disagree

[†]number of respondents varies due to non-response to some questions

[‡]statistically significant, p = <0.001

The majority of P group (80.9%) have been PRIME service providers for less than two years, with approximately one third being providers for less than one year. GPs from P group had indifferent opinions regarding their ability to manage both rural general practice and the PRIME scheme effectively (2.4). The overall satisfaction with the PRIME scheme amongst P group was mixed (2.6).

Discussion

The involvement of rural GPs in emergency healthcare has been proven to be crucial in improving outcome, especially in severe emergencies in which resuscitation and stabilization are often required before patient transfer. Less severe emergencies may also be managed by the rural GP, therefore saving costs.⁵ From the results of this study, it has been possible to identify aspects of the PRIME scheme that are outstanding and others that need improvement. The questionnaire response rate (42%) was lower than expected. Several factors may have been responsible. The timing of the questionnaire over the Christmas and New-Year period was not ideal. Also, the demanding workload and stressful conditions placed on rural GPs today may have contributed to the low response rate.

Demographic data are consistent with those of a recent survey of New Zealand rural GPs.⁶ The groups differed in age and rural ranking scale (RRS). The difference between the average ages of the groups may lie in the appeal of the PRIME scheme to the younger GP. The difference in RRS may reflect the appeal of the PRIME scheme to the more-remote rural GP. Distance from the base hospital and/or other colleagues may mean that the remotely situated GP has no choice but to be involved.

The PRIME scheme provides the advantage of a high-quality training course, which was well received by all who attended. Regular refresher courses (ie, at least once

every two years) are also welcomed by P group, although some were unaware of when these courses would take place. Some have found it difficult to attend the week-long training course or refresher courses due to work commitments. Reasons given included staffing inadequacies and the difficulty and/or expense of obtaining locum cover for the week. One suggestion offered by a participant was to run the full training course over several weekends. This has already been tried in the South Island, at Queenstown and Motueka.

P group also carry more emergency medical equipment than their NP-group colleagues, which illustrates another advantage of the scheme. In some areas, PRIME service providers are asked to share the PRIME kit. There has been a request that each service provider have their own PRIME kit, which they may then carry at all times. Some amongst P group have recently been supplied with a green emergency light for their vehicles by the ambulance service as part of their contract. A small number of NP group have already taken the initiative to equip themselves with a green emergency light for their own vehicle. Both groups support the addition of an emergency light for their vehicle, as it allows other motorists to give way to the doctor/rural nurse in the event of an emergency.

Many GPs view the PRIME scheme as being too inflexible. Some GPs would like to be on call from home due to family commitments; others cannot commit to 24-hour, 365-day cover. This excludes them from joining the scheme. Some GPs wish to join the PRIME scheme but cannot due to a lack of support from peers. This may be partially alleviated by training rural nurses, although this raises medicolegal issues (eg, drug administration/prescribing rights). Strict protocols and audit procedures were a disincentive to some, whilst others were discouraged when asked to share PRIME contracts between practices.

The PRIME contract states clearly that the PRIME GP is required to be on call according to a roster system that provides emergency medical cover 24 hours a day, 365 days of the year. However, this may cause significant disruption if call-outs occur during the working hours of the surgery. Patients waiting in the rural GP's surgery either need to be rescheduled or seen by another GP (if present).

P group expressed disappointment over the lack of information supplied by the RCC during an emergency call-out. Some GPs from P group were frustrated by inappropriate call-outs by the RCC. GPs who had left the PRIME scheme reiterated this frustration. In contrast, P group GPs in North Canterbury report that they can wait for further information if the distance involved is great and/or the triage information is vague or apparently non-urgent, especially if the GP is busy at that time. Rural GPs report that they are extremely busy with their current workload and requests have been made for emergency call-outs to be more focused on situations that require immediate care.

The majority of GPs in both groups agreed that they received acceptable levels of communication from local ambulance services. Some consider it satisfying to support local ambulance services. However, some GPs (in both groups) do not share this view and complained of poor coordination/cooperation between the GP/RN and ambulance services. Regular joint exercises plus work/social meetings may help alleviate this problem.

Some GPs believed that by being trained and employed in emergency care through the PRIME scheme, they would remove the need for specialist ambulance staff in their area: 'The PRIME scheme is using GPs to cover for reduced commitment to local St Johns.' This could be a view reflected by ambulance staff and may lead to poor communication within a rural locality. However, this was never the aim for GP involvement in the PRIME scheme. The scheme is designed to provide a coordinated response to medical emergencies in rural locations and utilise the advanced resuscitation skills of the GP team to complement the volunteer ambulance staff in the absence of rural paramedics.

All trauma call-outs are funded by ACC; however, P group are offered increased remuneration compared with NP group. In addition, P group also receive a retainer for making themselves available for emergency medical call-outs, which is **not** available to NP group. A strong message from rural GPs is that neither is enough, although P group regarded remuneration for trauma call-outs as somewhat improved. It is important to note that on average there is no difference in the time taken to attend a medical call-out versus a trauma call-out. P group suggested that remuneration for medical call-outs should mirror that for trauma call-outs. P group expressed significant dissatisfaction with the inadequate on-call remuneration, with one GP (P group) stating that remuneration for time on call was 'merely a token gesture'. Generally, P group did not regard the payment for time on call as adequate and believed that it should be increased to a more realistic amount.

In summary, the PRIME scheme has significant potential to improve the outcome for individual patients who suffer from trauma/medical emergencies in rural communities. The improved outcome is expected to result from the seamless integration of a quality ambulance service and a well-prepared rural general practice team, who can contribute advanced resuscitation skills in the emergency situation. There is no doubt that rural GPs/nurses make a major contribution to both the quality and quantity of emergency medical services, but they cannot replace the specialist ambulance staff. Inclusion of rural GPs in the emergency care team needs to be recognised and adequately remunerated. The continued development of pre-hospital emergency service contracts should reflect this. We must ensure that we do not overwork our rural GPs/nurses, as they are rare and precious to New Zealand.

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Acknowledgements: Todd Hore was the recipient of a summer studentship from the Medical Council of New Zealand, which funded the research. Thanks to the Department of General Practice and Primary Health Care, (University of Auckland) and RNZCGP for their contribution to the research. We also thank Ron Janes, Iain Hague, Graeme Fenton, Tim Malloy, and Raina Elley for their assistance. We are grateful to all those who completed the questionnaire.

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