Roles of the rural paramedic—much more than clinical expertise

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Abstract

Background

Paramedic education and training has a focus on the type of work performed. Some recent findings regarding the work of the rural paramedic indicate an expanded scope of practice with a strong community focus and involvement in primary health care. Because of this, proposals now appear for specific rural education and training. Whilst a picture is developing of the work of the rural paramedic, there is little knowledge about the differences between rural and urban paramedic practice. Revealing these differences will offer insight into specific roles for the rural paramedic and enhance any rurally oriented education and training for paramedics.

Objectives

To determine differences between rural and urban paramedic practice and the roles of the intensive care paramedic working in rural Australia.

Methods

A case study approach uses multiple sources of data including semi-structured interviews with intensive care paramedics across two states in Australia, review of relevant documentation and literature, case dispatch data, and observation. Interviews focus on specific work carried out, current education and training, and pathways for the future.

Findings

Rural paramedic practice is different from urban paramedic practice in that the rural paramedic: 1) adopts a whole of community approach rather than a case dispatch approach; 2) is a multidisciplinary team member rather than operating mainly within ambulance teams; 3) has extra responsibility as a teacher and manager for volunteers; and 4) is a highly visible and respected member of the community rather than relatively anonymous. With these differences, the rural paramedic displays various roles. For a whole of community approach, we see the role of community involvement, with the paramedic involved in project management or use of local media. A multidisciplinary approach means that the paramedic requires a multidisciplinary awareness in order to work well with other team members. Similarly, volunteer management requires an awareness of volunteers, of how to manage and teach volunteer groups. Finally, being a highly visible and respected community member means roles must display professionalism and accountability.

Implications for the future

Initial implications will be that those interested in undertaking rural placements in pre-hospital care will have a greater understanding of the demands of a rural environment. With longer-term development, knowledge of rural paramedic roles will enhance specific rural education and training for paramedics. Initiatives such as rural clinical placement for paramedic undergraduates, or courses with a

multidisciplinary focus, will benefit not only the paramedics but also the health needs of rural communities in which they practice.

Introduction

The image of an ambulance rushing to attend an emergency case with lights and sirens is familiar to us all, and in itself offers definition to the role of a paramedic, traditionally this role is for attending the acutely ill or injured person. However, we now find that new roles for the paramedic are emerging. The rural paramedic in particular is experiencing an expanded scope of practice with strong community focus and involvement in primary health care [1, 2].

Recently, one new model for a rural expanded scope of practice emerged from research commissioned by the Australian Council of Ambulance Authorities (CAA). In this model, the paramedic's job description specifies rural community engagement, emergency care, scope of practice extension, and primary health care (RESP). The RESP paramedic will work with ambulance volunteers but is not necessarily part of a primary response crew with these volunteers. It is a move from the more traditional 'sufficing' model of paramedic practice in which provision of a minimal acceptable level of service occurs in response to community and political pressures [3]. The rural paramedic working within a sufficing model will often work with volunteers as a primary response crew.

With a RESP model, the job focus has widened from that of emergency care alone to a more community-based approach to health care in which the rural paramedic works closely with professionals from other health disciplines. This model of rural ambulance practice reflects community based and multidisciplinary components of several paramedic practitioner models operating within the United Kingdom (UK) and United States of America (USA) [4-11].

The Australian RESP model of rural paramedic practice, along with these other examples of expanded scope of practice from the UK and USA have formed an information base for the development of a specific postgraduate qualification in Australia for remote paramedical practice at James Cook University [12-14]. The development of such courses is a positive step toward the future of rural paramedic practice within Australia, however a gap remains in the determination of whether rural paramedic practice is any different to urban paramedic practice. The RESP study for example was examining paramedic practice from a rural perspective. How do we know if the role of the urban paramedic is not similar? Do we really need specific rural based education?

Current literature offers limited information. Some compares rural paramedic practice and urban practice on terms of practical skills such as intubation, and the ability of rural paramedics to perform to the same clinical skill level as their urban colleagues [15-17]. Rural paramedics' inexperience with certain types of patients such as paediatrics is also discussed in the literature [18, 19]. Other studies revealed differences in the aspect of trauma, noting longer transport times, and more trauma cases in rural areas [20-22]. The focus is on differences in practical skills or different types of case attended. There is little knowledge of the rural and urban differences in interaction of the paramedic with the community, or other health workers with whom they work. As such, we know little of the roles and skills that may be unique to the rural paramedic.

This present paper approaches the issue of difference from the standpoint of the paramedic, by asking the question 'how do differences in paramedic tasks offer insight into rural paramedic roles and inform paramedic education and training?'

Methodology

A qualitative approach and a comparative case study strategy were used to undertake this study of rural and urban differences and paramedic roles. Multiple sources of data were collected: semi-structured interviews with intensive care paramedics across two states in Australia; review of documentation, including job descriptions, ambulance service and union websites, archival information, local media, and universities; case dispatch data; and observation of paramedics within their local environment, key processes and events. Data collection took place during 2006-2007.

The case study design followed the format as suggested by Yin [23] whereby cases are constructed with units for analysis, in this case paramedic localities, which are then compared and contrasted within and across cases. For example, one particular rural case consisted of two units for analysis, which were independent rural localities. Analysis of each locality considered multiple sources of data, and formation of a robust case took place by comparing each unit of analysis for similarities or contrasts in data. Purposeful selection of units of analysis is an integral part of the format, however there is no control over the events examined.

A total of five rural and two urban localities contributed toward two rural and one urban case from the states of Tasmania and Victoria. For the urban case, the guidelines were that the paramedic localities must be comparable in terms of accessibility to medical services, population, and paramedic crewing. Two cities of comparable size in Tasmania and Victoria were selected. Using the Accessibility / Remoteness Index for Australia (ARIA) both cities also had an ARIA classification of Highly Accessible (HA) to a wide range of services and social interactions[24].

The guidelines for the two rural cases were that the cases fit one of two identified models of rural paramedic within Australia. These were; 1) the sufficing model whereby ambulance locations were formed initially in response to community and political pressures[3] (S model), and 2) the recently proposed RESP model of rural community engagement, emergency care, scope of practice extension, and primary health care [1]. Three rural sites were classified as Moderately Accessible (MA) under ARIA classifications meaning there was significant restricted accessibility of goods and services and opportunities for social interaction[24]. Two rural sites were classified as Remote (R) under Aria classifications, meaning very restricted accessibility of goods and services and opportunities for social interaction[24]. Two localities were selected for the sufficing model, and three for the RESP model. By creating two rural cases, any differences in rural paramedic practice between the two models could be determined.

In order to maintain consistency interviews were with those paramedics at the qualification level of intensive care paramedic. Interview questions aimed to elicit what type of work the paramedics performed, any interactions with community members and other health professionals, and thoughts on their own education and training. Distribution of information statements regarding the project occurred after gaining permission from ambulance services. Intensive care paramedics contacted the researcher directly to express interest in participation. Ten paramedics expressed an initial interest; this included three from the RESP group, four from the paramedic / volunteer group, and three urban paramedics. A second round of information statements to urban areas gained a further two urban paramedics. One rural and one urban paramedic withdrew prior to interviews. Interviews were taped and transcribed by the principal author.

Documents gathered included case dispatch data, job descriptions, union and ambulance service memoranda, and local media reports relevant to each unit of analysis. University educational curricula, and ambulance service educational curricula, revealed types of subjects delivered. Conduct of interviews was in local environments, allowing for observation of the paramedic workplace in terms of

local environment and services. Conduct of two interviews was by phone, and here paramedics described the environment in which they worked. At the time of rural data gathering, only dispatch data in Tasmanian rural areas was available in electronic format to allow for individual determination of case type. Cross reference between various forms of data enabled a process of triangulation, this served to guard against any bias from individual interviews [23, 25, 26].

Inductive analysis of data occurred with the aid of NVivo7 statistical software package, which allowed for comparison across each rural and urban case and the identification of consistent themes. Ethics approval was obtained through the University of Tasmania Human Research Ethics Committee (Tasmania) Network with assurance of confidentiality.

Results

This study was a comparison of rural and urban paramedic practice and although similarities present, four main differences between rural and urban paramedic emerged from the data. These were that the rural paramedic: 1) adopts a whole of community approach rather than a case dispatch approach; 2) is a multidisciplinary team member rather than operating mainly within ambulance teams; 3) has extra responsibility as a teacher and manager for volunteers; and 4) is a highly visible and respected member of the community rather than relatively anonymous.

A similar case dispatch

Similarities exist between the cases dispatched to paramedics in rural areas and in urban areas. The most common types of cases dispatched in rural areas of this study (Figure 1) represent 81.6% of all cases dispatched and in urban areas (Figure 2 & 3) 79.4% and 96.5% respectively. Paramedics in both regions need to be prepared to attend cases such as breathing problems, cardiac problems (including cardiac arrest), falls, abdominal conditions, unconscious or fainting patients, and road accidents.

The main difference in case dispatch data, apart from actual case numbers, is the large proportion of ‘transfers’ in rural areas, this is because of the need to move patients from smaller rural health facilities to more appropriate urban medical care. The terminology of ‘transfer’ does not necessarily mean diminished paramedic responsibility, as similar cases again appear (Figure 4).

Figure 1 Dispatch types for the Rural Paramedic in Tasmania 2006 (N=1588)

Type of case dispatched	Frequency % (of total cases) %	N	95% CI	
Transfer	35.9	570	33.53	38.25
Condition Unknown	8.6	137	7.25	10.01
Cardiac	7.1	113	5.86	8.38
Breathing Problems	6.4	101	5.16	7.56
Falls	6.2	99	5.04	7.42
Abdominal	3.8	60	2.84	4.72
Traffic Accident	3.5	55	2.56	4.36
Unconscious / Fainting	3.4	54	2.51	4.29
Convulsion / Fitting	1.5	24	0.91	2.11
Stroke / CVA	1.5	24	0.91	2.11
Assault	1.3	21	0.76	1.88
Overdose	1.3	21	0.76	1.88
Fire Incident	1.1	18	0.61	1.65

Source (Tasmanian Computer Aided Dispatch System)

Figure 2 Dispatch types for the Urban Paramedic in Tasmania 2006 (N=31174)

Type of case dispatched	Frequency % (of total cases) %	N	95% CI	
Cardiac	12.1	3772	11.74	12.46
Breathing Problems	8.9	2774	8.58	9.22
Fall	8.7	2712	8.39	9.01
Transfer	7.5	2338	7.21	7.79
Abdominal	6.1	1901	5.83	6.37
Condition Unknown	5.7	1777	5.44	5.96
Unconscious / Fainting	4.8	1496	4.56	5.04
Operational Coverage (contract event)	4.4	1371	4.17	4.63
Traffic Accident	3.7	1153	3.49	3.91
Convulsions / Fitting	2.8	873	2.62	2.98
Overdose	2.3	717	2.13	2.47
Haemorrhage	2.2	686	2.04	2.36
Back Pain	2.2	686	2.04	2.36
Psychiatric	2.2	686	2.04	2.36
Assault	1.9	592	1.75	2.05
Stroke / CVA	1.7	530	1.56	1.84
Headache	1.1	343	0.98	1.22
Diabetic problems	1.1	343	0.98	1.22

Source (Tasmanian Computer Aided Dispatch System)

Figure 3 Dispatch types for the Urban Paramedic (Victoria) 1st Nov 2005 – 31st Dec 2006 (N=174702)

Type of case dispatched	Frequency % (of total cases) %	N	95% CI	
Dr. Request (type not specified)	16.1	28127	15.93	16.27
Cardiac	16	27952	15.83	16.17
Breathing Problems	12.6	22012	12.44	12.76
Fall	8.7	15199	8.57	8.83
Unconscious / Fainting	7.2	12578	7.08	7.32
Traffic Accident	5.3	9259	5.19	5.41
Condition Unknown	3.8	6639	3.71	3.89
Convulsions / Fitting	3.7	6464	3.61	3.79
Haemorrhage	3.6	6289	3.51	3.69
Abdominal	3.5	6115	3.41	3.59
Psychiatric	3.3	5765	3.22	3.38
Traumatic injury	2.8	4892	2.72	2.88
Overdose	2.6	4542	2.53	2.67
Stroke	2.3	4018	2.23	2.37
Assault	2.3	4018	2.23	2.37
Transfer	2.2	3843	2.13	2.27
Back Pain	1.5	2620	1.44	1.56
Diabetic problems	1.3	2271	1.25	1.35

Source (Victorian Ambulance Service – formerly Metropolitan Ambulance Service VACIS system)

Figure 4 Transfer types for the Rural paramedic (RESP and S models) in Tasmania 2005 (N=523, Sample size 199, random sample 92% confidence 5% error)

Type of Transfer	Frequency % (of sample) %	N	95% CI	
Abdominal	19.1	38	13.64	24.56
Trauma (includes fractures, road traffic accidents, burns)	18.59	37	13.18	24.00
Cardiac	13.57	27	8.81	18.33
Infection	7.04	14	3.49	10.59
Psychiatric (includes medication overdoses)	6.53	13	3.10	9.96
Respiratory	6.53	13	3.10	9.96
Maternity	6.03	12	2.72	9.34
Stroke	4.02	8	1.29	6.75
Back Pain	3.02	6	0.64	5.40
Renal	2.01	4	0.06	3.96
Post Treatment	2.01	4	0.06	3.96
Palliative	2.01	4	0.06	3.96
Seizures	1.51	3	-0.18	2.40
Anemia	1.51	3	-0.18	2.40
Transport Doctor	1.51	3	-0.18	2.40
Headache	1.01	2	-0.38	2.40
Aircraft Retrieval (critical patient)	1.01	2	-0.38	2.40
Altered Consciousness	1.01	2	-0.38	2.40
Dehydration	0.5	1	-0.48	1.48
Haemorrhage	0.5	1	-0.48	1.48

Source (Tasmanian Computer Aided Dispatch System)

A whole of community approach

> We became involved in a lot of community things like…….up at the hospital we became involved in pre-natal classes, being involved in drugs in rural areas, and being involved in some of the committees there…first aid, we run first aid classes, not under the guise of the ambulance service but to assist. (Rural Paramedic, S model)

Rather than developing as a response to management of emergency cases alone, the rural paramedic becomes involved as an integral part of the community. The work done by rural paramedics includes public education, school visits, and general first aid/emergency care education. The approaches adopted by the paramedic are innovative in that the paramedic will make use of public media such as radio or newsprint to convey a message and promote a public health message to community groups.

This primary health care role extends to include community health centres, drug rehabilitation classes, aged and rural health care groups, to other emergency service groups such as fire and State Emergency Service (SES). This is evident with the involvement of one RESP paramedic who has been instrumental in the establishment of a community health centre in an area previously lacking in allied health support such as regular physiotherapy, occupational therapy or even drug and alcohol education.

The rural paramedic role in the community is proactive and witnesses paramedics planning for future health needs. Another example from a RESP paramedic is the proposed development of a casualty treatment area in a region with no local public hospital or emergency department. Other paramedics will be members of local hospital committees.

A multidisciplinary team member

> I'm on the community health council, where a number of different health workers get together once a month and look at what sort of projects we have got going in the town, how we can support that sort of stuff. So that's like your health promotions officer, your physiotherapist, your occupational therapist, district nurses, remote area nurses, myself……You do hospital, nursing, home care people, and we look at individual cases for project work. (Rural paramedic, RESP model)

Whereas both urban and rural paramedics will extend pre-hospital care to work together with hospital accident and emergency staff when required, the rural paramedics exhibit a more comprehensive multidisciplinary approach. In all cases, rural paramedics are involved as members of some form of community health organisation outside of the ambulance service. This willingness to practice outside of the 'silo' of emergency care is evident with paramedics placing themselves on local community health councils alongside physiotherapists, occupational therapists and district nurses, as well as being involved in community health promotions and educational initiatives ranging from pre-natal classes to drug and alcohol education.

With this multidisciplinary approach the rural paramedic, attending community members in their own homes is able to offer a unique contribution to the overall health care management of individuals. Advising other agencies of the specific needs of patients is commonplace and often an informal process. One example of such is where a community member requires counselling or psychological support rather than medical attention.

> Some of the patients that aren't coping, because it is a reasonably small community what we normally tended to do, we could talk to the doctor, and also we could arrange counselors, there was a local community type

house with paid counselors, and we could put these people in contact with them. (Rural paramedic, RESP model)

In the hospital environment, all rural paramedics report working together with nursing staff, allied health staff, and doctors to provide a continuation of care from the pre-hospital to the hospital environment. Because medical practitioners are often on call, this care will extend to working with nursing staff whilst waiting for the doctor. Multidisciplinary practice is further extended when the rural paramedics assist in the hospital with critical life saving measures such as intubation, or drug therapy.

In another tangent to a multidisciplinary approach, education of other health professionals is a common element for all rural paramedics interviewed. The paramedics in the hospital or health centre setting will conduct sessions ranging from basic first aid training to education on advanced clinical practices for other health professionals.

A manager of volunteers

Ongoing training is still up to the branch people[rural paramedic]…I've found that over the years the quality of the training the volunteers receive is still dependant on the branch station officers [rural paramedics]… initial training and on going training. (Rural paramedic, S model)

Part of the formal role of the rural paramedic in both models is the management and training of local volunteer units [27, 28] and the paramedics regard the training of volunteer units as an important priority. By ensuring a well-trained and capable volunteer workforce, the rural paramedic is also ensuring the volunteer units support the high level of pre-hospital care provided in a rural area.

Paramedics adopt more than didactic classroom training for volunteers with development of novel approaches in their training methods.

Also project work about taking my ACOs[Volunteers] to large events in and around Melbourne so that, where there are field hospitals set up so there's another medical company, so I can pair them up with staff from another medical company so they can get the experience of doing patient assessments and watching trends in patient care and patient assessment under supervision of other staff. I've got some pretty keen ACOs[Volunteers] who have been away and done those sort of things. (Rural paramedic, RESP model)

The relationship of the rural paramedic with a volunteer group is more than a training role, and better fits the concept of volunteer management with rural paramedics involved in review of case management by volunteers, peer support, volunteer recruitment, occupational health and safety, and determining shift rosters. The rural paramedic needs to be able to consider and manage the mix of people that are willing to contribute their own time as ambulance volunteers.

……manage some of the more quirky personalities you can find in rural communities… they (volunteers) can be very difficult people to work with, they presented with problems over the course of the year.(Rural paramedic, S model)

A highly visible community member

You put yourself in a car with paramedic on it; you cannot go anywhere nor do anything. Then on your days off you are still driving the service car, they know where you are all the time. (Rural paramedic, RESP model)

One aspect of the urban paramedic role is that once a shift is finished the paramedic is able to maintain a degree of anonymity. On the other hand, the whole of community approach adopted by the rural paramedic means that a large proportion of community members are aware of whom the paramedic is. This is especially so considering that only one or two rural paramedics served the rural communities in this study. In addition, a common characteristic among rural paramedics is that they will inevitably be using an ambulance vehicle during non-rostered hours for the purpose of on call arrangements or as part of an employment package. The use of this vehicle means that the rural paramedic is at all times highly visible within the community.

Even when not using an ambulance vehicle rural paramedics find that the only way to escape the role totally is to depart the town itself. This is difficult to achieve when permanent officers will usually be living in the communities they serve. The rural paramedic with a family can find this particularly difficult, as the family also becomes a highly visible unit within a rural community.

High visibility can also transfer to high demand, and all rural paramedics report having to put in a proportion of work outside of normal roster hours. This includes training of volunteers, but is also demonstrated by patients sometimes reporting to the paramedic's home rather than presenting to hospital.

This willingness to present directly to the paramedic suggests the respect community members have for the skills of the rural paramedic. This is a feature further supported by other health workers, where the paramedic is often called to assist in critical care at the hospital itself.

> All critical patients who are being flown out they call the paramedic out to assist with packaging the patient, and sometimes the patient is delivered there in the rawest state so they need the whole box and dice, intubation etc, prior to the aircraft retrieval ream coming in (Rural Paramedic, RESP model).

Discussion

This study is a comparison of rural and urban paramedic practice and although similarities in case dispatch are present, four main differences between rural and urban paramedics emerge from the data. These are that the rural paramedic: 1) adopts a whole of community approach rather than a case dispatch approach; 2) is a multidisciplinary team member rather than operating mainly within ambulance teams; 3) has extra responsibility as a teacher and manager for volunteers; and 4) is a highly visible and respected member of the community rather than relatively anonymous.

These results have a high level of consistency with previous studies showing that the rural paramedic in Australia is involved in rural community engagement, emergency care, a scope of practice extension, primary health care, and has a strong involvement with ambulance volunteers [1, 2, 29-34]. Indeed, given the consistency of results across both the rural models used in this study it would suggest that these particular aspects to the role of rural paramedics are more widespread than one model of rural practice alone.

The differences found in this study point to the rural paramedic being a practitioner in his/her own right, and lend weight to the development of rural specific courses such as the Certificate in Remote Paramedical Practice through James Cook University in Australia[12-14]. Each difference has a link to certain paramedic roles. For a whole of community approach, the role is one of community involvement, with the paramedic involved in project management or use of local media. A multidisciplinary approach means that the paramedic requires a multidisciplinary awareness in order to work well with other team members, and to be able to move between the pre-hospital and hospital

environments. Similarly, volunteer management requires an awareness of volunteers, of how to manage and teach volunteer groups. Finally, being a highly visible and respected community member means rural paramedics must demonstrate high levels of professionalism and accountability for their actions and interactions.

There is evidence that the promotion and fostering of these rural paramedic roles is already taking place to some extent in the current Certificate in Remote Paramedical Practice offered at James Cook University in Australia. The roles of community involvement and multidisciplinary awareness are incorporated in this particular postgraduate course to see paramedics working within their rural communities in the development of collaborative strategies designed to meet community health needs[14].

Further development of educational initiatives such as rural clinical placements or multidisciplinary programs for paramedics will create awareness and development of identified roles. Rural clinical placement for undergraduates in other disciplines has seen success in regard to a desire to undertake a rural career [35-41], and will provide the undergraduate paramedic student an opportunity to experience first hand the differences between rural and urban paramedic practice, whilst building awareness of their own 'fit' within a rural community. Multidisciplinary education programs will promote a multidisciplinary awareness. Such programs have been successful with various health care professions [42-45] and are now appearing with medical students, nurses, and paramedics [12, 14, 46-48].

The future is promising for development of such initiatives, with Australian ambulance organisations recognising a need for further development of the paramedical services offered in rural communities. The New South Wales (NSW) Ambulance Rural Plan (2006) states the need for health related research and development with identification of geographical packages for rural areas [49], and a report from 2008 into the management and operations of the NSW ambulance service recognises the importance of intensive care paramedic training in rural areas[50]. The NSW Ambulance Service has also been instrumental in establishing community based extended care paramedic programs in both urban and rural areas [51]. From Queensland comes a comprehensive worldwide examination of several models of extended paramedical health care which has been constructive in the informing of the James Cook Certificate in Remote Paramedic Practice [13, 52], and the recent RESP model of practice was the outcome of a study commissioned by the Australian Council of Ambulance Authorities[1]. Recognising differences between rural paramedic and urban paramedic practice and expanding the focus to include roles of the rural paramedic, will enhance such developments and build upon the evidence base required for new educational initiatives.

This current study has examined rural and urban paramedic practice across two states in Australia. Further investigation using other states will contribute to an understanding of rural and urban paramedic differences, and the role of the rural paramedic. Paramedic practice in very remote areas is not part of this study, and should be a focus for further investigation.

Conclusion

Whilst the image of an ambulance rushing to attend an emergency case with lights and sirens is familiar, there is more to the role of the paramedic. In particular, this study reveals differences between the rural and urban paramedic that help explain why we need an expanded role for paramedics that acknowledges practice beyond that of attending the acutely ill or injured person.

Rural paramedic practice is different from urban paramedic practice in that the rural paramedic is a highly involved and visible member of the community, working closely with other health professionals,

and ambulance volunteers. With these differences, the rural paramedic displays various roles relating to community involvement, multidisciplinary awareness, an awareness of volunteers, and incorporating professionalism and accountability.

Community based and multidisciplinary components are present in models of expanded paramedic practice in the United Kingdom and United States of America. Australian ambulance organisations and educational institutions are combining knowledge gained from these models of practice with locally based research, and in one particular example, roles of multidisciplinary awareness and community involvement are part of a specific rural postgraduate paramedic qualification and have seen promotion of collaborative strategies for health care in rural communities. Continued focus on advanced roles of the rural paramedic will see acknowledgement of these rural roles and the development of further training. Initiatives such as rural clinical placement for paramedic undergraduates, or courses with a multidisciplinary focus, will benefit not only the paramedics but also the health needs of rural communities in which they practice.

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