

Automated External Defibrillators

The Australian Resuscitation Council's (ARC's) *Guide to Basic Life Support* outlines the following steps:

- D**anger
- R**esponsiveness
- S**ending for Help
- A**irway
- B**reathing
- C**ompression
- D**efibrillation

Chain of Survival

A key component of both the Chain of Survival shown below and the ARC's *Guide to Basic Life Support* is the use of an Automated External Defibrillator (AED). Although cardiopulmonary resuscitation (CPR) is a process widely understood in the community, the same cannot be said for defibrillation.

Until the last few years, paramedics and medical professionals have been the only people to use defibrillators to treat casualties in cardiac arrest. With advanced technology, AEDs have been developed for use by a layperson.

Through community education and changing first aid practices, knowledge of AEDs is slowly growing and the use of an AED is becoming standard practice.

The Australian and New Zealand Resuscitation Councils state "AEDs should not be restricted to trained personnel. The use of an AED by individuals without prior formal training can be beneficial and may be lifesaving."

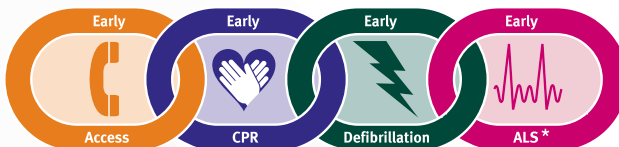
Defibrillation is designed to stop certain dangerous heart rhythms and assist the heart to regain a normal rhythm. If successful, this will result in effective circulation which will allow oxygen to reach vital organs such as the brain, heart and lungs.

It is important to note that CPR alone cannot reverse a fatal heart rhythm back to a normal heart rhythm. Only an AED can do this.

The sooner defibrillation is attempted, the more likely it will be successful. For every minute a defibrillator is not used, the casualty's chance of survival decreases by 10 per cent.

AEDs are simple and safe to use. The three steps are – ensure safety, turn the AED on, and follow the audible and visual prompts given by the device.

AEDs cannot deliver an electric shock if the casualty has a normal heart beat.



* ALS – Advanced Life Support

The Queensland Ambulance Service does not recommend a particular brand or model of AED for general community or public use. All AEDs have similar features and no particular device has been proven to be scientifically superior to others. What follows are some considerations that may assist in your search for a good quality public access AED for use in your specific community situation.

Buying tips for a good quality public access AED

- ◆ Buy the AED that is best for your circumstances (including initial purchase price).
- ◆ Buy the AED that your community is most likely to be comfortable with using in an emergency.
- ◆ Think beyond the initial purchase to the long term cost of battery and electrode (pad) replacement.
- ◆ Consider the warranty offered.
- ◆ Consider the cost of regular maintenance checks (as recommended by the manufacturer).
- ◆ Buy from an Australian supplier as all AEDs sold within Australia meet the rigorous standards set by the Therapeutic Goods Administration.
- ◆ Most AEDs can be used again and again, but if you buy a single-use AED (which is sometimes a less expensive up-front cost) remember it will need to be replaced after each use.

Where should public access AEDs be located?

Remember: the best AED is the one that is closest to a person suffering a Sudden Cardiac Arrest!

The QAS supports placing AEDs in targeted public areas where the device will meet community need, for example sporting grounds, gated communities, office complexes, clubs/entertainment venues, doctor's surgeries, shopping centres.

AEDs should be easily identifiable, well signed and accessible to the public.

Having a clear idea of where the AED will be located and potentially utilised is very important when determining which device to purchase. Considerations include:

- ◆ will the device be affixed to a location, or will it be moved around a lot (such as on a sport team's bus)
- ◆ the durability of the device
- ◆ storage conditions as extremes of heat or cold, dust and moisture could potentially damage the device
- ◆ AEDs placed in areas where noise is a factor, or might be used by people with hearing impairments, should provide both visual and verbal prompts to the user
- ◆ regardless of the location, the AED should deliver simple, clear and loud voice prompts to help the user in an emergency.

Choose the most suitable IP rating for your AED's location

Every AED has an International Protection (IP) Code, which is a two digit code usually found in the AED brochure or user manual.

The IP rating may be a factor in the cost of the device, so a good understanding of what the IP rating means will help you choose the right AED for your location. For example, it is not necessary to pay extra for an AED with a very high IP rating if you plan to locate the AED indoors.

The IP rating code classifies the level of protection that electrical appliances (like AEDs) provide against the intrusion of solid objects or dust, accidental contact, and water:

- ◆ the first numerical digit of the IP rating indicates the level of protection against solid particles such as dust, dirt or other matter
- ◆ the second numerical digit indicates the level of protection from harmful ingress of water.

The higher the value of each number, the higher the resistance to the contaminants listed.

AEDs with a lower numerical IP rating are more likely intended for use in indoor settings, such as offices, schools, churches and similar carpeted areas. AEDs with a higher numerical IP rating are designed for use anywhere, but especially in environments where dust and moisture may be a factor.

Good quality public access AEDs must be easy to use

An AED must help the first aider defibrillate the casualty as quickly and calmly as possible. Unclear voice commands can cause confusion and delay the process. Simple, clear and loud voice prompts are essential. As a general rule, the fewer steps and the least amount of moving parts the better. Try to choose a device that can be easily used by a layperson. Suppliers usually offer training in the use of the AED.

Good quality public access AEDs must be easy to maintain

Most AED devices perform self-checks on a regular basis to test their operational readiness. If any defect is identified, most units will give out an audible alert and a visual warning light (usually red). Periodically the AED may require a manual check. Models differ as to how easy these checks are to complete and how often they are required – refer to the device’s manual for more information.

Pad packs and batteries need to be checked on a regular basis to avoid expiry dates. Most pad packs have a two year shelf life and most batteries have a four year shelf life. If either the pads or the batteries have expired, the AED will usually pick this up as a defect when the machine performs its self-check.

Ask for advice

Talk to community groups or businesses similar to yours and find out what AED devices they have selected, why they made their selection, and if they are happy with their choice. If you are choosing a second or third AED for your facility/community/organisation, it is generally a good idea to buy the same model already in place.