

AUTOMATED EXTERNAL DEFIBRILLATOR (AED) PROCEDURES AND GUIDELINES

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1.0 STATEMENT

The University of Waterloo strives to provide a safe and healthy environment for all members of the University community.

Publicly accessible Automatic External Defibrillators (AEDs) have proven to significantly increase the chances of survival of persons who experience sudden cardiac arrest, provided the AEDs are properly equipped, located, maintained and used. University of Waterloo departments are responsible for the acquisition and maintenance of AEDs.

2.0 BACKGROUND

Sudden cardiac arrest (SCA) occurs when the heart's electrical system malfunctions and the heart itself stops beating. It's unpredictable and can happen to anyone, anywhere, anytime. It is fatal unless treated quickly. The only effective treatment for SCA is early defibrillation. Defibrillation is an electrical shock that re-starts the heart. A machine called a defibrillator administers the shock.

Historically, defibrillators were found only in ambulances and hospitals. But today the technology exists to have affordable defibrillators available wherever people gather. On-site personnel, with minimal training can operate these defibrillators.

3.0 CONCEPT

The use of AEDs designed for use by the public pose little risk of liability to those who use them for the purpose of providing emergency medical assistance. These devices are unlikely to cause harm since they are designed not to work when a heart beat is already present. Nor do they work on inanimate objects. To date, no law suit has been initiated involving the use of AEDs in North America.

In addition, in Ontario, Good Samaritan Act, 2001 provides that persons who provide emergency medical assistance are not liable for damages for injuries or death.

4.0 ROLES AND RESPONSIBILITIES

4.1 MEDICAL ADVISOR

The medical advisor of the AED program is Dr. Brendan Hughes, Canadian Red Cross and will:

- Provide medical direction for the use of the AED.
- Evaluate post-event review forms and digital files downloaded from the AED.

4.2 OCCUPATIONAL HEALTH NURSE

- Be available to liaise with appropriate personnel on the purchase and location of AEDs.
- Develop and make readily available procedures and guidelines for the use of the AEDs.
- Ensure departments comply with the AED conditions and standards set by the Canadian Red Cross.
- Ensure signage is appropriately placed to notify the public of the presence of the AED.
- Arrange annual AED training.
- Make Online Skill updates available.
- Organize the post event review and include the current AED trainer or provider.

4.3 DEPARTMENTS

- Arrange for appropriate personnel to receive basic life support-AED training.
- Arrange yearly training updates as recommended by Canadian Red Cross.
- Report any use or tampering of an AED to the occupational health nurse ext 36264.
- Conduct inspection of department's AED daily to ensure it is charged and functioning.
- Sign the daily check sheet indicating the inspection window of the AED reads 'OK'.
- Monitor the annual maintenance of AEDs.
- Direct emergency services to the site of an emergency in accordance with their standard procedures.

4.4 EMPLOYEES, STUDENTS AND OTHER MEMBERS OF THE UNIVERSITY

- Report any use or tampering of an AED to the Occupational Health Nurse ext. 40538.
- Not in any way tamper with the AED except for the purpose of responding to a cardiac emergency.
- In the event of a cardiac emergency, first call 911, and notify University Police, 519-888-4911.
- In the absence of trained personnel, and after 911 has been notified, remain with patient until trained responders arrive.

5.0 LOCATIONS

It is a departmental decision whether to purchase an AED. The department is solely responsible for the cost of the AED, the training of staff, and maintenance of the equipment.

AEDs are available while the facility is open. A list of AED locations can be found on the University's Safety Office website.

6.0 AED KIT

Each AED kit contains:

- 2 pairs of nitrile gloves
- 1 disposable razors
- Pocket mask
- Resuci face shield
- Trauma scissors
- Defibrillator pads

The AED is used to treat people who experience sudden cardiac arrest. It is only to be applied to individuals that are:

1. Unresponsive

AND

2. Not breathing (i.e. absence of normal breathing, coughing and movement)

- There are employees trained in an AED provider program in each department where the AEDs are located. This program teaches the safe use of an AED and the care of a patient in cardiac arrest. The AEDs are intended to be used by those persons trained in the use of the AEDs.

When requested, any first aid responder is expected to locate the nearest AED and return to the scene with the AED.

If the AED is not immediately available, perform CPR until the AED arrives or qualified emergency personnel (EMS) arrive on the scene.

- Each AED will have one set of defibrillation electrodes connected to the device and one spare set of electrodes with the AED. One AED will be connected to the handle of the AED.
- A guest/student on the University of Waterloo campus, who is trained in the AED guidelines, should respond to a situation requiring the use of the AED.
- [Canadian Red Cross AED protocol – lay rescuer \(PDF\)](#)

7.0 AED GUIDELINES

The design process and key elements of this guideline provide a foundation upon which individual lay rescuers and organizational leaders can execute the AED with confidence. However, this document cannot, nor is it intended, to address every circumstance or situation that could arise during a rescue. There is no substitute for common sense and the exercise of good judgment during a cardiac defibrillation event.

7.1 AED CHECKLIST

The site coordinator will assign a person/position to a daily task to check that the AED is operational.

- AED kit supplies
- AED battery life
- AED electrodes
- AED operation and status

Once this person has checked the AED and accompanying AED Kit, the person will initial the [daily check sheet \(PDF\)](#). If any problems are noted, that person will immediately notify **Occupational Health (519-888-4567 ext. 40538)**.

7.2 EMERGENCY RESPONSE

- Ensure the AED kit and all contents are taken to all calls for help.
- **Safety check** – Before entering the immediate vicinity of the victim ensure that the environment, cause of the victim’s distress, equipment in the immediate area do not represent hazards to the rescuer. Do not enter the rescue site if there is a potential for converting the rescuer into another victim.
- **Establish responsiveness** – Tap the victim on the shoulder and shout to see if he/she responds. Look for signs of breathing and blood circulations. If the victim is in obvious stress call for EMS.
- **Activate emergency response system** - 911 and notify University Police at 519-888-4911.

7.3 CHECK THE ABC'S

- A. Open airway using the head tilt/chin lift method.
- B. Check for breathing – look for chest rise for up to 10 seconds – if not breathing, give two breaths.
- C. Check for signs of circulation such as major bleeding, movement and poor colour.
- D. Attach (press) the electrode pads to the victim’s bare chest (follow diagram on back of electrodes). Chest hair prevents a good seal between electrodes and skin; shave as necessary. Ensure the skin is bare and dry; if necessary, wipe the skin with a dry cloth. Sweating is a major sign of cardiac arrest.

- E. Be aware of and remove if possible any jewellery, medical patches and implanted pace makers, bras etc. that may be in the way of pad placement.
- F. Turn on the AED unit, Stop CPR, allow machine to analyze, and follow the voice prompts.
- G. It is important that all rescuers during an AED listen and follow exactly all the AED voice prompts.**

7.4 SHOCK ADVISED PROTOCOL

- The AED will analyze the heart rhythm and advise the operator if a shockable rhythm is detected. The AED will charge to the appropriate energy level and advise the operator to press treatment button.
- Clear area, making sure no one is touching the patient.
- Push shock button when instructed.
- The AED will assess patient and if required prompt rescuer to resume CPR, at a ratio of 30 chest compressions and 2 breaths. A timer has now been activated and will instruct rescuer to stop CPR in approx. 2 minutes.
- The AED will analyse and may prompt to press shock button again.
- FOLLOW ALL VERBAL PROMPTS. AED will direct rescuers through each situation step by step.
- Leave AED attached to patient until qualified emergency personnel arrives. Do not stop care until asked by EMS. EMS personnel will take over patient care and will remove AED if needed.
- It is critical that all rescuers not directly involved with a cardiac event assist those who are by: looking out for any problems that may be overlooked or watching for any deviation from AED protocol.

7.5 NO SHOCK ADVISED PROTOCOL

- The AED will analyze the heart rhythm and advise the operator. Verbal prompt will say NO SHOCK ADVISED.
- If no breathing is noted and no pulse, begin CPR. AED will constantly analyse person's heart rhythm every 2 minutes.
- If signs of normal breathing are detected, leave machine on and place patient in the recovery position i.e. on their side with upper arm under lower arm cradling head- so that mouth and nose are clear.
- Check patient frequently by closely monitoring person's ABC's until EMS arrives.
- Transfer care of patient with electrodes intact. AED is to be removed only on instructions from paramedics.

7.6 HYPOTHERMIC PROTOCOL

If the person is found outside and the weather is inclement:

- Carefully but quickly get the person to a warm location. Consider the environment discovered in. Is the skin white and waxy looking?
- Assess for responsiveness.
- Have someone activate emergency response system call 911 and notify University Police at 519-888-4911, then
- Assess for breathing (ABC's) for up to 10 seconds.
- If **NOT** breathing, and you assume the person is hypothermic, give two breaths and start CPR for at least 2 minutes.
- When AED arrives, turn on, prepare chest accordingly and apply AED pads.
- Follow all verbal prompts.

If a **NO SHOCK** prompt is given, quickly check person's ABC's and if no chest rise, begin CPR at 30 – 2 ratio.

- If a **SHOCK ADVISED** prompt is given, **press button ONCE and turn off AED**. CPR will now continue until EMS arrives, the scene becomes unsafe, the person revives or rescuers cannot physically continue care.

7.7 OBSTRUCTED AIRWAY PROTOCOL

- If person's airway is blocked, perform "blocked airway" procedures until clear.
- The AED will be applied but NOT used until the person's airway becomes clear.
- See [Canadian Red Cross AED protocol - special situations \(PDF\)](#)

7.8 TURNING PATIENT CARE OVER

When EMS arrives relinquish care to them. Provide them the following information:

- Time of the emergency
- Condition of the victim upon your arrival at the scene
- Care given to include use of the AED
- Medical information obtained from the victim, bystanders, or medical documents found on their person

7.9 POST EVENT

- Provide completed [record of first aid rendered and AED use \(PDF\) form](#) from AED incident to Occupational Health.
- Clean the AED following the [equipment cleaning reference guide \(PDF\)](#).
- Restock the AED following [equipment re-stocking form \(PDF\)](#).
- Replace pads and order extra set of pads to replace those used.
- Check the date on the new electrodes and battery.

- Check AED for damage and re-certify its functionality.
- Return AED to its original location.
- Prepare and distribute Post Event Report to appropriate parties.

7.10 POST INCIDENT REVIEW

- Following each deployment or use of the AED, a review shall be conducted to learn from the experience.
- All key participants in the event shall participate in the review. Included in the review shall be the identification of actions that went well, collection of opportunities for improvement, and critical incident stress debriefing, if necessary.
- A summary of post event review shall be sent to the Medical Director at Health Services ext. 84068.

7.11 MEDICAL RESPONSE DOCUMENTATION

Internal post event documentation:

- It is important to document each use of the medical emergency response system.
- The following forms shall be sent to the site AED coordinator at Health Services, at 519-888-4567 ext. 36264, within 24 hours of a medical event:
- [University of Waterloo Incident Investigation Report](#)
- [Record of first aid rendered and AED use \(PDF\)](#) whenever emergency first aid kit or AED is used.
- When the AED has been used in a resuscitation effort, there will be a requirement to notify: Health Services (519-888-4567 ext. 36264)
- The first responder will complete [Record of first aid rendered and AED use \(PDF\)](#) and submit to the medical director at Health Services ext. 84068.