The role of the Advanced Casualty Management Team in St John Ambulance Australia (New South Wales District)

Christine Duffield, Finlay Macneil, Christine Bullock and Helen Franks

Christine Duffield is Professor of Nursing at the University of Technology Sydney and District Nursing Officer in St John Ambulance Australia (New South Wales). Finlay Macneil is a surgeon and a District Medical Officer in St John Ambulance Australia (New South Wales). Christine Bullock is a nurse manager and District Staff Officer in St John Ambulance Australia (New South Wales). Helen Franks is a Research Assistant at the University of Technology, Sydney.

Abstract

St John Ambulance is a household name synonymous with the teaching and provision of first aid. Recently the organisation has developed pre-hospital emergency care services through the introduction of the St John Ambulance Australia Advanced Casualty Management Team in New South Wales. The Advanced Casualty Management Team represents a move away from the practice of first aid by lay personnel and is a natural extension of the traditional work and principles of St John Ambulance. This article provides an overview of the Advanced Casualty Management Team and discusses its contribution to pre-hospital trauma care delivery.

A historical overview

St John Ambulance Australia has recently entered a new phase of its existence along with every other institution in the country. However the changes in St John Ambulance Australia have been even more profound than many of those other institutions. One of these changes has been the introduction of the Advanced Casualty Management Team in New South Wales (designated a district in St John Ambulance). The Advanced Casualty Management Team represents a move away from the last century of practice

of first aid by lay personnel, but is a natural extension of the work and principles of St John. It is helpful to view the development of the Advanced Casualty Management Team in the light of the history of St John Ambulance (a fascinating study in itself which is seldom appreciated outside St John).

Although first aid as we know it has really only been in existence since the nineteenth century (Pearn 1998) it is not a new concept. In Australia for example, first aid was practised very successfully for centuries by the indigenous population. Elsewhere there is evidence of first aid being practised as far back as 500 BC (Pearn 1994). First aid as a medical discipline has long-standing military connections and was initially a response to high casualty numbers experienced during the minor European wars of the nineteenth century (Pearn 1994). For over a hundred years St John Ambulance has played a large part in the dissemination of first aid as a discipline through its tradition and philosophy of care and service to people (Cole-Mackintosh 1986).

St John Ambulance is a household name commonly associated with the teaching and provision of first aid. However, in tracing its origins, few would expect to find the rich pastoral and military history of an organisation that can trace its roots back to Jerusalem and the establishment of a monastic hospice built to care for pilgrims on their travels to and from that holy city (Donald 1996). Indeed, St John Ambulance still has ties with Jerusalem and an ophthalmic hospital of world renown remains there to this day (Cole-Macintosh 1986).

St John Ambulance went through many changes of fortune over the ensuing centuries and was all but extinguished by Napoleon Bonaparte. However, it was revived in Britain in the second half of the nineteenth century because:

- it was recognised that support was needed to treat wounds and to transport the injured to medical assistance on the battlefields of Europe, and
- it was at this time that a revolution, the like of which had never been seen before, was occurring with the rapid industrialisation of towns and cities across Britain; the development of heavy, labour-intensive industry concentrated people in one place for the first time, leading to a high incidence of accidents and injury.

It was the recognition of these circumstances that lay behind the idea of training ordinary people to administer first aid assistance to the sick and injured. By 1877, the St John Ambulance Association had begun training volunteers to carry out these first aid and home nursing duties. While it was to form part of the Voluntary Aid Movement, it was also intended to act as a civilian reserve for the Army Medical Department (Donald 1996). After some initial teething troubles and misgivings, particularly on the part of doctors who lacked confidence in their abilities to administer first aid and first aid training, the service increased in popularity and soon began to flourish (Cole-Mackintosh 1986; Donald 1996). Buoyed by the success of the Association, a uniformed Brigade division was founded a decade later, whose members provided first aid to the general public wherever it was needed (Howie-Willis 1983).

The St John Ambulance movement in Australia

The message of St John Ambulance spread rapidly throughout the British Empire to the Commonwealth countries, reaching Melbourne in 1883. The importance of developing first aid skills within the settling population of Australia had become very apparent. Australia, in western terms at least, remained a largely rural and untamed continent. The withdrawal of imperial troops established the need to organise strategies for defence, but the remoteness of large areas of the continent made provision of comprehensive health and defence services difficult. At the same time pockets of industrialised urban developments were being established along with trade and heavy industries such as mining. With this came an increased risk of accidents and injury as people gathered together to live and work in often inhospitable conditions. Other social changes taking place in Australia also led to a higher demand for first aid services, in particular Australians' developing love affair with sport, with inevitable casualties needing first aid assistance (Howie-Willis 1983).

St John Ambulance in Australia today

Whilst the Priory of St John Australia remains a charitable, voluntary, non-profit-making organisation, the context in which it exists has changed radically. As a result, the organisation itself has had to change. Throughout the twentieth century, St John Ambulance has continued to provide first aid service to Australia both in peace and wartime (Howie-Willis 1983). The latter part of the twentieth century has found St John Ambulance looking to its future (Howie-Willis 1983; Cole-Mackintosh 1986; Donald 1996) particularly as it faces its greatest challenge – providing first aid to spectators at the Sydney 2000 Olympic Games. But what are the challenges for change in Australia that St John Ambulance will need to embrace in its provision of first aid now and in the future?

As we reach the end of the century and enter the next it is clear that our cultural, economic and social parameters are shifting. Science has made major breakthroughs, expanding our knowledge and skills. Information technology is developing rapidly. As a result, societal expectations are changing. In the health care market, changes in service delivery have brought an unprecedented demand for accountability (in terms of effectiveness and outcome). This is especially true of pre-hospital emergency care delivery, including the services provided by St John Ambulance. The last two decades have seen an abundance of research looking at pre-hospital emergency interventions (Donald 1996). This reflects advances in emergency medical care, as well as consumer expectations of health care provision at mass gatherings (Roberts, Blackwell & Marx 1997). The increased frequency of mass gatherings (sports events, papal visits, pop concerts and so on) where 'special event' medical care is required has also highlighted the need for effective out-of-hospital first aid and emergency services (Green & Burnham 1998).

St John Ambulance is still regarded as pivotal in the provision of first aid knowledge and practice (Cole-Macintosh 1986). In Australia, St John Ambulance is relied upon to attend most major gatherings as a primary emergency care provider or as a back up to State-organised medical emergency services (Howie-Willis 1983). One example of this is the inclusion of St John Ambulance Australia in New South Wales' emergency contingency plans (New South Wales Department of Health 1996). In some States where comprehensive State provision of paid, full-time rescue services is not economically viable, St John Ambulance Australia is integral to the State health service organisation (Howie-Willis 1983). St John Ambulance Australia often operates in situations where gaining access to casualties is difficult (for example at mass gatherings where the geography and layout of venues may cause delays in medical assistance). Finally, whilst St John Ambulance Australia personnel are easily identified by their uniform, they are not perceived by the public as authoritarian. Because of this, people often accept their help at times when police and other services might not be able to safely intervene. There have been several instances of civil unrest where this has been the case (Cole-Mackintosh 1986).

St John Ambulance Australia members follow an accredited, tiered training program (recognising standards of skills and expertise in first aid and casualty management) prior to being placed on active duty (Cole-Macintosh 1986). Many members come to St John from medical and nursing backgrounds. Many cadet and other young members join for the experience of working with the public and treating casualties, and/or as a prelude to health-oriented careers. What distinguishes St John Ambulance Australia from other health care organisations is that the contribution of serving members remains unpaid – time and commitment are given freely by volunteers (Cole-Mackintosh 1986).

Development of the Advanced Casualty Management Team in St John Ambulance Australia (New South Wales)

Since the mid-1980s St John Ambulance Australia's services have developed beyond basic first aid. What were known as Field Medical Teams in New South Wales evolved into Advanced Casualty Management Teams as it was recognised that the level of emergency pre-hospital care provided was above that of traditional, basic first aid (Donald 1996; Pearn 1998). The main role of the Advanced Casualty Management Team is to provide advanced medical care to acutely ill or injured casualties in tents or medical centres, and to support the work of other St John Ambulance Australia first-aiders in the field by deploying mobile teams of personnel with advanced casualty management skills. These units provide advanced assessment, diagnosis, early intervention and treatment to acutely ill or injured casualties prior to discharge or transfer to hospital.

The teams are frequently deployed at mass gatherings where more than 10 000 people are likely to be present or the potential for major injury exists. The teams are staffed by doctors, nurses, paramedics, ambulance officers and lay members who are accredited

by the organisation as having advanced skills in life support and casualty management (St John Ambulance Australia 1994)

Establishing the effectiveness of the Advanced Casualty Management Team

Little has been published about the development of St John Ambulance's Advanced Casualty Management Teams in Australia. This is surprising in view of the reliance on St John Ambulance Australia by the public health and emergency services (New South Wales Department of Health 1996). St John Ambulance Australia believes the utilisation of Advanced Casualty Management Teams at mass gatherings of people has been successful in providing emergency community medical coverage and relieving the strain on State health and hospital facilities. Advanced Casualty Management Teams also raise the profile of St John Ambulance, increasing the awareness of the public and of medical and professional institutions. This attracts new members and offers existing members a framework for development within the organisation. While these are worthy achievements, what is not explicit is the measurable impact, if any, that Advanced Casualty Management Teams have in terms of quality, health outcomes and overall effectiveness.

Although St John Ambulance volunteers treat injuries and illnesses of all types, from sprained ankles to asthma attacks to full-blown cardiac arrests, there has been little formal evaluation of their work. This is remarkable given that evidence-based practice is considered paramount in mainstream health care planning and delivery (Shorten & Wallace 1997; Dunn 1998). Indeed there is little hard evidence to back up the assumption that out-of-hospital care at *any* level is effective (Sanders et al. 1986; Michael & Barbera 1997). In terms of clearly established success (in the short term at least), the management of cardiac arrest and exercise-induced heat stress are the only aspects of out-of-hospital emergency care that have clearly been established as effective (Nichol et al. 1996; Richards 1996).

There is some degree of consensus that emergency cover beyond basic first aid must be available at mass gatherings of more than 1000 individuals (Weaver et al. 1989; Buns & Ellison 1992; Roberts, Blackwell & Marks 1997; Smith 1998). Evaluation of emergency care is problematic because, despite a plethora of literature describing what is happening at mass gatherings, there is no universal classification scheme that enables an identification of patterns of health need (Michael & Barbera 1997). Some research has indicated that lay volunteers working with agencies such as St John Ambulance Australia are able to deliver effective advanced life support after minimal instruction (Walters, Glucksman & Evans 1994; Ladwig et al. 1997). One study suggests that this level of cover is adequate where casualties can be moved quickly to hospital (Weaver et al. 1989). However, this may not be possible in situations where people are congregated closely together at large venues and where moving large numbers of casualties or making initial contact may be delayed. The Advanced Casualty Management Team, with its higher-order skills and expertise, adds value in terms of

speedy access (in large crowds) to medical skills, expertise and experience. This enables choice in terms of treatment options that would not necessarily otherwise be available.

Little research has been carried out to ascertain the longer-term health outcomes subsequent to interventions by units like the St John Ambulance Australia Advanced Casualty Management Team. Some studies suggest a positive impact (Spaite et al. 1988; Dickinson, Schneider & Verdile 1997). However, other studies have raised concerns, particularly in terms of long-term morbidity and mortality following cardiac incidents (Agnew et al. 1983; Atkins & Wainscott 1991; Callaham & Madsen 1996). This has implications for professional volunteers in organisations such as St John Ambulance who may face litigation by dissatisfied members of the public (Atkins & Wainscott 1991).

Much of the research in emergency care and casualty management has concerned outcomes from cardiac arrest, presenting interesting but incomparable variables and analysis (Nichol et al. 1996; Michael & Barbera 1997). Furthermore, a great deal of what is written is observational and documentation of data is often poor (Sanders et al. 1986; McDonald, Koenisberg & Ward 1993; Wetterhall et al. 1998). As a consequence, it is not possible to draw on research and literature with confidence, and inferences must be treated with extreme caution. Combing the literature, however, does identify several factors which might illustrate the impact of medical and nursing attendance at mass gatherings.

While medical attendance at mass gatherings is frequently reported to be a good thing, the research concerning physician attendance at such events offers few clues as to why (Sanders et al. 1986; Spaite et al. 1988; Smith 1998; Wetterhall et al. 1998). However, one study points to there being less need for direct physician attendance when medical attention can be accessed via hospitals that are within easy reach (McDonald, Koenisberg & Ward 1993).

All paramedical and lay members of the Advanced Casualty Management Team, in common with other pre-hospital systems, function under the direction of a physician. Strong medical direction is imperative at all levels of care delivery to ensure that casualties receive appropriate management and, where necessary, dispatch to the correct facility. Physicians also perform other vital roles within these units, such as planning care, supervising staff, training and education, and quality assurance (Atkins & Wainscott 1991).

Nursing expertise has also been identified as beneficial in pre-hospital care. Two Swedish studies, for example, have rated highly the use of nurses in pre-hospital situations, noting their experience in patient assessment and management skills, as well as their ability to supervise and educate others in the field (Suserud & Haljamäe 1997, 1999). It has also been suggested that nurses are well placed to deliver pre-hospital care because they are able to assess and prioritise responses through their understanding of an individual's health needs and the wider resources (Banks 1999). Through their links with acute care providers they provide a connection between the acute care provider and field operatives which maximises the potential for rapid, seamless and coordinated pre-hospital care.

Some aspects of advanced life support (such as diagnosis and drug administration) that appear to enhance outcomes require physician-led decision-making. One study has highlighted the fact that where physicians are not present there is a tendency for less qualified staff to make clinical decisions and judgements above their competence levels at mass events (Sanders et al. 1986). This has negative implications in terms of quality and outcomes. Another study has shown that where physicians are present at out-of-hospital cardiac arrest, those treated on the scene received twice the amount of medication and were more likely to survive (Dickinson, Schneider & Verdile 1997).

The speed with which individuals are reached and treatment is commenced is also seen to be critical to the outcome, particularly in instances of ventricular fibrillation-type cardiac arrest (Callaham & Madsen 1996; White et al. 1996). Access to a doctor in the 'golden hour' of medical casualty treatment offers the opportunity to assess, intervene and improve the outcome for the victim (Banks 1999). At large venues access to medical care is likely to be slower, particularly in circumstances where seating and public areas are remote, and passage to the casualty is obstructed (Spaite et al. 1988). Medical professionals working in coordinated teams such as an Advanced Casualty Management Team have the advantage of being on the scene quickly and, by implication, can initiate successful advanced life support earlier (Spaite et al. 1988).

The need for emergency medical care provided at mass gatherings to be cost-effective and to not place a strain on existing medical services is acknowledged by Michael and Barbera (1997). The fact that the staff working within the St John Ambulance Australia (New South Wales) Advanced Casualty Management Team are unpaid volunteers means that they can be used at venues where other emergency service providers would be unlikely to provide the same level of cover due to the cost.

A final but crucial reason to use health care professionals in an Advanced Casualty Management Team is the rare but documented risk of major incidents (Green & Burnham 1998) at major gatherings. Having medical cover on-site and an availability of technical equipment and appropriate skills would provide for this contingency and play a key role in the implementation of major disaster plans (Hodgetts & Skinner 1998), such as those in Australia.

The role of lay members in Advanced Casualty Management Teams should not be overlooked. These volunteers follow appropriate training and accreditation and are able to assist in complex treatment protocols as members of the team. For many, this is the training ground for a future career with the ambulance service or as a nurse or doctor.

Conclusions

Several models for the delivery of emergency health care at mass events exist worldwide (Michael & Barbera 1997). In New South Wales it is St John Ambulance Australia which provides initial first aid and subsequent pre-hospital care on the scene in the form of Advanced Casualty Management Teams. This review indicates tentative evidence that a well trained team of health care professional and lay members does offer a valuable

service within the Advanced Casualty Management Team. Their strength lies in their ability to get to casualties quickly and deliver advanced life support in the absence of other services. Advanced Casualty Management Teams comprise highly-skilled personnel who are able to assess and prioritise medical care as well as coordinate an effective and efficient service. Working with defined protocols and procedures, they aim to deliver evidence-based care which is of a high standard and quality. They are also aware of workings of the State health services and are able to assimilate their health interventions with those of their colleagues in the State sector facilitating a continuum of care. Most importantly, they function as a team because they are known to each other, train together and are regularly called upon to work together at large venues.

One of the challenges facing St John Ambulance, but more importantly the Advanced Casualty Management Team, is the need for evidence-based measurable outcomes. To date, most of the evidence of the Advanced Casualty Management Team's impact on casualty outcome is circumstantial and relies on scant evidence in terms of formal evaluation. This does not mean that they are not highly effective, nor that they do not make a difference in terms of health outcome. The stories of many of those who have been treated already bear testament to their impact. However, in a competitive health care economy these values must be established in terms of quality and outcome.

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