Automated External Defibrillators (AED)

An automated external defibrillator (AED) is a lightweight, portable device that delivers a controlled electric shock through the chest to the heart, via two electrodes that are fixed to the casualty’s chest. The AED is able to detect the rhythm of the heart and it can deliver a shock that can restore normal heart rhythm.

Background

The major factor limiting the number of people who survive sudden cardiac arrest (SCA) is the ability to provide defibrillation within a critical time. Conditions for defibrillation are optimal for only a very few minutes after the onset of Ventricular fibrillation (VF), although this period can be extended if a bystander provides effective cardiopulmonary resuscitation (CPR), particularly chest compressions. For details about this see http://www.resus.org.uk/pages/bls.pdf. Nevertheless, the victim’s chance of survival falls by around 7 - 10% with every minute that defibrillation is delayed. Only rarely are the emergency medical services able to attend and provide defibrillation early enough, and the best way of ensuring prompt defibrillation is for someone nearby to use an AED to deliver the shock that can often save a life.

What the Health & Safety Executive (HSE) say

In-depth training in the use of automated external defibrillators (AEDs) is not currently part of either the Emergency First Aid at Work and First Aid at Work courses. However, HSE welcomes the presence of awareness training in these courses as it instils greater confidence in the use of AEDs. It is not compulsory for employers to purchase AEDs to comply with the Health and Safety (First-Aid) Regulations 1981. However, if your needs assessment identifies an AED need then we recommend your staff should be fully trained in its use. The Resuscitation Council UK guidance (below) on AEDs is that this equipment is safe to use and can be readily used by untrained bystanders. AEDs are becoming more prevalent within the wider community. For example there are national strategies in place actively promoting their placement in schools; public places such as stations. Many workplaces have voluntarily invested in this equipment. Evidence suggests that where AEDs have been used the outcomes are far more favourable for an individual who suffers from a heart attack than if it is delayed until the arrival of the emergency services.

Resuscitation Council UK

The majority of people who survive a cardiac arrest are resuscitated from ventricular fibrillation (VF) by the administration of a defibrillatory shock. This is most likely to be successful when it is given very soon after the onset of VF; emergency service personnel are often unable to arrive soon enough to help a victim.

Automated external defibrillators (AEDs) are designed to be used by members of the public, and are very effective at guiding the operator through the process of administering the shock. They have become widely available, are safe and easy to use, and will not allow a shock to be given to a victim who does not require one.

AEDs have been used frequently by laypeople with modest training, and many reports testify to the success of this strategy. Operators without formal training have also used AEDs successfully to save lives.
While it is highly desirable that those who may be called upon to use an AED should be trained in their use, and keep their skills up to date, circumstances could dictate that a trained operator (or a trained operator whose certificate of training has expired) is not present at the site of an emergency. Under these circumstances, no inhibitions should be placed on any person willing to use an AED.

It is the view of the Resuscitation Council (UK) that the use of AEDs should NOT be restricted to trained personnel. Furthermore, the Resuscitation Council (UK) considers that it is inappropriate to display notices to the effect that only trained personnel should use the devices, or to restrict their use in other ways. Such restrictions are against the interests of victims of cardiac arrest, and discourage the greater use of AEDs by members of the public who may be able to preserve life and assist victims of cardiac arrest. This confirms similar advice from the British Heart Foundation.

AED Units
The AEDs selected for use at Queen Mary are purchased as a unit and do not require maintenance or service contracts. They contain a battery with a 2-year life and are guaranteed for between 4 and 8 years. Each unit will perform periodical self-diagnoses. A green tick will appear in the Status Indicator Window when the unit is fully functional. A red cross will appear in the Status Indicator Window when there is an issue with the unit (batteries need changing for example). Each unit come with an Operators and Administrator’s Guide.

Zoll AED Plus Defibrillator
Fully-automatic; as soon as it is switched on it will start to talk to you, voice prompts explain what to do next. It has embedded protocols for defibrillation. Verbal instructions on CPR rate and depth of compression are given in conjunction with a built in metronome to ensure that CPR is being carried out at the right speed & depth. Resuscitation Council (UK) Compliant, support for the complete chain of survival and a one piece electrode pad for fast and accurate placement.

AED Locations
Mile End: Student Health Service Lobby Ground Floor Geography Building | France House reception and People Palace Foyer.
Whitechapel: Garrod building lobby
Charterhouse Square: Dawson Hall lobby | John Vane Science Centre lobby
Basic life support when an AED is present

- Ensure it is safe to approach the victim (the rescuer must not put themselves at risk of injury).
- Promptly assess the unresponsive victim to determine if they are breathing normally.
- Be suspicious of cardiac arrest in any person presenting with seizures and carefully assess whether the victim is breathing normally.
- For the victim who is unresponsive and not breathing normally:
  - **Dial 999 and ask for an ambulance immediately.** If possible stay with the victim and get someone else to make the emergency call, also inform QMUL Security (3333).
  - Start CPR and send for an AED.
  - If trained and able, combine chest compressions and rescue breaths, otherwise provide *hands only CPR.*
  - If an AED arrives, switch it on and follow the instructions.
  - Minimise interruptions to CPR when attaching the AED pads to the victim.
- Do not stop CPR unless you are certain the victim has recovered and is breathing normally or a health professional tells you to stop.

*hands only CPR can be carried out by an untrained person.

Lock your fingers together, knuckles up. Then push down on the centre of the victim’s chest between the breasts. Push down five or six centimetres (about two inches). Push hard and fast about two times a second, like to the beat of Stayin’ Alive.

Further information

HSD First Aid topic page: [http://hsd.qmul.ac.uk/A-Z/First%20Aid/index.html](http://hsd.qmul.ac.uk/A-Z/First%20Aid/index.html)

References

[https://www.resus.org.uk/publications/a-guide-to-aeds/](https://www.resus.org.uk/publications/a-guide-to-aeds/)