



Australian Government
Department of Health and Ageing



Australia and New Zealand Horizon Scanning Network

ANZHSN

AN INITIATIVE OF THE NATIONAL, STATE AND
TERRITORY GOVERNMENTS OF AUSTRALIA
AND THE GOVERNMENT OF NEW ZEALAND

National Horizon Scanning Unit

Horizon scanning prioritising summary

Volume 1, Number 3:

**Public access automated external
defibrillators (PAD) for the training of non-
medical volunteers to use automatic
external defibrillators.**

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PRIORITISING SUMMARY

REGISTER ID: 0000003

NAME OF TECHNOLOGY: PUBLIC ACCESS AUTOMATED EXTERNAL DEFIBRILLATORS (PAD)

PURPOSE AND TARGET GROUP: TRAINING NON-MEDICAL VOLUNTEERS TO USE AUTOMATIC EXTERNAL DEFIBRILLATORS

STAGE OF DEVELOPMENT (IN AUSTRALIA):

- | | |
|--|---|
| <input type="checkbox"/> Yet to emerge | <input type="checkbox"/> Established |
| <input type="checkbox"/> Experimental | <input type="checkbox"/> Established <i>but</i> changed indication or modification of technique |
| <input type="checkbox"/> Investigational | <input type="checkbox"/> Should be taken out of use |
| <input checked="" type="checkbox"/> Nearly established | |

AUSTRALIAN THERAPEUTIC GOODS ADMINISTRATION APPROVAL

- | | | |
|---|---|-------|
| <input checked="" type="checkbox"/> Yes | ARTG number | 76426 |
| <input type="checkbox"/> No | <input type="checkbox"/> Not applicable | |

INTERNATIONAL UTILISATION:

| COUNTRY | LEVEL OF USE | | |
|-------------------------------|------------------------------|-------------|-----------------|
| | Trials Underway or Completed | Limited Use | Widely Diffused |
| USA, Case series | ✓ | | |
| Australia | | ✓ | |
| Italy, Case series | ✓ | | |
| Canada, Case series | ✓ | | |
| Helsinki, Case series | ✓ | | |
| Glasgow, Retrospective cohort | ✓ | | |

IMPACT SUMMARY:

FirstResponse provides HeartStart, a portable, automatic external defibrillator with the aim of increasing public access to defibrillation by first responders to a cardiac arrest scene, therefore potentially increasing the survival of cardiac arrest patients. Sudden cardiac arrest or arrhythmia is caused by ventricular fibrillation (VF). Standard first aid consists of cardiopulmonary resuscitation (CPR) until expert medical help arrives, and defibrillation can take place. If VF takes place within one minute, survival is greater than 90%. A 10% decrease in survival occurs with every minute of delayed defibrillation (O'Rourke MF, 2002). The technology is currently available through St Johns Ambulance, Rotary Clubs and the Victorian Government for placement in public areas where large groups of individuals gather and volunteers are trained in the use of the defibrillation equipment.

Approximately 20,000 Australians collapse from sudden cardiac arrest each year and current data estimates that 10,000 are lost annually from out-of-hospital cardiac arrest (OHCA). However with appropriate treatment survival may increase by 30-70% (Mc R Meyer et al, 2000).

Preliminary overseas data report that 15/103 (14.6%) of OHCA patients who are given CPR alone survive compared to 29/129 (22.5%) of OHCA patients given CPR and PAD, (p=0.042).

Safety issues revolve around the extent and competency of volunteers who are trained and/or receive regular retraining in the use of PAD. PAD units are estimated to cost A\$8,000. In Australia PAD units are currently in place on Qantas aircraft, the MCG, Federation Place and Sovereign Hill (Victoria).

CONCLUSION:

Based on the Level II evidence and given the level of need in the community, it is expected that public access defibrillators will diffuse – or are diffusing- throughout the Australian health system. However, it is unlikely that this technology will impact on policy or costs of the public health system in Australia.

HEALTHPACT ACTION:

Therefore it is recommended that this technology be archived.

SOURCES OF FURTHER INFORMATION:

Capucci, A., Aschieri, D. & Piepoli, M. F. (2002). 'Out-of-hospital early defibrillation successfully challenges sudden cardiac arrest: the Piacenza Progetto Vita project', *Ital Heart J*, 3 (12), 721-725.

Fedoruk, J. C., Currie, W. L. & Gobet, M. (2002). 'Locations of cardiac arrest: affirmation for community Public Access Defibrillation (PAD) Program', *Prehospital Disaster Med*, 17 (4), 202-205.

Kuisma, M., Castren, M. & Nurminen, K. (2003). 'Public access defibrillation in Helsinki-- costs and potential benefits from a community-based pilot study', *Resuscitation*, 56 (2), 149-152.

Mc R Meyer, A. D., Cameron, P. A. et al (2000). 'Out-of-hospital cardiac arrest', *Med J Aust*, 172 (2), 73-76.

O'Rourke, M. F. (2002). 'Surviving cardiac arrest', *Med J Aust*, 177 (6), 284-285.

Pell, J. P., Sirel, J. M. et al (2002). 'Potential impact of public access defibrillators on survival after out of hospital cardiopulmonary arrest: retrospective cohort study', *BMJ*, 325 (7363), 515.

SEARCH CRITERIA TO BE USED:

Electric Countershock/economics/*instrumentation

Emergency Treatment/*instrumentation

Equipment and Supplies/supply & distribution

*Health Services Accessibility

Heart Arrest/economics/mortality/*therapy

Heart Arrest/economics/mortality/*therapy

Electric Countershock/*instrumentation

Emergency Medical Services/supply & distribution

Heart Arrest/*mortality/therapy

Cardiopulmonary Resuscitation/*standards/trends