HS904 Automated External Defibrillators Guideline

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Responsible Officer	Director, UNSW Safety and Sustainability		
Contact Officer	Manager, UNSW Health and Safety, Adam Janssen		
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1. Introduction and Scope

This Guideline provides guidance for the use, purchase and maintenance of automated external defibrillators (AED).It applies to all workplaces under the operational control of UNSW.

2. Background

An Automated External Defibrillator (AED) is a portable and easy-to-operate medical device that analyses an unconscious victim's heart rhythm and automatically delivers a shock if they are having a Sudden Cardiac Arrest (SCA). An AED will not deliver a shock unless it detects a shockable heart rhythm.

AEDs can significantly improve the chance of survival for a victim of sudden cardiac arrest. A victim's chance of survival is reduced by ten percent with every minute that passes without CPR and defibrillation. Few attempts at resuscitation succeed after ten minutes.

Once turned on, the AED will use voice commands and screen messages to guide an operator through the defibrillation process. The AED will monitor the heart rhythm and advise the operator if a problem is detected as well as indicating when a shock to the patient is required.

3. Definitions

Automatic External Defibrillator (AED) means a portable electronic device that automatically diagnoses and treats sudden cardiac arrest (SCA). The treatment, known as defibrillation, consists of determining and delivering an appropriate level electric pulse to re-establish an effective heart rhythm.

Cardiopulmonary Resuscitation (CPR) means an emergency procedure often employed after sudden cardiac arrest, combining external cardiac compression and expired air resuscitation to maintain circulation of oxygenated blood to the brain.

First aider is a person who has successfully completed a nationally accredited training course or equivalent level of training that has given them the competencies to administer first aid.

Sudden Cardiac Arrest (SCA) means the cessation of normal circulation of the blood due to the failure of the heart ventricles to contract effectively. It is a medical emergency that, if left untreated, invariably leads to death.

4. Defibrillator use guideline

4.1   Use of Automatic External Defibrillator (AED)

If it is determined that an AED is required, someone should be promptly sent for an AED from the nearest location on campus (Appendix B).

An AED should be applied whenever SCA is suspected, regardless of the time frame involved as it may increase the survival rate. A SCA usually occurs without warning and without any signs or symptoms and should not be confused with someone who is having a heart attack. When somebody suddenly collapses a SCA should be immediately considered. Signs that someone has suffered a SCA include:

- The person is unresponsive
- The person is not breathing normally and or they have no signs of life

4.2   Steps to follow if AED is required

To provide the best opportunity for survival, these four steps must be put into motion within the first few minutes of a suspected heart attack**. If someone is unconscious or has stopped breathing you should immediately commence the chain of survival as follows**:

- **Early Access**

    In the event of a Sudden Cardiac Arrest (SCA) on campus the UNSW Security Services should be notified immediately and requested to call ambulance (UNSW Security Services can be contacted on phone no **9385 6666)**. The local first aider should also be contacted to assist with CPR.

    All off campus emergencies call 000.

    For Canberra campus:

    To call an ambulance from an internal telephone: Dial 0 (for an external line) then 000 and follow the instructions of the operator.If an ambulance is called, arrange for someone to go to the front entrance to meet and help direct the ambulance. You can also notify the duty officer on Ext: 88574 or mobile 0418413035 and ask to arrange for someone to meet and direct the ambulance.

- **Early CPR**
    CPR should be started as soon as possible.

- **Early Defibrillation**
    Get someone to bring an AED from a known location (see Appendix B), attach the AED and turn it on. Follow the prompts given by the AED. All AEDs operate in a similar way and pad placement is the same regardless of the model used. Anyone is able to use the AED.

- **Early Advanced Care**
  Keep the AED connected to the patient until the ambulance arrives and advanced care is available. Even if no shock is advised by the AED or the patient regains consciousness.

4.3   Training

AEDs are designed so they are able to be used without the need for training. The AED will only deliver a shock if required. UNSW will be developing an online training module on the use of AEDs that will be available to all UNSW staff and students.

5. After an Event

If an AED has been used, the person who has used the AED or first aider must contact UNSW Health and Safety to ensure that the AED is cleaned and refurbished so that can be quickly returned to service.

The first aider must also complete an incident report via the online hazard and incident reporting system on myUNSW.

6. Warnings and Precautions

There are some precautions to take when operating an AED. These include:

- Do not use the AED if the victim is a child younger than 8 years of age or lighter than 25 kilograms (specific pads are required for this group).
- Ensure that defibrillation is performed on a non-conductive surface (not in water, rain or on a metal surface).
- If an implanted pacemaker could be identified, place the pad at least 2.5 centimetres away. Ensure everyone stands clear when electric shock is delivered. Do not touch the victim except when performing CPR (this prevents interference and injury to bystanders when a shock is given).
- When attempting a rescue using an AED, do not use mobile phones and two-way radios within one meter of the AED to avoid radio frequency interference.
- Do not use an AED in the presence of flammable gases (including concentrated oxygen).
- Do not remove the pads until the ambulance arrives and paramedics take over, even if the victim regains consciousness or no shock is advised.

7. Purchase, Installation, Storage and Maintenance of AED's

7.1   Purchase of AED Units

UNSW is planning a staged rollout out of AED's to ensure appropriate coverage across UNSW. See Appendix C for planned locations.

If areas wish to purchase a defibrillator not included in the staged rollout they must ensure it is an approved unit from an approved supplier (as displayed on the UNSW Health and Safety web site). After the AED is purchased inform UNSW Health and Safety so it can be included on a central register for inspection and maintenance, and be included on the UNSW AED map.

7.2   Installation and storage of AED units

The defibrillator must be installed or stored in an immediately accessible (during normal office hours) signposted area. In order to minimise the risk of tampering or theft, it is recommended that the defibrillator be stored in a specific box which activates an alarm when opened.

The recommended cabinet needs to have power and access to communications network and this must be taken into consideration when deciding on a location for installation. Contact your local Client Facilities Manager or the UNSW Health and Safety for more details on installation.

In addition UNSW Health and Safety must be notified if the unit is moved to a different location.

7.3   Maintenance of AED units

The recommended UNSW AED is capable of conducting self-tests to ensure they are 'rescue-ready' at all times. It is recommended a visual check be carried out by the local first aider to ensure the units are operating. These checks should occur on a 6 monthly basis. A visual check of any AED units should also occur during any workplace health and safety inspections. A checklist has been created to assist (see Appendix D).

UNSW Health and Safety must be contacted if:

- The light on the AED has turned red or there is an audible beep
- The AED is damaged
- The AED is missing
- Pads are out of date

The AED comes with the following items:

1. A shaver to shave excessive hair if necessary
2. Scissors to cut bra if necessary; try to avoid putting the pads directly on top of any piercings if possible
3. Towel to dry the victim's chest if necessary
4. A mask for providing rescue breaths
5. Gloves for protecting the rescuer.

UNSW Health and Safety maintains a central register of all new units and will replace batteries and pads before their expiration dates.

8. Counseling

The University provides free, confidential and professional assistance to employees and to other persons whose care is the responsibility of the employee, through the Employee Assistance Program (EAP).

Students have access to counselling through:

Counselling and Psychological Services (CAPS)
Ph: 9385 5418
Web: www.counselling.unsw.edu.au

9. Acknowledgements

UNSW acknowledges the University of Western Australia First Aid Procedure, sections of which have been adapted in the development of this guideline.

Appendix A: History

Version	Authorised by	Approval Date	Effective Date	Sections modified
1.0	Director: UNSW Safety and Sustainability	17 June 2014	17 June 2014	New Guideline

Appendix B: Existing Defibrillator Locations

Building name	Map Ref	Location details
24 Arthur Street	AS24	First Aid area
38 Botany Street – Lifestyle clinic	A27	First Aid area
AGSM	C25	Entrance lobby
Aquatic & Fitness Centre	B4-7	Pool area
Australian School of Business building	E12	Level 6 ASB building, Deans Unit behind reception desk.
Civil Engineering & Valentine Annex	H20	Civil Engineering L4 adjacent to reception
Clancy Auditorium	C24	Main entrance (western side)
Clancy Auditorium	C24	Southern side of main entrance near fire switchboard
Computer Science and Engineering	K17	Ground floor
Electrical Engineering	G17	Level 1 outside room 114
Electrical Engineering	G17	Ground floor, G1 outside school office
John Niland Scientia Building	G19	Main entrance (toward main office and bathrooms)
Library Building	F21	Level 13 and Level 2 (Foyer)
Lowy Building	C25	Front Desk + Oxygen
Quadrangle	E15	Medical Centre
Red Centre	H13	Level 3, West Wing, City Futures Research Centre.
Red Centre	H13	Level 3, West Wing, City Futures Research Centre
Rupert Myers	M15	North Wing L1
Rupert Myers	M15	South Wing L1 Centre for Eye Health
Samuels	F25	Entrance lobby
Tyree Energy Technology Building	H6	Level 1 next to kitchen
UNSW Canberra- Gym		ISC by the pool during Gym opening hours
UNSW Canberra- Library		Library main Entrance
UNSW Canberra- PEMS		PEMS Building 26 First Floor
UNSW Canberra- SEIT		SEIT 1st Floor Building 17
UNSW Canberra- SEIT		SEIT Tea Room- 1st Floor Building 21

Appendix C: Proposed installation locations

2014	2015
John Goodsell building	Manly Vale
Dalton and Chemical Sciences F10	Round House
Old Main building K15	CBD campus
Matthews	Security Hub Gate 2
Residential Colleges	
COFA	
SPREE (Just installation)	

Appendix D Checklist

This checklist if for the maintenance of the Zoll AED Plus, the UNSW preferred brand of AED.

Maintenance

The Zoll AED Plus performs the following self-tests to verify unit integrity and its readiness for emergency use:

- Battery Installation Self-Test
- Power On Self-Test
- Manual Self-Test
- Automatic Self-Test
- Automatic Monthly Test

Following a successful completion of all self-tests, the AED status indicator display's a green check (√) to show that all tests passed and that the unit is ready to use.
If the status indicator displays a red X the AED is not ready for use and may be defective. Remove this from service and consult the Troubleshooting section of the AED Plus Administrator's Guide.

The following checklist should be completed by the first aider on a regular basis:

Date:		Complete by (name):			
Check the following				**Pass**	**Fail**
Is the unit clean, undamaged, and free of excessive wear?					
Are there any cracks or loose parts in the housing?					
Verify electrodes are connected to the AED Plus and sealed in their package. Replace if expired.					
Are all cables free of cracks, cuts and exposed or broken wires?					
Turn the AED on and off and verify the green check indicates ready of use					
Batters within expirations date. Replace if expired.					
Check of adequate supplies (razor, mask, gloves, extra batteries)					
Any comments?					

Manual self-test

You can initiate a manual self-test on the AED by pressing and holding the unit's on/off button for 5 seconds. The AED illuminates all graphic indicators and issues voice and LCD display messages to allow user verification of the device's visual and auditory output functionality. The self-test verifies the following functions:

1. Battery capacity: verifies that the battery usage indicator shows adequate battery remaining.
2. Defibrillation Electrodes Connection: Verifies that the defibrillation electrodes are properly pre-connected to the device.
3. ECG Circuitry: Verifies that the ECG signal acquisition and processing electrodes are functioning.
4. Defibrillator Charge and Discharge Circuitry: Verifies that the device's defibrillator electronics are functional and can charge and discharge at 200 joules.
5. Microprocessor Hardware/Software: Verifies proper function of the AED microprocessor electronics and the integrity of its software.
6. CPR Circuitry and Sensor: Verifies that CPR monitoring and compression depth detection are functional.
7. Audio circuitry: Verifies that voice prompts are functional.
8. Display: Verifies that visual indicators are functional.