

Original Article

Expanding the role of paramedics in northern Queensland: An evaluation of population health training

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Abstract

Objective: To describe the experience of the paramedics doing the population health component of the Graduate Certificate in Rural and Remote Paramedic Practice.

Design: Analysis of paramedics' reported opinions about the course and its impact.

Setting: Primary care.

Participants: Data were obtained from de-identified surveys submitted by the paramedics at the beginning and the end of the population health component of the course.

Results: All paramedics felt that after the course they were more committed to undertaking population health activities in their work and were better prepared to do so. As a result of undertaking the course, 73% of students have already changed their practice. Seventy-five per cent agreed that doing the course would increase the likelihood of staying in rural and remote areas and all agreed that doing the course resulted in increased job satisfaction. The majority (87%) of the students rated the course as excellent or very good and all of them said that they would recommend the course to others.

Conclusions: These results suggest that rural and remote paramedics have the opportunity and desire to incorporate more health promotion and prevention into their practice and that this course has provided them with the skills and knowledge to do so. The curriculum is based on National Health Priority Areas focusing in particular on lifestyle change to prevent and manage chronic disease. This means that in rural and remote areas, all health professionals can use a common framework to work together to enhance primary health care

and chronic disease management as a multidisciplinary team.

KEY WORDS: paramedic, population health, primary health care, rural and remote, Queensland.

Introduction

Paramedics are underused in many rural and remote areas.¹ They are a valuable resource precisely in the communities with highest need and could become part of multidisciplinary health teams in areas of workforce shortage. There is increasing evidence that a health care system modelled on chronic care and interdisciplinary teams benefit patients with chronic illness.² In addition, multidisciplinary teams are more likely to be effective and provide solutions to rural and remote workforce shortages.

Extended paramedic practice

The role of paramedics is informally extending to include more preventive health care and some extended skills.^{3,4} In recognition of this change in practice, the Queensland Ambulance Service (QAS) organised a project team to explore expanded roles for paramedics in rural and remote locations. In 2006, the QAS undertook a survey of paramedics working in these locations.⁵ The survey and associated extensive literature review were undertaken by the QAS to look into the possibility of extending the practice of rural and remote paramedics.⁶ It was concluded that there was a role for paramedics to play in assisting other health professionals in rural and remote areas, which could be achieved by extending their scope of practice. These findings led to the development of a tertiary based training curriculum for isolated paramedic practice that aimed to support the extension of the paramedic role. This course is currently being trialled in rural and remote Queensland as described in this paper.

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What is already known on this subject:

- *There are key population health skills that can be used by any health professional.*
- *Paramedics have highly developed prehospital skills and knowledge that could be extended to improve rural and remote community health.*
- *Rural and remote paramedics are underused.*
- *The Graduate Certificate in Rural and Remote Paramedic Practice is a new course aiming to teach paramedics population health skills.*

The Population Health Education for Clinicians project, a national curriculum involving eight major universities, has been designed by population health experts to teach the essential principles of this discipline. Mount Isa Centre for Rural and Remote Health, a branch of James Cook University, was the lead organisation in developing this curriculum. The Population Health Education for Clinicians curriculum was modified to become the population health component of the Graduate Certificate in Rural and Remote Paramedic Practice.

Graduate certificate in Rural and Remote Paramedic Practice

The Graduate Certificate is a 1-year program and culminates with the qualification of Isolated Practice Area Paramedic. The first 6 months are based on the Rural and Isolated Practice Endorsed Registered Nurse (RIPERN) course and taught through the Workforce Directorate in Cairns, Queensland. This component focuses on pharmacology legislation and managing acute and chronic disease presentation and is based on the Primary Clinical Care Manual developed by the Royal Flying Doctor Service and endorsed by Queensland Health. Students gain practical experience working alongside the health professionals already in their community.

The second component of the course focuses on health promotion and chronic disease management. In addition, there are modules on diabetes, mental health, infectious disease and Aboriginal and Torres Strait Islander Health. In the first module, students outline the services available in their community and get to know the history and geography of their area. They examine their whole population and collect data on the risk factors and diseases most prevalent locally and perform an analysis to identify gaps in health provision that they

What this study adds:

- *After the population health course, rural and remote paramedics*
- *Felt that their skills in population health and health promotion had increased.*
- *Agreed that the course increased their job satisfaction and the likelihood that they would stay in rural and remote areas.*
- *Have already made changes to their practice, or have concrete plans to change.*
- *Are changing their culture from acute responder to include longitudinal care, that is, primary health care.*
- *Have the opportunities and desire to implement more health promotion and prevention into their practice and this course has provided them with the skills and knowledge to do so.*

could meet. A pivotal role is to develop disease registers to ensure that those with chronic disease and risk factors are seen regularly not just acutely. Part of the ongoing strategy for chronic disease management is to assist the local health care team and the patient in developing multidisciplinary self-management care plans and in providing regular follow up and support. The focus of the curriculum was the development of skills and knowledge to enable paramedics to examine their community's health needs and develop collaborative strategies to meet these needs.

Objective

To describe the experience of the paramedics doing the population health component of the Graduate Certificate in Rural and Remote Paramedic Practice.

Methods

Rural and Remote Paramedic Practice delivery

The course was developed in collaboration with the QAS and Queensland Health with an initial 60 student places being sponsored by the QAS. This allowed up to 60 practicing rural and remote paramedics to undertake the course with the support of their employer and without being required to pay fees. The second component of the course was delivered online under the supervision of Mount Isa Centre for Rural and Remote Health appointed lecturers.

TABLE 1: *Paramedic perceptions of the term 'population health' (n = 20)***General definitions:**

'Holistic health involving promotion, prevention and individuals and communities taking responsibility for their own health'

'Improving health across a group by changing attitudes and lifestyle rather than treating individuals once unwell'

Specific domains identified:

Education 'Educating the community [general population] in best treatments, management and preventative measures against illness and disease'

Prevention 'Screening & early detection'

'It is about providing preventative health education and implementing strategies to cover all of the population – removing inequities'

Clinical 'Taking my current skills in patient assessment, diagnosis, planning and treatment and reassessment and applying them to a community not just the individual'

Survey

Pre-course surveys were designed to provide a description of the paramedics and their communities. There were 21 questions, the first 6 were open-ended questions about their personal characteristics and communities, the next 4 questions were mostly open-ended and enquired about reasons for doing the course and plans for the future. The following six questions were regarding their knowledge and attitudes towards public health with five choices from strongly agree to strongly disagree. The final five questions were regarding their study and computer skills and were self-rated on a scale from poor to excellent.

The post-course surveys consisted of 32 questions, 18 of which were directly about the course and how it met their needs and expectations, 16 were about whether their knowledge and skills had increased, attitudes and plans for the future had changed as a result of participating in the course. Three of the questions were specific open-ended questions and the rest were a 5-point scale from strongly agree to strongly disagree.

In order to evaluate the course and ensure that it was achieving its objectives, paramedics completed surveys before and after the course. This enabled some preliminary outcome data to be collected and provided valuable insight into the process from the perspective of the paramedics on the course.

The surveys were completed online and the data collated anonymously through the James Cook University online teaching system, LearnJCU. The data were downloaded from LearnJCU as an Excel spreadsheet (Microsoft) with the answers listed anonymously next to each question. The proportion of students choosing each answer in the multi-choice sections was calculated. The textual responses were divided into themes and summary quotes chosen and placed in tables. Ethical approval was given by the James Cook University Ethics Committee.

TABLE 2: *Types of health promotion activities paramedics were involved in before undertaking the course (n = 20)*

Domain	Activities
Community education	Home/community safety including road safety in schools, marine safety and heat-related injury First aid including cardiopulmonary resuscitation Health screening and promotion events including men's health nights
Patient education	Basic and advanced life support Cardiac rehabilitation programs Referral program for substance abuse

Results

Population health course

Twenty-nine students based in 27 different rural and remote Queensland locations enrolled in the course, five deferred and six have extensions until next year. Eighteen students graduated in December 2007. In 2008, 28 students are expected to complete the course, bringing the total to 48 extended practice paramedics in rural and remote Queensland.

The students expressed an interest in the concept of population health by enrolling in the course, although their understanding of the term 'population health' varied (Table 1). Before the course, most of them felt that they currently used principles of health promotion in their work (Table 2), but 75% did not feel that they applied these principles optimally.

Paramedic characteristics

Twenty (83%) of the students completed the pre-course survey and 16 (89% of those who finished) completed

the post-course survey; this included some of the students who received extensions but none who deferred. The median age of the respondents was 39 years with a range of 30–55 and 80% were male and 20% were female.

Half of the paramedics who responded to the survey had been working in their community for 2 years or less at the time of commencing the course and only four had been in their community more than 5 years.

Most paramedics stated improving the health of their community was the main reason for undertaking the course. The secondary reason for half was their own professional development and to increase their scope of practice.

Community and workforce characteristics

All the paramedics worked with a wide range of other health professionals; in particular general practitioners, community health services, local community groups and the Royal Flying Doctor Service and 67% had a permanent doctor in their community. All the paramedics except one were based in communities designated Rural, Remote and Metropolitan Areas 5–7.⁷ The communities are considered rural and remote based on population density and distance to an urban centre.

Outcomes of the population health course

Most students agreed that the course increased their skills and knowledge about population health and their communities. Most students also found that they were now more involved in health promotion and prevention and agreed that the course increased their job satisfaction and the likelihood that they would stay in rural and remote areas (Table 3).

The majority of the students (87%) rated the course as excellent or very good and all of them said that they would recommend the course to others. Two improvements students would like to see made to the course were:

- The population health component of the Graduate Certificate to be completed before the RIPERN component, as the enhanced understanding of the community, health management, health assessments and health promotion would have been beneficial
- Remote area placements and rotations to more communities.

As a result of undertaking the course, 73% of students have already changed their practice, 20% have concrete plans to change and 7% were considering making changes (Table 4). These changes included increased health promotion and education, improved partnerships with other health care providers in the community and greater engagement in service provision and patient care.

TABLE 3: Number of participants who strongly agreed or agreed with the following questions regarding the impact of this course on knowledge and practice ($n = 16$)

Question	Strongly agree/agree
I learned new skills in population health	15 (94%)
I am now more committed in undertaking population health activities in my work	16 (100%)
I am now better prepared to undertake population health activities in my work	16 (100%)
Has your involvement in health promotion and prevention increased as a result of doing this course?	13 (81%)
Has this course increased your understanding of what is meant by the term 'the social determinants of health'?	14 (87%)
Has doing this course increased the likelihood you will stay in rural and remote practice?	12 (75%)
Has this course increased your job satisfaction?	16 (100%)

The changes reflect how the students view their new role and will result in increased job satisfaction, improved patient care and improved service provision for rural and remote communities (Table 5).

Ninety-five per cent of the students said that they would consider or would like to continue with further studies in population health. Two would like to complete PhDs, five would like to continue with a master in public health, five would like to complete other health-related courses and one would like to study management.

Discussion and conclusions

In December 2007, 18 rural and remote paramedics in Queensland graduated with a Certificate in Rural and Remote Paramedic Practice and are now recognised as Isolated Practice Area Paramedic trained paramedics. Before the course, some paramedics were involved in community health promotion in traditional areas, such as cardiopulmonary resuscitation, road safety and accident prevention. After completing the course, most paramedics felt that their skills in population health had increased and they were more likely to incorporate these skills in their day-to-day work. Many have already made changes to their practice. This indicates that paramedics do have the opportunity and desire to incorporate more health promotion and prevention activities

TABLE 4: *Perceived impact of the course on current and future practice† (n = 16)*

Impact	Example responses
Increased patient education and health promotion	‘Educating and performing screening for efficient health promotion to avoid chronic disease’ ‘Opportunistic health promotion is always in the back of my mind when treating a patient’
Increased partnership with health care providers and the community	‘I spend more time at the hospital and am more involved in post A&E care’ ‘Intent to build on relationship with both local and regional health services and support agencies . . .’
Engagement in service provision	‘. . . Considered taking on the provision of an after hour and weekend service that supports community and need and relieved pressure on our small health team.’ ‘Increased participation in planning, implementation and ongoing provision of primary health care in partnership with allied agencies and providers’
Changes to patient care	‘Being far more involved and interactive with patients at the medical centre instead of just transporting them after acute care’. ‘. . . Spend more time with the patient in their home ascertaining history, more comprehensive assessment of environment . . .’ ‘I am now looking at the patient we attend as a whole person and not just a patient with this acute problem that we transport to hospital.’

†Based on responses to the survey question ‘As a result of undertaking the course, what changes have you made/intend to make to your practice?’

TABLE 5: *Perceived role for isolated practice area paramedic (IPAP) trained paramedics in the future† (n = 16)*

Themes	Example responses
Potential barriers	‘Providing there are changes in legislation that allow us to practice in Rural areas, not just remote, I see us as treating more cases with our enhanced skills and knowledge’
Service provision	‘We should no longer be thought of as a “taxi service”, but to get involved in the community and really become a part of health promotion and prevention.’ ‘As an IPAP we would be able to provide services out of hours. All too often we transport (patients) during the night to hospital suture them up or administer medication as a Student IPAP and then drive them 120 k back home, it seems senseless’
Personal goals and job satisfaction	‘. . . I have ambitions to head back out west and implement this training on a full time basis . . .’ ‘I am committed to caring for isolated communities and this may see me serving in more remote communities in the future.’
Improved patient and community care	‘quality use of downtime for primary health practice.’ ‘More skills and knowledge to benefit the community.’ ‘To continue the clinic aspect with the new skills & knowledge & to assist at the clinic . . .’

†Based on responses to the survey question ‘How do you see your role as an IPAP in the future?’

into their practice and this course was successful in providing them with the skills and knowledge to do so.

These findings suggest that the culture of rural and remote paramedics within the QAS is changing to incorporate a longitudinal perspective in the form of primary health care. This implies that the overall course was effective in training rural and remote paramedics to undertake a more substantial health provider role within their communities. This course might also function as an effective retention strategy as most participants agreed that the course increased their job satisfaction and the likelihood that they would stay in rural and remote areas.

The second cohort of students will be asked to complete the same questionnaires and participate in the study also. There are also plans to follow up the paramedics over the next 2 years to provide data on longer-term impacts. In addition, there is another qualitative study underway to gather opinions regarding the outcomes and impact of the paramedics expanded role from the perspective of other health professionals and community members. The QAS are also involved in more formal evaluations of the community impact and outcomes.

Several of the students deferred for personal reasons. The majority of the deferrals and extensions were because students had difficulty completing the RIPERN component of the course before commencing the population health component. This issue and other feedback provided on the course resulted in some changes being made for the second cohort.

The curriculum used for this course is based on National Health Priority Areas focusing in particular on lifestyle change to prevent and manage chronic disease.⁸ This course allows paramedics to expand their clinical skills based on common guidelines outlined in the National Chronic Disease Strategy.⁹ This approach means that in rural and remote areas, all health professionals can use a common framework to work together to enhance primary health care and chronic disease management as a multidisciplinary team, which should ensure consistency across health care providers, and ultimately results in better patient care.

Acknowledgements

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