The Role of Bystander First Aid in Road

First Aid Saves Lives
St John

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Abstract

This paper provides an overview of the research literature on the use of first aid by bystanders at road traffic crashes (RTC). The review is undertaken in the context of increasing average ambulance response times to RTC and in recognition of the potential contribution of early first aid to improving mortality and morbidity rates for road trauma.

Introduction

Road safety innovation includes the development of cost effective strategies to limit the effects of RTCs when they happen. After a RTC involving injury, the factors most likely to lead to death or disability are obstruction of the airway and uncontrolled bleeding (Oxer 1999). These are amenable to simple and early first aid intervention. Bystander first aid is important because the emergency response time for ambulance services, including in metropolitan settings in Australia, may result in delayed treatment and in many cases simple first aid interventions applied immediately can save lives. Statistics released by The Council of Ambulance Authorities (2006) show a gradual increase in the average time taken for ambulances to arrive at the scene of a RTC across Australia and consequently the potential role of lay first aiders in minimising harm and improving outcomes for the injured is increasingly important.

However, little is known about the prevalence of first aid qualification and/or skill among the driving population, the likelihood that drivers will be involved in situations where first aid skills may be utilised, or the type of first aid intervention that has been used. The likelihood that a skilled bystander will intervene is also important and a related question concerns the factors that motivate or de-motivate road users in providing first aid care. This paper reviews the literature and makes recommendations for improving the first aid knowledge and skill of road users.

Literature Review

It is surprising that there is relatively little literature discussing the role of First Aid in RTC (Mabbott 2001). In Western Australia, researchers investigating the use of First Aid by bystanders in traffic crash situations concluded that approximately 23% of road trauma patients attended by the St John Ambulance Service had received some form of First Aid prior to arrival of the ambulance (Oxer 1999). This treatment was described as airway managed (2%); cardiopulmonary resuscitation (1.4%); bleeding control (4.5%); positioning (62%); defibrillation (0.05%); and other First Aid such as reassurance and comfort (30%). In Sweden, a population study was conducted using a questionnaire attached to the Swedish National Road Administration survey. Of 2,800 randomly selected drivers, 39% of drivers had received first aid training and 30% had used their skills. Fourteen percent of those with training had been bystanders at RTAs and at 20% of crashes a bystander had administered first aid (Larsson, Martensson & Alexanderson 2002). In the Australian Capital Territory Arbon and Hayes (2008) found that 11% had used first Aid at the scene of a RTC.

These studies underline the potential impact of trained First Aiders as bystanders at RTCs. A report released by St John Ambulance Australia (2006), argues that the first trained responder at the site of an accident can significantly assist in the timely treatment of potentially life threatening or disabling injury. Similarly, Finn et al (2001) have found that bystander CPR "buys time" in a time-critical situation. As Pearn (2000) highlights, the domain of basic life support inescapably belongs to the incidental bystanders or opportunistic first responders. The Council of Ambulance Authorities (2006) reports that, in the Australian Capital Territory, in 50% of cases, an ambulance arrives within 7.5 min to a Code 1 call, and in 90% of cases, an ambulance arrives within 13.3 minutes. A Code 1 call is any call that requires the ambulance to respond urgently, utilising lights and sirens. Whilst the thought of providing bystander First Aid may be overwhelming for some, Eisenberg et al and Finn et al (2001; 2001) have shown that, for example, the outcomes of out-of-hospital cardiac arrest can be significantly improved by the early initiation of First Aid. In this study there were no survivors when the interval for initiation of basic life support was greater than 10 minutes.

The need for first aid training

Oxer (1999) notes that after a crash involving injury, the two factors most likely to kill are obstruction of the airway causing suffocation, and uncontrolled bleeding causing death. Both Oxer (1999) and Mauritz (2003) show that First Aid intervention, whether the intervener is trained or not, has the capacity to save lives. Basic skills taught in First Aid courses enable a bystander to stop a major bleed and help to maintain an airway; which may be all that is required until further medical assistance is available. In the potential time it may take for an ambulance to arrive at a RTC in Australia, bystanders have a great ability to maintain life and potentially minimise disability.

A number of studies have identified that relatively simple basic life support measures such as maintaining an airway have the capacity to reduce mortality. A study by Hussain and Redmond (1994) found that 56.6% of the pre-hospital deaths that occurred in North Staffordshire, were due to RTCs, and a proportion of fatalities, both at the scene of accidents and before reaching the hospital, were preventable by early intervention. The results show that at least 60 people died before reaching the hospital and that up to 85% of these probably died due to airway obstruction. Similarly, Khangure (1998) found that airway obstruction was a contributing factor in the death of 123 cases (6.9%) in Western Australia between 1990-1997. These researchers argue that many pre-hospital deaths are preventable with simple First Aid techniques, which can be taught to the lay community.

The value and outcomes of First Aid training programs have been examined by Peterson and Russell (1999) who found that both immediately and six months after some type of First Aid training, people are more likely to stop and provide assistance at a RTC. Both Hussain (1994) and Khangure (1998) show that at least 7% of road fatalities could be saved as a result of basic First Aid measures taken at the scene and argue that this presents a great opportunity for the community to actively participate in reducing the road toll both in terms of road trauma related deaths and disabling injury.

To intervene or not?

Surprisingly, there has been little investigation into the experiences of bystanders who have intervened at a RTC. Certainly, many studies show that there is a low incidence of First Aid intervention. Henriksson et al's (1998) Swedish study suggests that the absence of First Aid intervention contributed to the death of 4% of traffic accident victims. A Western Australian report notes that 7% of deaths can be related to a lack of First Aid (Mabbott 2001) and Ashour et al (2007) suggest that 4.5% of potential prehospital deaths may have been prevented with First Aid intervention.

A Polish study (Goniewicz 1998) explored the reasons why people are not willing to intervene at a RTC. In this study of 560 government drivers, Goniewicz found primarily psychological barriers caused people not to intervene in accidents. These included feelings of inadequacy; expressed as a lack of the necessary First Aid skills, due to poor quality training and/or poor skills transfer. Eisenburger & Safar (1999) also note that psychological barriers may impact whether or not bystanders intervene at an accident site. They report that the crowd at the scene can be frightening and stage fright can make helpers nervous resulting in their declining to intervene.

Cheung (2003) found that the most common reason for not having First Aid training was lack of time, with only 12% of their sample group with current First Aid training. Surprisingly, Cheung (2003) found that those with First Aid training still had a level of knowledge that was far from satisfactory and this needs further investigation. A study by Kendrick (1998) of parental First Aid interventions, found that 75% of participants knew the correct treatment for a variety of basic scenarios. However, 25% did not feel confident to use their skills to intervene. Further to the lack of skills, whether real or perceived, Mabbott (2001) suggests two other reasons why people do not render assistance: a perception of personal harm (such as contracting an infectious disease) and the perceived risk of litigation. In concurrence with Mabbott (2001), Eisenburger and Safar (1999) note that fear of legal prosecution seems to make some bystanders and health professionals hesitate to act. The fear and safety concerns of interveners were also explored by Jelinek et al (2001) who noted that a reluctance to intervene and provide First Aid predominantly resulted from fear of health and safety risks such as infection.

Where is first aid training heading?

The current literature discusses both the need for First Aid intervention at RTCs, the willingness of bystanders to perform First Aid, the reasons why they may hesitate to become involved and the most commonly used interventions. Most importantly, the literature shows that an increase in First Aid training, or skills, leads to an increase in confidence and/or intervention rates of interveners (Larsson, Martensson & Alexanderson 2002; Mauritz et al. 2003).

Peterson and Russell (1999) explored the intervention rates following an intensive one-hour First Aid course with community members. This study found that, following the course there was an increased rate of intervention by course participants and the knowledge provided in the course was retained at a satisfactory level for at least 6 months. Recommendations made by St John Ambulance Australia (2006) include that First Aid training should be mandatory for motor driver licence holders. Eisenburger & Safar (1999) also add that training programs should include realistic information of the frightening appearance of a victim as well as the need to ensure debriefing of all bystanders who provide First Aid as routine. Debriefing was also flagged as an issue by Axelsson et al (1996) who discussed debriefing as one of the crucial elements to a bystander interpreting their intervention as a positive experience. In a study by Axelsson et al (1998), one of the key findings was that the opportunity for debriefing influences the overall psychological reaction of a bystander who has performed First Aid. Axelsson et al (1998) has found that better post intervention care for lay rescuers enables them to repeat a past endeavour and encourages others to learn and perform First Aid.

Recommendations about how First Aid courses are run, what information is provided, whether training should be mandatory and the delivery methods of First Aid training are discussed throughout the literature. Importantly, Hussain (1994) highlights the need for First Aid training, especially among motorists, because 56.6% of deaths were due to RTAs. Hussain (1994) suggests that knowledge of basic airway protection and the recovery position could be tested easily and quickly before a driving licence is issued, and that every car should have a basic First Aid kit. Overall, the literature demonstrates the potential value of First Aid training as an element in strategies to reduce mortality and to improve the outcomes for those injured in RTCs.

Conclusions

This paper highlights key issues in the delivery of First Aid at RTCs. Given that emergency ambulance care is on average available 7-13 minutes after the initial call for assistance is received, the role and potential impact of immediate First Aid care is significant. It is argued that mortality and morbidity associated with RTC can be improved by strategies that increase the likelihood that a First Aid trained person will be in attendance and that provide more appropriate support and information to those who intervene at RTCs in the crucial minutes before an ambulance arrives.

A significant proportion of Australian road users have received training in First Aid at some time in their lives. However, confidence and skill in applying First Aid declines over time and only about 29% (Kendrick & Marsh 1998) or 28% (Arbon and Hayes 2008) of the population have a current First Aid qualification

Level of confidence and fear of making a mistake are important in determining whether an individual will choose to intervene at the scene of a RTA (Jelinek et al. 2001). Consequently it is important that a higher proportion of road users are encouraged to undertake First Aid training and receive exposure to First Aid knowledge and techniques regularly throughout their driving career.

Benefits of First Aid training include an increased likelihood of owning a first aid kit and providing first aid at the scene of a RTC. It appears that people who have been exposed to First Aid training have a greater level of awareness of the equipment that may be required and are more likely to become involved in providing care.

Basic life support interventions, including changing posture, opening an airway and controlling bleeding are important patient interventions that have the potential to save lives. These three forms of intervention are easily taught and applied by lay people, have a significant impact on survival and appear to be relatively commonly used interventions at RTCs.

Three key concerns about providing first aid are fear of making a mistake, concern for safety and concern about litigation (Arbon & Hayes 2008). First Aid training for road users should address these issues and provide clear guidance about the legal protection applicable to members of the public intervening to provide care and strategies to ensure their safety. A further useful strategy may be the development of public information campaigns that help to alleviate these fears and encourage people to intervene.

Providing First Aid in these emergency situations can be overwhelming and traumatic. There is a need for improved strategies to provide support to those who have given First Aid care at a RTC. Better post intervention care for lay rescuers enables them to repeat a past endeavour and encourages others to learn and perform basic life support (Axelsson et al. 1998).

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