

1. Introduction

1.1 Background to the PAD Demonstration

Cardiovascular disease is one of the largest causes of premature death in Australia. Heart, stroke and vascular diseases are Australia's largest health problem, accounting for 46,134 deaths in 2005 (35% of all deaths) and affecting 3.7 million Australians in 2005². Investing in strategies to improve cardiovascular health outcomes is one of the Australian Government's National Health Priority Areas initiative due to the widespread nature of heart, stroke and vascular disease and the potential for prevention in this area.³

Death from sudden cardiac causes is believed to account for approximately half of all deaths related to cardiovascular causes.⁴ Sudden cardiac arrest is when the heart has ceased to function due to an electrical malfunction of the heart, disrupting that muscle's normal rhythm.⁵ The chance of survival from an out-of-hospital cardiac arrest in Australia is less than 10%. Cardiopulmonary Resuscitation (**CPR**) and early defibrillation are key factors that can significantly improve the chance of survival from cardiac arrest, forming part of the emergency chain of survival.⁶

Early defibrillation is the most effective treatment to re-start the heart function of a person whose heart has stopped, and time to defibrillation has been identified as the most important determinant of survival from sudden cardiac arrest.⁷ The development of automated external defibrillators (**AED**) has allowed for the possibility of community based early defibrillation for cardiac arrests in public places.

The Australian Resuscitation Council's guidelines identify three categories of early defibrillation:

- Emergency medical services: defibrillation by ambulance service personnel;
- First responder: defibrillation by appropriately trained persons who have a duty to respond to medical emergencies; and
- Public access defibrillation (**PAD**): defibrillation undertaken by anyone trained or untrained.⁸

In December 2002, the Department hosted a workshop to explore a government initiated PAD project in Australia. Chaired by the Commonwealth Chief Medical Officer, the workshop was attended by senior representatives from government and leading non-government organisations such as St John, the Australian Resuscitation Council and the National Heart Foundation, as well as representatives from private industry, consumers, ambulance, other emergency medical service (**EMS**) personnel.⁹ The

² Australian Institute of Health and Welfare (AIHW) 2004. Heart, stroke and vascular diseases—Australian facts 2004. AIHW, Canberra (Cardiovascular Disease Series No. 22).

³ [AIHW Australia's Health 2008](#)

⁴ National Health Priority Action Council (NHPAC) 2006, National Service Improvement Framework for Heart, Stroke and Vascular Disease, Australian Government Department of Health and Ageing, Canberra

⁵ St John Ambulance Australia AED Implementation Guidelines

⁶ Australian Resuscitation Council, Guideline 10.1.3, Public Access Defibrillation, <http://www.resus.org.au>

⁷ St John Ambulance Australia AED Implementation Guidelines; Chain of Survival
http://www.chainofsurvival.com/cos/COSOverview_detail.asp

⁸ Australian Resuscitation Council, Guideline 10.1.3, Public Access Defibrillation, <http://www.resus.org.au>

⁹ http://www.stjohn.org.au/index.php?option=com_content&task=view&id=37&Itemid=51

outcome from this workshop was an agreed statement of principles in support of developing a strategy for implementing PAD in Australia.¹⁰

1.1.1 The PAD Demonstration Project

The installation of AEDs through the PAD Demonstration represents a new approach to responding to sudden cardiac arrests that occur in the public places. In July 2005, St John Ambulance Australia (**St John**) was engaged by the Australian Government Department of Health and Ageing (**the Department**) to design and implement a Public Access Defibrillation Demonstration (**PAD Demonstration**). This PAD Demonstration built on 'Project HeartStart', a PAD program that was implemented by St John in August 2003. The overall objective of the PAD Demonstration was to:

Adequately assess the feasibility, acceptability and effectiveness of PADs for reducing mortality in Australians experience sudden cardiac arrest, compared to current emergency care arrangements.

147 AEDs have been installed at approximately 100 selected host organisations, across all Australian states and territories under the Department funded PAD Demonstration. These venues included airports, train stations, tourist sites (such as zoos), schools, shopping centres, sporting stadiums and clubs (such as local golf or bowling clubs).

1.1.2 The broader policy context

PAD Demonstration was designed to provide an effective intervention by response to individual health incidents (sudden cardiac arrest) occurring in public places. The program objectives are in line with the Australian Government's broader health prevention policy, which aims to design and implement evidence-based and targeted programs to contribute to the sustainability of the Australian health system by reducing preventable illness and mortality.¹¹

Whilst response to a health emergency is primarily the responsibility of the State and Territory Governments, the Australian Government assists the States and Territories by enhancing their response capabilities and providing extra resources when requested. The Australian Government exercises this responsibility through Emergency Management Australia (EMA) within the Attorney-General's Department.¹²

EMA provides national leadership in the development of emergency measures to reduce risk to Australian communities and improve the resilience of the Australian people for emergencies.¹³ A key focus for the future of emergency measures is the promotion of community safety and resilience to ensure 'safer sustainable communities'. Effective engagement with the community is core to this goal, as an engaged community is more likely to be responsive and self-managing when emergencies arise.¹⁴

The PAD Demonstration is an area where the Australian Government has assisted the States and Territories to respond to a nationally significant public health problem. By preparing organisations and individuals to respond quickly and effectively to sudden cardiac arrest events, the PAD Demonstration assists with the more effective distribution of emergency service resources and encourages community engagement to work towards a safer sustainable Australian community. This has been demonstrated by

¹⁰ The *Eclipse Statement* was provided in the Department's original Request for Tender for this evaluation

¹¹ <http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-about.htm#hppb>

¹² <http://www.ema.gov.au/agd/ema>

¹³ Australian Attorney-General's Department, Emergency Management Australia (2008), 'This is EMA' ([http://www.ema.gov.au/agd/EMA/rwpattach.nsf/VAP/\(084A3429FD57AC0744737F8EA134BACB\)~5713+This+is+EMA+web.pdf/\\$file/5713+This+is+EMA+web.pdf](http://www.ema.gov.au/agd/EMA/rwpattach.nsf/VAP/(084A3429FD57AC0744737F8EA134BACB)~5713+This+is+EMA+web.pdf/$file/5713+This+is+EMA+web.pdf))

¹⁴ <http://www.ema.gov.au/agd/EMA/emaInternet.nsf/Page/Communities>

St John receiving the Attorney General's Australian Safer Communities Award (in the Post-Disaster Projects of national significance category) for their involvement in the PAD Demonstration.

1.2 The PAD Demonstration evaluation

The Department commissioned an *Evaluation of the Public Access Defibrillation Demonstration (the evaluation)*. The objectives of the evaluation were to:

Consider the effectiveness of the trial implementation, identify issues that arose during the trial and lessons that may be relevant to any future considerations regarding public access defibrillators.

Report on recent international developments and evidence on the public use of AEDs, their contribution to public health and how such programs are operated and funded.

In May 2007 CR&C was commissioned to undertake the evaluation, the key elements of which included:

- A literature review of recent international developments and evidence of the public use of AEDs, their contribution to public health and how such programs are operated and funded;
- Initial consultations with key stakeholders such as the peak bodies, consumer groups and relevant emergency service providers;
- Site visits involving consultations with managers; trained personnel and lay personnel (those who are not directly involved in the program) working at various AED sites, including a range of different venues such as shopping centres, casinos, airports and sporting venues; and
- A Computer Assisted Telephone Interview (**CATI**) survey of the population of host organisations.

1.3 Methodology

CR&C used a combined qualitative and quantitative methodology for the evaluation. The literature review provided the policy and evidence contexts, the stakeholder consultation and qualitative research identified specific issues relating to the PAD Demonstration and the quantitative CATI survey identified the extent to which those issues held over the population of the demonstration sites.

1.3.1 Literature Review

The project commenced with a review of recent national and international literature exploring evidence of the public use of AEDs, their contribution to public health and how such programs are operated and funded. A similar review was conducted by Prof Ian Jacobs for the Department in 2004. CR&C has adopted the structure used in this review, and has 'updated' the findings with evidence that was made available after 2004. In addition, CR&C has provided additional information about alternative models for delivering AED/PAD programs, drawing evidence from The United Kingdom (**UK**) and the United States of America (**US**).

Literature for this review was obtained from two key sources:

- Academic databases:
 - Medline 1996- (Ovid)
 - EMBASE (Ovid)
 - Social Services Abstracts (CSA Social Services Abstracts)
 - PsycINFO 1985- (Ovid)
 - APAIS Health (Informit)
 - Expanded Academic ASAP (Gale)

- AMI (Informit Search)
- CINAHL (EBSCO)
- Web searches using Google – the main focus of these searches were Governmental peak body organisation websites both Australian and overseas, a full list of websites is contained in the bibliography at the end of this chapter.

Terms used for the search were ‘public access defibrillation’, ‘PAD’, ‘automated external defibrillation’ ‘AED’, ‘safety’, ‘training’, and ‘lay person’. In total, 16 articles were identified as appropriate for inclusion in the review. All searches were conducted in June, 2008.

1.3.2 Stakeholder interviews

This preliminary fieldwork stage included in-depth interviews with key stakeholders based around a discussion guide developed in collaboration with the Department. The objective was to capture a range of views from higher level stakeholders regarding the effectiveness and the PAD Demonstration.

Seven in-depth interviews were conducted with key national stakeholders representing a range of professions, peak bodies and consumer organisations including:

- The Australian Resuscitation Council;
- The National Heart Foundation;
- Heart Support Australia;
- The Convention of Ambulance Authorities Australia; and
- A leading cardiologist.

Also consulted were Laerdal, a manufacturer of defibrillators distributed under the PAD Demonstration and a co-founder of one of the first Australian early defibrillation programs (implemented at the Melbourne Cricked Ground).

The full list of stakeholders who were consulted is provided as Appendix B. A copy of the discussion guide for interviews with stakeholders is included as Appendix C.

1.3.3 Qualitative Consultations

The qualitative consultation phase consisted of a series of in-depth interviews with selected host organisations based around a discussion guide developed in collaboration with the Department (this guide is attached as Appendix C). Host organisations were interviewed to provide perspectives and feedback on the effectiveness of the PAD Demonstration from their experience with the program. Topics explored included implementation and planning, training, costs and perceived benefits of being involved.

In-depth *face-to-face* interviews were conducted with managers, trained staff and lay persons (who worked in the vicinity of the AEDs) at 12 selected host organisations (four in Victoria; four in New South Wales and four in Tasmania).

In-depth *telephone consultations* were conducted with managers from a further eight host organisations (located across the remaining states and territories). Qualitative telephone consultations were also conducted with seven organisations who had installed AEDs either through private funding, or as part of non-Department funded defibrillation projects.

All qualitative interviews (face-to-face and telephone) were conducted by senior CR&C consultants.

1.3.4 CATI Survey

The final fieldwork stage for the evaluation was a CATI survey of the population of host organisations. The CATI survey was completed with managers or the site co-ordinator of the PAD Demonstration; and staff trained in the use of the AED.

CR&C was supplied with a database containing details of all organisations included in the PAD Demonstration. At the time that this research was conducted there were 147 AEDs installed throughout Australia at 98 different organisations. The database was divided into those targeted for the qualitative consultations, and the remaining 79 host organisations targeted for the CATI survey from which:

- 53 interviews were achieved with the manager or site co-ordinator; and
- 59 interviews were achieved with staff trained in the use of the AED (representing 31 organisations).

This represents a response rate of 67% of eligible host organisations. The reasons for non-participation included the respondent being unavailable for the duration of the survey, the AED had not been installed, the AED had been installed but there had not been any training or the identified respondent was a St John employee.

The combination of interviews achieved was as follows:

- 22 organisations with only the manager survey completed;
- 10 organisations with a manager and one staff survey completed;
- 14 organisations with a manager and two staff interviews completed; and
- 7 organisations with a manager and three staff interviews completed.

A primary approach letter was sent out on Department letterhead to all host organisations advising them of the evaluation.

Managers were interviewed first and asked to provide contact details for trained first responders in their organisations, and ideally those, if any, who had activated an AED. Up to three interviews with trained staff were conducted in any one organisation.

The areas of investigation for the CATI survey with managers broadly included: reasons for involvement, commitment and value of PAD Demonstration and improvements that could be made to implementation. The CATI survey with trained staff broadly focused on attitudes towards being a first responder, effectiveness of the implementation (including views on training and support) and experiences with activating the AED. Copies of the managers and staff questionnaires have been attached as Appendix C.

The CATI interviews were conducted by Fieldworks, an accredited fieldwork company specialising in public sector research.

1.4 Reading this report

This report presents findings from both qualitative and quantitative research methods.

For the qualitative sections of the report the evidence is drawn from a body of qualitative discussions (stakeholder consultations and site visits to host organisations). The findings presented are reinforced using quotes taken from transcripts of the discussions. All quotes are indented and presented in *italics*. No individual organisations or managers have been identified, only the position of the respondent who provided the quote (e.g. stakeholder, manager or trained first responder). When brackets [] appear in a quote, this is to represent either an omitted name or where the quotation has been rephrased for brevity.

The findings from the quantitative CATI survey with managers and trained staff are supported by a series of graphs. When reading these graphs:

- The relevant survey questions are indicated underneath the graph header.
- Each column is a percentage of the base.
- The base for the graphs refers to the total number of responses upon which the percentages have been calculated. This is indicated under the left hand corner of the graph.