



CAMPBELL RESEARCH & CONSULTING

An Evaluation of the Public Access Defibrillation (PAD) PAD Demonstration

Final Report

Prepared for

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Executive Summary

In May 2008, the Australian Government Department of Health and Ageing (**the Department**) engaged Campbell Research & Consulting (**CR&C**) to undertake an evaluation of the Public Access Defibrillation Demonstration project (**PAD Demonstration**). The objective of the evaluation was to consider the effectiveness of the trial implementation, identify issues that arose during the trial and lessons that may be relevant to any future possible considerations regarding public access defibrillation.

Background, planning and implementation

Cardiovascular disease is one of the largest causes of premature death in Australia. Investing in strategies to improve cardiovascular health outcomes is one of the Australian Government's National Health Priority Areas.¹ Survival from out-of-hospital cardiac arrest is less than 10%, and access to early defibrillation and CPR offers the best chance of survival. Early defibrillation delivered within a PAD mode can improve survival following cardiac arrest in public settings.

The PAD Demonstration was initiated in 2005 when St John Ambulance Australia (**St John**) was engaged by the Department to design and implement the project. The total budget for the Demonstration was \$869,562. The initial budget for the project was \$569,000 to install AEDs at selected sites and demonstrate the effectiveness of PAD. Additional funding was received in May 2007 and October 2007.

The selection of sites was informed by a review conducted by Prof Ian Jacobs for the Department which identified that:

About half of public places have more than one cardiac arrest within a three to five year period. Within each community where public access defibrillation is to be implemented, specific sites which have higher incidence of cardiac arrest should be identified to guide placement of AEDs. Airports, shopping centres, transit areas and sporting venues are likely to be associated with higher incidence of cardiac arrest (Jacobs 2004, p.16).

Specifically, St John's role was to:

- Establish the PAD Demonstration in Australia;
- Encourage organisations to participate in the project;
- Ensure the appropriate installation of AED devices in host organisations;
- Provide quality training in the use of the AED devices and other valuable first aid skills to selected first responders at host organisations; and
- Monitor the utilisation and efficacy of the devices.

The overall objective of the PAD Demonstration was to adequately assess the feasibility, acceptability and effectiveness of PADs for reducing mortality in Australians who experience sudden cardiac arrest, compared to current emergency care arrangements.

Outcome of activations

A total of 147 AED devices have been installed by St John across 98 different organisations under the PAD Demonstration. Just over half of these devices were installed over the most recent 12 month period (between May 2007 and June 2008). According to available data there have been:

- 20 reported activations of the AEDs;

¹ <http://www.health.gov.au/internet/main/publishing.nsf/Content/pq-ardio-nhpa>

- Of the activations where a shockable rhythm was administered, 10 patients survived to ambulance handover (three later died in hospital);
- **A total of seven lives may have been saved by PAD Demonstration AEDs.**

The data does not identify the extent to which members of the public or untrained staff have activated the devices, although the consultations revealed that it was mostly trained first responders who activated the devices.

The program is operating efficiently, with the proportion of administration costs at 10-15% well within acceptable benchmarks. The cost per life saved at this early establishment stage is approximately \$84,000. This cost can reasonably be expected to reduce over the expected lifespan (ten years) for each Device.

Key findings from the evaluation

CR&C integrated both qualitative and quantitative methodologies for the evaluation including: a literature review to provide policy and evidence context, key stakeholder consultations and face-to-face interviews with personnel at sites where AEDs had been installed. The qualitative research identified the range of specific issues relating to the PAD Demonstration. A quantitative telephone survey identified the extent to which those issues held over the population of the Demonstration sites.

The PAD Demonstration has shown that the appropriate and effective installation of AEDs can save lives – but it has been used by trained first responders rather than untrained staff or members of the public.

St John was found to be well placed to conduct the project and nearly all stakeholders reported a high level of professionalism and commitment. St John has demonstrated that, with appropriate training, installation of AEDs results in a sustainable benefit.

Most host organisations participating in the PAD Demonstration perceived the AED devices to be part of a trained first responder program rather than a public access program, with untrained staff and members of the public unlikely to use the devices. Stakeholders from peak bodies and academic organisations identified that trained first responder programs, which incorporate emergency response training such as CPR, can be more effective and appropriate than public access defibrillation. This view was supported by international literature.

Staff at host organisations clearly stated that they would not be confident in using the device without training. Most untrained staff reported they were likely to wait for a trained first responder or emergency medical services rather than activate an AED without prior training. Training provided individuals with a sense of confidence and reassurance.

All stakeholders, including participating organisations, expressed a strong view that the installation of AEDs should become best practice corporate governance for larger Australian businesses, particularly those with high risk including large numbers of public thoroughfare, staff, students or clients with known risk. Occupational Health and Safety regulatory structures were identified as a key driver for the establishment of best practice. However, because of the focus on public liability, governance and regulatory structures were considered to be broader than Occupational Health and Safety regulations.

While AEDs were considered to be appropriate devices to mitigate public risk, the appropriateness of the role of government in funding the program was questioned by some stakeholders, including those who had successfully installed and activated the devices. This was particularly the case for private sector organisations, some of which had limited public access. Generating awareness of corporate governance practice and responsibility for managing public liability risk and managing Occupational Health and Safety hazards in the workplace were seen to be the responsibility of corporate organisations. The role of government could be limited to ensuring that those with corporate

responsibilities were aware of AEDs as an effective risk management strategy. Clear identification of the distinct role of the Australian government and those in the states and territories is required.

The survey of participating organisations identified that installation of the AED under the demonstration project acted as an incentive for additional purchases. It also identified a stronger commitment to supporting and further investment in AEDs occurred where employers had made a contribution to the purchase, maintenance and training for AEDs.

Litigation issues

Some larger venues, which were identified as some of the most likely sites for out-of-hospital cardiac arrest to occur, were reluctant to participate in the program. A key barrier to participation was fear of litigation. For many organisations, the training provided in the PAD Demonstration was able to overcome this fear. However, a number of large organisations remain reluctant to install AEDs.

Legislative responsibility for emergency personnel and emergency response lies with the individual State and Territory governments. However, there is an opportunity for the Australian Government to provide leadership with the States and Territories to encourage those reluctant organisations through the provision of education/information strategies and legislative provisions in the area of Occupational Health and Safety.

Literature Summary

International literature indicates that in the United States and the United Kingdom where PAD programs have been established, a considerable amount of public funding has been provided. As these programs have evolved the role of the central government has reduced. Responsibility for funding and maintaining AEDs tends to be slowly shifting to jurisdictional governments or the private sector, assisted with regulatory requirements and various forms of Good Samaritan legislation.

Future Considerations

A number of options for consideration for the future direction of the PAD Demonstration have been suggested, drawing from the findings of all stages of the evaluation project. The rationale for each option includes cross reference(s) to the section(s) of the report where the evidence that supports the option is presented.

Consideration 1: Development of a framework for workplace safety and public liability

The Department could take a leadership role in collaboration with the States and Territories to identify appropriate areas for regulation of AEDs in the workplace. The appropriate body for undertaking this work could be the Australian Safety and Compensation Council.

Rationale

International literature has suggested that regulation in the US (together with substantial public subsidies) has resulted in improved take-up of AEDs by larger organisations (Section 3.6.3).

Key stakeholders identified that installation of AEDs should be considered a standard duty of care for larger organisations (e.g. with over 200 employees, see Section 4.5) for:

- Public liability; and
- Workplace safety.

The type of organisations where AEDs would be most effective tend to be large, well financed organisations who could afford the costs of the units (and who provide regular first aid training as a matter of course, reducing training costs) (Section 5.1.5).

The duty of care issue also relates to AED training being incorporated into standard first aid training for organisations that fit the criteria for appropriate AED sites.

Consideration 2: Publicly available defibrillation

Consideration could be given to amending the definition of the PAD Demonstration program from *public access defibrillation* to either *first responder defibrillation*, or *publicly available defibrillation*.

Rationale

The term public access in the context of PAD includes the *use of* AEDs by untrained members of the public. The program has operated as a trained first responder program; not public access in the way the term is used in the literature by cardiologists (Sections 1.1, 4.2.1 and 6.7). The original project objectives and the literature support the notion that first responder programs, which combine defibrillation with CPR, provide the most effective response to cardiac arrest (Sections 3.1.1 and 3.1.2).

The terminology *publicly available defibrillation* more accurately reflects the goals and reality of the operation of the PAD Demonstration program.

There was a clear message throughout the consultation phases of this project that the public were not comfortable using the AEDs and the signage around the units promoted a perception that only experts should use an AED (Section 4.2.1, 5.1.6 and 5.1.7). If the program is to remain 'public access' consideration should be given to the design and language used in the signage around the AED units to assist untrained persons use the device.

Consideration 3: Information Strategy

Implement an awareness campaign at three levels:

- a. An information strategy to ensure that organisations are aware that public access defibrillation does not present a public liability risk. Any campaign aimed at employers should be based on strong independent legal advice and draw upon the experience of the PAD Demonstration. The strategy could:
 - Focus on major employer organisations
 - Specifically target risk managers, CEOs and company secretaries in large public access organisations
 - Engage with the segments of the insurance industry involved with public liability
 - Ensure that both state and local government are engaged both as employers and regulators
- b. Increasing awareness of the safety of PADs for untrained employees and members of the public (through signage) would improve public use of PAD. Any strategy should be grounded in appropriate medical and legal advice.
- c. A broader community based information strategy may be considered in the context of the policy framework of the current government.

Rationale

A barrier to increased take-up of PAD by organisations is the perceived risk of litigation (Sections 3.3.2, 4.2; and 5.3.1). Clarifying the correct status of that risk would improve the likelihood of investment in devices and associated training programs by those organisations. The evidence that AEDs are safe and better than nothing at all could be communicated to staff in organisations where the devices are located in the first instance.

It is clear that untrained personnel in organisations where the PAD is installed are reticent to use the AEDs (Sections 5.1.6 and 6.7). Improving awareness that ‘any intervention is better than no intervention’ by untrained personnel and members of the public could improve the uptake.

Consideration 4: Reducing government funding

Consideration could be given to reducing or terminating subsidisation of AEDs by the Australian Government. The options identified include:

- Partial funding of AEDs for smaller organisations;
- Government could provide incentive schemes to ease the shift of purchase of AEDs to the private market:
 - Partial funding for smaller organisations
 - Corporate tax rebates for organisations who purchase a device;
- Funding for community based organisations.

Rationale

Some participating organisations and stakeholders expressed the strong view that it was inappropriate for the Commonwealth to fund what should be a corporate responsibility (Sections 4.2.2 and 5.2.2). This was particularly the case for state government funded organisations (Section 5.2.2).

Organisations that had invested in the AED program had a higher level of commitment to ongoing purchase of devices and training of staff (Section 5.2.2).

Consideration 5: Performance Monitoring

Development of a standard for performance monitoring, including state based systems to provide the basis for national performance monitoring. Engagement of private sector suppliers as well as state and territory regulators would maximise the coverage of consistent national data to monitor the effectiveness of AEDs and measure the extent of public (non-trained) engagement.

Local ambulance authorities could be best placed to oversee the governance and monitoring of AEDs in public areas, with centralised monitoring by the national body (the Convention of Australian Ambulances). Data collection should be integrated within existing patient systems to minimise administrative burden.

Rationale

The need for performance monitoring (of activations and survival statistics) has been identified as important to provide a national perspective of the utilisation and benefits of AEDs (Section 4.5). This is closely aligned with Ambulance Authorities' core business practices, and something they are likely already well equipped to do.

Glossary

A glossary of the acronyms and terminology used in this report is provided in the tables below).

AED	Automated External Defibrillations
CATI	Computer Assisted Telephone Interviews
CPR	Cardiopulmonary Resuscitation
CR&C	Campbell Research & Consulting
Department	The Department of Health and Ageing
EMS	Emergency Medical Services
PAD	Public Access Defibrillation
SCA	Sudden Cardiac Arrest
St John	St John Ambulance Australia
UK	United Kingdom
US	United States of America

Term	Definition
Emergency medical service early defibrillation	Defibrillation by trained ambulance or other trained emergence services personnel
First responders	Appropriately trained persons who have a duty to respond to medical emergencies.
First responder early defibrillation	Defibrillation by appropriately trained persons who have a duty to respond to medical emergencies.
Host organisations	Organisations who have received an AED under the PAD Demonstration.
Key stakeholders	Higher level key stakeholders refers to representatives from a range of professions, peak bodies and consumer organisations in the area of cardiac arrest and emergency responses from around Australia who were interviewed by CR&C for this project.
Lay persons	Staff or general public in the vicinity of the AED who had not received specific training in the use of the AED.
Public access early defibrillation	Defibrillation undertaken by any bystander, trained or untrained.
Trained staff	Staff employed at host organisations participating in the PAD Demonstration, who received training from St John in the use of the AED.

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.

2. Overview of Key findings

Overall, the evaluation found that PAD Demonstration could be judged as:

- *Effective* in providing a capable response to sudden cardiac arrest in public areas and demonstrating that Australian organisations can accept AEDs as part of their Occupational Health and Safety responsibilities;
- *Appropriate* as a method for establishing PAD in Australia and demonstrating the value of AEDs, but was not necessarily seen as the most appropriate model of defibrillation in the long term; and
- *Efficient*, with the proportion of program administration costs at 10-15% well within acceptable benchmarks.

The role of St John. St John as the program's community partner was favourably viewed by both higher level stakeholders; management and staff at the host organisations. Stakeholders believed that St John had identified appropriate installation sites and followed effective planning guidelines to maximise the outputs within the limitations of the PAD Demonstration. Managers and staff from host organisations praised St John for the management of the implementation, the personal support provided by project management and the quality of the training provided. Overall, the management of the project by St John was viewed by program participants as very efficient, and as operating within the limitations of a PAD Demonstration.

Appropriate host organisations. Most sites selected for the PAD Demonstration were considered appropriate by both higher level stakeholders and the host organisations themselves. Larger organisations with high levels of public throughput or specific risks of cardiac arrest were identified to be the most appropriate. Recent studies have suggested that optimal locations for AEDs are fitness centres, golf courses and public transport facilities – each of these types of venues have been included in the PAD Demonstration.

Litigation. Perceived risk of litigation remains a barrier to uptake of AEDs amongst some organisations considered to be the most appropriate sites for AEDs. Stakeholders reported that some large organisations feared litigation from negative AED outcomes and were reluctant to install AEDs or participate in the PAD Demonstration. Consultations with managers and staff confirmed that litigation had been an initial concern for participating host organisations, but one that was easily allayed through the effective communication from St John of the protection offered by the Good Samaritan Act.

The value of AEDs and the PAD Demonstration. Impact studies conducted since the commencement of the PAD Demonstration reaffirm that AEDs save lives, and that they have made a contribution towards improving public health outcomes both in Australia and overseas. Each of these studies concluded that AEDs have been effective in increasing resuscitation rates.

The current PAD Demonstration model was reported to be the most appropriate way to commence and demonstrate the value of AEDs to Australian businesses. Managers and staff from host organisations reported positive experiences with the PAD Demonstration. At its most effective, the PAD Demonstration has resulted in the installation of AEDs becoming a standard element of public liability and workplace safety for participating organisations. Training in the use of AEDs has been incorporated as standard first aid response procedures and is likely to continue. This was more evident in larger organisations that provide regular first aid training and employ dedicated emergency response personnel.

Overall, the PAD Demonstration has been effective in demonstrating the value of AEDs to participating host organisations. The perceived value of, and organisational commitment to the installation of AEDs was highest at sites where an AED had been activated and lives saved.

The role of the Australian Government in PAD. Stakeholders reported that national funding was the most appropriate way to *commence* the PAD Demonstration as government involvement gave the PAD program a level of ‘support and legitimacy’. The Australian Government’s leadership in the initial stages of the PAD Demonstration has helped to demonstrate that host organisation and general public concerns about liability and litigation can be overcome based on reassurance regarding liability. Most stakeholders considered that, as the AEDs gain momentum and more Australians become aware of the benefits of AEDs, the government’s financial role in PAD should be reduced.

The progression of PAD programs in other countries has seen a reduction in the role played by central governments.

In the UK a slow evolution of the funding and governance model has taken place. At the time of the previous literature review, AEDs and PAD were centrally co-ordinated and funded by the central government. The program has now entered ‘Phase 2’. The funding role has been devolved to ‘the Big Lottery Fund’ using proceeds from a large national lottery. Program administration is overseen by local ambulance trusts, with limited input from the central government.

In the US, a hybrid model of centralised and state-based funding and administration is in place. Historically, the Federal Government has made provision of large funding pools (\$25,000,000-\$30,000,000) for the purchase and installation of AEDs. Not all states received funding, and different states have used the funding in different ways. Some states have obtained further funding from sources such as tobacco settlements and donation partnerships. There is great variation in AED legislation such as ‘Good Samaritan clauses’ between US states.

In Australia, the most valued aspect of the PAD Demonstration for host organisations was the government funded AED. Financial commitment (the notion of privately funding AEDs) varied between organisations. A number of organisations interviewed for the qualitative consultations stated they would not be prepared to use their own funds to purchase AEDs. Most reported having other more pressing occupational health and safety priorities. Financial commitment was weaker amongst small organisations.

In contrast, the CR&C quantitative survey found that participation in the PAD project has successfully demonstrated the value of AEDs to host organisations and increased financial commitment. One third of organisations had considered purchasing an AED prior to involvement in the PAD Demonstration. After involvement, the proportion prepared to invest in AEDs increased. Half of all organisations interviewed indicated that they would continue to invest and maintain the AED if government funding was no longer available. Ten percent of organisations surveyed had already purchased additional AEDs since taking part in the Demonstration project. This was a stronger financial commitment than the initial qualitative consultations suggested.

The importance of training. Recent studies have reported even greater benefits when AED training is combined with CPR training. The importance of combining CPR training with AED training was also identified during the stakeholder consultations, and the qualitative and quantitative interviews with managers and staff at host organisations. St John’s training (incorporating essential emergency response skills such as CPR) provided reassurance and confidence. Almost all trained staff indicated they would feel confident to use the AED in the event of an emergency. However, the perceived likelihood of untrained staff (lay persons) using the AED was low.

Furthermore, management and staff believed that trained first responders were better equipped to provide effective response in an emergency – and that other factors needed to be considered when responding to an event than simply activating the AED including assessing the emergency situation, administering CPR, and appropriate crowd control.

Overall, the current PAD Demonstration operates as a *trained first responder* program rather than a *public access* defibrillation program.

Future directions for the PAD Demonstration. A number of stakeholders believed that survival rates from sudden cardiac arrest could be improved by saturation of AEDs in public areas. These stakeholders believed that the installation of AEDs should become part of a standard duty of care for public liability and workplace safety for larger organisations, and other developments such as regulation and incentive schemes were identified as important drivers of a shift to non-government funded PAD.

The quantitative findings confirmed that government guidelines for safety in the workplace would be a greater driver for organisations to purchase AEDs, compared to concern for the general health and safety of the public.

Suggestions for a promotion or a public information campaign were considered to be effective in communicating the demonstrated value of public access defibrillation to the broader Australian population. Information campaigns suggested including specific workplace based campaigns aligned to Occupational Health and Safety as well as broader community awareness campaigns.

3. Literature Review and Desktop Research

In this chapter, CR&C provides an overview of recent literature relating to the effective and appropriate use of AEDs under PAD and first-responder programs. Literature was sourced from both Australia and overseas.

In 2004, Associate Professor Ian Jacobs conducted a similar review for the Department (Jacobs 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 UK and the US.

3.1 The evidence for PAD

3.1.1 Findings from the 2004 review

The 2004 Jacobs review identified a number of sources of evidence for the effectiveness of PAD in increasing survival rates for people who suffer cardiac arrest in public places. Studies cited came to the following conclusions.

- A study of a PAD program in American airports concluded that 21 persons had suffered an arrest during the two-year project period, of which 62% were successfully resuscitated using an AED.
- An Italian study compared the use of PAD to traditional EMS treatment for cardiac arrest, a higher survival rate was shown for people treated by volunteers trained to use AEDs compared with EMS services.
- Only one sizeable randomised control trial was reported (the studies described above were non-controlled observational studies). This American study randomised sites into two groups: one set of sites was provided with CPR training alone (control group), the other with CPR training *and* training in the use of AEDs (intervention group). The study demonstrated a higher (almost double) survival rate for the intervention group compared with the control group.

However, the 2004 review was quick to point out that the object of these studies was not *Public Access Defibrillation* in its truest sense. The programs in question were generally based on a ‘first responder’ that centred on trained personnel operating the device, rather than the lay public.

Based on these considerations, the 2004 review concluded that:

The evidence to date supports the premise that early defibrillation delivered within a PAD mode improves survival following cardiac arrest occurring outside of hospital (Jacobs 2004, p.14).

3.1.2 Update: evidence published since 2004

In 2004 (shortly after the submission of the original literature review to the Department), Culley et al. published a cohort study of the impact of a PAD program on cardiac survival rates in Seattle and Washington, America (Culley 2004). The study compared survival rates for out-of-hospital cardiac arrests for those treated with an AED vs. those treated with traditional EMS. Culley concluded that PAD was involved in a small proportion of successful resuscitations for out-of-hospital cardiac arrests. The proportion of successful cardiac arrests was noted to increase over time as the implementation of the program progressed. Compared with traditional EMS, Culley concludes:

Survival rate was 50% in cases treated by PAD AED, a figure considerably better than most EMS systems (p. 1861)

A literature review by Clare (2006)¹⁵ also concluded that there was some evidence for the efficacy of PAD programs. Following the examination of 22 studies of PAD and related programs, the review concluded that PAD programs had a small but noticeable improvement in survival rates for people who suffered sudden cardiac arrest in public places. However, the paper noted that many of the studies in question incorporated bystander Cardiopulmonary Resuscitation (CPR) training as part of their interventions. The presence of people with CPR training was reported to exert a far greater effect over survival rate compared with PAD alone. The paper concluded:

Finally the effect of level one PAD programmes is partially dependent on the provision of bystander CPR (CPR by a member of the public with no duty to respond) as physiologically CPR maintains the shockable cardiac arrest rhythm by perfusing the heart and preventing degradation into asystole (p. 1061).

3.2 PAD locations

3.2.1 Findings from the 2004 review

The 2004 review examined a number of studies of PAD programs that emphasised the importance of strategic placement of AEDs to maximise utility. From an epidemiological perspective based on Australian and overseas research, the review states:

- Approximately 40% of cardiac arrests occur in non-residential locations (based on overseas findings), the estimate for Australia is somewhat lower at 25%;
- The five most common locations for out-of-home cardiac arrests are airports, gaols, shopping centres, sports venues and industrial sites;
- Between 5 and 32 lives *could have* been saved if AEDs had been placed in these high-risk locations during the five year period covered by the study (no AEDs were present at the time that that study was conducted);
- There is an inverse relationship between population density and the overall incidence of cardiac arrests – that is, the more dense the population in a given area, the lower the incidence of cardiac arrest. However, this relationship is reversed for out-of-home cardiac arrests – the higher the population density, the greater the incidence of out-of-home cardiac arrests.

The review concludes:

About half of public places have more than one cardiac arrest within a three to five year period. Within each community where PAD is to be implemented, specific sites which have higher incidence of cardiac arrest should be identified to guide placement of AEDs. Airports, shopping centres, transit areas and sporting venues are likely to be associated with higher incidence of cardiac arrest (Jacobs 2004, p.16).

3.2.2 Update: evidence published since 2004

Reed et al. (2006) published a study that examined epidemiological data to determine the optimal location and number of AEDs for PAD and related programs. Reed concluded that the greatest rates of treatable cardiac arrests occurred in fitness centres and golf courses. However, the greatest survival rates from cardiac arrest were noted for different locations: recreational complexes, public transportation facilities and fitness centres. The difference between incidence and survival was attributed to the rate of volunteer presence and intervention.

¹⁵ Conducted separately from the 2004 review for the Department

3.3 Implementation: recruitment, training and implementation issues

3.3.1 Findings from the 2004 review

The 2004 review considered the effective and appropriate use of AEDs in the hands of trained and untrained lay-people, as opposed to professional members of EMS who may also administer AEDs or other forms of resuscitation. Based on examination of a number of local and overseas studies, the review stated:

- Advancements in the technology used in AEDs reduce the training requirements for lay-people;
- Lay-people and even very young children are able to effectively and safely use an AED, however the time taken to administer the required shock is longer for this group compared with trained professionals; and
- While untrained people can safely and effectively use AEDs, the vast majority of AED activations are still performed by trained people.

The review also stated that the quantity of training required to optimally use an AED remains unproven.

The review concluded:

AEDs available within a PAD mode have been successfully used to treat patients in cardiac arrest. Training may shorten the time to defibrillation. AEDs can adequately and safely be used by the lay public with minimal or no training (Jacobs 2004, p.20).

3.3.2 Update: evidence published since 2004

The importance of AED training of both staff and volunteers is widely acknowledged as a vital component of any PAD program. However, Reigal et. al. (2006) note that skills imparted as part of training programs are not maintained indefinitely. Reigal conducted an observational follow-up study of 19,320 staff and volunteers who had taken part in AED and CPR training programs in America. Reigal estimated that 91% of the study participants had maintained the required skills and knowledge to operate AEDs five months after initial training. This proportion fell to 84% seventeen months after initial training. Retention of required skill and knowledge were noted to be higher for AED operation compared with other interventions such as CPR. Successful retraining of those who had not retained the required skills was reported to take only ten minutes.

Richardson et. al. (2005) published a descriptive study of a trial of a PAD program in America and Canada. The program in question was community-based, and used training of staff in public places as well as volunteers in the use of AEDs and CPR techniques. The paper describes a number of issues similar to the Australian experience, and notes a range of barriers to the successful implementation including difficulties in the identification of suitable sites for implementation; difficulty in recruiting businesses and individuals to take part in the program and fear of litigation as a result of participation. The key driving factor behind successful implementation was reported to be the involvement of a key decision maker at the ground level. Despite these challenges, the paper concluded that:

These data indicate that implementation of community-based lay responder programs is feasible in many types of facilities, although these programs require substantial resources and commitment, and many barriers to implementation of effective PAD programs exist (p. 668).

3.4 Risks

3.4.1 Findings from the 2004 review

The 2004 review identified a number of risks associated with the provision of AEDs in PAD programs. The primary risk identified was legal in nature.

A study of a PAD program in the UK identified the possibility of threats of legal action for lay-people who use AEDs. In UK law at the time, no protection was provided for lay-people such as ‘Good Samaritan’ legislation. However, the risk of legal action was seen to be minimal.

The review concluded:

Little information is available that outlines specific risks associated with the broad implementation of PAD ... The experience of the initiative undertaken in the United Kingdom and trial data from the USA would suggest that implementation of broad based PAD programs are feasible and the risks manageable (Jacobs 2004, P.22).

3.4.2 Update: evidence published since 2004

AEDs are noted for their safety and reliability, particularly with advancements in technology in the past years.

However, as with any complex electronic device, AEDs can be prone to error and failure. In an American study, Shah et al. (2006) examined AED recalls and safety alerts to estimate the rate of failure and malfunctions for AEDs. The study included 775,539 AEDs sold between 1996 and 2006. Key findings of the study included the following:

- Actual malfunctions and failures of AEDs were reported to be very low, the risk of failure was estimated to be less than 1%;
- The number of recalls of AEDs was far higher at 21%. Recalls were most commonly done as a result of known hardware weaknesses. Errors due to software were less common;
- The study identified 370 instances of fatal AED device malfunctions.

Despite these known issues with AEDs, the paper concluded that:

... the total number of malfunctions is small compared with the number of lives saved (p. 658).

A study published in Austria cites a risk associated with AEDs that may be relevant to the Australian context. Schlimp et. al. (2004) suggested that interference from high-voltage power-lines may affect the functioning of AEDs. Schlimp noted that AEDs operated near such power-lines were at an increased risk of failure due to the high electrical charge interfering with the devices’ ability to detect and analyse rhythms prior to shock. This interference was reported to have the potential to cause substantial harm to patients. The study concludes:

The proper function of AEDs needs to be reconsidered to guarantee patients’ safety near high-voltage power lines (P. 595)

It should be noted that the high-voltage power line system in Austria may differ to that in Australia, and the results of this study can not necessarily be applied in the Australian context.

3.5 Cost benefits

3.5.1 Findings from the 2004 review

The 2004 review identified few studies that examined the cost effectiveness or cost benefits of PAD programs. An American study that was included in the Jacobs review concluded that PAD programs

may be 'economically attractive' despite the fact that they are more expensive than traditional EMS response mechanisms. No Australian data was available at the time of the review.

The review concluded:

PAD would appear to be potentially a cost effective intervention however no formal cost benefit analysis has been undertaken in Australia (Jacobs 2004, P.23).

3.5.2 Update: evidence published since 2004

No studies regarding the cost benefits of PAD or AED that were published since 2004 could be identified for this updated review.

3.6 Other models in other countries

3.6.1 Findings from the 2004 review

The 2004 review examined a PAD program that was being delivered in the UK. The program:

- Developed an administrative structure including advisory committee;
- Obtained support from key stakeholders including ambulance, community groups and health professions;
- Determined the legal status of the those using the equipment;
- Procured defibrillators;
- Established pilot sites including training; and
- Administered long-term management of the program.

These activities were funded under the National Health Service, the UK equivalent of the Department of Health and Ageing.

A number of challenges were reported for the program including defining the legal status of lay-people who use AEDs, generating the enthusiasm and interest in the program and developing data collection mechanisms for evaluation. The progress of the program was reported to the public via a series of six-monthly bulletins.

The review concluded:

... the UK initiative represents a strong government approach to addressing cardiac arrest survival. It is nationally co-ordinated and funded, clinically led, involves the local community, provides web based resources and feedback, establishing mechanisms for data collection and system evaluation (Jacobs 2004, P.27).

3.6.2 Update: The UK experience

A number of developments have been noted in the UK approach since the 2004 review. The review extensively cites a paper by Davies (2002) which describes in detail the introduction of the PAD program in the UK. In the concluding sections of the paper, Davies looks to the future and suggests:

The Department of Health may not be the best place for the longer-term administration of the project however because operational activities such as this are not a key part of Department of Health work (p. 19).

A review of the program's website in 2008 has suggested that indeed the Department of Health in the UK has divested much of its role in the program to other organisations such as ambulance trusts and charitable organisations, thus completing the 'evolution' of the UK model.

Early stages of the UK model

The PAD Program's website describes the early stages of the program:



In July 1999, the White Paper, Saving Lives: Our Healthier Nation announced the Government's intention to invest £1 million in installing AEDs in busy public places. A further £1 million was then committed to training people employed at the site in their use and in basic life support. (Department of Health 2008).

At this time, the program was entirely funded by the Department of Health who also provided governance and oversight of training and installation via a series of committees and panels of experts. In the coming years, this model was maintained as further funds were allocated and the implementation of AEDs under the program became more wide-spread.

The program was the object of much scrutiny from both the academic and health sectors, with many papers published on the process of implementation and outcomes arising from the use of AEDs.

The early stages of the implementation of the UK model appeared to be successful. The program's website clearly states the extent to which AEDs have been taken up by the community, and the benefits that have arisen from AED usage.

700 AEDs have been placed at 110 locations across England and more than 6,000 volunteers have been trained in Basic Life Support skills. Current evidence suggests that 74 lives have been saved as a direct result of the work of the programme¹⁶ (Department of Health 2008).

The UK Model today

Today, the way in which the model is implemented and governed in the UK is quite different to that described above. Described as the shift to 'Phase 2' of the program, key developments include the following.

- As of February 2005, the program became a 'Core NHS activity', which meant that ambulance trusts at a local level are now charged with all training and re-training of volunteers. Local ambulance trusts were also given responsibility for who would then receive a publicly funded AED (Department of Health National Defibrillator Programme 2005). This function had initially been provided by the 'defibrillator advisory committee' formed by the Department of Health (Davies 2002). According to the program's website:

In the current and final stage of the programme Ambulance Trusts across England have been invited to identify areas in their regions that would most benefit from the installation of AEDs and apply accordingly. Thirty-one trusts will now receive a share of the next 2,300 AEDs for their areas as well as a Community Defibrillation Officer to oversee and coordinate the necessary installation, training and management of these AEDs (Department of Health 2008).

Responsibility for the existing 400 sites established for the first phase of the program was also devolved to the local ambulance trusts.

- Funding for this second batch of AEDs was, however, not provided by a Department of Health budget measure. In 2003, six million pounds was provided directly to the British Heart Foundation via an allocation from the 'Big Lottery Fund' (BLF). The BLF:

... gives out millions of pounds from the National Lottery to good causes. Our money goes to community groups and to projects that improve health, education and the environment (Big Lottery Fund 2008)

A review of the Department of Health website suggests that the Department is no longer directly funding the purchase of AEDs.

¹⁶ CR&C has used the UK spelling of 'programme' in this section as it is reported in UK publications. Elsewhere, the Australian spelling of 'program' is used.

As such, it would appear that while the Department of Health still plays some role in the administration of the program, day-to-day management and funding mechanisms have been shifted to not-for profit and peak body organisations.

Despite these changes, the UK program remains a centralised, relatively uniform and publicly funded model with many similarities to Australia.

3.6.3 Update: In stark contrast, the American experience

In contrast to the UK approach, the US does not have *one* funding or legislative model for AEDs. Rather, America has 50 funding/legislative models, one per state.

Historically, AEDs first entered the legislative arena in 1998, when the then President Clinton signed the *Aviation Medical Assistance Act* that stated that “airlines and individuals shall not be liable for damages” in attempting to obtain or provide assistance in the use of AEDs on aeroplanes”. This legislation was later expanded by Clinton in 2000 when he signed the *Cardiac Survival Act* providing civil immunity to authorised users of AEDs in public places. Additionally, this act also made provision of US\$25,000,000 over two years for the appropriation of AEDs. Further legislative change occurred in 2002 when the then President Bush signed the *Community Access to Emergency Devices (Community AED Act)*, a sub-section of the *Public Health Security and Bioterrorism Act* (obtaining funding under the banner of terrorism was common at that time). The Act provided for a further US\$30,000,000 in funding for the purchase of AEDs, and training of staff and volunteers in their use (National Conference of State Legislatures 2008).

AED and PAD programs appear to be still very much on the American agenda. The advocacy group *The American Heart Foundation* plays a strong role in advocating for ongoing funding and is very vocal in its views in a range of publicity campaigns. In 2007, the Foundation published a series statements urging the federal government to release almost US\$45 million, that had allegedly been promised in 2004 (American Heart Association 2007).

Between 1995 and 2000, all states introduced laws and regulations relating in some way to AEDs. Since 2000 many states have gone on to re-examine these pieces of legislation to facilitate the purchase of AEDs, and the implementation of AED and PAD-based programs. However, the introduction, funding and implementation of these pieces of legislation have been far from consistent from state to state (Aufderheide 2006).

The table on the following pages provides a summary of the way in which the 50 different states have legislated, funded and implemented AED and PAD-related programs.¹⁷

States have used a mix of approaches to roll out PAD programs, some using federal funding, some introducing legislation mandating the use of AEDs, others providing incentives to organisations to purchase and register AEDs. While all states have taken some action in this regard, some states have done very little. The table on the following page provides seven key pieces of information for each state:

- Whether legislation had been introduced that provided any form of protection for lay people to use AEDs (such as Good Samaritan legislation);
- Whether immunity from legal action had been provided to trained and authorised users of AEDs;
- Whether federal funding had been appropriated for the purchase of AEDs and training of operators, and the amount of that funding where known;

¹⁷ This table is based on summary information provided by the American National Conference of State Legislatures. A full review of specific legislation from each of the 50 states is beyond the scope of this review. Some of the information provided by this organisation is incomplete and is noted as such in the text.

- Whether non-binding resolutions had been passed that *encouraged* organisations to take part in AED programs, but not *mandating* participation;
- Whether changes had been made to legislation about training and liability requirements since 1998 (when AED legislation was introduced at the federal level);
- Whether legislation had been passed that mandated the purchase and maintenance of AEDs for certain businesses; and
- Comments on the types of legislative change and funding arrangements implemented by each state.

Considering the states overall, the following can be concluded:

- Almost all states (96%) have implemented some form of legislation that gives limited protection to lay-people using AEDs;
- Almost all (90%) have introduced legislation that gives total immunity to people trained in AED use in the conduct of resuscitation using the device;
- One third (30%) of states had received some form of federal funding of amounts between \$100,000 and \$3,300,000. Funding was obtained from a variety of sources, not all of which are relevant to the Australian context:
 - Directly via the budget measures described above (states tended to re-badge the budget measure using their own program names such as ‘First State – First Shock!’);
 - A small number of states obtained funding via a tobacco settlement fund;
 - One state established a ‘donation partnership’ with the American Heart Foundation that co-ordinated donations for the purchase of AEDs;
 - One state appropriated a small amount of funding (\$100,000) but required organisations to make an in-kind contribution of 50% for the purchase of AEDs; and
 - One state facilitated the bulk purchase of AEDs at a discounted rate for distribution to schools.
- One fifth (18%) of the states passed non-binding resolutions with requests for actions such as the identification of suitable sites and liaison with AED manufacturers by state health departments, or generally encouraging (but not mandating) the installation of AEDs in selected businesses;
- Two thirds (61%) of the states made recent legislative changes that provided some form of protection for either trained or untrained users of AEDs. The general pattern for these changes was two-fold: An initial revision to legislation that provided some form of immunity to trained users, followed by a second revision that broadened this protection (though often in a lesser form) to untrained users;
- Three quarters (27%) of states introduced legislation that mandated the purchase and maintenance of AEDs in specified organisations. The most commonly mandated organisations were schools (typically public schools) ‘fitness studios’ and sporting venues. It was not clear whether funding was provided to these organisations following the legislation change;
- Three quarters of the states introduced specific regulation that mandated the registration of AEDs, either with the state health authority or emergency services (based on additional information obtained from the American Heart Association 2008). However, one state took the unusual action of *removing* the requirement to register AEDs, presumably in an effort to reduce administrative burden.

3.7 Desktop research – cost analysis

CR&C reviewed financial data for the PAD Demonstration that was current for the 2006 and 2007 calendar years. Estimates of the efficiency of the Program were made based on reported program and administrative costs, and unit costs were calculated based on the number of lives saved, the number of activations and the number of host organisations. In summary:

- **The total funded amount for the program was \$869,563** (excluding GST) for the 2006 to 2008 period. This total funding allocation includes an additional budget allowance of \$200,000 in 2007. In 2007, \$589,425 (48%) of this allocation had been expended.
- **The PAD Demonstration appears to be operating efficiently.** Overall, 14% of expenditure was allocated to program administration. The remaining 86% was allocated to program costs. This allocation of program/administration costs is within an acceptable range.

Program costs included the purchase and installation of AEDs, provision of training and the production of posters. Administrative costs included travel and expenses for management meetings and costs associated with setting up a home office. One assumption was made in this analysis: 20% of all salary costs were assumed to be administrative costs and the remaining 80% assumed to be program-related.
- **The PAD Demonstration has achieved a number of tangible outputs and outcomes**, most notably the recruitment of nearly 100 sites, the installation of nearly 150 AEDs and ultimately the saving of seven lives. Based on expended costs to December 2007, unit costs associated with these outcomes include:
 - **Cost per site: \$6,015** (98 sites);
 - **Cost per AED: \$4,010** (147 units, with multiple units installed at some sites);
 - **Cost per activation: \$29,471** (20 activations); and
 - **Cost per life saved: \$84,204** (seven lives saved, not all activations result in a saved life).

It can be reasonably assumed that these unit costs will decrease as single AEDs are used multiple times at their respective sites.

These calculations are based on data obtained from the PAD Demonstration project. The unit costs were estimated by dividing the total number of sites, AEDs, activations and lives saved by the total expenditure of the project to date. The program and administrative costs were calculated by dividing program costs (AEDs, training etc) and administrative costs (salaries, on-costs etc) by the total expenditure of the project to date.

These calculations may provide a rough estimate of expected costs should the program be expanded to incorporate a greater number of sites/AEDs, and the cost of the ultimate intended outcome of the program: successful resuscitations of people suffering cardiac arrest in public places.

Comparative data for alternative means of resuscitation (e.g., emergency response services) were not available for this evaluation. The Department may wish to consider such a comparative analysis for future research and evaluation.

4. Stakeholder Consultations

Stakeholder consultations were conducted with academics and peak body representatives with expertise and experience in the field public access defibrillation. Stakeholders interviewed were actively working in the field, a number were also members of the PAD Demonstration Working Party, and had detailed knowledge of both the development and implementation of the program. The consultations focussed on the effectiveness of early access defibrillation generally, as well as the PAD Demonstration itself.

The detailed findings from the stakeholder consultations are presented in the following sections.

4.1 St John as the program's community partner

All stakeholders interviewed held St John in high regard. All praised St John's efforts in implementing the PAD Demonstration, and the organisation's effectiveness in implementing AEDs at key locations where the devices could save lives in the Australian community. Stakeholders noted the importance of the face-to-face support provided by St John in guiding host organisations through the installation process.

The PAD Demonstration would have failed without that personal element provided by St John, [you] need that personal element in the first instances, to get people on board with it. (Stakeholder)

4.2 Appropriateness of the current model of PAD

Stakeholders were asked about the appropriateness of the sites selected to participate the PAD Demonstration, and the appropriateness of the current PAD Demonstration model.

Stakeholders identified appropriate venues to be those with a large volume of people moving through regularly, or areas where previous sudden cardiac arrest events had occurred.

I think they are [at the appropriate sites]. Anywhere having a large collection of people moving through is a reasonable place to have a defibrillator – train stations, airport, shopping centres. (Stakeholder)

Where you have high volume, such as airports, over a period of years they will save lives ... as long as there is someone gutsy enough to have a go at activating the unit. (Stakeholder)

Stakeholders also mentioned that the guidelines for the Australian PAD approach were based on those of the American Heart Association (the peak body driving PAD in the US), who were considered to be pioneers in the public access defibrillation field. It was perceived that through the PAD Demonstration, St John was seeking to place AEDs in appropriate areas. That is, locations where a cardiac arrest would be expected every two to five years, and where trained responders or bystanders to be able to use the AED would be available within three minutes.

The fact that St John had actively consulted with local ambulance authorities in identifying appropriate venues was also mentioned as a strength of the PAD program.

The roll-out was done as a consultative process [between St John and the state ambulance authority]. Our involvement gave it that local stamp of authority. (Stakeholder)

Stakeholders felt that appropriate sites had been selected for the PAD Demonstration. However, stakeholders noted that participation in the PAD Demonstration came down to enthusiasm from organisations at the local level. A number of organisations identified as appropriate sites (particularly large shopping centres) were resistant to the installation of AEDs. Stakeholders believed that this reluctance stemmed from an unfounded fear of litigation – that organisations were concerned that they would be liable if an AED was activated and there was a negative outcome for the patient.

Shopping centres just use that litigation as an excuse not to take it on. (Stakeholder)

It surprises me that major shopping centres are not getting involved because of litigation concerns. It's ludicrous. (Stakeholder)

As a result, some stakeholders were concerned that some installation sites had been selected more out of willingness to participate, rather than for being the most appropriate site for an AED.

I can see why some [smaller sporting clubs] would want to stick their hands up for [a free AED]. Even if it saves one life over ten years I can see that it would be worthwhile for them ... But we have to look at the bigger question - where is the biggest bang for buck? They need to be rolled out in venues where they can make a difference. (Stakeholder)

These stakeholders identified a need for wider recognition that people have a better chance of surviving sudden cardiac arrest if AEDs are used

Overall, the current PAD Demonstration was perceived by stakeholders as an appropriate way of *establishing* access to early defibrillation in Australia. However, the current model was not necessarily the most appropriate means for delivering a sustainable early defibrillation service in the long term.

It is the most intelligent way to start. (Stakeholder)

Appropriate installation sites have been selected for the PAD Demonstration. However some appropriate organisations feared litigation from negative AED outcomes and were reluctant to install AEDs.

4.2.1 First responder versus public access

Stakeholders suggested that public access (defibrillation by anyone in the vicinity of the AED, trained or untrained) was not necessarily the most appropriate early access defibrillation model. Trained first responder defibrillation programs (with AEDs placed in easily accessible public areas for defibrillation by appropriately trained persons who have a duty of care to respond to a medical emergency) were believed to be a more appropriate and effective means of delivering early access defibrillation in public areas, than public access defibrillation.

Defibrillation alone is not enough. It is part of the whole picture: people need to know to call 000 not the doctor; know how to respond; and really be prepared to act – that is the importance of that additional CPR training. (Stakeholder)

Training familiarised first responders with the AED, provided the additional skills of CPR training and provided individual responders with a sense of reassurance in their ability to activate the AED. Stakeholders from both the National Heart Foundation and the Australian Resuscitation Council strongly emphasised the importance of combining CPR with AEDs to provide the optimum outcome for a cardiac arrest patient.

It is important to understand that the provision of AEDs is just one aspect in the uptake and preparedness of people to act... it's also the attitudinal phases of intervening in a medical emergency which need to be considered. (Stakeholder)

It is rare that, when someone collapse, you put an AED on, they are in a shockable rhythm, the AED gives a shock and then they just sit up in front of you. They [the patient] need a period of CPR. That period of CPR, particularly the chest impressions, is crucially important. (Stakeholder)

However, these stakeholders emphasised that public access defibrillation was better than no intervention at all, stating that defibrillation gives the best chance for survival, even if administered by an untrained bystander.

One stakeholder cautioned that to be sustainable, the PAD Demonstration must not solely rely on those initially trained as first responders. The training (in use of AEDs and CPR) needs to become standard organisational practice, to ensure that the knowledge is not lost when staff move on. Increased awareness and education about the benefits of CPR training and the emergency chain of survival amongst the community were reported as being essential.

The current PAD Demonstration operates as a trained first responder program rather than a public access defibrillation program.

First aid or emergency training was the key factor in driving the acceptance of the trained first responder programs.

4.2.2 Government funding for public access defibrillation

Stakeholders reported that government funding gave the establishment of the PAD program a level of support and legitimacy. The government's involvement in the initial stages helped to ease host organisation and general public concerns about liability and litigation from activation of AEDs.

To kick it off with government funding is the best way. The government support demonstrates the value of AEDs to private business ... It will get bigger and wider spread and we will get more sources of funding. (Stakeholder)

I don't know what other way it could have been initiated. Government funding initiates the process, provides legislation to protect and reassure and then it can roll on from there. (Stakeholder)

Most stakeholders considered that as the project gains momentum, and more Australians are made aware of the benefits of AEDs, the federal government's role in funding AEDs should diminish. Other developments such as regulation and incentive schemes were identified as important drivers of non-government funded public access defibrillation by some stakeholders.

I doubt that the private market would sustain this program without some sort of incentive. Something like making the defibrillators tax deductible to dull the pain for businesses. (Stakeholder)

Stakeholders noted the need for a shift in expectations from government funding to private enterprise taking responsibility for AEDs, in the context of improved understanding of a standard of care for public liability and workplace safety. Most stated that this shift would not occur without an awareness campaign and stronger public advocacy for AEDs from government.

Government funding was considered appropriate to demonstrate the viability of AEDs in achieving improved patient outcomes for cardiac arrest victims. The ongoing role of federal government was questioned, with a strong view that good corporate governance should require organisations to commit to funding and installing AEDs themselves.

4.3 Effectiveness of the PAD Demonstration

When it came to commenting on the effectiveness of the PAD Demonstration in improving patient outcomes from cardiac arrest, a number of stakeholders stated that it was important to consider the original aim of the program first. The project was intended to ‘test the water’ regarding acceptance of AEDs in the Australian community. It was set up as a trial, with only a limited number of devices funded and installed at sites around the country.

The program was a concept where we thought there should be defibrillators available in the community. We took it to a level to test the water – Are they acceptable? Will people use them? The aim was really to work out the extent to which these things would be used. (Stakeholder)

In this context, Stakeholders were cautious when commenting on the effectiveness of the current PAD Demonstration in terms of improved patient outcomes and, more specifically, in identifying a causal relationship to a reduction in mortality rates from sudden cardiac arrest. With only one third (approximately 30%) of sudden cardiac arrest events occurring in public areas, stakeholders reported that it was difficult to judge whether the PAD Demonstration had improved survival rates from cardiac arrest in Australia on a larger scale.

We were never going to see improvements in increased survival [from this trial]. (Stakeholder)

You couldn't say that PAD has made a difference to mortality from sudden cardiac arrest in Australia, because such a small number happen in public places. But you could say that it has provided a more capable response. (Stakeholder)

However, stakeholders were very keen to emphasise that placements of AEDs under the PAD Demonstration had saved some lives and improved patient outcomes for a number of individuals.

Overall, the PAD trial could be judged as effective in providing a capable response to sudden cardiac arrest in public areas, in demonstrating that organisations were willing to accept AEDs and that the devices would be used appropriately when sudden cardiac arrest events occur.

When asked how PAD could impact on survival rates from cardiac arrest in Australia, Stakeholders drew comparison to the evolution of public access to defibrillation in the US. A combination of federal and state government funding, public advocacy and state and national regulation has assisted the US to evolve to a stage where it was considered a liability not to install AEDs.

It has gotten to the point in the US, where owners of buildings can be found negligent for NOT having an AED on site. Over there AEDs are seen as part of public safety. (Stakeholder)

Some stakeholders felt that the current Australian PAD trial had used similar guidelines to US, setting a solid foundation that could eventually translate into a broader saturation of AEDs. Others noted that the level of saturation needed for effective response to sudden cardiac arrest in Australia was a long way off, as Australia was yet to go down the path of regulation or large scale public awareness campaigns. A level of saturation of AEDs was required for early access defibrillation to impact on survival rates from cardiac arrest.

The question will come down to what is a reasonable standard of care. It will get to the stage that a person collapses and no if defibrillator is available that organisations will be held liable. (Stakeholder)

There has to be a saturation process but we are way off saturation here. Less than 10% I would say. (Stakeholder)

Case Study – Early Defibrillation at the MCG

Stakeholders frequently mentioned the rapid response early access defibrillation trial at the Melbourne Cricket Ground as being one of the most effective models. Generally, stakeholders believed that public access to defibrillation produced a three fold increase in the rate of survival from sudden cardiac arrest.

The trial of a three tiered response model implemented at the MCG was reported to have resulted in a 71% survival rate from cardiac arrest at the stadium (86% survived to ambulance handover) – compared with a 3% survival rate from out-of-hospital resuscitation reported at the same time.¹⁸ The survival rate of 71% was also believed by stakeholders to be several times higher than pure PAD programs.

The three tiers of response at the MCG consisted of: (1) A central location notified of a collapse by radio communication; (2) Mobile defibrillation teams would then respond to the incident within 1-2 minutes and administer defibrillation (using older mobile defibrillators in the first instances, AEDs once that technology had advanced) (3) Medical personnel formed the third tier – that is a nurse or a doctor would arrive on the scene to provide follow up treatment until hand over to the ambulance. This tiered defibrillation model was tailor made for the venue, and ensured for the delivery of prompt CPR, timely defibrillation and advanced life support.

4.4 Efficiency of the PAD Demonstration

There was concern about the ‘efficiency’ of ongoing government funding for the purchase, installation and training of AEDs. Some identified a need for detailed cost comparison work to be undertaken, comparing public access defibrillation with other emergency care models to establish the true cost effectiveness of this type of program.

Even without a detailed examination of the cost effectiveness, stakeholders believed that the program was sustainable beyond the initial costs without a further injection of funds from the government.

Stakeholders cautioned that any estimation of cost efficiency must take into account the human costs of cardiac arrest.

While there is an initial cost, we have to take into account the huge human cost benefits when even one life is saved. (Stakeholder)

It was also stressed that estimations of efficiency of early access defibrillation should take into consideration the high cost of program establishment, installation of the devices and initial training. With the ongoing costs for maintaining units and training staff being relatively low and incidences of sudden cardiac arrests increasing over time, the longer AEDs are installed for the more efficient the program will become.

The management of the project by St John was viewed by stakeholders as very efficient, and as operating within the limitations of a PAD Demonstration.

¹⁸ Wassertheil, Keane, Fisher, Leditchke. Cardiac arrest outcomes at the Melbourne Cricket Ground and Shrine of Remembrance using a tiered response strategy. *Resuscitation* 2000; 44: 97-104

4.5 Issues and lessons identified by Stakeholders

The success of a public access defibrillation programs rests on access by any member of the public to an AED. Stakeholders stated that the Australian community were generally unaware of AEDs and their benefits. Implementation of community awareness campaigns was strongly advocated by stakeholders as an option the government should consider. It was also noted that any information campaign to improve awareness needed to emphasise not just the benefits of having the AEDs available in public settings, but also the actions people should take in the event of a cardiac arrest and the safety of using AEDs.

It is giving people permission to use these things ... that's the scary part, that they don't feel that they have permission to use the AED. (Stakeholder)

The private sector's fear of litigation was viewed as a major stumbling block to the expansion of early access defibrillation. However, stakeholders felt this block could also be turned around by an informed communication campaign targeted at the private sector.

It is a matter of 'tweaking the message'. Turning the concept of AEDs into a more positive concept, that having an AED installed on site can save a life, rather than 'using an AED will open an organisation up to liability and litigation'. (Stakeholder)

Stakeholders identified a need to increase awareness amongst the private sector that an AED is a crucial piece of emergency equipment, and not a great expense when the cost-benefits are considered. The infrequency of cardiac arrest events was acknowledged as a likely deterrent for private businesses making the investment in AEDs. However, one stakeholder used a comparison of AEDs to fire extinguishers to emphasise the importance of AEDs as a life saving device for infrequently occurring emergencies.

If you have that approach 'where it won't happen very often so why bother' you would have to take out the fire extinguisher and stop your insurance for damage from floods etc. (Stakeholder)

It was strongly suggested that government could take a more active role in spreading the message that AEDs should be installed as a standard duty of care in (particularly in larger organisations). Stakeholders believed an active communication campaign was needed for AEDs to become the standard of care for public liability and workplace safety.

Stakeholders acknowledged that regulation was another option that could be explored to increase the installation of AEDs, and shift the financial onus from government to the private sector. However, they warned that regulation alone would not act as an incentive for organisations to install AEDs.

More inclined to say – here is an incentive program, but there is a strong requirement that if your organisation is a public place, that it is a duty of care that a level of safety is provided. Any kind of stadium has to provide first aid cover, have to be able to provide basic level of medical care. Why can't AEDs form part of that requirement? (Stakeholder)

Legislation will just mean that people could install them, but not necessarily comply. (Stakeholder)

Other factors suggested by stakeholders to be taken into account when considering the future of the PAD Demonstration included:

- The possibility of stronger roll for state governments in regulating and funding early access defibrillation:

The states can play an enormous role. They provide healthcare at a state-based level, and they are responsible for delivery of adequate healthcare and public safety. (Stakeholder)

I think things are better when they are jointly done between the various parties ... and a hybrid model between states and federal is a nice incentive program. (Stakeholder)

- That ambulance services would be best placed to take over the governance of the program, and to oversee performance monitoring:

The agency that has the most influence in public access defibrillation is the ambulance services. Ideal would be for ambulance services to be responsible for first aid governance, for the implementation of PAD and monitoring. (Stakeholder)

Lack of awareness of the benefits of AEDs amongst private business and the general public, together with misplaced fear of litigation, were key issues identified by stakeholders as affecting the ability of the PAD Demonstration Program to expand beyond its current role.

5. Qualitative Consultations

This chapter presents the findings from the in-depth consultations with host organisations participating in the PAD Demonstration. Managers and staff at selected host organisations provided feedback on the effectiveness the PAD Demonstration from a grass roots perspective.

These in-depth interviews also explored the issues that arose during the PAD Demonstration and identified lessons relevant to future considerations regarding early access defibrillation.

5.1 Experiences under the current PAD Demonstration

5.1.1 AEDs perceived as valuable

The potential to save a life was the most commonly cited benefit of involvement in the PAD Demonstration by management and trained staff. Despite only a small number of activations, most host organisations interviewed believed that AEDs provided the most effective method for responding to sudden cardiac arrest and improving survival rates for sudden cardiac arrest victims.

It is helping save lives. I don't know the stats, but with an AED at least you have a chance of saving them. It is good support for the first aider who has to respond. (Manager, tourist attraction)

Best practice in duty of care, reassurances, and good corporate citizenship were other benefits cited by management stemming from their organisation's involvement in the PAD Demonstration.

Benefit for us is that we have to be best practice. People expect us to respond to incidents in the most efficient way. I think people would be surprised if an international airport did not have defibrillators installed. (Manager, international airport)

It's a commitment to our public image. (Manager, sporting club)

It [the AED] provides a sense of security for staff. Knowing that if something goes we are confident and have the technical support to help the out. (Manager, secondary school)

AEDs were perceived as valuable life saving devices.

5.1.2 Appropriateness of PAD host organisations

The majority of AEDs under the PAD Demonstration had been placed at sites with either a high volume of people (airports, train stations, zoos), a high proportion of persons aged over 50 (golf and yacht clubs), locations where there had been previous sudden cardiac arrest or where an ambulance would be delayed in reaching a patient (national parks).

Most host organisations believed that their site was a suitable and appropriate location for the installation of an AED.

We thought it was a fantastic idea. We are out of range of ambulance services here. We are the only first aid people around during the ski season. (Manager, state national park)

However, some venues did not seem to fit the criteria for being a site of 'high risk'. Managers at these sites did not believe that their organisation was the most suitable site to receive a government funded AED. The main reason given was that the organisation had only small volume of people moving

through the venue. One organisation was surprised to have been approached by St John to receive a 'free' AED, as they had already purchased a device privately.

I am still amazed that we got one, it's like money for jam really ... Though from a tax payer point of view there are other clubs less well off than ours that probably would have been more appropriate to get one of these defibrillators from the government. (Manager, golf course)

I was a bit surprised. I have been in policing for 20 years and haven't ever had people need one of these at a station. Would be better suited on patrols I think. (Manager, police station)

Most of the AED sites selected for the PAD Demonstration were appropriate based on the project guidelines for selecting venues according to risk of sudden cardiac arrest.¹⁹

5.1.3 Location of AEDs

Host organisations had collaborated with St John and other emergency personnel to ensure that the devices were accessible by trained responders within two to three minutes. While AEDs were generally placed in publicly accessible areas, a number were not accessible by the general public. This placement was inline with the views of management that trained emergency personnel were the most appropriate first responders, and the units were kept with other emergency response equipment.

We have one located in the foyer, under the key safe. It is not immediately visible to the public, although they could see it if they looked around for it. The concern about making it too visible was that you ideally need to be trained in the use of a defibrillator unit. (Manager, casino)

AEDs were located where trained emergency response staff could access them quickly in the event of an emergency.

5.1.4 Experience with St John

Many managers reported that the personal element provided by St John project management was of great value, and assisted them with adjusting to being part of a PAD Demonstration, including engaging their staff, reassuring higher level management, and informing their customers.

St John provided a really really good service. Excellent. Amazing. You can tell that she [the project manager] really cares about what she is doing. She really believes in the program. (Manager, tourist attraction)

Most managers felt no need for ongoing support from St John once the AED had been installed and staff trained. Others were concerned that communication with St John eased off over time, and would have preferred arrangements for regular communication between St John and the host organisation.

When we first got it, St John was on the phone regularly. Having that program manager make contact was fantastic. But we have had it for two years now – the program really could do with ongoing check up, follow up and background support. (Manager, state national park)

St John project management provided support, reassurance and guidance through the planning and implementation process.

5.1.5 AED training

There was universal praise for the expertise and nature of the St John trainers from managers and staff at host organisations. Reassurance and confidence were seen as important components with regard to

¹⁹ The broad guidelines adopted by St John consider the venue appropriate if: length of time for local ambulance to arrive greater than five minutes; previous sudden cardiac arrests have occurred; 10,000 or more persons regularly gather at the location; there is a large concentration of persons over 50 years old or there is a high probability of sudden cardiac arrest.

effective AED response. Staff and managers reported that the St John training primarily provided a level of reassurance and confidence, and demonstrated how simple the AEDs were to use.

The training was really well delivered. St John were excellent. (Manager, shopping centre)

The whole set up was perfect. They had it up and running in a matter of weeks. The program manager was always available, we had our queries answered right away. Had them out here to help us decide where to put the units. (Manager, metropolitan train service)

The additional emergency first aid training (including CPR) was another important and valued aspect of the training noted by both management and trained staff.

Before training, managers at host organisations and those selected to be first responders often had initial concerns about the responsibility of activating the AED, and the threat of litigation if something went wrong. All respondents stated that St John project management and trainers effectively eased any concerns about litigation, by citing the protection offered by *Good Samaritan* legislation.

Some individual staff members were concerned about litigation if they could not resuscitate a patient. The St John trainer provided reassurances and the liability issue was explained really well in the training. (Manager, shopping centre)

For organisations that already provided first aid and emergency response (e.g. airports, national parks, casinos, zoos etc) the AED training was incorporated into annual refresher courses for dedicated emergency responders. The AED had become part of these organisations' standard public liability and occupational health and safety procedures.

If you don't do it [refresher training] you're not confident. If you're not confident, you're not competent. (Manager, zoo)

Organisational awareness of the correct procedures for activating the AED tended to diminish at smaller organisations. Those that did not routinely train staff in first aid tended not to have arranged for any refresher training for staff.

The training was effective at the time, but only if you use it. When I found out you were coming to talk to me I needed a refresher, to remind me of the correct response procedures. (Manager, secondary school)

The quality of the AED training provided by St John was widely reported to be effective, efficient and appropriate. However, knowledge of correct AED procedures diminished overtime in those organisations that did not provide regular refresher training sessions.

5.1.6 Lay persons and AEDs

Untrained (or lay) staff interviewed at host organisations stated that they would not feel confident in their ability to activate the AED without training. This was the case even for some staff trained in Level 2 first aid.

I don't know what I would do. I haven't really looked at it. I mean, I have Level 2 first aid, but I don't know that I would use [the AED]. I could do more harm than good you know? (Untrained staff member, national park)

Most management believed that trained first responders should be the first to activate the AED. In some organisations this translated to AEDs placed in locations only accessible to first aid staff.

It is always our trained accident first response team that would respond to a collapse. Have to be able to evaluate the scene, to respond to any type of situation at anytime. Have to know CPR, we give two minutes of compression to get some sort of pressure building in the patient before we give them a shock – you can get a more positive result that way. Would not be appropriate for someone without training to respond.
(Manager, international airport)

A number of managers also noted that the signage around the AEDs acted as a deterrent to public use of the unit. This was especially the case at venues such as airports, where most signage was designed to discourage public access to airport equipment.

People are tentative about what they can do and what they can't. People are scared of doing stuff that is against the law. With the signage and the security box, only a medical professional would be likely to take it off the wall. (Manager, airport)

Managers and trained staff at host organisations did not believe it was appropriate or necessary for the general public to activate the AED. Most believed that effective emergency response procedures had been put in place through trained first responders.

Most host organisation representatives did not believe that the public should activate AEDs and that their emergency response procedures ensured that trained responders were the first to reach the AED.
Lay persons were not likely to activate the AEDs.

5.1.7 Emergency response plans and broader awareness of AEDs

Organisations that already provided first aid and emergency response had very effective first aid plans in place. These organisations always had at least one trained first aider on site and tended to conduct regular safety drills. Smaller organisations did not regularly encounter emergency incidents, were more naïve about emergency procedures and tended to have fewer trained AED staff and a less rigorous emergency response plan. Whilst most organisations reported having an emergency response plan in place that incorporated the use of the AED(s), the extent and efficiency of these plans tended to vary.

Managers and trained staff interviewed were aware of the organisation's emergency response procedure and felt confident in their ability to activate the AED. Many managers reported that their organisation included information about the AED in their induction packages for new staff to ensure broader awareness of the AEDs. However, amongst untrained staff awareness of the AED and the correct procedures for activating the device tended to be low.

I developed a manual, copied all the information St John gave us, our organisations' emergency response plan and ensured that every station manager had one, and distributed it to all emergency staff. (Manager, metropolitan train service)

Public awareness of the use of AEDs and their benefits was also reported to be very low. Some attributed the lack of public awareness of AEDs to a lack of awareness and acceptance amongst senior management – with AEDs often a low occupational health and safety priority.

Awareness of the AED was high amongst managers and trained staff at host organisations. However, the general consensus was that untrained people are not aware of AEDs and not likely to activate one. Trained first responders were perceived as being best placed to provide optimum care in an emergency.

Overall, the PAD Demonstration has been effective in establishing that organisations can be accepting of AEDs. High quality training was provided and most organisations had effectively incorporated the AEDs into their standard emergency response procedures.

5.2 Commitment of host organisations to PAD

Commitment amongst host organisations to the PAD Demonstration varied. Those organisations that had that actively sought out St John (or had purchased the AEDs themselves) were highly committed to participating in PAD, and reported the following driving factors behind their commitment:

- Experienced a sudden cardiac arrests at the organisation previously;
- Viewed the AED as part of the organisation's duty of care to staff, customers and general public:
First and foremost it's an organisation commitment to OHE&S. (Manager, tourist attraction);
- Their customers or patrons tended to be older; and/ or
- Participating in a PAD program was seen as 'good corporate citizenship'.

Strong commitment was also evident at host organisations where staff had campaigned (unsuccessfully) for the installation of AEDs for many years prior to the PAD Demonstration. These respondents were extremely committed to providing access to early defibrillation in their organisation now that the AEDs had been installed.

Organisations who had been approached to participate in the PAD Demonstration by St John project managers were less committed to involvement in the program in the long term.

There was a higher level of commitment to, and perceived value of, the program in those organisations that actively sought out St John (or had purchased the AEDs themselves) compared to those who had been approached to participate.

5.2.1 Ongoing installation and AED maintenance

Ongoing installation and AED maintenance was generally perceived by managers and staff as 'fuss free', easy and low cost. However, at some organisations, where the AED had been installed for a number of years, maintenance checks were reported to have reduced. Over time, staff and management had become unsure of exactly how often maintenance check should be undertaken, and some were unsure of what the checks involved.

Just the maintenance of the unit. I think it requires weekly checking, but I don't think we have been as vigilant. Not checking it regularly and I don't think anyone has signed the book to say that it has been checked. (Manager, national park)

5.2.2 Financial commitment to the installation of AEDs

When asked if the private market could sustain a PAD program if government funding was not available, a number of managers said 'no'. Lack of financial commitment was especially evident for

smaller organisations, who reported more pressing occupational health and safety priorities. The purchase and installation of AEDs would not have been a priority for these organisations if they had been required to fund the cost of the units, training and implementation themselves.

I don't think management would have paid. Small businesses with high overheads can't really afford it. Not legally necessary to have one in a gym, so it's not likely to be privately funded without legislation. (OH&S manager, fitness club)

We are committed, but not likely to fund ourselves. If funding was not available this would not have been a priority for us. (Manager, yacht club)

I don't think government should be funding this. I would like to see organisational management understand the benefits and see it as their duty of care to provide these units. (Manager, state national park)

Conversely, a number of organisations *were* financially committed. These businesses had already invested in additional devices. Such organisations tended to be larger, busier environments or sites where there had been fatalities from sudden cardiac arrest prior to the installation of the AED, or activation of the AED had saved a life. The initial funding from government had acted to demonstrate the value of AEDs as live saving tools to these organisations. These organisations stressed that they would continue to install AEDs, even if government funding was no longer available.

The government funding gave the incentive for use to move forward. We have since purchased four more units and we now have staff at all of our office buildings requesting them to be installed. (Manager, local council)

Financial commitment to AEDs differed amongst host organisations. For some, the devices were too expensive and not viewed as a top health and safety priority. Others believed they were essential, and had already purchased additional devices.

5.2.3 Non-PAD Demonstration AEDs

Organisations that had privately purchased AEDs were included in the consultation to gain further understanding of the factors driving the private purchase of the devices.

As with the government funded PAD Demonstration, AEDs at these organisations were typically installed under a trained first responder program. At each of these organisations, AEDs were considered by management to be an essential element of the company's duty of care to its staff and public. The driving forces behind the decision to purchase the devices varied, from ensuring occupational health and safety for staff to senior management having personal experience with cardiac arrest.

Some examples of privately funded early responder programs included:

- A large university (with five campuses and over 30,000 students)
At this university each campus had an annual budget of \$4,000 to spend on occupational health and safety services for the entire campus. The notion of AEDs was raised as an option for the expenditure of these funds at a regular OH&S meeting. The university purchased one AED for each campus. Campus first aid staff were trained in the use of the AED and all staff and students were informed of the AEDs via the intranet and signage around the sites.
The devices had been installed for five years with no activations.
- Casino in a large metropolitan city

The previous owner of the casino had a serious heart condition and had driven the installation of AEDs in his businesses.

20 devices were installed throughout venue. All security guards (permanent and contract) are regularly trained in the use of the AED. Devices are kept with other emergency equipment, ready to be moved to the scene by security first aid staff in the event of an emergency.

The manager estimated a response time of less than two minutes to any location within the casino.

The AEDs were installed in 2000. There have since been 15 activations, 10 shockable rhythms and six lives saved (until ambulance handover).

AEDs were perceived as core to the casino's duty of care and were now fitted as standard in all new hotels and building extensions.

The key lesson identified by these organisations was that early access defibrillation requires commitment of senior management. Dedicated first aid staff are essential and the training and use of the AED must be incorporated into standard public liability or health and safety practices.

5.3 Outcomes and lessons for host organisations

There have been 20 reported activations at host organisations since the commencement of the PAD Demonstration. In seven cases, lives were saved directly as a result of the AED. Staff at these organisations have become even more committed to the PAD program as a result of these positive outcomes.

In a number of instances, the patient could not be revived. Despite the trauma of experiencing a life being lost, staff who had responded with the AED felt reassured that they had at least been able to do everything within their power to assist.

Based on the consultations, activations have all been carried out by trained staff, trained emergency personnel or medical professional bystanders. In the few instances where activations had occurred, participants reported that the AED was used in accordance with instructions until the patient could be handed over to ambulance paramedics.

Some participants identified the need for crowd control in the event of an emergency event where the AED had to be activated. Family and friends could get distressed and concerned about the application of the AED, especially in environments such as casinos where alcohol was consumed (this is where the role of security personnel as first responder is particularly appropriate).

Two case studies of successful AED activations under the PAD Demonstration are provided below.

Case study of PAD activation at Domestic Airport

In March 2008, a passenger in the airport terminal had a sudden cardiac arrest. The person was about 80 years of age. The first response team at the airport were contracted service emergency providers located within the airport. They were called immediately following the patient's collapse. They ran to the location of the passenger. Passing the security screening area on the way, they collected the defibrillator device as they rushed to the patient. They reached the individual within approximately two minutes. The defibrillator was activated and an ambulance was called. Security staff managed the scene, keeping other airport visitors away while assistance was provided. The person who suffered the cardiac arrest was revived and went on to survive the sudden cardiac arrest.

Case study of PAD activation at a Casino

In March 2008, a patron in the casino suffered a sudden cardiac arrest. The patron was a man of about 55 years of age. This incident occurred in the daytime. Security officers immediately assisted, while other security officers kept family/friends and other patrons at a distance and prevented interruption to emergency assistance efforts. Another security guard had meanwhile picked up the defibrillator device from its nearby location and rushed to the patient. The security guard then activated the device to restart the man's heart approximately two minutes after the sudden cardiac arrest occurred. Ambulance officers arrived soon after and took over from the security officer. The man went on to survive the event and has since returned as a regular patron.

5.3.1 Specific issues identified by host organisations

Respondents identified a number of issues with the installation of AEDs and training provided through the PAD Demonstration. These issues included:

- Organisational awareness of the correct procedures for activating the AED tended to diminish for those organisations that had not arranged for annual refresher courses. Both managers and staff at these organisations were less clear about the correct AED procedures to be followed in the event of an emergency.
- One organisation reported a contrast in methods between the training they had received from St John under the PAD Demonstration and the regular first aid training they received from a different first aid company (for the early model AEDs that the company purchased privately, prior to the PAD Demonstration AEDs):
 - Staff at this organisation had been trained by the other company to apply compression for two minutes before activating the early model defibrillation unit (which had a manual activation);
 - Once the button is pushed to activate the AEDs received under the PAD Demonstration the timing of the shock administered is automatic, occurring immediately upon pushing the button;
 - As a result of the advice received at their regular first aid training, these trained first responders would turn off the newer AEDs in order to deliver the compression, and then have to turn it back on two minutes later to shock;
 - The difference in training techniques caused a level of confusion amongst the trained first responders, who reverted to the training received under the organisation they had an established and trusted relationship with.
- A number of larger organisations relied on contracted security staff (employed by an external consultancy) as the first responders for emergency first aid incidents. All Australian security personnel are required to have a certain level of first aid training, and managers at AED sites tended to *assume* that their contracted security staff would also have specific defibrillation training. However, a number of managers had not specifically confirmed the AED training with their security contractor. (It should be noted that some organisations had actively incorporated the requirement of AED training into their contracts with security providers).

Reduced organisational awareness of AEDs overtime, conflicting training techniques and the use of contracted security staff could impact on the effectiveness of the PAD Demonstration.

Some managers also identified specific issues that had initially acted as a barrier to their organisations involvement in the PAD Demonstration. Fear of litigation in was identified as a strong barrier for management in some host organisations.

When we originally received the AED we were a [shopping chain]. We have since been taken over by [larger shopping chain]. The new company have a policy of NOT installing AEDs. We have had to fight to keep it. They have advice from their legal people that they are too great of a liability. But we think the device is a huge benefit. (Manager, shopping centre)

Other issues that emerged throughout the consultations included senior management being unaware of the benefits of AEDs and reluctant to fund the costs without prior incidents. Some Occupational Health and Safety managers reported difficulty in getting senior management on board with AEDs prior to their involvement in the PAD Demonstration. Again, this reluctance was often related to litigation fears of litigation risk arising from improper use of the unit or negative outcomes. The combination of litigation fear and low levels of awareness results in inertia and resistance to the take up of AEDs.

A fear of litigation from the use of AEDs and general lack of awareness of the effectiveness in the devices in saving lives were the main issues identified as affecting the installation of AEDs in an organisation.

However, generally respondents at host organisations identified very few problems with the PAD Demonstration. Most valued the program very highly.

5.3.2 Lessons that may be relevant to future PAD in Australia

The installation of AEDs provides benefit for host organisations. There is value in promoting the positive outcomes of the PAD Demonstration to encourage a wider take up of the installation of the devices. Considerable work needs to be done with public liability insurance providers, larger organisations managing facilities used by large numbers of people and occupational health and safety authorities for AEDs to become a common standard of care.

It is noted that occupational health and safety is largely the responsibility of state jurisdictions. The PAD Demonstration has funded installation of AEDs in state government employers, indicating that there remains considerable work to be done to increase awareness of PAD at the state government level.

Managers and staff reported that fear of litigation can be readily overcome with clear authoritative and legally grounded advice. This barrier must be overcome prior to training but can be reinforced through the training program.

6. Quantitative CATI Survey

The findings from the quantitative CATI survey conducted with the population of host organisations participating in the PAD Demonstration are presented in this chapter. The purpose of the survey was to quantify the extent to which the issues identified in the stakeholder interviews and qualitative research hold across the population of participating organisations.

A total of 79 organisations were identified in the population for the CATI survey of participating host organisations (only organisations who received AEDs funded under the Department’s PAD Demonstration were included in the CATI survey): 53 interviews were completed with the host organisation’s manager or site co-ordinator; and 59 interviews were completed with staff trained in the use of the AED (across 31 different organisations).

6.1 Findings from the CATI quantitative survey

Managers and staff were asked to rate their level of agreement to a number of broad ranging statements about the PAD Demonstration on a five point rating scale of: strongly agree; agree; neither agree nor disagree; disagree; and strongly disagree. The level of agreement (combined strongly agree and agree) is reported throughout the appropriate sections of this chapter and a summary table of responses for both managers and staff is presented in Section 6.11 of this report.

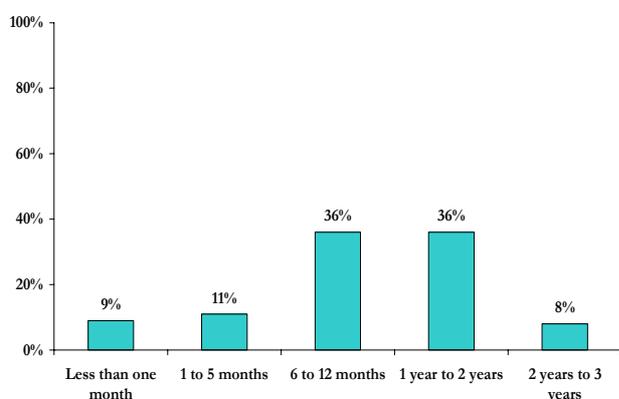
6.2 Selection of participating host organisations

Experience with the PAD Demonstration was quite recent, with just over half the organisations having the AED installed at their organisation for less than a year (Figure 1)

Managers were asked how many AEDs the organisation had installed, including devices received under the PAD Demonstration and any purchased privately by the organisation. Organisations interviewed had between one and six AEDs (Figure 2). Five organisations (or 10%) had bought their own AEDs in addition to those funded through the Project.

Figure 1: Length of time had AED

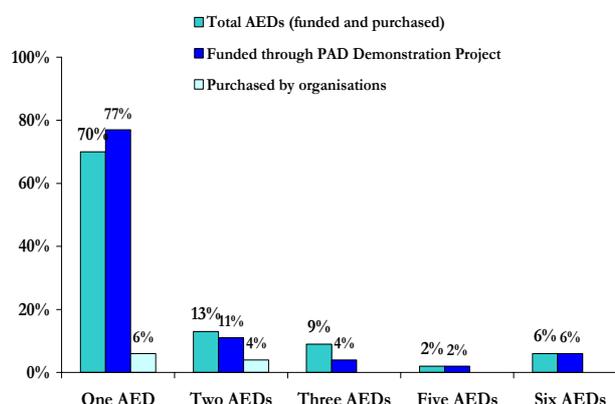
Q10. How long have Automated External Defibrillators (AEDs) been placed in your organisation? I am referring to the AEDs installed by St John.



Base: All managers (n=53)

Figure 2: Number of AEDs installed in organisations

Q11. How many AEDs do you have at your organisation that has been funded through the PAD Demonstration Project?
Q12. And how many AEDs, if any, has your organisation purchased?



Base: All managers (n=53)

Multiple AEDs were more common in organisations defined as being an ‘uncontrolled’ environment (45%) compared to a ‘controlled’ environment (21%). The number of AEDs is likely to be a function of the size of the organisation, with larger chaotic environments having a greater volume of people and requiring more AEDs.

One in ten organisations had self funded an AED in addition to those received under the PAD Demonstration.

The way in which organisations and individuals became involved in the Pad Demonstration was explored, along with their length of involvement and funding arrangements for the AEDs.

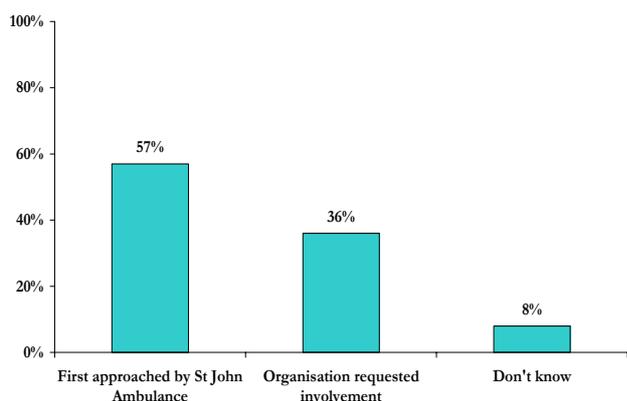
Almost three in five (57%) organisations were approached by St John to become involved in the Pad Demonstration. Another 36% of organisations requested involvement and 8% were unsure (Figure 3).

Interestingly, 70% of those approached by St John to participate were organisations defined as being in an ‘uncontrolled’ environment (large chaotic organisations such as, airports, railway stations, casinos, shopping centres, sporting venues and tourist attractions). In contrast, 42% of organisations in a ‘controlled’ environment (lower risk sites for sudden cardiac arrests such as schools, registered clubs, retirement villages, office buildings) requested to be involved. (The qualitative research identified resistance by senior management e.g. in shopping centre chains as a major barrier.)

The majority of trained staff (64%) were chosen by management to become a trained first responder, the remaining 36% volunteered to become a responder (Figure 4).

Figure 3: Selection of organisations in Pad Demonstration

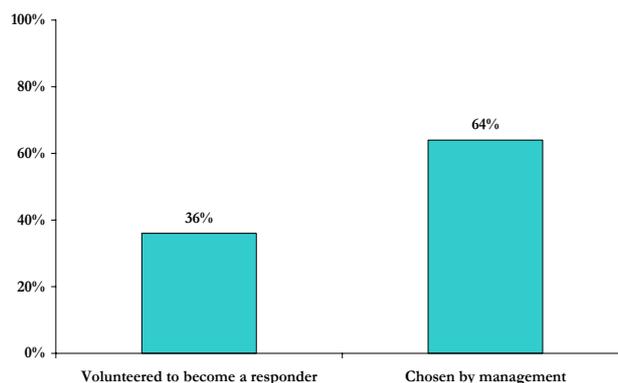
Q9. Thinking about how your organisation came about being involved in the Public Access Defibrillation (PAD) Demonstration Project, did St John first approach your organisation or did your organisation hear about the project and request to be involved?



Base: All managers (n=53)

Figure 4: Selection of staff in Pad Demonstration

Q58. To start, how did you first become involved as a responder in the Public Access Defibrillation (PAD) Demonstration Project managed by St John Australia? Did you volunteer to become a responder or were you chosen by management?



Base: All staff (n=59)

Almost three in five host organisations were approached by St John to become involved in the Pad Demonstration. Staff were more commonly targeted by management to become first responders compared to volunteering.

Almost all managers and staff felt their organisation was an appropriate location for an AED and that having an AED was important for public safety. Slightly fewer agreed that the AED was important for employee safety:

- ‘My organisation is a suitable location for AED placement’ (98% of both managers and staff);
- ‘Having an AED in the organisation is important for public safety’ (96% of the managers and 98% of the staff); and
- ‘Having an AED in the organisation is important for employee safety’ (89% of the managers and 95% of the staff).

6.3 Training of personnel in the use of the AED

The effective implementation of the AED requires that sufficient staff to be trained to permit appropriate coverage (for leave etc) and response times. These staff are expected to have a good level of knowledge in the operation of the AED, to feel confident to use the AED and to receive on-going training as appropriate.

6.3.1 Level of staff training

Managers were asked about the number of staff trained in the use of the AED. This included staff who were initially trained and those who received training after the initial session. On average, 17 staff members in each organisation were trained by St John at the time of installation (Figure 5).

After the initial training session, 36% of managers indicated that additional staff had received training. This may have included new staff and those that may not have been available for the initial training session. The proportion of organisations that had additional staff trained was related to the length of time that they had the AED:

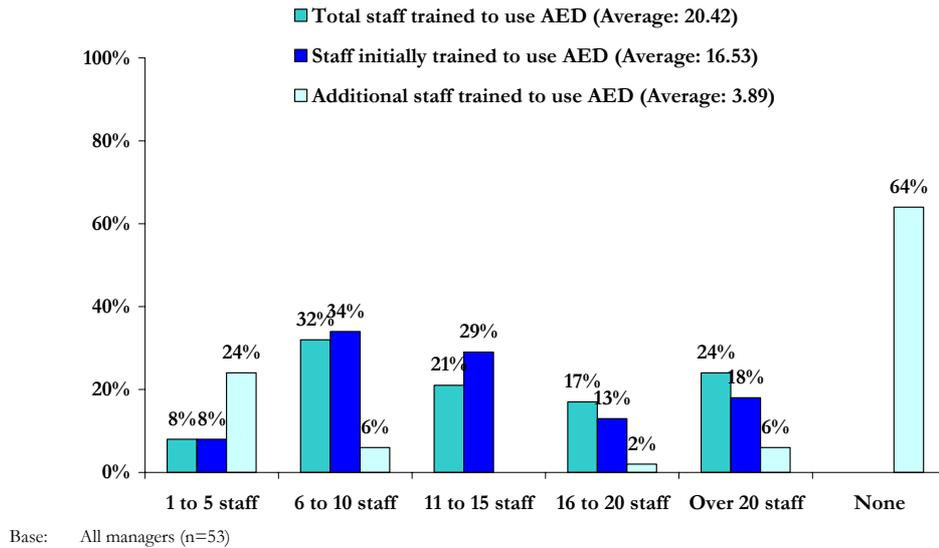
- 18% of organisations that had the AED for up to 5 months had additional staff trained;
- 32% of organisations who had the AED for between 6 to 12 months; and
- 48% of organisations that had the AED for at least one year had additional staff trained.

At the time of interview, on average 20 staff members in each organisation were trained to use the AED.

Figure 5: Total staff trained to use AED

Q16. How many staff members, including yourself, were initially trained to use Automated External Defibrillators (AEDs)?

Q17. How many additional staff members have received training to use Automated External Defibrillators (AEDs)?



6.3.2 Staff involvement in, and confidence gained by, training

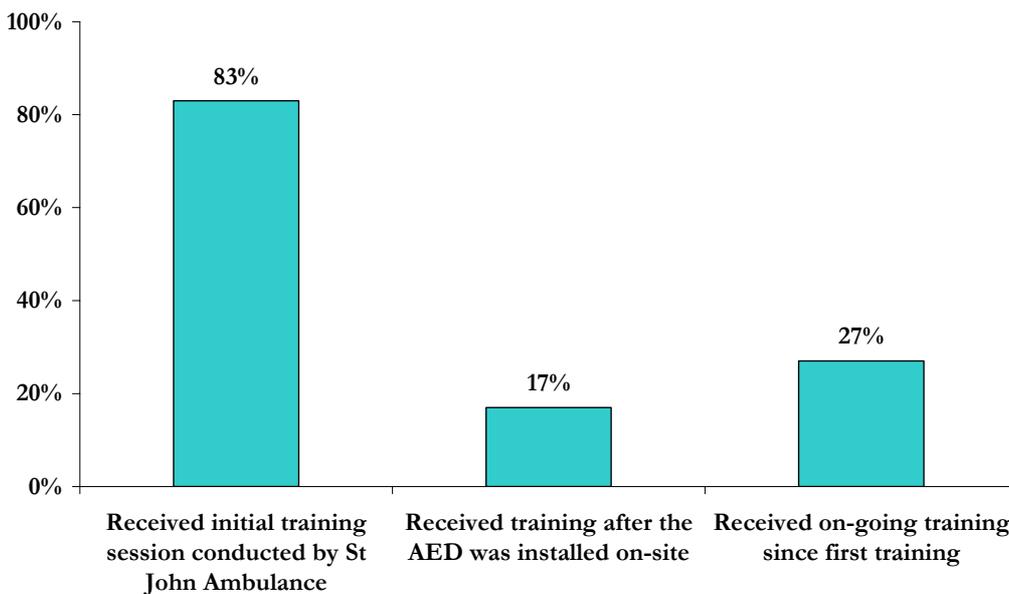
Trained staff were asked when they received their initial training and if they had received any on-going training. Four in five (83%) of the trained staff indicated that they were trained by St John when the AED was first installed on-site and one in five (17%) staff attended training after the AED was installed on-site (Figure 6).

Overall, one in four (27%) of the trained staff had received on-going training since their first training session.

Figure 6: Staff involvement in training

Q60. Were you involved in the initial training session from St John (when the Automated External Defibrillator was implemented on-site) or was your training conducted after the Automated External Defibrillator (AED) was installed on-site?

Q61. Have you received any on-going training with the St John since your first training session?



Base: All staff (n=59)

Sustainability of staff training

The need for additional training of new staff and the on-going training of those initially trained is time dependent. Only 44% of organisations had the AED installed for more than one year, therefore, it is reasonable to expect a lower proportion of organisations that had arranged for additional staff training or on-going staff training.

One in three (36%) organisations had provided training to staff after the initial training session when the AED was installed in the organisation. This may have been provided to new staff or those unavailable for the initial training session.

In terms of on-going training, one in four (27%) of the trained staff indicated that they had received on-going training with St John since their first training session. This was higher in organisations in which the AED had been installed for at least a year (34%). While the majority of staff agreed that *'My knowledge is kept up-to-date with internal training as required'* (68% strongly agreed or agreed), one in five (19%) disagreed with this statement.

One in three organisations had provided additional staff training after the initial session and one in three staff had participated in on-going training in organisations that had an AED for at least one year. There is an indication that on-going training needs may require monitoring.

6.3.3 Perceptions of training

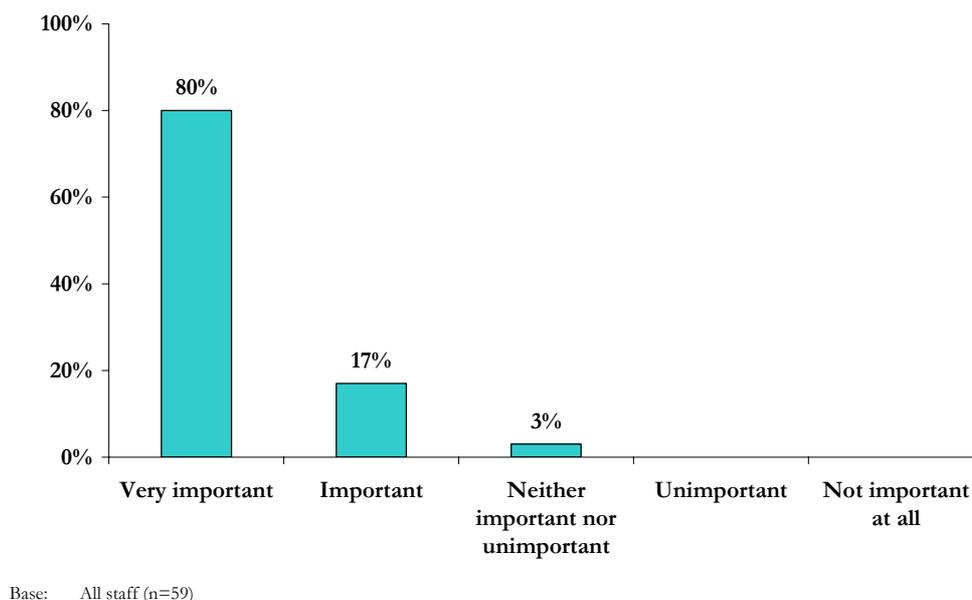
Eight in ten (80%) indicated their role was very important and a further one in six (17%) viewed it as important (Figure 7). Only two staff (3%) thought their role as the 'first responder' was neither important nor unimportant. Staff trained to use the AED placed great importance on their role as a 'first responder'.

The importance of the role as a 'first responder' is also reflected in the level of agreement by staff to the statements: *'I am pleased to be a responder for the AED'* (97% of staff, strongly agreed or agreed); and *'Management support my role as a 'first responder''* (96% staff).

Few staff thought that the additional workload was excessive as more than four in five staff (85%) disagreed with the statement *'I had to take on additional work over and above what was expected'*. Only 10% of the staff agreed with this statement.

Figure 7: Importance of the role of 'first responder'

Q59. How important do you see your role as a 'First Responder', that is, as a person trained in your organisation to use an Automated External Defibrillator (AED)? READ OUT



Almost without exception, staff considered their role as a first responder as important. They were pleased to be involved and felt supported by management.

Staff were asked to rate how confident they were to administer the AED on a sudden cardiac arrest patient and to reflect on how confident they would have been to do so without the training received by St John training.

Training increased the level of confidence by staff to use the AED (Figure 8). Without training only two in ten (20%) staff felt confident (very confident or confident) that they would be able to administer the AED on a sudden cardiac arrest casualty. After receiving training from St John, 92% felt confident (very confident or confident) in their own ability to activate the device.

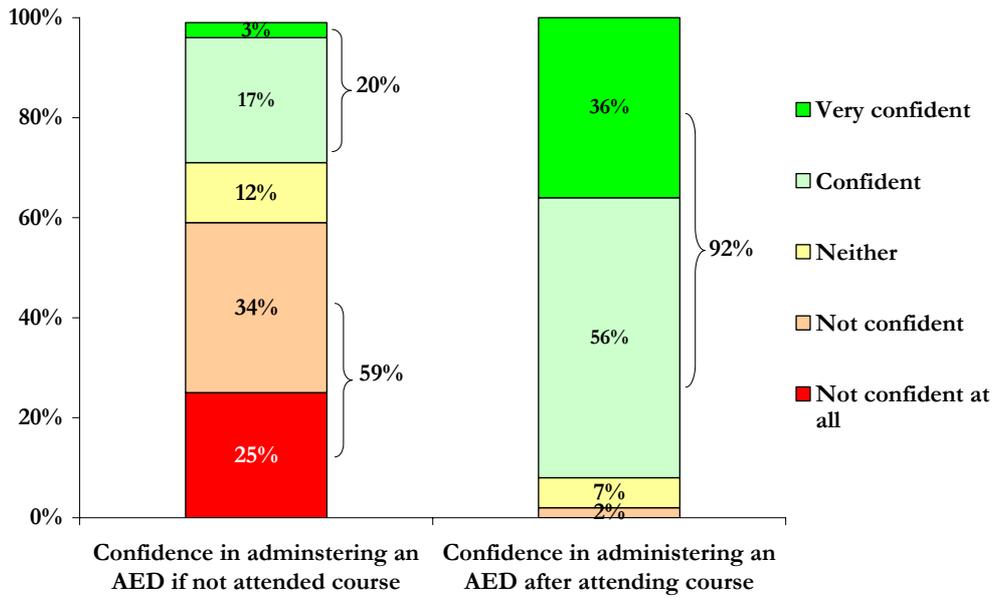
The reason given by the one respondent who was not confident to administer the AED after training was:

I guess it is due to the lack of ongoing training, lack of doing it day to day – it's very important, it's lifesaving, and there is a discrepancy between how often you train for it and how important it is. I haven't had to use it at all, so I feel like I have been trained to do something that might happen once every 5 years and I won't be familiar.

Figure 8: Confidence in using AED by if attended/not attended training

Q67. If you had not attended the training course, how confident do you think you would be to administer the AED on a sudden cardiac arrest casualty? Would you say...? READ OUT

Q65. After attending the training course, how confident are you to administer the AED on a sudden cardiac arrest casualty? Would you say...? READ OUT



Base: All staff (n=59)

The training provided by St John for staff instilled confidence in first responders.
 Without training this confidence to use the AED was negligible.

6.3.4 Opinion of and skills gained by training

Managers found the training was easy to understand. This translated into confidence to operate the AED in an emergency in the vast majority of cases:

- Nine in ten managers (89%) agreed that the ‘*Training is easy to understand*’ (the remainder did not know or found was irrelevant to their circumstance);
- Almost all managers and staff thought that the ‘*AED is easy to use*’ (92% of the managers and 100% of the staff); and
- At least nine in ten agreed that ‘*I would not hesitate to use the AED*’ (91% of the managers (3 managers disagreed) and 97% of the staff).

Trained staff were specifically asked about the effectiveness of the training carried out by St John and how familiar they were with first-aid procedures as a consequence of the training. All staff agreed that (Figure 9):

- ‘*The content of the training course was easy to follow*’ (56% strongly agreed and 44% agreed);
- ‘*The training material was clear and concise*’ (54% strongly agreed and 46% agreed); and
- ‘*The length of training course was about right for what I needed to learn*’ (49% strongly agreed and 47% agreed).

Almost all staff were familiar with the first-aid procedures (37% very familiar and 61% familiar). Only one staff was neither familiar nor unfamiliar with first-aid procedures (Figure 10).

Figure 9: Ratings of St John’s training programme

Q63. Now in relation to the training carried out by St John. To what extent do you agree, disagree or neither agree nor disagree that <READ OUT STATEMENT>. Is that strongly or just (agree/disagree)?

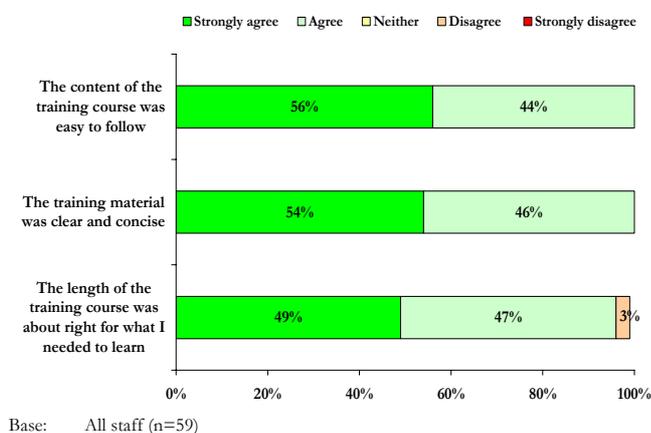
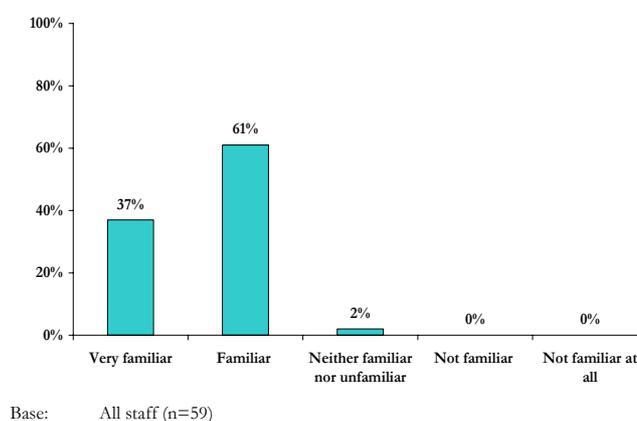


Figure 10: Familiarity of first-aid procedures

Q64. As a result of the training you received, how familiar are you with the first-aid procedures? Would you say...?

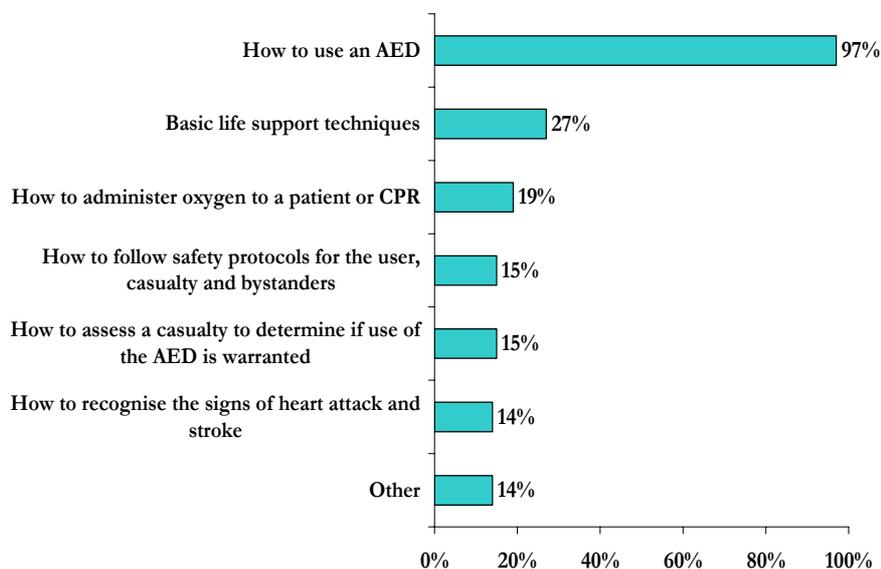


Trained staff were asked what they learnt from the training conducted by St John. Without prompting most staff mentioned that they learnt how to use the AED (97%) (Figure 11). However, the training provided more than just the use of the AED, with staff learning additional life saving skills such as basic life support techniques (27%), how to administer oxygen to a patient (19%) and how to assess a casualty to determine if the use of the AED was warranted (15%).

Less frequent aspects of training included mentioned (other – 14%) included different AED models; how the AED works on the heart and how to maintain it; how to make sure they're not on a wet surface; where to place the pads and to be aware of jewellery and other obstructions; the steps to follow use of the AED; and the benefits of an early response).

Figure 11: Skills gained from St John's training

Q62. What did you learn from the training conducted by St John?



Base: All staff (n=59)

Staff considered that the training carried out by St John was easy to follow and the material provided was clear and concise. This increased familiarity with first-aid procedures and most trained staff would not hesitate to use the AED if required.

6.4 Capability of staff within the organisation to follow procedures

The ability of staff within an organisation to respond to an emergency situation requiring the use of an AED depends upon both trained and untrained staff to know of its existence and to follow emergency response procedures. Notification of involvement in the Pad Demonstration was explored with both managers and staff.

6.4.1 Awareness of AED throughout organisation

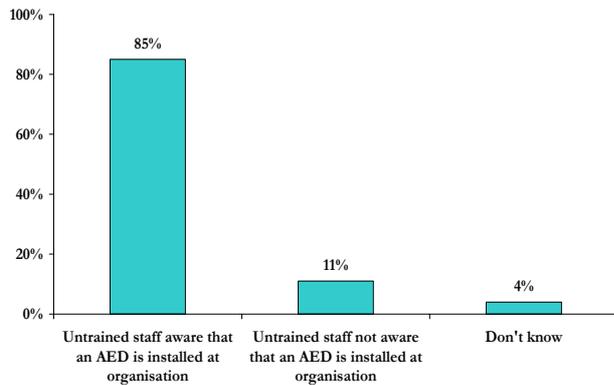
Awareness of the installation of the AED was fairly widespread throughout the host organisations included in the survey. Overall, 85% of managers indicated that untrained staff members were aware that an AED was installed (Figure 12).

More specifically (Figure 13):

- Three in five (62%) managers indicated that all or most staff had access to the publications and brochures about the AED – 17% of managers indicated that no staff had access;
- Half of the managers (50%) indicated that all or most staff were provided with a letter notifying of the AED implementation – 24% of managers indicated that no staff were sent a letter; and
- One in five (20%) managers indicated that all or most staff watched the St John ‘Surviving Cardiac Arrest’ DVD – 34% of managers indicated that no staff had watched the DVD and 6% indicated that it wasn’t provided.

Figure 12: Awareness of an AED on-site by untrained staff

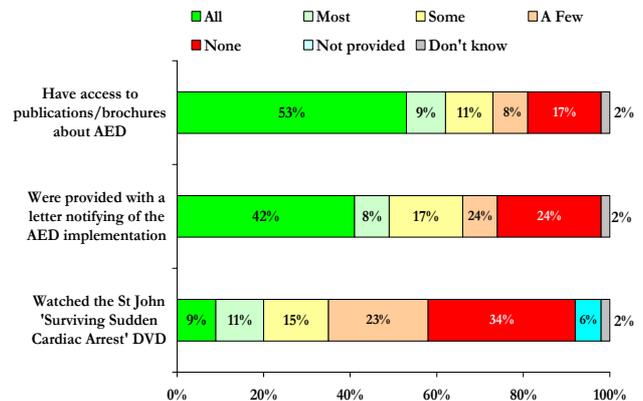
Q21. Are untrained staff aware that there is an AED at your organisation?



Base: All managers (n=53)

Figure 13: Awareness of AED implementation materials by staff

Q18. I am going to read out a list of materials that may have been provided to your organisation, would you say that all, most, some, a few or none of the staff throughout the organisation ...?



Base: All managers (n=53)

Awareness of the installation of the AED was fairly widespread throughout host organisations, with 85% of managers reporting that untrained staff were aware of the AED. However, room for improvement was indicated (only 50% of managers indicated that staff had received written notification and only 34% had shown untrained staff the St John DVD).

6.4.2 Staff awareness of the AED

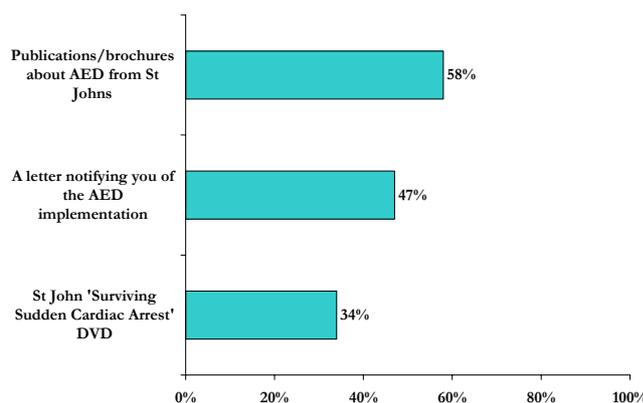
The self reported level of awareness of the implementation of the AED by staff was similar to that reported by managers (Figure 14).

In general, the staff who had seen the publications/brochures, the letter and the DVD were favourable in their assessment (Figure 15):

- Three in four (74%) who had seen the publications/brochures about the AED rated it excellent or very good;
- Almost three in five (57%) who had received a letter notifying them of the AED implementation rated it excellent or very good (4% - 1 staff member) rated it poor; and
- Three in four (75%) who saw the St John 'Surviving Sudden Cardiac Arrest' DVD rated it excellent or very good.

Figure 14: Awareness of AED implementation materials by staff

Q68. I am going to read out a list of materials that may have been provided to you by your organisation. First could you tell me if you have seen it or not. And if you have seen it, would you say that the information presented was excellent, very good, good, fair or poor. First of all, did you receive/have you seen ...



Base: All staff (n=59)

Figure 15: Ratings of AED implementation materials by staff

Q68. IF SEEN: And how would you rate it?



Base: All staff who have seen AED implementation materials

6.5 Appropriateness of response procedures in organisations

The appropriateness of response procedures was investigated including notification of the local ambulance service of the presence of an AED, the development of on-site emergency plans and display of the PAD action-plan.

6.5.1 Notification of ambulance service

Half (53%) of managers interviewed knew that the local ambulance service was aware that an AED had been installed at the organisation. Of the remainder, many did not know if the ambulance service was aware (36%) and only one in ten (11%) knew that they had not been informed.

6.5.2 Action plans

All staff (100%) were aware of the location of the AED(s) in their organisation, most organisations had the PAD action-plan located close by and this had been seen by staff (Figure 16):

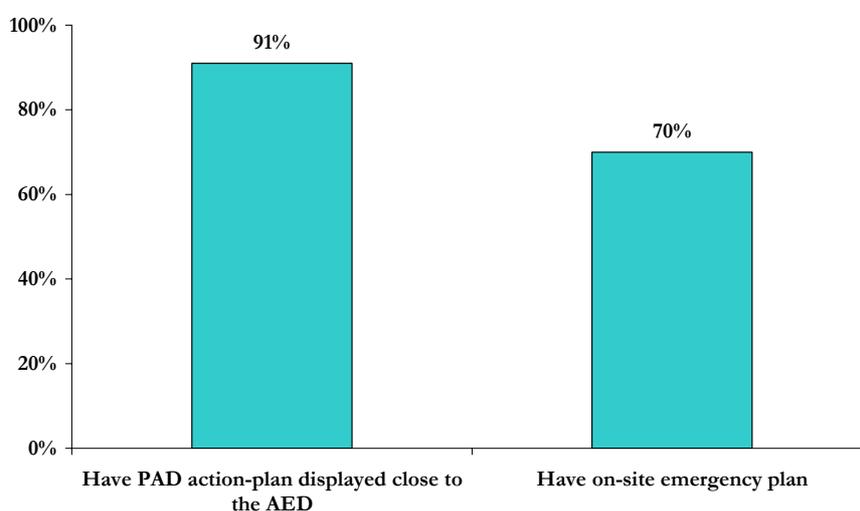
- Nine in ten (91%) organisations had a PAD action-plan displayed close to the AED;
- Four in five staff (81%) reported that they had seen this action-plan (19% of staff had not); and
- When asked to rate the information presented in the PAD action-plan, three in four (75%) staff rated it as excellent or very good. No staff rated the action-plan fair or poor.

The installation of the AED did not happen in isolation with the majority of organisations developing specific plans. Seven in ten (70%) managers indicated that their organisation had an on-site emergency plan for this type of situation. Almost nine in ten (86%) staff agreed (strongly agreed and agreed) that ‘Clear procedures and plan of action are in place if there is an emergency’. A minority (7% or 4 staff) disagreed that the organisation has clear procedures and a plan of action.

Figure 16: Display of action and emergency plan on-site

Q19. Do you have the Public Access Defibrillation action-plan displayed close to the AED?

Q20. Is there an on-site emergency plan for this type of situation?



Base: All Managers (n=53)

All trained staff were aware of the location of the AED and most organisations had the PAD action plan displayed close to the AED. On-site emergency plans had been developed in seven in ten organisations.

6.5.3 Use of the AED

Four organisations indicated that an AED received under the Pad Demonstration had been activated:

- One activation saved the life of the patient;
- One patient had a non-shockable rhythm; and
- Two patients died on-site.

Only one of the four activations had been carried out by trained staff. The other three activations had been carried out by lay persons (it is not known whether these lay persons were medically trained bystanders or not).

All four host organisations had received a de-brief from St John after the activation event. Three out of four organisations had the event data successfully downloaded.

One manager had personal experience with an AED activation. While the patient died on-site, the respondent was positive about the way in which they were able to provide assistance: the training received helped them handle the situation; they found it easy to use the AED and followed the step by step verbal instructions from the AED; they found the de-brief from St John useful; and importantly they were pleased to have been able to assist and it did not deter them from helping in the future. The one aspect to which they disagreed was that *members of the public provided support*.

Few activations of the AED were reported by host organisations.

6.6 Procedures for the sustainability of the arrangements

To sustain the program, the on-going costs need to be seen as reasonable by management, including the cost of maintaining the AED and on-going staff training costs.

In terms of costs incurred in maintenance and on-going training:

- Four in five managers (83%) strongly agreed or agreed that '*AED maintenance cost is reasonable*'; and
- Six in ten managers (62%) strongly agreed or agreed that '*On-going training costs are reasonable*' – 6% disagreed and 30% either did not know or thought it irrelevant to their organisation.

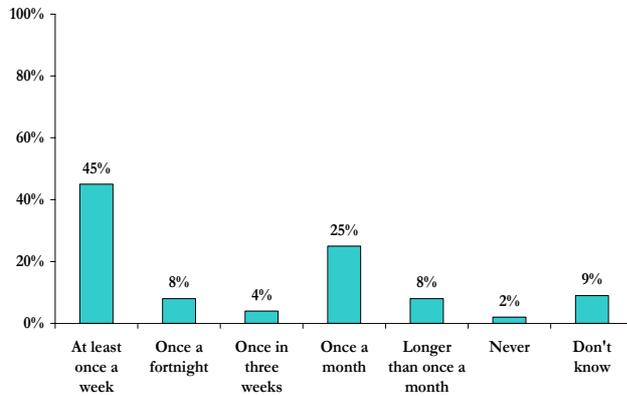
6.6.1 Maintenance

In supporting documentation provided to host organisations, St John recommends that a weekly maintenance check be carried out. The checklist includes checking: the green ready light is flashing; the supplies and accessories for damage and expiration; and that the outside of the device is free from cracks or other signs of damage.

Almost half (45%) of managers indicated that a maintenance check was carried out on the AED at least once a week and a third (37%) indicated that a check was performed once a fortnight to once a month (Figure 17). One in ten indicated that the maintenance check was carried out less often (8%) or not at all (2%).

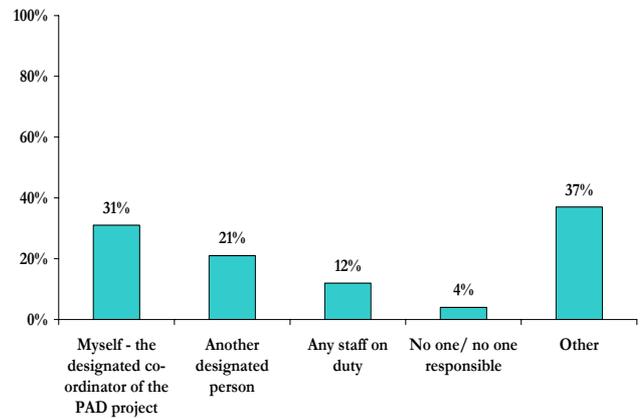
The maintenance check was carried out by 31% of co-ordinators of the Project (the respondent to the survey) or another specific dedicated person (Figure 18). Few indicated an informal arrangement (12%) or no one being responsible for the maintenance checks (4%).

Figure 17: Frequency of maintenance check
 Q23. How often is a maintenance check carried out on the AED?



Base: All managers (n=53)

Figure 18: Personnel responsible for maintenance check
 Q24. Who performs the maintenance check on the AED?



Base: All managers (n=53)

St John recommends that a designated site coordinator performs maintenance checks on the AED on a weekly basis.

Maintenance checks were carried out by only half of the organisations on a weekly basis.

6.7 Lay person use of the AED

The intention for a public access defibrillation funded program is to maximise the appropriate use of an AED by either trained or untrained lay persons in the case of a casualty having a sudden cardiac arrest.

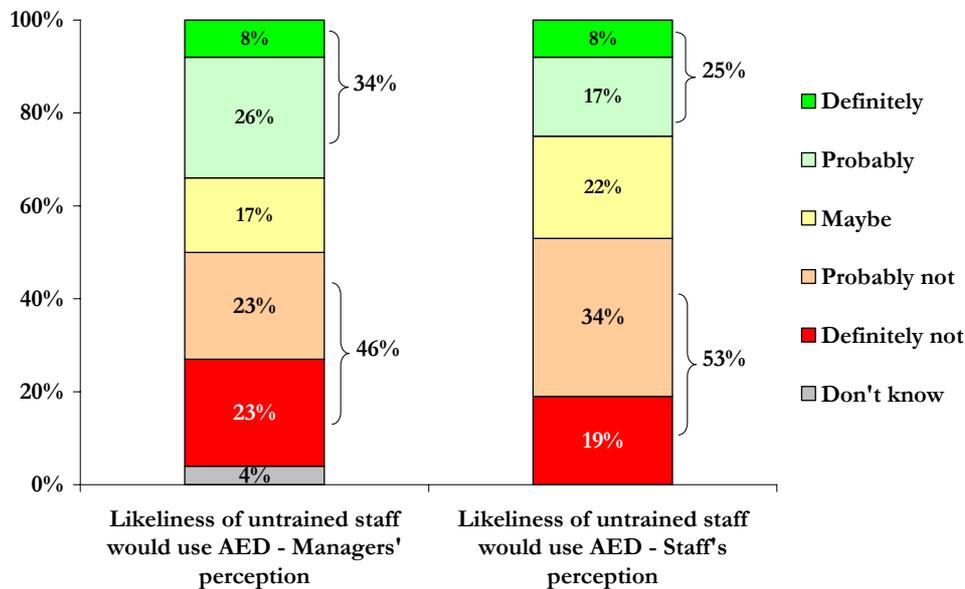
Four in five managers and staff strongly agreed or agreed that:

- ‘Any untrained staff or member of the public could use an AED’ (79% of the managers and 78% of the staff).

However, there was a low perceived likelihood of a lay person using an AED in the event of someone having a sudden cardiac arrest. Overall, one in three (34%) managers and one in five staff (25%) thought that untrained staff would definitely or probably use the AED in this type of situation (Figure 19). Half of the managers (46%) and the staff (53%) did not think untrained staff would use the AED (definitely not or probably not).

Figure 19: Likelihood of untrained staff using the AED (manager and staff)

Q22/Q70. In the event of a sudden cardiac arrest, is it likely that these untrained staff would use the AED?



Base: All managers (n=53) – Q22
 All staff (n=59) – Q70

While the majority of managers and staff thought that any untrained staff or member of the public *could* use an AED, both groups thought that there was a low likelihood of this occurring with the current level of public knowledge.

6.8 Support for the Pad Demonstration

The level of support for, and commitment to, the Pad Demonstration was measured on a number of dimensions including value of the time investment; attitudinal statements of support; likelihood of recommendation to other organisations; and likelihood of self-funding.

Ways in which the implementation of the Pad Demonstration could have been improved were also explored.

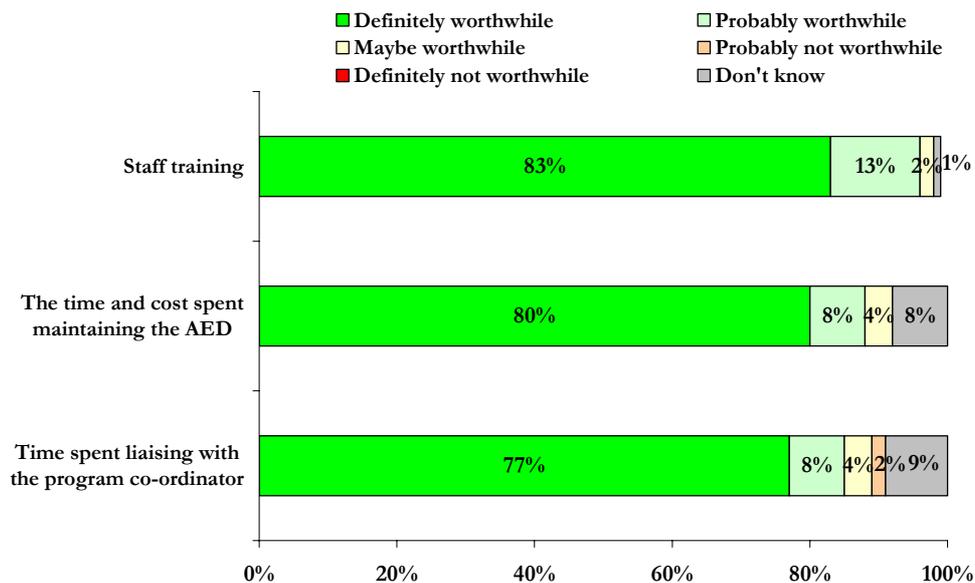
6.8.1 Perceived value of investment in Pad Demonstration

Involvement in the Pad Demonstration was highly valued and managers believed the investment in the Project as worthwhile (Figure 20):

- 96% indicated that the staff training was worthwhile (definitely or probably worthwhile);
- 89% indicated that the time and cost spent maintaining the AED was worthwhile; and
- 85% indicated that the time spent liaising with the St John program co-ordinator was worthwhile – only one manager felt that it was probably not worthwhile.

Figure 20: Rating of investments for AED implementation

Q14. Thinking about the benefits of having the AED placed in your organisation, would you say the investment in < READ OUT STATEMENTS > is definitely worthwhile, probably, maybe worthwhile, probably not, or definitely not worthwhile?



Base: All managers (n=53)

6.8.2 Rating of experience in the Pad Demonstration

Overall, both managers and staff highly rated their involvement in the Pad Demonstration. Three in four managers (72%) and staff (76%) rated their experience as excellent or very good (Figure 21). Only one manager and three staff rated the experience as fair.

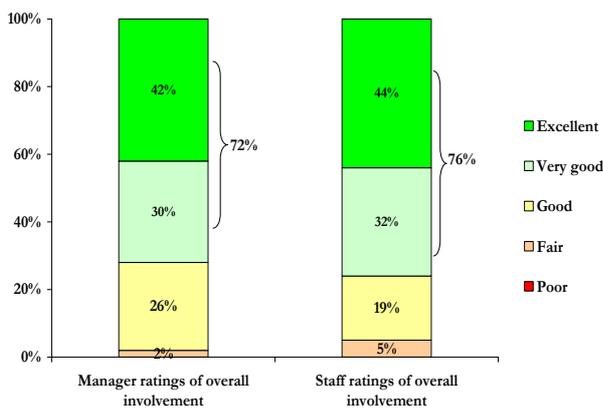
This high level of support is reflected in the level of agreement to the attitudinal statements:

- ‘Having an AED in the organisation is important to me’ (100% of the managers and 95% of the staff); and
- ‘I am committed to the PAD Project’ (96% of the managers and 98% of the staff).

Almost all (96% or 51 out of 53) managers would definitely or probably recommend other organisations to participate in the Pad Demonstration. Only one manager probably would not recommend other organisations to participate.

Figure 21: Ratings of organisation’s involvement in Pad Demonstration

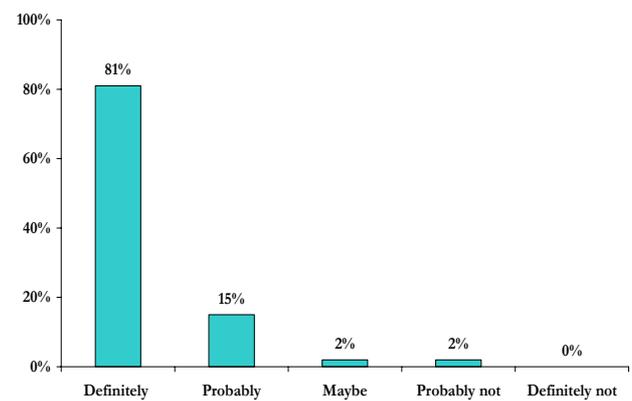
Q40/Q79. Overall, how would you rate your organisation’s involvement in the PAD Demonstration Project?



Base: All managers (n=53) – Q40
 All staff (n=59) – Q79

Figure 22: Likelihood of recommending others to participate in Pad Demonstration

Q43. How likely are you to recommend that other organisations participate in the PAD project?



Base: All managers (n=53)

Both managers and staff highly rated their involvement in the Pad Demonstration and most would recommend other organisations to participate.

6.8.3 Intentions to buy AED prior to involvement in Pad Demonstration

Prior to involvement in the Pad Demonstration, one third (32%) of managers indicated that their organisation had considered purchasing an AED. Over half (58%) had not considered purchasing an AED. One in ten (9%) were unsure.

The main reasons provided for considering the purchase of an AED were for public safety more so than employee safety; because they have an aged population at risk; as they had specific incidents requiring defibrillation; and as a preventative for some specific individuals who may require the device.

➤ **Public safety;**

There was a large number of people that travel through the terminal.

Traffic flow through the shopping centre. Public safety issues were our main concern.

Because of the nature of our work - we are a fitness facility.

➤ **Employee safety;**

For our staff - we work underwater.

➤ **An aged population at risk;**

We have over 1100 members over the age of 50...it alerted us to the fact that we have a population at risk.

We have a significant number of members who are over 60-65 and have an oxy-viva unit, we also have a steady and ongoing history of incidents requiring assistance, so it sort of made sense.

➤ **Previous incident requiring a defibrillator (4 organisations);**

We had had someone have a heart attack and die on the premises, at which staff administered CPR, and it got us thinking.

We have had heart attacks on our system and needed a solution to that.

We had somebody who had a coronary attack on the green and passed away.

➤ **As a preventative measure;**

Because we had two students here who possibly could need one.

We had a child at school who had a pacemaker put in.

Interestingly one manager mentioned alterations in the guidelines from the Australian Resuscitation Council as the reason for considering purchasing an AED:

Just because of the alterations from the Australian Resuscitation Council in line with basic lifesaving requirements, from DRABC to DRABCD (where the D stands for defibrillation).

6.8.4 Likelihood of buying AED(s) without funding

Managers were asked to reflect on their organisation’s likelihood of purchasing the number of AEDs that they had currently installed prior to their involvement in the Project (this assumed one AED would cost approximately \$3,000).

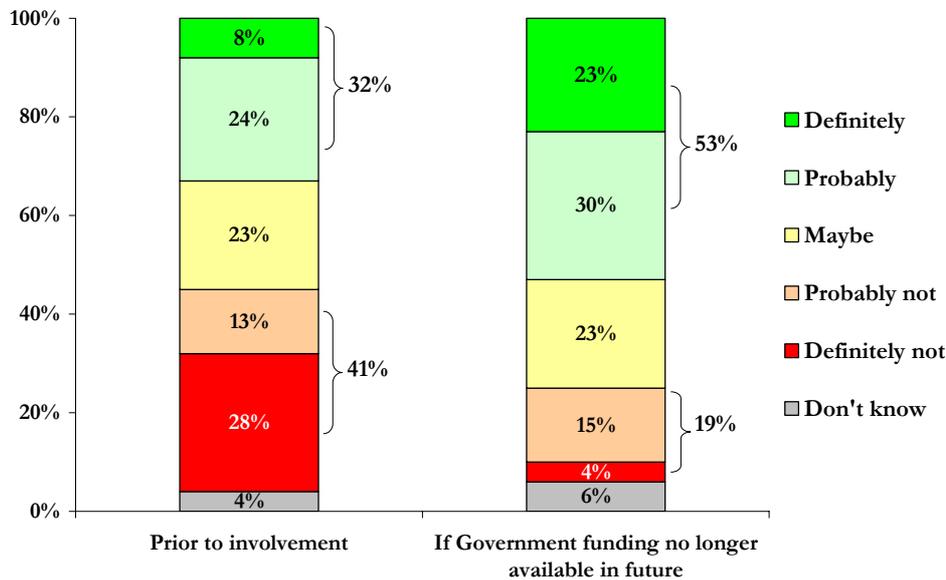
One third (32%) of managers indicated that they would have definitely (8%) or probably (24%) have made the investment for the initial set-up (Figure 23). This equates to 17 organisations that indicated they definitely or probably would have bought an AED; 11 of which were those who indicated that their organisation had considered purchasing an AED (Section 6.8.3). Two in five (41%) indicated that they would definitely not (28%) or probably not (13%) have bought the AEDs.

Managers were presented with the scenario of government funding no longer being available. Managers were asked how likely their organisation would *now* be to purchase the AEDs:

- Half (53%) of the managers indicated that they would definitely (23%) or probably (30%) invest in AED implementation if government funding was no longer available;
- One in five (19%) indicated that they would definitely not (4%) or probably not (15%) buy an AED.

Figure 23: Likelihood of buying AED(s) without funding

- Q15. The cost of an AED is approximately \$3,000 and you have (INSERT NO. IN Q11) funded. Prior to your involvement with the installation of the AED, do you believe your organisation would have spent (\$3,000 multiplied by no. of AEDs in Q11) on the initial set up cost?
- Q45. The cost of purchasing an AED is approximately \$3,000. Your organisation has (INSERT NO. OF AEDs FROM Q11) funded. If Government funding for the AED was no longer available, do you think your organisation would buy them?



Base: All managers (n=53)

Involvement in the Pad Demonstration has increased the likelihood of organisations self-funding their own AEDs.

6.9 Drivers for self-funding AED(s)

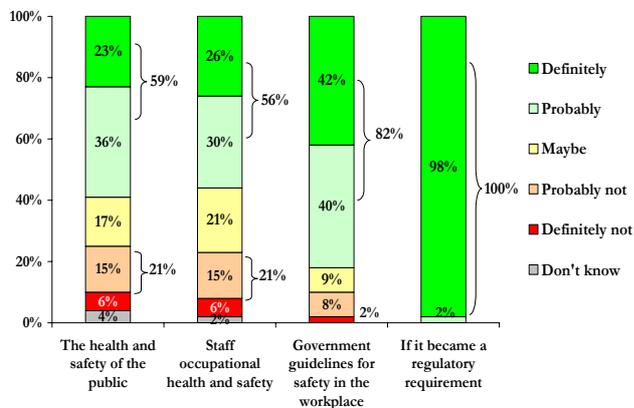
Managers were also asked if they would or would not (definitely or probably) invest in the installation of AED(s) under various scenarios (Figure 24). The overall ratings showed that:

- All managers indicated that their organisations would buy the AED(s) if it became a regulatory requirement (100%);
- Four in five managers (82%) would buy the AED(s) if it was included in Government guidelines for safety in the workplace; and
- Three in five managers (59%) would buy the AED(s) for the health and safety of the public; and staff occupational health and safety (56%)(similar to the response reported in Section 6.8.4.)

Only two managers reported that their organisation would *definitely not* invest in the installation of AED(s) if government funding was no longer available. Of all other 51 organisations, it was fairly evenly divided between organisations having an internal implementation team to manage the program (47%) and commissioning an external consultant to manage the program (45%) (Figure 25).

Figure 24: Drivers for self-funding AED(s)

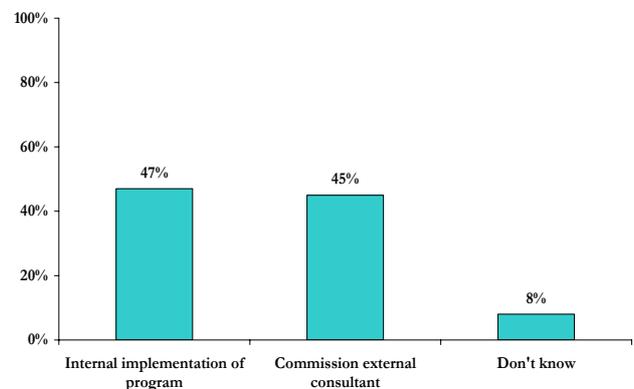
Q44. I am now going to read out a number of scenarios that may influence your organisations decision to buy, train staff and maintain AEDs. Do you think your organisation would spend (\$3,000 multiplied by no. of AEDs in Q11) on the initial purchase and training cost for the AED for <INSERT STATEMENT>. Would you say definitely, probably, maybe, probably not or definitely not?



Base: All managers (n=53)

Figure 25: Management of self-funded AED

Q46. Do you think that your organisation would have an internal implementation team to manage the program or that it would commission an external consultant to manage the program (for example, this could include having a program point of contact, medical direction, program maintenance, data management, development of protocols and response plans)?



Base: All managers (n=53)

One third of organisations had considered purchasing an AED prior to involvement in the Pad Demonstration. After being involved in the Project, half would consider purchasing an AED if government funding was no longer available.

Government guidelines for safety in the workplace were more likely to influence the purchase of AEDs for respondents, than general concerns about public health and safety.

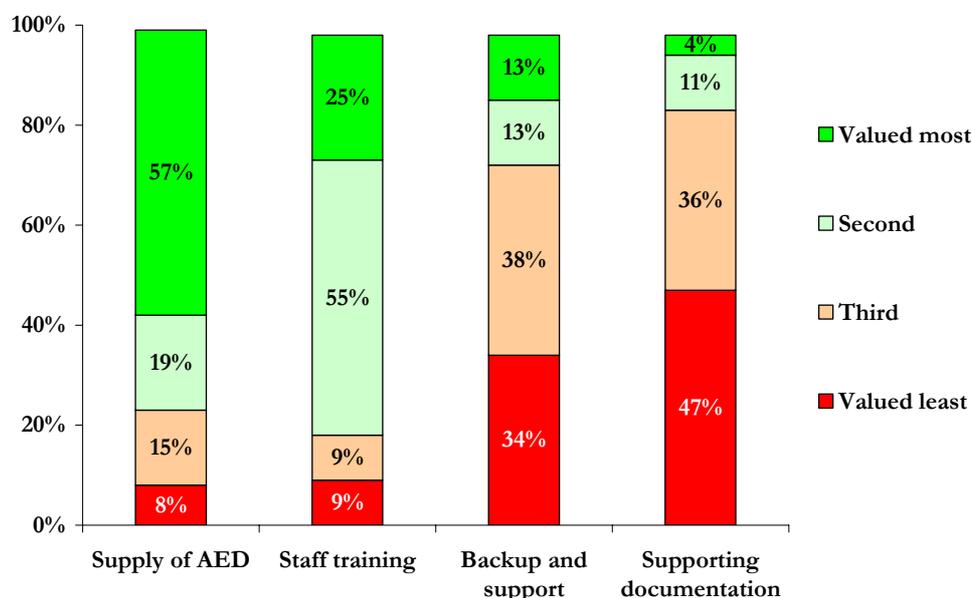
6.9.1 Perceived value of Pad Demonstration elements

The Pad Demonstration includes a number of elements (Figure 26). Over half (57%) of managers valued the supply of the free AED most highly. Staff training was the second most valued aspect of the project (25% ranked this the most important), followed by backup and support from St John and lastly supporting documentation (47% ranked this fourth)

The same pattern of response was found among the 53% of organisations that indicated that they would ‘definitely’ or ‘probably’ invest in AED implementation if government funding was no longer available: 57% ranked the supply of the AED most highly; 18% staff training; 21% the backup and support; and 4% considered the supporting documentation most valuable.

Figure 26: Ranking of key elements in Pad Demonstration

Q42. The PAD Demonstration Project includes a number of elements: the supply of the AED; staff training by St John; backup and support from St John; and provision of supporting documentation from St John (like brochures and posters). What do you value the most (RECORD 1) and the second (RECORD 2), third (RECORD 3) and what is of least value (RECORD 4)?



Base: All managers (n=53)

6.10 Suggested improvements to the Pad Demonstration

Managers

In general, managers expressed a high degree of satisfaction with the implementation of the Pad Demonstration. Any issues that may have been encountered in the initial implementation phases generally related to ‘red-tape’ within the host organisation rather than the implementation by St John:

I have to say we were pretty impressed with the whole process, there is not a lot that I would complain about, and it all went really smoothly. It's been here for over a year, we probably started working with St John 2 years ago, so as far as I can recall it was all fine

No - I can't fault them. They gave me a lot of support and allayed all our fears.

I can't fault the girl from St John in any way. The lady that did ours was absolutely brilliant, she chased us up, was continually on our back to hurry up and get it organized, so she was really good. We could probably have responded a little quicker (from head office) but from St John perspective it was perfect.

Some expressed a need to allay the fears of management and staff that an AED is safe to use and does not pose a health risk. The DVD was specifically mentioned as a useful resource for communicating the benefits of installation and was also suggested as useful tool for refreshers:

There are no issues from St John, it was more having or being able to communicate the ease of the system, and that it didn't pose a risk to our organisation - because people think defibrillators need to be used by highly trained people, we really need to put those myths to bed and get people up to date with the new technology.

There was a fear amongst management that someone could get hurt by the AED if it was played with - there were concerns as to how safe it would be. The DVD changed their opinion though - it showed that it was easy to use and wouldn't hurt anyone.

I do think that (organisation) should have a very simple to follow video explaining the device. I believe that we should have trained staff - and by that I mean staff who are given training (four times a year), just how to use the AED, because if you are only trained once a year you forget and get nervous.

A number of managers made suggestions for improvement to the training. This was perceived to be particularly relevant as time elapses and more host organisations have to ensure that an adequate number of staff is trained and re-trained:

- Reminders of the need for a refresher course and on-going training for new staff:

It has all been fairly straight forward but it would be good if they reminded you that on-going training was going to occur. Would also be if we could extend the training to other staff in our organisation. If it became an annual requirement, St John were excellent.

There was a lack of follow-up to ensure that there is additional training every 12 months to account for staff turnover.

- More flexible hours for training:

Given that our organisation works shifts, we couldn't get as many staff trained as we would've liked - we are not a 9 to 5 scenario so we are limited. St John needed to be more flexible.

- Reduce the cost of training, particularly for refresher courses:

Maybe St John could engage in a mass training course or refresher course (somewhere central) and free for all employees that have an AED.

The initial training was also very good. Just the cost of the on-going training was an issue. I think the refresher training could be made a bit cheaper.

Perhaps a theory by means of a DVD could be considered a refresher course. I am happy to purchase a training video without having to fork out thousands of dollars for training every year.

A few managers suggested more resource material being available including DVDs, pamphlets, information and programs for use by staff. Although it is known that this was provided, the resources may not have been used as effectively as possible.

A number of managers would have liked more follow-up after the initial installation to ensure everything was on track and they had all that they required, including accessories for the AED:

I think the follow-up could have been improved, the lead-up was very good, but what needs to happen is afterwards, say 3 months down the track, just ask how are things going, someone come out, perhaps more training, maintenance and replacing batteries.

I had to make several calls to St John to follow for all the accessories, I wasn't really clear what was required, it would be good to have some clear recommendations on what you need, and hand it all over as one package instead of just a defibrillator.

The only thing that I would query would be the addition of child pads to the AED, because that is an essential and we currently don't have any.

Staff

Trained staff were also satisfied with their involvement in the implementation process:

The truth is I don't think it could be improved much more, everything they taught us was fairly clear and concise, it's just a matter of if something happens, following the training that we have been given. Don't think I have any creative feedback to give. With the action plans that we put in place due to the training, it's all very relevant, informative, clear and concise. I was happy with the training and I thought it was very clear.

A few staff indicated that St John should use the model of the AED at their organisation during the training, and that without doing so had reduced their confidence to use the AED:

On our refresher course we had a different person do it and they brought in a different AED to the one we have, so I'm not entirely confident with the machine.

More training with the actual defibrillators that we've got...it's the same principles but it's different.

Their main comments for improvement related to the future and the need for refresher courses. Some staff implied that these courses should be initiated by St John, rather than it being the responsibility of management within the host organisation:

I think if there is any improvement it's in the ongoing part. So the initial training was really good but I think there should be an aspect of ongoing training involved because you forget how to use it.

That just depends. Are there any follow-up courses? I would want to ensure that there is a yearly refresher course for everyone who has got one.

Some sort of reminder to those that have done the course. Maybe an e-mail quarterly to remind us to refresh and how to use the AED.

Probably just to book refresher courses every year, like they could ring you every year and say you haven't had a refresher course on the defibrillator for 12 months so we need to come out and do another one.

6.11 Summary table of responses for overall opinion of the Pad Demonstration

Table 3: Overall opinion of the Pad Demonstration				
<i>Q39/Q78. Now, I would like to find out your overall opinion of the PAD Demonstration Project, do you agree or disagree, or neither agree nor disagree that</i>				
Statement	Manager (53)		Staff (59)	
	Strongly agree/ agree %	Strongly disagree/ disagree %	Strongly agree/ agree %	Strongly disagree/ disagree %
Having an AED in the organisation is important to me	100	0	95	2
My organisation is a suitable location for AED placement	98	2	98	2
Having an AED in the organisation is important for public safety	96	0	98	2
I am committed to the PAD Project	96	2	98	2
AED is easy to use	92	0	100	0
I would not hesitate to use the AED	91	6	97	3
Having an AED in the organisation is important for employee safety	89	2	95	3
Any untrained staff or member of the public could use an AED	79	14	78	19
Training is easy to understand	89	0		
Reasonable maintenance cost	83	2		
Reasonable on-going training costs	62	6		
I am pleased to be a responder for the AED			97	3
Management support my role as a 'first responder'			96	2
Clear procedures and plan of action are in place if there is an emergency			86	7
My knowledge is kept up-to-date with internal training as required			68	19
I had to take on additional work over and above what was expected			10	85

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Appendix A: Table of US PAD legislation and funding arrangements

State	Layperson allowed with conditions	Immunity for trained people	Funding allocated (USD)	Non-binding resolution	Liability/training legislation	Legislation requiring AEDs	Comments
AL	y	y	3,300,000	y	n	n	Non-binding legislation for AHA to establish a registry. Funding secured from federal level to maintain AEDs
AK	y	y	n	n	y	n	Civil liability laws expanded to accommodate people using AEDs under Good Samaritan Act
AR	y	y	n	n	n	n	No recent legislation change. Current status not documented.
AZ	y	y	Yes, but not stated	n	y	y	Any state buildings renovated to the value of more than \$250,000 must be equipped with an AED
CA	y	y	Yes, but not stated	n	y	y	Initially only trained people allowed to use AEDs. Expanded to general public. All state public schools mandated to maintain an AED. All health studios mandated to maintain an AED.
CO	y	y	Yes, but not stated	y	y	y	AED users are expected to receive training through a certified provider. Good Samaritan exemption provided to cover other users. Schools encouraged to accept cash donations and maintain AEDs. Donation partnership established with the American Heart Foundation that pools donations for the purchase of AEDs.
CT	y	y	Yes, but not stated	y	y	y	Mandatory training for AED users. Much onus placed on the state government including development of strategies for training, identifying appropriate sites and developing guidelines
DE	y	n	1,268,400	n	n	n	The Office of Emergency Medical Services to promote AED Program. Only trained persons may operate an AED. Organisations may apply for funding for an AED.
FL	y	y	Yes, but not stated	y	y	y	Originally only trained people to use AEDs, immunity then granted to all people using an AED. Local councils authorized to use for future funds to maintain AEDs. All public schools with athletics facilities mandated to maintain AEDs.
GA	y	y	n	n	y	n	Originally only trained people to use AEDs, immunity then granted to all people using an AED. Legislation introduced to define appropriate level of training

Table 4: US Legislation and Funding Arrangements by State

State	Layperson allowed with conditions	Immunity for trained people	Funding allocated (USD)	Non-binding resolution	Liability/training legislation	Legislation requiring AEDs	Comments
HI	y	y	n	n	y	n	Some legislation introduced providing immunity to trained lay people.
IA	y	y	n	n	n	n	No recent legislation change. Current status not documented.
ID	y	y	n	n	n	n	No recent legislation change. Current status not documented.
IL	y	y	Yes, but not stated	y	n	y	Each fitness facility including those in schools is mandated to maintain an AED and train staff. State income tax fund created to maintain AEDs.
IN	y	y	n	n	y	n	Legislation in place for training and certification for businesses that have an AED.
KS	y	y	n	n	y	n	Training required for any person wishing to use an AED.
KY	y	y	n	n	n	n	No recent legislation change. Current status not documented.
LA	y	y	n	n	n	n	No recent legislation change. Current status not documented.
ME	y	n	n	n	n	n	No recent legislation change. Current status not documented.
MD	y	y	n	n	y	y	All organisations with an AED must have certification and training scheme. All schools are mandated to maintain an AED and provide certified training
MA	y	y	n	n	y	y	Immunity provided to volunteers using AEDs. Health clubs mandated to maintain an AED.
MI	y	y	100,000	n	y	y	Extension of the Good Samaritan Law to volunteers. Not-for-profit organisations supported in securing bulk maintain of AEDs. Funding provided to schools to maintain AEDs, districts obliged to provide a 50% in-kind contribution. Health clubs mandated to maintain AEDs. Fines instituted for health clubs who fail to maintain or make AEDs accessible.
MN	y	y	450,000	n	y	n	Immunity provided for 'non-professional users'.
MS	y	y	n	n	y	n	Appropriate training required for AED users.
MO	y	y	n	n	y	n	Appropriate training required for AED users.
MT	y	y	n	n	n	n	No recent legislation change. Current status not documented.
NE	y	y	n	n	n	n	Legislation introduced obliging organisations with AEDs to notify local emergency services of the AEDs existence. Registry created.

State	Layperson allowed with conditions	Immunity for trained people	Funding allocated (USD)	Non-binding resolution	Liability/training legislation	Legislation requiring AEDs	Comments
NH	y	y	n	n	n	n	Legislation introduced obliging organisations with AEDs to notify local emergency services of the AEDs existence. Registry created.
NJ	n	y	1,000,000	n	y	y	A person shall not use an AED unless trained. Health clubs mandated to maintain an AED. \$1,000,000 secured for the 'AED Grant'.
NM	y	y	100,000	n	n	n	Funding secured from tobacco settlement
NV	y	y	n	n	y	y	Use allowed by any trained person. High schools, universities, airports and office buildings mandated to maintain an AED.
NY	y	y	n	y	y	y	Schools with more than 1,000 students mandated to maintain an AED. Also mandated for: health clubs with a membership of more than 500. Places of public assembly mandated to have one AED-trained employee. 2008 declared the 'Year of the Defibrillator' in New York. Possession and use of an AED requires written authorisation and formal agreement with an emergency care provider.
NC	y	y	n	n	y	n	Immunity provided for AED users. Physicians may write a 'prescription' for an AED maintain.
ND	y	y	n	n	y	n	Organisations who have an AED must notify the Department of Health of their existence.
OH	y	y	2,500,500	n	n	y	Funds appropriated from tobacco settlement. Public, charter and community schools mandated to maintain an AED.
OK	y	y	n	n	n	n	No recent legislation change. Current status not documented.
OR	y	y	n	y	y	n	State buildings and public places 'urged' to purchase and maintain AEDs, though funding not provided. Good Samaritan laws extended to encompass all those who use an AED.
PA	y	y	n	n	n	n	No recent legislation change. Current status not documented.
PA	y	y	2,400,000	y	y	n	All schools offered 1-2 free AEDs from funding. Immunity laws extended to protect users of AEDs.
RI	n	n	Yes, but not stated	n	n	y	Distribution of AEDs mandated to every college. Police funded to maintain AEDs. Placement of AEDs mandated in every city, town, college campus and judicial office.

State	Layperson allowed with conditions	Immunity for trained people	Funding allocated (USD)	Non-binding resolution	Liability/training legislation	Legislation requiring AEDs	Comments
SC	y	y	n	n	n	n	No recent legislation change. Current status not documented.
SD	y	y	n	n	y	n	Physician must approve placement and training programs for all organisations with an AED.
TN	y	y	n	n	y	n	All organisations with an AED must provide training, notify emergency services and maintain and test the device.
TX	y	y	Yes, but not stated	y	n	n	Department of Health directed to identify '100 key locations for placement'. Outcomes following this identification not documented.
UT	y	y	n	n	y	n	Immunity extended from trained persons without a license to all lay-people. All organisations with an AED must register with the state health authority.
VA	y	y	n	n	y	n	Immunity gradually expanded to encompass all lay people. The requirement for registration of AEDs removed.
VT	y	n	n	n	y	n	Legislation prohibits any person from operating an AED unless that person has been trained.
WA	y	y	n	n	y	n	'Expected users' required to undergo training
WI	y	y	n	n	y	n	Immunity expanded to include lay-people
WV	y	n	n	n	n	n	No recent legislation change. Current status not documented.
WY	y	y	n	n	y	n	Immunity expanded to include lay-people

(Source: National Conference of State Legislatures 2008)

Appendix B: List of Research Participants

List of key stakeholders consulted:

- The Australian Resuscitation Council, Associate Professor Ian Jacobs
- The Convention of Ambulance Authorities, Mr Howard Wren
- Heart Support Australia, Mr Richard McCluskey
- Laerdal, Mr David Rak
- National Heart Foundation of Australia, Dr Peter Abernethy
- St Vincent's Private Hospital, Prof. Michael O'Rourke

List of PAD Demonstration host organisations who participated in the qualitative consultations:

- AAMI Stadium (SA)
- Brighton Yacht Club (VIC)
- Canberra Airport (ACT)
- Casuarina Village Shopping Centre (NT)
- Central Railway Station (NSW)
- Centro Hyperdome (ACT)
- Eastland Shopping centre (VIC)
- Eumemmering Secondary College Endeavour Hills (VIC)
- Fernwood at Woden (ACT)
- Hobart Airport (TAS)
- Launceston Country Club (TAS)
- Manly Golf Course (NSW)
- Parks Victoria Woori Yallock Office (VIC)
- Perth International Airport (WA)
- Princess Theatre (TAS)
- Holden Hill Police Station (SA)
- Sydney Airport (NSW)
- Taronga Zoo (NSW)
- Town Hall Brisbane City Council (QLD)
- Wilsons Promontory Parks (VIC)
- Wrest Point Casino (TAS)

List of non-PAD Demonstration organisations:

- Melbourne Cricket Ground (VIC)
- Crown Casino (VIC)
- Barwon Division of General Practice (QLD)
- Griffith University (QLD)

Please note, inline with privacy requirements no list has been provided of the organisations who participated in the CATI survey. An general profile of the organisations who participated has been provided as Appendix D.

Appendix C: Research Instruments

Discussion Guide for Stakeholder Consultations

Topic	Points to cover
INTRODUCTION	<p><i>Introduction about the nature of the interview. Confidentiality, privacy, recording, non-identifiable.</i></p> <ul style="list-style-type: none"> ➤ My name is <INSERT NAME> from Campbell Research & Consulting. ➤ Conducting an evaluation of the Public Access Defibrillator (PAD) Demonstration Project for the Department of Health and Ageing. ➤ Would appreciate a small amount of your time to discuss your views on the demonstration project to date: <ul style="list-style-type: none"> – Is this something we could do now or would you like me to call back at a more convenient time? ➤ CR&C is based in Melbourne and we specialise in issues and evaluation research for government and business. ➤ The opinions you provide today will be used only for research purposes, and only for this project. ➤ Our report will present the overall findings, aggregated findings from the research. Individual stakeholders will not be identified.
BACKGROUND	<p>I would like to start by asking you to tell me a little bit about your organisation and your role at the organisation:</p> <ul style="list-style-type: none"> ➤ Nature of the organisation. ➤ Role at organisation/ length of time in that role. <p>For PAD Demonstration Working Party Members:</p> <ul style="list-style-type: none"> ➤ What level of involvement has your organisation had in the PAD Demonstration Project? ➤ At what level have you been <i>personally</i> involved in the project? <p>For other stakeholders (competitor organisations)</p> <ul style="list-style-type: none"> ➤ Are you aware of the PAD Demonstration Project currently being implemented by St John Ambulance Australia? <i>(If no, provide a brief explanation of the Demo Project)</i>
APPROPRIATENESS	<p>Now I would like to ask you more specifically about your views on the <i>appropriateness</i> of the PAD trail:</p> <ul style="list-style-type: none"> ➤ Is the current model being trialled the most appropriate and effective means of delivering a sustainable Public Access Defibrillation service to those Australians who experience SCA in a public setting? ➤ Do you believe that Public Access Defibrillation programs make a difference to mortality from SCA in Australia? ➤ Is government funding the most appropriate delivery model for Public Access Defibrillation? <ul style="list-style-type: none"> – Do you believe that the private market could sustain the project if government funding was unavailable?
EFFECTIVENESS	<p>Now I would like to ask you about your views on the <i>effectiveness</i> of the PAD trail:</p>

Topic	Points to cover
	<ul style="list-style-type: none"> ➤ To the best of your knowledge, have the appropriate installation sites for AEDs been selected? <i>(If necessary – the AEDs are currently in 149 locations around Australia including schools, shopping centres, sporting venues, zoos, airports etc)</i> ➤ Has the installation of AEDs translated into an effective response to Australians who experience SCA? <ul style="list-style-type: none"> – And also translated into improvements in patient outcomes? ➤ Have PADs made a difference to mortality from SCA in Australia?
EFFICIENCY	<p>Now I would like to ask you about your views on the <i>efficiency</i> of the PAD trail:</p> <ul style="list-style-type: none"> ➤ Is the current mode of delivery of the PAD Demonstration Project the most efficient? ➤ Are you aware of other models that may be more relevant for the delivery of PAD in Australia <ul style="list-style-type: none"> – Aware of overseas approaches that may be relevant? – Other governance and funding models? – Other delivery models? ➤ Should the PAD be coordinated in conjunction with other emergency response services?
ISSUES THAT AROSE DURING TRIAL	<p>Can you identify any specific issues that arose during the trial of PAD in Australia?</p> <ul style="list-style-type: none"> ➤ Specifically issues that may impact on the future expansion of PADs? ➤ Other issues?
LESSONS THAT MAY BE RELEVANT	<p>What are the lessons that can be learned from the current PAD Demonstration Project?</p> <ul style="list-style-type: none"> ➤ In relation to current delivery? ➤ In relation to potential expansion of the project?
OTHER ISSUES	<p>Is there anything else that you would like to add?</p>
CONCLUSION	<p>Thank you for taking the time to discuss your views and opinions on the PAD Demonstration Project with me.</p> <p>Your input has been very valuable to this evaluation.</p>
END	

Qualitative Consultations with Managers

Topic	Points to cover
INTRODUCTION	<p><i>Introduction about the nature of the interview. Confidentiality, privacy, recording, non-identifiable.</i></p> <ul style="list-style-type: none"> ➤ My name is <INSERT NAME> from Campbell Research & Consulting. ➤ Conducting an evaluation of the Public Access Defibrillator (PAD) Demonstration Project for the Department of Health and Ageing. ➤ CR&C is based in Melbourne and we specialise in issues and evaluation research for government and business. ➤ The opinions you provide today will be used only for research purposes, and only for this project. ➤ Our report will present the overall findings, aggregated findings from the research. Comments by individuals will not be identified. <p><i>For telephone consultation only</i></p> <ul style="list-style-type: none"> ➤ Would appreciate a small amount of your time to discuss your views on the demonstration project to date. ➤ Is this something we could do now or would you like me to call back at a more convenient time?
BACKGROUND & DRIVERS FOR PARTICIPATION IN PAD DEMO PROJECT	<p>I would like to start by asking you to tell me a little bit about your organisation and your role at the organisation:</p> <ul style="list-style-type: none"> ➤ Nature of the organisation. ➤ Your role at organisation and length of time in that role. <p>Involvement in PAD Demonstration Project:</p> <ul style="list-style-type: none"> ➤ How long has your organisation been involved in the PAD Demonstration project? (how many AEDs etc). ➤ Has the organisation received funding through other PAD projects (e.g. Insurer Australia Group) or has the organisation funded its own AEDs ? ➤ At what level have you been <i>personally</i> involved in the PAD Demonstration project? ➤ How did your organisation first get involved with the PAD Demonstration Project (organisation sought out St Johns, or St Johns approached organisation). ➤ What influenced your organisation's decision to participate? ➤ Had your organisation considered purchasing/ installing an AED prior to your involvement with the PAD Project? What was driving that decision?
EFFECTIVENESS (SET UP, TRAINING, SUSTAINABILITY COMMITMENT)	<p>Now I would like to explore some specific aspects of your experience with the PAD and your views on the <i>effectiveness</i> of the program:</p> <p>Staff Training and Staff Time:</p> <ul style="list-style-type: none"> ➤ Your organisation's experience with training in the use of the AEDs: <ul style="list-style-type: none"> – Process of allocating staff time for training. – Difficult to maintain trained staff? (i.e. is staff turnover an issue?).

Topic	Points to cover
	<ul style="list-style-type: none"> - Staff responses to training (reluctant? enthusiastic?). - Costs/ expenses/ losses associated with staff attending training or with maintaining a certain number of trained staff. ➤ Do you think that your organisation has been presented with quality training to maximise the outcomes of having an AED on site? <p>Untrained staff/ Lay persons:</p> <ul style="list-style-type: none"> ➤ Are other staff members (who have not received training) aware of the AED? How did they become aware? ➤ Do you think they would be confident in using the AED in the event of an emergency? ➤ What about general public awareness of the AED on site here? What signage has been put in place? (especially relevant for busy sites such as airports & train stations). <p>Organisation Commitment to PAD:</p> <ul style="list-style-type: none"> ➤ Is your organisation committed to the ongoing installation of AED(s) on site? ➤ Are the current arrangements for maintenance, staff training, etc of the AED sustainable for your organisation? ➤ If the PAD Demonstration Project funding was not available, would your organisation consider funding the costs of installing AEDs itself? <ul style="list-style-type: none"> - Explore why/ why not. - Explore drivers and influences.
OUTCOMES & VALUE	<p>Outcomes:</p> <ul style="list-style-type: none"> ➤ Have there been any activations of the AED here? DoHA funded AED or other? (Discuss any activations – outcome for patient; process followed; experience of rescuer, de-brief processes etc). ➤ Do you think that the PAD Demonstration Project has helped to improve patient outcomes for those who experience SCA? (is it helping save lives). <p>Benefits for your organisation:</p> <ul style="list-style-type: none"> ➤ What are the benefits for your organisations being involved in the PAD Demonstration Project?
EFFICIENCY	<p>Now I would like to ask you about your views on the <i>efficiency</i> of the PAD Demonstration Project:</p> <ul style="list-style-type: none"> ➤ Do you believe that the current mode of delivery of the PAD Demonstration Project is the most efficient? <ul style="list-style-type: none"> - Relationships and support from St John. ➤ Are you aware of other models that may be more relevant for the delivery of PAD in Australia: <ul style="list-style-type: none"> - Other governance and funding models? - Other delivery models?
APPROPRIATENESS	<p>Now I would like to ask you more specifically about your views on the <i>appropriateness</i> of the PAD trial:</p> <ul style="list-style-type: none"> ➤ Do you believe that your organisation is actually an appropriate site

Topic	Points to cover
	<p>for an AED? Why/why not?</p> <ul style="list-style-type: none"> ➤ Is government funding the most appropriate delivery model for Public Access Defibrillation? ➤ Do you believe that the private market could sustain the project if government funding was unavailable?
ISSUES THAT AROSE DURING TRIAL	<p>Can you identify any specific issues that arose during the trial of PAD in Australia?</p> <ul style="list-style-type: none"> ➤ Specific issues for your organisation ➤ Issues that may impact on the future expansion of PADs? ➤ Other issues?
LESSONS THAT MAY BE RELEVANT	<p>What are the lessons that can be learned from the current PAD Demonstration Project?</p> <ul style="list-style-type: none"> ➤ In relation to current delivery? ➤ In relation to training of staff? ➤ In relation to potential expansion of the project?
OTHER ISSUES	<p>Is there anything else that you would like to add?</p>
CONCLUSION	<p>Thank you for taking the time to discuss your views and opinions on the PAD Demonstration Project with me.</p> <p>Your input has been very valuable to this evaluation.</p>
END	

CATI Questionnaire: Managers of Participating Host Organisations

General introduction

Hello, I'm (...) from Fieldworks. We are conducting interviews for Campbell Research & Consulting.

Q1. May I please speak with <NAME FROM DATABASE>. She/he was sent an e-mail or letter about a national study that is being conducted for the Australian Government?

1. Yes CONTINUE
2. No ATTEMPT TO MAKE AN APPOINTMENT

READ OUT EXTRA INFORMATION AS NECESSARY

Introduction for respondent

Hello, I'm (...) from Fieldworks Market Research and conducting interviews for Campbell Research & Consulting. We're conducting a national study for the Australian Government with management and staff of organisations that have an automated external defibrillator (AED) that is used to treat sudden cardiac arrest (a condition that occurs when the heart unexpectedly stops pumping). The study is limited to organisations involved in the Public Access Defibrillation (PAD) Demonstration Project managed by St John Ambulance Australia.

Q2. Did you receive an e-mail or letter about this study?

1. Yes
2. No
3. Don't know

(As) The letter explained (that) this survey is being conducted throughout Australia with managers and staff about their experiences and seeks to identify lessons that may be relevant to the future implementation of public access defibrillators.

All responses will be confidential.

You are free to not answer any or all of the questions or to end the interview at any time. This interview should only take about 12 minutes, the actual time will depend on your answers.

Q3. This interview may be monitored for quality purposes. Please advise if you don't want this call to be monitored.

1. Monitoring allowed
2. Monitoring not permitted

Organisation Profile

Q4. Organisation type

Q5. State or territory

Q6. Organisation location

Project set-up

Q7. Prior to involvement in the Public Access Defibrillation (PAD) Demonstration Project, did your organisation consider purchasing an Automated External Defibrillator (AED)?

1. Yes GO TO Q8
2. No GO TO Q9
3. Don't know GO TO Q9

Q8. What were the main reasons that your organisation considered purchasing an Automated External Defibrillator (AED)? And were there any other reasons? PROBE.



Q9. Thinking about how your organisation came about being involved in the Public Access Defibrillation (PAD) Demonstration Project, did St John Ambulance first approach your organisation or did your organisation hear about the project and request to be involved?

1. First approached by St John Ambulance
2. Organisation requested involvement
3. Don't know

Q10. How long have Automated External Defibrillators (AEDs) been placed in your organisation? I am referring to the AEDs installed by St John Ambulance. READ OUT IF NECESSARY

1. Less than one month
2. 1 to 5 months
3. 6 to 12 months
4. 1 year to 2 years
5. 2 years to 3 years
6. Don't know

Q11. How many AEDs do you have at your organisation that has been funded through the PAD Demonstration Project?

RECORD NUMBER OF PAD AEDs: _____

Q12. And how many AEDs, if any, has your organisation purchased?

RECORD NUMBER OF ORG. AEDs: _____

Q13. Is the local ambulance service aware that there is an AED installed at your organisation?

1. Yes
2. No
3. Don't know

Cost

Q14. Thinking about the benefits of having the AED placed in your organisation, would you say the investment in < READ OUT STATEMENTS > is definitely worthwhile, probably, maybe worthwhile, probably not, or definitely not worthwhile?

	Definitely worthwhile	Probably worthwhile	Maybe worthwhile	Probably not	Definitely not	Don't know
Staff training	5	4	3	2	1	6
The time and cost spent maintaining the AED	5	4	3	2	1	6
Time spent liaising with the program co-ordinator	5	4	3	2	1	6

Q15. The cost of an AED is approximately \$3,000 and you have (INSERT NO. IN Q11) funded. Prior to your involvement with the installation of the AED, do you believe your organisation would have spent (\$3,000 multiplied by no. of AEDs in Q11) on the initial set up cost? READ OUT CODES 1 TO 5

1. Definitely
2. Probably
3. Maybe



4. Probably not
5. Definitely not
6. Don't know

Training and support

Q16. How many staff members, including yourself, were initially trained to use Automated External Defibrillators (AEDs)?

RECORD NUMBER OF STAFF: _____

Q17. How many additional staff members have received training to use Automated External Defibrillators (AEDs)?

RECORD NUMBER OF STAFF: _____

Q18. I am going to read out a list of materials that may have been provided to your organisation, would you say that all, most, some, a few or none of the staff throughout the organisation ...?

	All	Most	Some	A Few	None	Not provided
Were provided with a letter notifying of the AED implementation	5	4	3	2	1	6
Watched the St John 'Surviving Sudden Cardiac Arrest' DVD	5	4	3	2	1	6
Have access to publications/brochures about AED	5	4	3	2	1	6

Q19. Do you have the Public Access Defibrillation action-plan displayed close to the AED?

(EXPLAIN IF NECESSARY: The action-plan is a poster with step-by-step instructions to guide the first responder to use the AED).

1. Yes
2. No
3. Don't know

Q20. Is there an on-site emergency plan for this type of situation?

1. Yes
2. No
3. Don't know

Q21. Are untrained staff aware that there is an AED at your organisation?

1. Yes
2. No
3. Don't know

Q22. In the event of a sudden cardiac arrest, is it likely that these untrained staff would use the AED? READ OUT CODES 1 TO 5

1. Definitely
2. Probably
3. Maybe
4. Probably not
5. Definitely not
6. Don't know

Maintenance

Q23. How often is a maintenance check carried out on the AED? READ OUT

1. At least once a week



2. Once a fortnight
3. Once in three weeks
4. Once a month
5. Longer than once a month
6. Don't know
7. Never – GO TO Q25

Q24. Who performs the maintenance check on the AED? READ OUT AS NECESSARY. MULTIPLES ALLOWED

1. Myself – the designated co-ordinator of the PAD project
2. Another designated person
3. Any staff on duty
4. No one/ no one responsible
5. Other (specify position)

Use of AED

Q25. Since the installation of the AED(s) at your organisation, how many times has the PAD Demonstration Project AED been activated?

RECORD NUMBER PAD: _____

IF HAVE OWN AED(S) - Q12 - ALSO ASK:

And how many times have your own AEDs been activated?

RECORD NUMBER ORG: _____

IF NO ACTIVATIONS, SKIP TO Q39

Q26. Of the (INSERT NUMBER OF ACTIVATIONS IN Q25) activations, how many were carried out by trained staff and how many by untrained staff? ENSURE TOTALS Q25.

RECORD NUMBER BY TRAINED STAFF: _____

RECORD NUMBER BY UNTRAINED STAFF/PUBLIC: _____

Q27. Did the person who responded to the emergency correctly follow the instructions from the AED?

1. Yes
2. No
3. Don't know

Q28. Of the <INSERT NUMBER OF ACTIVATIONS FROM Q25>, how many... READ OUT. ENSURE TOTALS Q25

Saved the life of the patient: RECORD NUMBER: _____

Saved the life of the patient but the patient later died in hospital:

RECORD NUMBER: _____

The patient died on-site:

RECORD NUMBER: _____

Patient had a non-shockable rhythm so no shock was administered when the AED was applied:

RECORD NUMBER: _____

Q29. ASK IF PAD AED ACTIVATED (Q25)

How many of the activations were reported to the St John Ambulance?

RECORD NUMBER OF REPORTED ACTIVATIONS: _____

IF NONE SKIP TO Q32



- Q30. Was there a de-brief from St. Johns after the event?
1. Yes
 2. No
 3. Don't know
- Q31. Was the event data successfully downloaded to the Project Manager (at St. Johns)?
1. Yes
 2. No
 3. Don't know
- Q32. Did you personally activate the AED?
1. Yes
 2. No SKIP TO Q39
- Q33. How long ago was this...? READ OUT IF NECESSARY
1. Less than one month
 2. 1 to 5 months
 3. 6 to 12 months
 4. 1 year to 2 years
 5. 2 years to 3 years
 6. Don't know
- Q34. What was the outcome for the person? READ OUT.
1. Saved the life of the patient having a sudden cardiac arrest
 2. Saved the life of the patient but they later died in hospital
 3. The patient died on-site
 4. Patient had a non-shockable rhythm so no shock was administered when the AED was applied
 5. Other (specify)_____
 6. Don't know
- Q35. Is there an on-site emergency plan for this type of situation?
1. Yes ASK Q36
 2. No ASK Q37
 3. Don't know ASK Q37
- Q36. Did you follow the internal operational plan correctly for this type of situation?
1. Yes
 2. No
 3. Don't know
- Q37. Did you follow the step by step verbal instructions from the AED?
1. Yes
 2. No
 3. Don't know
- Q38. Reflecting on that experience, to what extent do you agree, disagree or neither agree nor disagree that <READ OUT STATEMENT>. Is that strongly or just (agree/disagree)?

	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Don't know
My training with St Johns helped me to handle the situation	5	4	3	2	1	6
I (or someone else) called 000 immediately	5	4	3	2	1	6
Other staff provided support	5	4	3	2	1	6
Members of the public provided support	5	4	3	2	1	6
It was easy to administer CPR	5	4	3	2	1	6
It was easy to use the AED	5	4	3	2	1	6
The de-brief with St Johns was useful	5	4	3	2	1	6
The organisation supported me after the event	5	4	3	2	1	6
I was pleased to have been able to assist	5	4	3	2	1	6
It has not put me off helping in the future	5	4	3	2	1	6

Overall opinion

Q39. Now, I would like to find out your overall opinion of the PAD Demonstration Project, do you agree or disagree, or neither agree nor disagree that ... <READ OUT STATEMENTS>. Is that strongly or just (agree/disagree)?

	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Don't Know
AED is easy to use	5	4	3	2	1	6
AED maintenance cost is reasonable	5	4	3	2	1	6
AED training is easy to understand	5	4	3	2	1	6
On-going training costs are reasonable	5	4	3	2	1	6
Having an AED in the organisation is important to me	5	4	3	2	1	6
Having an AED in the organisation is important for employee safety	5	4	3	2	1	6
Having an AED in the organisation is important for public safety	5	4	3	2	1	6
I would not hesitate to use the AED	5	4	3	2	1	6
I am committed to the PAD Project	5	4	3	2	1	6
My organisation is a suitable location for AED placement	5	4	3	2	1	6
Any untrained staff or member of the public could use an AED	5	4	3	2	1	6

Q40. Overall, how would you rate your organisation's involvement in the PAD Demonstration Project?

1. Excellent
2. Very good
3. Good
4. Fair
5. Poor

Q41. Thinking back to all the steps involved in participating in the PAD Demonstration Project, in what ways could the process have been improved? This could relate to any aspect of the implementation and on-going processes, including the training provided by St John Ambulance Australia, experiences you have had and management by your organisation. Do you have any other suggestions? PROBE

Q42. The PAD Demonstration Project includes a number of elements: the supply of the AED; staff training by St Johns; backup and support from St Johns; and provision of supporting documentation from St Johns (like brochures and posters). What do you value the most (RECORD 1) and the second (RECORD 2), third (RECORD 3) and what is of least value (RECORD 4)?

- 1. Supply of AED RECORD RANK_____
- 2. Staff training RECORD RANK_____
- 3. Backup and support RECORD RANK_____
- 4. Supporting documentation RECORD RANK_____

Q43. How likely are you to recommend that other organisations participate in the PAD project? READ OUT CODES 1 TO 5

- 1. Definitely
- 2. Probably
- 3. Maybe
- 4. Probably not
- 5. Definitely not
- 6. Don't know

Q44. I am now going to read out a number of scenarios that may influence your organisations decision to buy, train staff and maintain AEDs. Do you think your organisation would spend (\$3,000 multiplied by no. of AEDs in Q11) on the initial purchase and training cost for the AED for <INSERT STATEMENT>. Would you say definitely, probably, maybe, probably not or definitely not?

And what about <INSERT STATEMENT>. Do you think your organisation would buy an /a AED/s? REPEAT SCALE AS NECESSARY

	Definitely	Probably	Maybe	Probably not	Definitely not	Don't know
The health and safety of the public	5	4	3	2	1	6
Staff occupational health and safety	5	4	3	2	1	6
Government guidelines for safety in the workplace	5	4	3	2	1	6
If it became a regulatory requirement	5	4	3	2	1	6

Q45. The cost of purchasing an AED is approximately \$3,000. Your organisation has <INSERT NO. OF AEDs FROM Q11) funded. If Government funding for the AED was no longer available, do you think your organisation would buy them? READ OUT CODES 1 TO 5

- 1. Definitely
- 2. Probably
- 3. Maybe
- 4. Probably not
- 5. Definitely not GO TO Q47
- 6. Don't know

Q46. Do you think that your organisation would have an internal implementation team to manage the program or that it would commission an external consultant to manage the program (for example, this could include having a program point of contact, medical direction, program maintenance, data management, development of protocols and response plans)?

- 1. Internal implementation of program
- 2. Commission external consultant



3. Don't know

Demographics

In order to assist us in understanding the results of this study we would like to ask a few questions about you.

Q47. How many years have you worked in the organisation?

1. Less than 1 year
2. 1 to 3 years
3. 3 to 5 years
4. 5 to 10 years
5. More than 10 years

Q48. Record Gender

1. Male
2. Female

Q49. To which age group do you belong to?

1. Under 18
2. 18 to 35
3. 36 to 54
4. 55 to 64
5. 65+

Q50. I would also like to speak with some of the staff trained to use the AED. Can you please provide the names and contact numbers of other staff? (RECORD DETAILS FOR UP TO THREE)

Name of trained staff	Position	Contact number

End interview

Q51. This now concludes the interview. Would you be prepared for a consultant to call you back should we wish to follow up on any other issues? This is entirely voluntary and should you decide to do this your details will be stored securely and not used for any other purpose other than has been specified.

1. Yes
2. No

Thank you for your time. Just in case you missed it, my name is < ... > from Fieldworks. The interview has been conducted for Campbell Research & Consulting.



**CATI Questionnaire:
Nominated Staff Member**

General introduction

Hello, I'm (...) from Fieldworks. We are conducting interviews for Campbell Research & Consulting.

Q52. May I please speak with <NOMINATED STAFF>

1. Yes CONTINUE
2. No ATTEMPT TO MAKE AN APPOINTMENT

READ OUT EXTRA INFORMATION AS NECESSARY

Introduction for respondent

Hello, I'm (...) from Fieldworks Market Research and conducting interviews for Campbell Research & Consulting. We're conducting a national study for the Australian Government with management and staff of organisations that have an automated external defibrillator (AED) that is used to treat sudden cardiac arrest (a condition that occurs when the heart unexpectedly stops pumping). The study is limited to organisations involved in the Public Access Defibrillation (PAD) Demonstration Project managed by St John Ambulance Australia.

I have spoken with <NAME OF MANAGER> from your organisation, he/she has given your name and phone details for us to contact you about this survey.

All responses will be confidential.

You are free to not answer any or all of the questions or to end the interview at any time. This interview should only take about 10 minutes, the actual time will depend on your answers.

Q53. Just to confirm, are you one of the nominated first responders to provide help to sudden cardiac arrest victims at your workplace? IF REQUIRE MORE INFORMATION That is, you are trained to use an Automated External Defibrillator (AED)

1. Yes
2. No

REPEAT INTRODUCTION IF TRANSFERRED

Q54. This interview may be monitored for quality purposes. Please advise if you don't want this call to be monitored.

1. Monitoring allowed
2. Monitoring not permitted

DATA TO BE LINKED TO MANAGERS SURVEY (not necessary to ask): Organisation Profile

Q55. Organisation type

Q56. State or territory

Q57. Organisation location

Training and support

Q58. To start, how did you first become involved as a responder in the Public Access Defibrillation (PAD) Demonstration Project managed by St John Ambulance Australia? Did you volunteer to become a responder or were you chosen by management?

1. Volunteered
2. Chosen

Q59. How important do you see your role as a 'First Responder', that is, as a person trained in your organisation to use an Automated External Defibrillator (AED)? READ OUT

1. Very important



2. Important
3. Neither important nor unimportant
4. Unimportant
5. Not important at all

Q60. Were you involved in the initial training session from St John Ambulance (when the Automated External Defibrillator was implemented on-site) or was your training conducted after the Automated External Defibrillator (AED) was installed on-site?

1. Initial training session
2. Follow-up training session

Q61. Have you received any on-going training with the St John Ambulance since your first training session?

1. Yes
2. No

Q62. What did you learn from the training conducted by St John Ambulance? RECORD ALL MENTIONS. DO NOT READ OUT

1. Basic **life support** techniques
2. How to recognise the **signs** of heart attack and stroke
3. How to administer **oxygen to a patient or CPR**
4. How to assess a casualty to determine if use of **the AED is warranted**
5. How to **use an AED**
6. How to follow **safety protocols** for the user, casualty and bystanders
7. Other (specify)_____

Q63. Now in relation to the training carried out by St John Ambulance. To what extent do you agree, disagree or neither agree nor disagree that <READ OUT STATEMENT>. Is that strongly or just (agree/disagree)?

	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Don't know
The length of the training course was about right for what I needed to learn	5	4	3	2	1	6
The training material was clear and concise	5	4	3	2	1	6
The content of the training course was easy to follow	5	4	3	2	1	6

Q64. As a result of the training you received, how familiar are you with the first-aid procedures? Would you say...? READ OUT

1. Very familiar
2. Familiar
3. Neither familiar or not
4. Not familiar
5. Not familiar at all

Q65. After attending the training course, how confident are you to administer the AED on a sudden cardiac arrest casualty? Would you say...? READ OUT

1. Very confident
2. Confident
3. Neither
4. Not confident
5. Not confident at all

IF Q65 CODE 4 OR 5 ASK Q66; OTHERS GO TO Q67



Q66. Why is that you do not feel confident to use the AED? PROBE

Q67. If you had not attended the training course, how confident do you think you would be to administer the AED on a sudden cardiac arrest casualty? Would you say...? READ OUT

1. Very confident
2. Confident
3. Neither
4. Not confident
5. Not confident at all

Q68. I am going to read out a list of materials that may have been provided to you by your organisation. First could you tell me if you have seen it or not. And if you have seen it, would you say that the information presented was excellent, very good, good, fair or poor. First of all, did you receive/ have you seen <READ OUT STATEMENT>.

IF SEEN: And how would you rate it? REPEAT SCALE AS NECESSARY

	Seen	Excellent	Very good	Good	Fair	Poor
A letter notifying you of the AED implementation	1	5	4	3	2	1
St John 'Surviving Sudden Cardiac Arrest' DVD	2	5	4	3	2	1
Publications/brochures about AED from St Johns	3	5	4	3	2	1
Defibrillation action-plan/poster	4	5	4	3	2	1

Q69. Can you tell me where the AED(s) is/are located in your organisation? Can you provide some details?

1. Yes (and able to mention a specific location/s)
2. Yes (vaguely know the area without stating a specific location/s)
3. No (don't know where AED(s) is/are placed)

Q70. In the event of a sudden cardiac arrest, how likely do you think that untrained staff would use the AED? Would you say....READ OUT CODES 1 TO 5

1. Definitely
2. Probably
3. Maybe
4. Probably not
5. Definitely not
6. Don't know

Use of AED

Q71. Have you personally activated the AED?

1. Yes
2. No SKIP TO Q78

Q72. How long ago was this...? READ OUT IF NECESSARY



1. Less than one month
2. 1 to 5 months
3. 6 to 12 months
4. 1 year to 2 years
5. 2 years to 3 years
6. Don't know

Q73. What was the outcome for the person? READ OUT.

1. Saved the life of the patient having a sudden cardiac arrest
2. Saved the life of the patient but the patient later died in hospital
3. Patient died on-site
4. Patient had a non-shockable rhythm so no shock was administered when the AED was applied
5. Other (specify)_____
6. Don't know

Q74. Is there an on-site emergency plan for this type of situation?

1. Yes ASK Q75
2. No ASK Q76
3. Don't know ASK Q76

Q75. Did you follow the internal operational plan correctly for this type of situation?

1. Yes
2. No
3. Don't know

Q76. Did you follow the step by step verbal instructions from the AED?

1. Yes
2. No
3. Don't know

Q77. Reflecting on that experience, to what extent do you agree, disagree or neither agree nor disagree that <READ OUT STATEMENT>. Is that strongly or just (agree/disagree)?

	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Don't know
My training with St Johns helped me to handle the situation	5	4	3	2	1	6
I (or someone else) called 000 immediately	5	4	3	2	1	6
Other staff provided support	5	4	3	2	1	6
Members of the public provided support	5	4	3	2	1	6
It was easy to administer CPR	5	4	3	2	1	6
It was easy to use the AED	5	4	3	2	1	6
The de-brief with St Johns was useful	5	4	3	2	1	6
The organisation supported me after the event	5	4	3	2	1	6
I was pleased to have been able to assist	5	4	3	2	1	6
It has not put me off helping in the future	5	4	3	2	1	6

Overall opinion



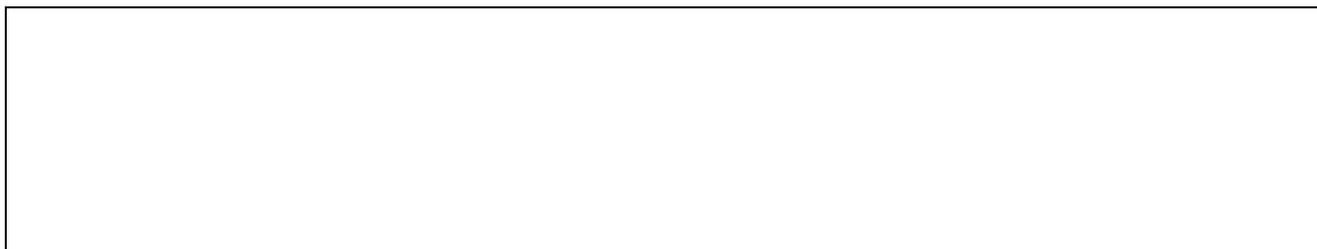
Q78. Now, I would like to find out your overall opinion of the PAD Demonstration Project, do you agree or disagree, or neither agree nor disagree that ... <READ OUT STATEMENTS>. Is that strongly or just (agree/disagree)?

	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Don't know
I had to take on additional work over and above what was expected	5	4	3	2	1	6
AED is easy to use	5	4	3	2	1	6
Having an AED in the organisation is important to me	5	4	3	2	1	6
Having an AED in the organisation is important for employee safety	5	4	3	2	1	6
Having an AED in the organisation is important for public safety	5	4	3	2	1	6
Management support my role as a 'first responder'	5	4	3	2	1	6
My knowledge is kept up-to-date with internal training as required	5	4	3	2	1	6
I would not hesitate to use the AED	5	4	3	2	1	6
I am pleased to be a responder for the AED	5	4	3	2	1	6
Clear procedures and plan of action are in place if there is an emergency	5	4	3	2	1	6
I am committed to the PAD Project	5	4	3	2	1	6
My organisation is a suitable location for AED placement	5	4	3	2	1	6
Any untrained staff or member of the public could use an AED	5	4	3	2	1	6

Q79. Overall, how would you rate your involvement in the PAD Demonstration Project?

1. Excellent
2. Very good
3. Good
4. Fair
5. Poor

Q80. Thinking about your involvement in the PAD Demonstration Project, in what ways could the process have been improved? This could relate to any aspect of the implementation and on-going processes, including the training provided by St John Ambulance Australia, experiences your have had and management by your organisation. Do you have any other suggestions? PROBE



Demographics

In order to assist us in understanding the results of this study we would like to ask a few questions about you.

Q81. How many years have you worked in the organisation?

1. Less than 1 year
2. 1 to 3 years
3. 3 to 5 years
4. 5 to 10 years
5. More than 10 years

Q82. Record Gender

1. Male
2. Female

Q83. To which age group do you belong to?

1. Under 18
2. 18 to 35
3. 36 to 54
4. 55 to 64
5. 65+

End Interview

Q84. This now concludes the interview. Would you be prepared for a consultant to call you back should we wish to follow up on any other issues? This is entirely voluntary and should you decide to do this your details will be stored securely and not used for any other purpose other than has been specified.

1. Yes
2. No

Thank you for your time. Just in case you missed it, my name is < ... > from Fieldworks. The interview has been conducted for Campbell Research & Consulting.

Appendix D: Profile of CATI Survey Organisations

Profile of organisations and respondents

Overall, 53 managers or site co-ordinators participated in the survey, representing responses from a range of organisation Australia wide (Figure 27). The different organisation types interviewed are shown in Figure 28.

Figure 27: Organisation by states and territories

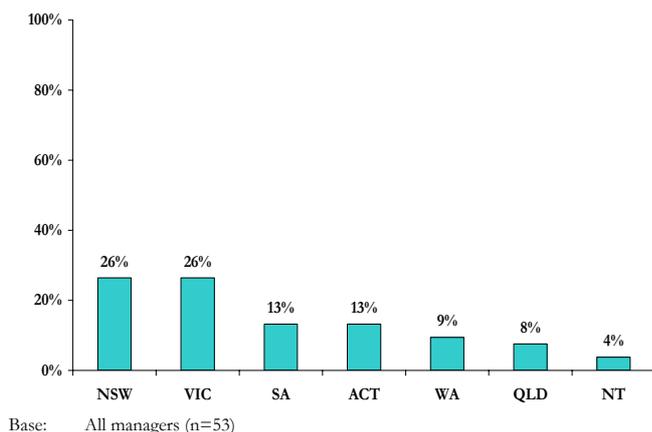
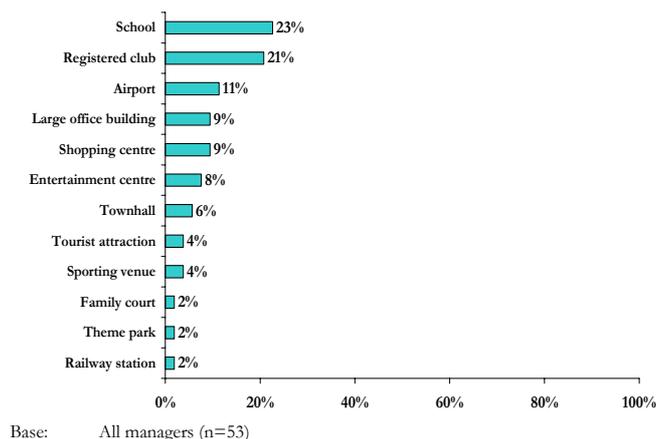


Figure 28: Organisation type



On average, managers had worked in the organisation for a slightly shorter period of time compared to staff:

- 52% of managers had worked in the organisation for up to 5 years; and
- 39% of staff had worked in the organisation for up to 5 years.