## Table of Contents

I. Philosophy 
II. Purpose 
III. Guidelines and Legislation 
IV. Definitions and Terms 
V. Medical Direction 
VI. Needs Assessment 
VII. AED Selection: type, cabinetry, signage, and cost. 
VIII. Location of AED 
IX. Pediatric Defibrillation 
X. Site Coordinator Roles and Responsibilities 
XI. AED Registration 
XII. AED Checks and Equipment Maintenance 
XIII. Training 
XIV. Post Event AED Data Management 
XV. AED Standards, Requirements and Procedures Review 

Appendix 1 Automated External Defibrillator Registration Form 
Appendix 2 Guidelines for use of an Automated External Defibrillator
I. Philosophy

Heart disease is a significant health problem. In 2005, cardiovascular disease accounted for 31% (71,338) of deaths in Canada (Statistics Canada). Of these, over 40,000 were attributed to Sudden Cardiac Arrest (SCA), an unexpected electrical problem causing the heart to quiver and stop pumping. This condition is usually fatal in over 95% of cases that occur outside a hospital. In most cases, the injured/ill person will need treatment long before trained responders (first aiders) or paramedics arrive. For every minute of delay, the chances of survival decrease by 7-10%. However, when high quality cardiopulmonary resuscitation (CPR) and an electrical shock (defibrillation) can be rapidly delivered, survival rates can exceed 30-50%. Consequently, today’s “computerized shock boxes” are so advanced and safe, the medical community now encourages the minimally trained first aider to provide this electrical treatment using available Automated External Defibrillators (AEDs). The process of allowing the first responders to provide this life saving emergency treatment is referred to as Public Access Defibrillation (PAD) and is most effective when it is incorporated into an emergency response plan.

II. Purpose

The York University AED Standards, Requirements and Procedures will:

- Provide information (e.g., standard, use, types, maintenance, signage, and training) on AEDs.
- Outline the procedures (e.g., registration, inventory, maintenance, tracking etc.) for the administration of this document.

III. Guidelines and Legislation

This document is established in accordance with the recommended guidelines of the International Liaison Committee on Resuscitation (ILCOR), which have been endorsed by the Heart & Stroke Foundation of Canada and adopted by other training agencies in Canada.

In recognition of the benefit that AEDs have on a person suffering from SCA, Ontario has recently introduced Bill 41, the “Defibrillator Access Act, 2010”. If
enacted, it would likely become mandatory for educational facilities, fitness centers, and sports venues to have AEDs and establish related guidelines.

Existing Ontario legislation related to First Aid and the use of AEDs includes:

1. **Chase McEachern Act (Heart Defibrillator Civil Liability), 2007 (S.O.2007, Ch.10)**

   This Act offers protection from civil liability for:

   (i) Individuals that use an AED:

   “Despite the rules of common law, a person described in subsection (2) who, in good faith, voluntarily and without reasonable expectation of compensation or reward uses a defibrillator on a person experiencing an emergency is not liable for damages that result from the person’s negligence in acting or failing to act while using the defibrillator, unless it is established that the damages were caused by the gross negligence of the person”.

   (ii) The owners/operators of the premises where the defibrillator is located:

   “Despite the Occupiers’ Liability Act and the rules of common law, any person who owns or occupies premises where a defibrillator is made available for use and who acts in good faith with respect to the availability or use of the defibrillator is exempt from civil liability for any harm or damage that may occur from the use of the defibrillator”.

   In addition, the Act mandates that the AED owner provides proper maintenance of the AED and that it is made available:

   “Subsection (1) does not exempt the person who owns or occupies the premises where a defibrillator is made available for use from civil liability if, (a) that person acts with gross negligence with respect to making the defibrillator available; (b) that person fails to properly maintain the defibrillator.”

2. **Good Samaritan Act, 2001 (S.O.2001, Ch.2)**

   This Act prevents a rescuer who has voluntarily helped a person in distress from being successfully held liable for any wrongdoing:

   “Despite the rules of common law, a person who voluntarily and without reasonable expectation of compensation or reward provides the services described in that subsection is not liable for damages that result from the person’s negligence in acting or failing to act while
IV. Definitions and Terms

- **Automated External Defibrillators (AEDs)** are safe, portable computerized electronic devices that use voice and visual prompts to guide the rescuer to safely provide a shock (defibrillation) to the casualty. These light-weight shock boxes all have their own power supply and a one or 2 piece system of pads (electrodes) that attach to the casualty. Once attached, the unit then analyzes the casualty’s electrical activity to determine if a shock would benefit the casualty. AEDs will not shock if the casualty’s heart rhythm is compatible with life. When advised, the rescuer pushes a “shock” button to deliver the treatment through the electrode pads and to the casualty. All AEDs can deliver a shock but some AEDs can monitor the rescuer’s chest compressions during CPR and provide rescuer feedback to ensure that high quality chest compressions are performed.

- **Arrhythmias** are abnormal electrical patterns within the electrical system of the heart. Ventricular Fibrillation (VF) and Ventricular Tachycardia (VT) are serious arrhythmias that cause the heart to quiver or beat in a chaotic fashion and result in sudden cardiac arrest.

- **Defibrillation** is the process of delivering a shock to the heart through a set of electrode pads attached to the chest and overlying the heart. The electrical shock stops the quivering in the heart that is caused by arrhythmias (VF and VT) and then allows the heart’s own electrical system to function properly again. First aiders can now provide this important lifesaving procedure utilizing automated external defibrillators (AEDs).

- **Pediatric Defibrillation** is the process of defibrillating a child between 1 year and 8 years of age (usually less than 25 kg). When possible pediatric electrodes should be used. If unavailable, adult electrodes may be utilized but applied to the anterior chest and the back as per current pediatric defibrillation recommendations.

- **Sudden Cardiac Arrest (SCA)** an unexpected electrical problem causing the heart to quiver and stop pumping.

V. Medical Direction

The Department of Occupational Health and Safety (DOHS) has retained a medical consultant that will provide medical guidance regarding the choice of
AED and procedures relating to AED implementation. The role of the Medical Consultant is to:

- Provide medical leadership, including coordination with local EMS and 911 centers
- Provide guidance in equipment selection and deployment
- Endorse initial training program(s) and recommend skill maintenance
- Review any existing Emergency Plan to ensure they incorporate guidelines for responder actions or propose new guidelines.
- Review events where an AED is utilized and provide a quality assurance report

VI. Needs Assessment

While SCA is unpredictable and can happen anywhere and to anyone, certain demographic variables can increase risk, including age, fitness levels and general health. It is possible to conduct a detailed SCA risk calculation at a workplace based on a very complex formula, but there are a number of basic indicators that can be used to rationalize the need for having an AED available as part of the first aid response.

The following factors should be taken into consideration when deciding whether or not it can be beneficial to acquire an AED for a specific area:

- Population to be served (e.g. age, activities, work environment)
- Existing emergency response framework (e.g. number of Designated First Aiders)
- Response time of Emergency Medical Services (e.g. fire, police, ambulance)
- Number of responders available or willing to be trained to use an AED

Once an assessment of the above factors is completed, consideration of the requirements below will provide additional information about the fiscal impact and efficacy of implementing AEDs into the response plan:

- Number and type of AEDs, cabinets and other accessories required
- Location of AEDs
- Signage requirements
- Responsibility regarding AED purchase
- Maintenance issues including cost
VII. AED Selection: type, cabinetry, signage, and cost.

a) Type of Device

There are several types of AEDs currently available at different sites within York University. However, standardization of the type of AED equipment obtained in the future is required. DOHS has developed mandatory specifications for selecting a new AED which also takes into account advances in AED technology (see below) and will improve or simplify AED maintenance. Contact DOHS for advice about the recommended AED prior to your purchase.

Mandatory AED specifications include the following:

- Approved by Health Canada.
- Under warranty for a minimum of 5 years.
- Easily upgradeable for new guidelines or software upgrades.
- Assist with CPR by having the ability to sense the quality of any CPR compressions being provided and coach the rescuer with visual and auditory prompts.
- Capable of supporting “pediatric defibrillation” for children between 1-8 years. This may include optional acquisition of 2 piece pediatric electrodes for appropriate locations (See Section IX).
- Require minimal maintenance and utilize electrodes and batteries that have an expiry date of at least 5 years from the date of manufacture.
- Should be provided with a software solution or accessories (if required) that allows the medical consultant to download and report the data from any AED deployed.

b) AED Cabinets and Signage

AED Cabinets are recommended for AEDs that are not part of a targeted responder’s equipment. When AEDs are installed in a cabinet or on a wall bracket, the enhanced AED visibility alerts potential rescuers to the presence of an AED and the location of the AED for quick access. Alarmed AED wall cabinets, especially those with strobe lights, are preferred since they are also helpful in keeping the AED secure.

Signage will be provided by DOHS. All AEDs should have their location identified by a 3-D sign appropriately mounted in the vicinity of the AED, ideally over the AED cabinet or over an AED installed on a wall bracket.
c) Costs

The approximate cost per unit is $1500.00 - $2500.00, but the cost of cabinets, signage, and replacement accessories like batteries, electrodes, and AED prep kit/supplies should also be considered.

VIII. Location of AED

The availability, placement and use of defibrillators within a university or community setting should be based on the principles of “chain of survival,” proximity and time to advanced life support, community priorities and training available to personnel.

Consult DOHS prior to an AED installation.

IX. Pediatric Defibrillation

If the intended AED location is in an area where a pediatric cardiac arrest is considered a significant risk, the optional 2 piece pediatric electrodes should be stored with the AED and be readily available for attachment to the AED during the emergency.

Pediatric electrodes should be applied to the front of the chest and the child's back as per the current pediatric defibrillation recommendations and as approved by the manufacturer. In other locations, if pediatric electrodes would normally be utilized but are not immediately available, adult electrodes may be utilized by applying one electrode to the front center of the chest and the other to the back.

X. Site Coordinator Roles and Responsibilities

Each AED site location must have an assigned Site Coordinator who reports to the Department Head. The site coordinator person is involved with the initial implementation and their responsibility relates to the day-to-day activities identified in this document including communicating with co-workers, responders, and other stakeholders including the public.

The duties or role of the Site Coordinator includes:

• Inspecting the AED on a regular basis (monthly) and ensuring AED maintenance checks are performed and recorded

• Following up on any other recommendations from the DOHS or Medical Consultant to ensure the AED is in complete compliance

• Responsible for data entry into the online AED due diligence program following each AED inspection and following up on any related notification
• Liaise with the medical consultant through DOHS as required, and in particular after an AED was utilized

• Act as a resource for their site's personnel and with the assistance of the DOHS or medical consultant, remain familiar with any new AED regulations or training requirements

XI. AED Registration

DOHS is responsible for maintaining an inventory of all AEDs available for use on campus, and the owner or site coordinator for each location.

As such, anyone who wishes to purchase or install an AED must review this document and register with the DOHS.

A copy of the completed Registration Form (Appendix 1) must be sent to DOHS.

XII. AED Checks and Equipment Maintenance

AEDs and accessory equipment are maintained in accordance to the manufacturer’s recommendations. AED checks will include, but is not limited to:

• An inspection to ensure the “status indicator” confirms the AED is in working order

• An assessment of the electrodes to ensure the foil package has not opened or is not outdated

• Confirmation that the batteries have not expired and that any spare batteries or electrodes are present.

• For cabinets with built-in alarms, inspections that ensure the alarm is functional.

AEDs that do not pass these inspection parameters should be removed from service and DOHS should be advised immediately.

All AEDs will be monitored using an online AED Due Diligence maintenance program. This will be accessible by each site coordinator to ensure AED inspections are accurate and up-to-date. The entire online network of York University AEDs will also be viewable by selected members of DOHS or the Medical Consultant.
XIII. Training

DOHS recognizes that most AEDs could be used successfully by an untrained rescuer. However, as a risk management strategy, DOHS requires each department responsible for an AED to train an adequate number of first aid responders. They must be available for immediate response during regular business hours. Targeted responders (e.g. security staff) have a duty to respond to an emergency as part of their job requirement and must also be trained to use an AED.

a) Training for AED

All responders must receive AED training as part of their Standard First Aid/CPR certification. The training provider must be certified by a licensed physician or a recognized training agency and approved by the physician providing medical sign-off. For training provided by DOHS, go to www.yorku.ca/training.htm. Contact DOHS for programs approved by the medical consultant.

First Aiders should attain a minimum CPR (Level A) training with AED training included as a component of their First Aid certification which is valid for 3 years.

b) Duration of AED Training

Training must be of a duration that meets or exceeds the minimal requirements as specified by the certifying body for the recognized training program. Training should include familiarization of the trainee with the type of AED available in their area, a written test, and a practical skills component which should be inclusive of scenarios.

c) Re-Certification

First Aiders will be trained or recertified in CPR/AED at a minimum of every three years. First Aiders can attend a one-day renewal only if their existing certification has not expired and their last training session was a full 2-day course. Online training programs are not acceptable for recertification purposes.

Trainees whose duty is to respond to a medical emergency (targeted responders) will be retrained on a yearly basis.
XIV. Post Event AED Data Management

Following the utilization of any AED, DOHS must be immediately notified so that a data download and medical report can be arranged.

- The initial or lead responder shall complete the AED post-event written report
- The report will be kept in a confidential file by the DOHS but may be shared with the involved rescuers at the discretion of the medical consultant
- Following notification by the DOHS of an AED deployment, the Medical Consultant will assume responsibility to ensure the AED data is retrieved in a timely manner, and will be responsible for safe-guarding or sharing this data
- The Medical Consultant will prepare a written report subsequent to data analysis.
- A post incident stress debriefing will be offered to the rescuers

XV. AED Standards, Requirements and Procedures Review

The AED Standards, Requirements and Procedures will be reviewed once every two years by DOHS in consultation with the Medical Consultant.
Appendix 1  Automated External Defibrillator Registration Form

Please type or print clearly and keep a copy of the form for your records. Fax the completed form to DOHS at 416-650-8057.

A. Contact Information

Department/Faculty: _____________________________________________

Name of Department Head/Executive Officer: ______________________________

B. Site Coordinator

Name/Title of Site Coordinator: ___________________________________________

Campus Address: _____________________________________________________

Email: _____________________ Ext #: ______________  Fax #: _______________

C. AED Information (Consult DOHS prior to purchase of any new equipment)

Make: _______________  Model: ______________  Serial #: __________________

Location stored (Building and Room #): ____________________________________

Location(s) used (if different than location stored): ____________________________

____________________________________________________________________

Funding Sponsor: _____________________________________________________

D. Proposed Trainees (or currently trained):

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Completed by:           Signature:           Date:  

Page 12 of 14          October 31, 2010
Targeted responders (security personnel, etc.) should bring the AED with them for all medical assist calls that could potentially involve a life-threatening emergency. In other emergencies where an AED is present or nearby, the AED should be retrieved immediately for use by a trained rescuer.

**INDICATIONS FOR USE OF AED**
The use of the AED is required for persons who are:
- Unresponsive
- Not breathing or not breathing normally

**AN AED SHOULD NOT BE ATTACHED TO A PERSON WHO IS CONSCIOUS OR WHO IS BREATHING NORMALLY**

**RESCUE STEPS**
- Check the scene for safety. If the environment is unsafe, never put yourself or others at risk, CALL 9-1-1. Call x33333 to notify Security Services.
- Check the person for responsiveness and assess if they are breathing normally.
- Call 9-1-1 if unresponsive and not breathing normally.
- Retrieve the AED and follow the steps below.

If the AED is not immediately available, begin CPR after preparing and using the appropriate personal protective devices i.e., pocket ventilator or face shield.

**PROCEDURE**
If the AED is immediately present and the environment is safe and the appropriate conditions exist, follow the rescue sequence below:
1. Activate the device on by pressing the “ON” button and follow all AED prompts.
2. Prepare the Bare Chest: Use dignity when removing clothing to expose the chest for pad (electrode) attachment. Dry the wet chest, shave any excessive hair.
3. When advised, open the electrode package and attach the defibrillator pad(s) to the bare chest as per the instructions located on the electrode pad packaging.
4. The AED will then automatically analyze to determine if a shock is immediately required so ensure nobody is touching the person by calling “STAND CLEAR”.
5. If the AED advises you to press the “Shock Button”, shout “STAND CLEAR, I'M CLEAR, YOU'RE CLEAR, WE'RE ALL CLEAR” or words to that effect while verifying no one is touching the person and the environment remains safe.
6. If it is safe, follow the AED prompts and push the “SHOCK BUTTON”.
7. Immediately follow the AED prompts to start chest compressions after delivering a shock or after the AED analyses and advises CPR instead of a shock. (AED will automatically prompt you to provide 2 minutes of CPR)
8. Continue to follow prompts until EMS arrives or the person regains consciousness or has signs of circulation and normal breathing.
TRANSFER OF RESPONSIBILITY AT SCENE

When EMS (paramedics or fire department) arrives on scene, allow them to direct when and how they will assume care.

The on-scene protocol will now be under the direction of the paramedic.
- Provide a verbal report to the arriving paramedics or ancillary agency
- Complete the current cycle of CPR if directed and change over on their direction.
- The paramedic will direct the process of equipment changeover.
- A rescuer may be requested to assist with ongoing CPR.

CONFIDENTIALITY

Any documentation containing personal information must be treated as confidential.

The completed AED Report is part of the patient’s medical record and must be kept strictly confidential. Personal information, care details and outcome are also confidential issues. Discussion of such information outside the professional setting (i.e., with the media) may be considered a breach of confidentiality.

Procedure:

Treat personal information according to the York University policy “Access to Information & Protection of Privacy”. The documentation should be submitted solely to DOHS utilizing the AED Event form so they can place the information in the care of the medical consultant.

- Retreive a blank “AED Event Form” from your AED carry case or contact DOHS to request a blank form (416-736-5491).
- After completing the AED Event Form, seal it in the red envelope provided. It should be clearly marked as “confidential”.
- Send or deliver the form to DOHS who will forward it to the Medical Consultant.