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Factors influencing the successful integration of ambulance volunteers and first responders into ambulance services

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What is known about this topic

- Many ambulance services operating in rural and remote areas are highly reliant on volunteer and first-responder models of service delivery.
- The style and commitment to the management and leadership of volunteer ambulance models vary considerably.

What this paper adds

- The perspectives of senior ambulance service managers responsible for volunteer and first-responder models of service delivery have been identified.
- A model of volunteer management for ambulance services is presented to improve the management of volunteers and first responders.
- Ambulance volunteer and first-responder programmes require thoughtful leadership and management in order to satisfy the needs of communities and key stakeholders.

Abstract

This study identifies the factors associated with the successful integration of ambulance volunteers and first responders into major ambulance services in Australia and New Zealand and then proposes a model of volunteer management for ambulance services. All ten members of the Australasian Council of Ambulance Authorities completed a questionnaire describing their volunteer and first-responder staff, their numbers and deployment, and the management and integration of volunteers within their respective organisations. Eight senior managers responsible for ambulance volunteers and first responders from six States of Australia and one region of New Zealand subsequently participated in semistructured interviews. Analysis of interview transcripts and publicly available data revealed facilitative factors associated with strong, vibrant ambulance volunteer systems. These facilitative factors are commitment to volunteer models of service delivery; a degree of management decentralisation and volunteer input into decision-making; commitment of resources towards the volunteer model; and the organisational integration of volunteers into the ambulance service. The proposed facilitative model of volunteer management developed aims to encourage the adoption of positive and innovative strategies to improve the integration of ambulance volunteers and first responders in ambulance services. The model consists of four components: leadership; integrative processes; resource commitment; and relative autonomy. The first three of these relate directly to the organisation, while the fourth concerns the volunteers themselves. If these approaches were replicated more widely, a viable and effective volunteer emergency health response system could be established in those areas where it is uneconomic or impractical to provide a salaried ambulance service staffed with professionally qualified paramedics.

Keywords: emergency services, paramedic, volunteers, workforce issues

Introduction

Voluntary response and delivery of emergency health services make important contributions to the health, safety and well-being of communities (McGinnis 2004). These contributions are especially valuable in sparsely populated regions and especially in response to unusual or extraordinary events where regular emergency health

services are overwhelmed. Historically, ambulance services have been formed and sustained through the human capacity to band together and help others as volunteers. These volunteer systems were the basis of most civilian ambulance services and still have a strong influence on their organisation and culture (Howie-Willis 2009).

Citizens from diverse backgrounds willingly volunteer to respond and assist in emergencies in a variety of ways. Ambulance services and other emergency services capitalise on this altruism to recruit permanent volunteer workforces. However, it is easy for them to lose sight of these altruistic motivations when they are faced with the challenges of managing large and complex emergency response organisations (Drabek & McEntire 2003). For example, volunteers in the highly regarded Country Fire Authority in the Australian State of Victoria have recently criticised that organisation for inadequate training, failure to consult volunteers, poor leadership and the ascendency of salaried staff interests (Kissane 2010). Careful planning for ongoing integration of the volunteer into large and professionally led emergency services is required in order to optimise the allocation of human resources and expertise and to be efficient (Baragwanath 1997, Department of Health and Human Services – Tasmania 1999, Ambulance Service of New South Wales, 2006, Blacker *et al*. 2009).

Volunteer ambulance models have sometimes been neglected on an assumption that volunteer numbers are falling and that salaried paramedics are filling the needs of all communities. However, this is not necessarily the case, and in some parts of Australia and New Zealand, the number of ambulance volunteers is actually increasing (O'Meara 2003, Productivity Commission 2006, 2010). In fact, this is consistent with an overall growth in the number of people volunteering across the not-for-profit sector more generally (Nisbet & Wallace 2007).

In 2004–2005, there were 8747 salaried staff and 5038 volunteers in operational roles working in the eight Australian ambulance services (Productivity Commission 2006), and by 2008–2009, this had grown to 10 909 and 6396, respectively (Productivity Commission, 2010). Volunteers and first responders constitute 7.7% of the operational workforce of ambulance services in New South Wales, 28% in Victoria and 82% in Western Australia (Productivity Commission, 2010). New Zealand is also highly dependent on volunteers to provide services outside of the major cities (Kedgley 2008).

The metro-centric and professional-centric approach to the management of some ambulance services has meant that some volunteer ambulance systems receive limited attention and support (Jennings *et al.* 2006). This lack of understanding of the volunteer–organisation interface may be implicated in some of the resourcing and management issues of concern to many organisations using voluntary labour (Reinholtd & Smith 1998, Brudney 1999, Productivity Commission, 2009, Stirling *et al*. 2011).

There has been little research published on the perspectives of managers who are responsible for volunteers (Nisbet & Wallace 2007). One study considered the perspective of Australian and New Zealand ambulance service managers that explored the collective agency of ambulance service volunteers (Stirling & Bull 2011), and one other study included volunteers as part of a wider study on Tasmanian volunteers and administrators across a wide range of sectors (Stirling *et al.* 2011). However, these studies have not considered the specific perspectives of ambulance service managers.

Methods

A questionnaire was sent to all ten members of the Australasian Council of Ambulance Authorities requesting information describing their volunteer and first-responder staff numbers, their deployment and their management and integration of volunteers. Interviews with senior managers responsible for the management of volunteers and first responders were requested.

The questionnaire data were used as a catalyst for the development of key questions for the interview phase of the study. Beyond this use, these data had limited utility because of the different reporting formats and definitions. In the case of Australian ambulance services, consistent data were more readily available from Government reports (Productivity Commission, 2006, 2010).

Sample

Eight senior managers responsible for ambulance volunteers and first responders from six States of Australia and one region of New Zealand participated in semi-structured interviews of 1–2 hours, either in person (five sites) or via telephone (two sites). At the time of the study, only eight ambulance services existed in Australia and two major ambulance services in New Zealand (one of which was excluded as a non-member of the Council of Ambulance Authorities). All those ambulance services invited to participate completed the questionnaires, and the seven invited to participate in interviews accepted. In one case, two managers were interviewed together. This approach aimed to elicit detailed responses from expert informants who have considerable insight into the management of volunteer ambulance systems (Field & Morse 1996). The other ambulance services were excluded from the interview stage of the research because of their small numbers of volunteer staff.

A limitation of the study was that only ambulance service managers were interviewed, with no direct voice being heard from community members, patients, other health professionals, volunteers or first responders. Unlike managers, the views of these stakeholders have been represented in the previous studies of ambulance volunteers (Fahey *et al.* 2003, O'Meara 2003, Stirling 2007, Baxter-Tomkins & Wallace 2009, Stirling & Bull 2011).

Participants were asked a series of key questions based on the core areas of interest with follow-up questions emerging during the interviews.

Key questions

- Tell me about your ambulance service's approach to volunteers and first responders?
- How does the service communicate information to and from the volunteers and first responders?
- What role do volunteers and first responders have in the decision-making processes of the organisation?
- How well do you think the full-time staff and volunteers are integrated with each other?
- Do you have any future plans for service enhancement involving volunteers?

Analysis

The interviews were recorded and transcribed, then returned to the participants for verification. Three different researchers analysed these data using classic content analysis techniques (Glaser & Strauss 1967) and computer-assisted programmes – NVIVO (Richards 1999) and Leximancer (Smith & Humphreys 2006). The researchers engaged in peer debriefing, exploring rival explanations, probing biases and clarifying the basis of interpretation in order to enhance the credibility of the analysis (Lincoln & Guba 1985). As a result, *facilitative* and *non-facilitative factors* that either promoted or hindered the integration and effectiveness of volunteer and first-responder systems within ambulance services emerged.

Findings

Volunteer ambulance models

The volunteer models described in this study fall broadly within three categories: first-responder programmes (Callaham & Madsen 1996), the traditional volunteer/honorary system (O'Meara 2003) and mixed professional/volunteer models (Department of Health and Human Services – Tasmania 1999).

Within the Ambulance First Responder model, volunteers respond to emergency cases by deploying basic emergency management skills such as resuscitation techniques and first aid. They do not transport patients from the incident scenes and tend to be ambulance service-supported or tasked through other emergency services (Boyle *et al.* 2010). These volunteers are generally trained to a level higher than a first aid certificate, provide some medication and operate Automatic External Defibrillators.

The traditional volunteer system has been in place for more than 100 years in various forms in Australia and New Zealand (Kedgley 2008, Howie-Willis 2009) (Kedgley 2008). Staff are generally engaged and trained as 'volunteers' by ambulance services and are described by a number of different titles, such as Volunteer Ambulance Officers, Honorary Ambulance Officers and Community Ambulance Officers. They may be unpaid, receive out-of-pocket reimbursements or be employed as 'retained' staff.

The mixed professional/volunteer model describes those systems where salaried paramedics work with volunteers. It is well established in Tasmania and parts of Victoria where it has experienced a relative resurgence in recent years (O'Meara *et al.* 2004, Blacker *et al.* 2009, Mulholland *et al.* 2009). It is seen as a transitional model in growing communities that have a higher caseload than a fully volunteer model can cope with, without yet being able to justify a salaried model (Raven *et al.* 2006, Reeve *et al.* 2008, Blacker *et al.* 2009). Ambulance services that have embraced the concept of mixed crewing demonstrated a strong commitment to the success of the model through the provision of additional resources and a willingness to innovate.

Facilitative and non-facilitative factors

Analysis of the interview data sought *facilitative* factors that produce strong, vibrant volunteer systems, and the corresponding *non-facilitative* factors also emerged. These facilitative factors were categorised under four broad headings: commitment to volunteer models of service delivery; a degree of management decentralisation and volunteer input into decision-making; commitment of resources towards the volunteer model; and the organisational integration of volunteers into ambulance services.

Commitment to the volunteer model

Interviewees were not asked to directly comment on their own or their respective ambulance service's commitment to volunteer models. Their indicative commitment to volunteer models emerged through their responses to the interview questions. In most cases, their commitment was clear from their validated actions, such as financial support to volunteers, efforts to communicate information, provide training and support for vol-

unteer conferences, give opportunities for input into the operation of their services and provide public recognition of volunteer roles:

> We do celebrate Volunteer Week, again with a celebration with the local teams. We do try to give back to them what they are giving to their community. The community understanding [that] the Ambulance Service put in the infrastructure and the support, and the community provides the labour is extremely important. (Interviewee 5)

> Quite clearly communities and ambulance services depend on volunteers to be able to try and provide the best response that we can for the sick and injured. (Interviewee 3)

One view from an interviewee was that volunteer models are unsustainable and that their ambulance service lacked 'enough fat in the system, to be able to support this growing phenomena', referring to the extension of first-responder systems. Most of Australia's ambulance services are well funded and highly resourced. This respondent also expressed doubts about the effectiveness of volunteer models, even though there was an admission that little is done to measure outcomes:

> I am not sure just how beneficial they are in terms of providing a service in the first place. The time they are called, travel 50 kilometres to get to a car, and to respond to the case. Perhaps it might be better to send an ambulance there in the first place. Just not too sure and it is a hard question to answer, because there is no one else. We don't really monitor the effectiveness of these services. (Interviewee 2)

The other challenge to the long-term sustainability of volunteer models is concern that the recruitment and retention of volunteers in general is more difficult than in the past. Another interviewee argued that while volunteers can be hard to find, they are there if ambulance services '… can give them some meaningful [work] and good leadership when they come.' (Interviewee 7)

Decentralisation of management

One approach used to successfully manage volunteer ambulance systems is the 'St John approach' in Western Australia and New Zealand based on the local autonomy of sub-branches. This is consistent with other volunteer research that found '… that volunteers prefer management styles based on trust and interpersonal relationships' (Stirling *et al.* 2011). In the more populous states, the highly centralised bureaucratic system is more prevalent, with these interviewees arguing that a centralised management system is one of the legal and organisational necessities. The challenge is to balance the need to ensure that service delivery meets accepted professional standards through the establishment of centralised policy and management systems, while seeking to retain an organisational environment in which regions and local stations retain the capacity to manage and support their volunteers on the basis of shared trust and interpersonal relationships (Cunningham 1999, Gibelman & Gelman 2011):

> What we needed to do over a period of time very quickly was to establish a framework and to bring the co-ordination and policy role centrally … Volunteers for us fit into the matrix of response for Ambulance but are managed centrally in terms of policy and co-ordination. (Interviewee 1)

One of the potential outcomes of this is that the hierarchical nature of ambulance services may make it very difficult for volunteers to have any meaningful input into organisational decision-making (Baldock 1990, Milligen & Fyfe 2005). In South Australia and Victoria, organisation-appointed managers are directly responsible for volunteer support at either regional or state levels. The argument that they represent volunteer interests has been challenged on the basis of the comparatively weak position of ambulance volunteers' collective strength or agency compared to that of organisational managers, with volunteer communication being described as '… a top-down process with almost no process for bottom-up feedback, even in those organizations with representative volunteer committee structures.' (Stirling & Bull 2011)

This study shows that ambulance services that place more reliance on volunteers tend to utilise management systems that devolve authority and responsibility to both volunteers and their local managers:

> I suppose the fundamental component of our approach is that we very much believe in it [the volunteer system], whether you would call it de-centralised or self-managed, as much as possible, units, we call them sub-centres, so throughout country [Y State] we have 110 sub-centres and some of them operate across multiple locations. (Interviewee 6)

In Tasmania, there is no designated volunteer manager within the organisation because volunteers are part of a fully integrated model and are managed as part of the overall operations of the ambulance service that is underpinned by a comprehensive volunteer policy and procedures manual. Interestingly, Tasmania has seen the formation of a strong and largely autonomous Volunteer Ambulance Officers Association that engages with the ambulance service, government and the community to progress the interests of volunteers and the communities they serve (Volunteer Ambulance Officers Association of Tasmania Incorporated, 2009).

Resourcing

While the approaches and rationale for volunteers vary considerably among ambulance services, the types and levels of resources provided are consistent among those

with a strong commitment to volunteers and first responders. Those with vibrant volunteer models all have generous reimbursement policies, and transparent reward and recognition systems. They directly or indirectly remunerate their volunteers for responding to calls and travelling to essential training, provide uniforms and protective equipment and conduct conferences and seminars specifically catering to volunteer needs. They tend to employ managers who have as a core function of their positions a responsibility to guide and support volunteers:

> We do have an ethos which we try to live by which is volunteering shouldn't cost the volunteer anything. … [X Service] offers a volunteer wages reimbursement therefore if someone comes out of a business we will pay that organisation the wages for that particular time. If they are self-employed, we will pay them to the level of an ambulance officer for their time. We also have a volunteer entitlements document which goes through what they are entitled to claim for, which includes, what their uniform allocation is, what their travel expenses can be, what their shoe allowance is, and other out of pocket expenses. (Interviewee 5)

In contrast, one ambulance service offers no pay or reimbursement, and limited resources are committed to activities such as training and professional development. This illustrates an attitude that the volunteers should volunteer at their own expense:

> … if you draw a comparison of the Coastal Patrol … they are true volunteers. They even have to buy their own uniform. So I guess from an Ambulance Service point of view we are probably a little bit more generous than that because we want them to respond in our uniform. At this stage there is no intention to move away from that, they are truly volunteer ambulance officers. (Interviewee 2)

As reported in the literature (King *et al.* 2006, Stirling *et al.* 2011), a major weakness of this approach is that the lack of reimbursement for out-of-pocket expenses acts as '… a barrier to volunteer sustainability by limiting the socio-economic groups that can participate in programmes.' (Stirling *et al.* 2011)

A particularly important resourcing commitment is the provision of appropriate education and training for ambulance volunteers (Fahey *et al.* 2003). In all the ambulance services studied, this is addressed through the provision of formal vocational programmes of study, regular training seminars and opportunities to advance to professional levels of qualification:

> Professional Development Seminars … are very popular and that's where we send either our current Medical Director … or our former Medical Director … with a group of our Ambulance Training Centre staff and they run these Professional Development Seminars out in each of the country sub-centres, … They sit over and above the sort of formal training programme. (Interviewee 6)

> … we want to see them not stop just at some low level of training. We want to see them to continue on to improve and get as many as we can up to National Certificate level in a sensible and timely manner. (Interviewee 7)

In both South Australia and Victoria, support for the education and training of volunteers has been taken to a higher level with selected volunteers being sponsored to undertake degree-level studies as part of a strategy to improve the recruitment of salaried staff to rural areas (Ambulance Victoria, 2009).

Integration processes

Those ambulance services that actively seek to integrate volunteers and first responders in their organisation employ a wide range of strategies. For instance, a number organise and fund large volunteer conferences where information is shared and the contributions of volunteers are publicly recognised (Stirling *et al.* 2011). At these conferences, participants are given the opportunity to raise issues of concern with senior managers:

> … we do lots of reward and recognition type things, rewarding sub-centre of the year, trainer of the year, volunteer of the year, and then a whole lot of encouragement categories.

> As well as that we do a thing called the Open Forum where at the end, … all of the organisation's team of directors are basically there for an Open Forum question and answer session. … This Open Forum attempts to deal with issues pretty decisively with all the volunteers there and it is also an important forum the whole event for us to get feedback from the volunteers. So, as I say, we put a fair amount of investment into it. (Interviewee 6)

One ambulance service has explicit policies that ensure that both volunteers and salaried staff operate under the same policy framework. For example, the organisation's human resources policies are identical for both volunteers and paid staff. While this 'even-handed' approach has been reported to cause tensions in some organisations where volunteers may not want to be treated the same as paid staff (Paull 2002, Leonard *et al.* 2004), there is no evidence either way for this argument in ambulance services:

> We don't delineate between a volunteer and a paid officer of the service. If we have a volunteer they are to be treated with the same equitable policies that we apply to paid staff. (Interviewee 7)

While most ambulance services share information through the distribution of regular circulars and bulletins, others find the concept of including volunteers in the organisation challenging.

… I don't think we communicate with them effectively. They should be considered to be another Ambulance Station. Therefore, anything that goes to an Ambulance Station should go to them but I am not sure that happens to be quite honest. (Interviewee 2)

Despite active efforts to integrate volunteers into the fabric of ambulance services, there remain challenges when it comes to volunteers and some salaried staff working together. Even in those services with very effective volunteer systems, the interviewees reported that '… it is not a warm, fuzzy, cosy relationship in the … industrial environment' (Interviewee 7). It is perhaps not surprising that all interviewees highlighted that a key factor influencing how volunteer systems are developed, integrated and managed is the position of salaried staff and their unions. In some ambulance services, the divide appeared to be very wide and potential solutions seen as too hard, while in others an accord had been achieved through processes that would monitor and develop volunteer systems and also allow a transition towards more salaried services as demand meets agreed thresholds:

… the Service would like to go down a path of having more volunteers, and certainly in those isolated areas, one would argue a volunteer could well support the permanent group but industrially, and the industrial culture we have, it is not going to happen for a while, … I don't think they are well supported nor are they integrated with the staff. (Interviewee 2)

… they believe that while we have … [volunteers] out there then, it is minimising the expansion of the paramedic role. (Interviewee 3)

… when you have got 14 stations that are mixed, that has created a situation where a lot of the staff have worked with volunteers. The numbers of staff who are poor at interacting with volunteers are a very small minority these days and it is dwindling as an issue. (Interviewee 4)

One disappointment for a number of interviewees was that 'entrenched' industrial and organisational positions discouraged some potential innovations that in the longer term would enhance service delivery to isolated communities and extend paramedic career opportunities:

I mean we have just had total resistance to the concept of the Rural Support Paramedic which is pretty disappointing. … We have just got to get over this Union resistance which is a bit of a shame because I just have great difficulty understanding how they don't see that this is the development of their profession … (Interviewee 6)

Discussion

The proposed facilitative model of ambulance volunteer management is designed to serve as a platform for the development and implementation of more innovative ambulance service delivery models using volunteer ambulance staff. The model consists of four components: leadership; integrative processes; resource commitment within the lead organisation; and the relative autonomy of the volunteers.

Leadership

In common with other sectors that are reliant on volunteers, effective leadership is central to the success of the facilitative ambulance volunteer management model (Nisbet & Wallace 2007). Those with responsibility for volunteer and first-responder programmes in ambulance services must show high levels of commitment to the integration of volunteers. This was amply demonstrated in a number of the interviews, with interviewees mounting strong cases for the retention and further development of the volunteer models of service delivery.

This study found that throughout Australia and New Zealand, there are some excellent examples of organisation-led innovations involving volunteers; however, there has been little effort to appropriately evaluate and publish the outcomes of these innovations. Without commitment and supporting evidence, it is difficult to argue the case for those communities that are dependent on volunteer models. Communities, funders, salaried staff and other parts of the health system will not easily be convinced unless senior executive staff and other managers demonstrate high levels of organisational leadership (Brudney 1999).

Integrative processes

Services using volunteers effectively illustrated the importance of salaried and volunteer staff receiving the same information and recognition. This can be in the form of newsletters, bulletins, training activities or special events such as conferences. According to a number of interviewees, volunteers want to feel that they are part of their ambulance service. This is consistent with other volunteer services, such as fire brigades (McLennan & Bertoldi 2005). This finding does cast some doubt on the appropriateness and sustainability of third parties being used to provide volunteer services or first-responder programmes on behalf of ambulance services. By their nature, these transactional relationships may limit the sense of community between ambulance services and their volunteers (Taylor *et al.* 2006).

Beyond communication of information is the opportunity for volunteers to participate in the decision-making processes of ambulance services. Being able to access key management staff in a timely manner is important for ambulance volunteers as it is for all emergency ser-

vice volunteers (Aitken 2000, Nisbet & Wallace 2007). Some services provide formal mechanisms for volunteers to influence policy, while others use more informal approaches through open two-way communication channels. Those with poorly developed volunteer systems appear to discount the place of volunteers in the organisation and provide no opportunities for their involvement in organisational decision-making processes. As Stirling & Bull (2011) argue, the dominant description of the ambulance volunteer is as a Moral Volunteer, who works without extrinsic reward, may be hindering the integration of volunteers into Australian and New Zealand ambulance services. They further argue that the interests of the Professional Volunteer, who aspires to an integrated role in ambulance services, are rarely acknowledged in the language of organisational documents (Stirling & Bull 2011).

Resource commitment

One of the most forceful messages from interviewees was that volunteer ambulance systems are not free. As argued elsewhere, 'The establishment and maintenance of human and physical resources to support volunteers and enhance the volunteer perception of self-worth is essential to the engagement and subsequent retention of volunteers' (Ranse & Carter 2010). While all the ambulance services in this study supply uniform and protective equipment as required under occupational health and safety legislation, the total level of resource allocation varies greatly. Those with effective and vibrant volunteer systems commit considerable resources to managing and supporting volunteers.

The most obvious support for volunteers is through either the provision of direct salary for time worked or generous out-of-pocket reimbursements. The concept of the 'true volunteer' who volunteers at their own cost does not appear to be viable in the provision of an essential emergency health service (Stirling *et al.* 2011). Successful volunteer ambulance systems in Australia and New Zealand provide strong financial support to their volunteers. This support extends to the provision of resources to provide high-quality continuing education programmes and regular volunteer conferences. Education of volunteers appears to be a mutually beneficial factor in the establishment of viable and sustainable volunteer ambulance systems. This study confirms that accredited education and training appear to be of great value to individual volunteers and ambulance services alike (Fahey *et al.* 2002).

Strong and successful volunteer systems have dedicated management support from the organisation. In some cases, this is provided at a state-wide level and in other cases at a regional level. The distinguishing characteristic is that these roles are not added onto the responsibilities of already over-burdened senior staff who can only commit a small amount of time and effort to the needs of volunteers.

Relative autonomy

In general, volunteers have a desire for autonomy and self-management (Vanstein 2002, Nisbet & Wallace 2007), and they have a strong dislike for 'red tape' and transactional management strategies. This suggestion presents challenges to managers dealing with the relationships between salaried staff and volunteers, when salaried staff may feel that their positions could be undermined by the presence of volunteers (Volunteering Australia, 2006, Nisbet & Wallace 2007). In fact, other emergency services have been urged to consider a more consultative style of leadership in response to the changing demographics of their volunteer workforces that may respond to authority in different ways (Baxter-Tomkins & Wallace 2009).

Providing a degree of local autonomy for volunteers appears to be a key characteristic of successful volunteer ambulance systems. The formation of sub-centres in Western Australia and the Volunteer Ambulance Officers Association in Tasmania both illustrate how this might be achieved. Whatever approach is taken to encouraging autonomy, it is important that volunteers feel that they have an independent voice and can speak on behalf of the local community. This is indisputably one of the strengths of volunteer ambulance systems throughout the world (Reich 1991), even though it does provide leadership challenges for ambulance services and other stakeholders.

Conclusions

The establishment of viable and effective volunteer ambulance systems in areas where it is uneconomic or impractical to provide a salaried staff model should be an important objective of ambulance services. Those managers and paramedics holding an image of volunteers that is 'frozen in time' will battle to cope with the integration of volunteers and salaried staff. Effective integration is more likely to be achieved if managers better understand the interface between volunteers and ambulance services in their community context (Reinholtd & Smith 1998, Brudney 1999, Productivity Commission, 2009, Stirling *et al.* 2011).

There appears to be a case for a professional development curriculum for managers and salaried staff related to the nature of volunteering, their own leadership styles and how the two combined may impact on the motivation and performance of ambulance volunteer systems

(Eikenberry 2007, Baxter-Tomkins & Wallace 2009, Stirling *et al.* 2011). Creating viable and sustainable ambulance service delivery models using volunteers requires thoughtful leadership styles that exhibit an understanding of how to integrate volunteers with salaried staff through respectful and inclusive management processes, adequate resourcing and appropriate recognition systems.

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Authors' contributions

P.O. conceived and designed the research proposal and collected the data. All authors individually analysed the data, conceptualised the resulting model, were involved in drafting the paper and approved the final version.

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Conflict of interests

The authors declare that they have no conflict of interests.

Ethics approval

The study approval was obtained from Charles Sturt University, Human Ethics Committee, Approval No. 2005/021.

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