



OCCUPATIONAL SAFETY AND ENVIRONMENTAL HEALTH GUIDELINE

Subject: Automated External Defibrillator Program

Date: 2/18/09

Revision: 03

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This Guideline is issued jointly by the Occupational Safety & Environmental Health Department, the Chief Health Officer, and the Office of Risk Management to provide minimum standards for guidance and consistency in management of the Automated External Defibrillator (AED) device programs for the University of Michigan Ann Arbor campus. The regional campuses are encouraged to use this document as a reference and for consistency.

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SUMMARY: The Automated External Defibrillator (AED) Guideline has been developed to provide guidance for the selection, placement, use, and maintenance of AED units for departments at the University of Michigan. The use of an AED is one step in the process toward improving survival rates for victims of sudden cardiac arrest.

According to the American Red Cross each year in the United States over 250,000 people die of sudden cardiac arrest before reaching a hospital. A person's chance of survival can be increased by establishing a Chain of Survival system that includes early recognition, early cardiopulmonary resuscitation (CPR), early defibrillation, and access to advanced cardiac life support by emergency medical services (EMS) and medical facilities. The effectiveness in increasing patient survival through the use of AED's has been documented by organizations such as, the American Heart Association, the American Red Cross, and the National Heart, Lung and Blood Institute.

Currently, over 150 AED units are available across the campus, including the Department of Public Safety (DPS) patrol vehicles, all Athletic and Recreational Sports venues, performance venues, Plant Operations High Voltage Utility vehicles, and the College of Engineering buildings. See [Appendix A](#) for the list of AED locations and maps for the Ann Arbor campus.

SCOPE: The scope of this Guideline includes:

- Departments with AED units already in place, or
- Departments considering purchasing them.

Patient care areas are not covered by this information. The placement of AED units in general University buildings is not a requirement, with the exception of facilities required to meet specific rules or regulations based on their operation. This Guideline is not considered to be an endorsement for departments to purchase AED units.

REFERENCE

REGULATIONS: The Food and Drug Administration (FDA) regulates AED units as medical devices. A prescription is required to be written by a physician for purchase of an AED. Devices with FDA approval can be accessed at this website: <http://www.fda.gov/hearthealth/treatments/medicaldevices/aed.html>

Michigan Public Act 173, an Expanded Good Samaritan law, provides immunity from civil liability to anyone using an AED on a victim of sudden cardiac arrest. <http://www.legislature.mi.gov/documents/1999-2000/publicact/pdf/1999-PA-0173.pdf>

[Federal Public Health Improvement Act](#), Public Law 106-505 (November 13, 2000). Subtitle A of Title IV of the Act, the Cardiac Arrest Survival Act of 2000, amends the Public Health Service Act to provide for placement of

AED's in Federal buildings to improve survival rates of cardiac arrest victims, and to establish protection from civil liability from the use of the devices.

[Michigan Public Act 23](#), an Act to regulate health clubs with respect to potential medical emergencies; and to provide for civil sanctions.

DEFINITIONS:

Automated External Defibrillator (AED) - this is a computerized medical device that will assess a person's heart rhythm and deliver an electrical shock if the heart is in ventricular fibrillation.

CPR (cardiopulmonary resuscitation) – an emergency medical procedure using artificial blood circulation and respiration to maintain the flow of oxygenated blood through the body, thereby delaying tissue death and increasing the opportunity for successful resuscitation without brain damage.

Chain of Survival – optimizing a patient's chance for survival of sudden cardiac arrest. There are four links in the chain: early recognition, early CPR, early defibrillation, and early access to advanced cardiac life support.

EMS (emergency medical services) – typically, an ambulance service that provides acute medical care and transports patients to a medical facility for more advanced treatment.

RESPONSIBILITY: Medical Advisor for the University AED Program-designated as the Chief Health Officer will provide oversight for the medical components of this program, including:

- Recommendations for AED placement.
- The medical review for each use (post event) of an AED.
- An annual review of the AED Program.
- The training component of this program.

Department of Public Safety (DPS)

- Respond to a cardiac arrest situation.
- Coordination of post event procedures, including;
 - Completion of the written report in Appendix D.
 - Contact the Chief Health Officer, OSEH, and Risk Management upon completion of the event activities.
 - OSEH will contact the AED vendor to download the AED use data information and to replenish supplies.

OSEH

- Develop, maintain, and update the written AED program for the University, including the AED locations and contacts.
- Provide vendor information for purchasing AED units, AED supplies, maintenance procedures, post event data downloads, and CPR/AED training.

- Conduct an annual survey of AED units on campus for placement, appropriate maintenance, and employee training records. This will occur in January.
- Maintain contact and provide updates with DPS Dispatch, Ann Arbor Police Department and Huron Valley Ambulance Service regarding this Program.
- Review Program on an annual basis, and as procedures are updated.

Deans, Directors, and Department Heads

If AED units are available in the department:

- Designate and empower an AED Departmental Coordinator to be responsible for maintenance of the AED Program.
- Assign resources to support the implementation of this Guideline, including maintenance and employee training.
- Encourage employee participation.

Departmental AED Coordinators

- Inform OSEH of AED unit locations.
- Ensure the required inspection and maintenance activities are completed, as noted by the AED manufacturer or this Guideline.
- Coordinate training for staff.
- Maintain the written records for AED placement, maintenance, use and employee training.

PROCEDURES:

The appropriate procedures to place AED units in a building, department or unit include:

1. Obtain permission and funding from departmental administrators.
2. Designate an AED Coordinator to administer and maintain the program. See [Appendix B](#) for a Sample Departmental Program.
3. With the assistance of the Chief Health Officer and OSEH, select an AED unit, an appropriate location, and provide employee training.
4. Assure the AED units are maintained according to the manufacturer's recommendations.
5. Maintain written documentation of the employee training and AED unit maintenance.

Selection, Location and Placement of AED's

The Food and Drug Administration (FDA) provides approval for the sale of medical devices, including AED units. So it is important to select an FDA approved model. Technology is developing rapidly so it is important to consult with the Chief Health Officer or OSEH prior to purchase.

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Selection criteria for AED devices include:

- Meet the [American Heart Association's 2005 Guidelines](#)
- Intended to be used by the general public
- Ability to be used on infants, children, and adults
- Ability of the unit to perform automated self checks for battery and pad integrity
- Ability of the unit to record, store and download data when it has been used in a medical event.

The majority of AED units currently on campus are Philips brand HeartStart models. The models recommended vary depending on the location and intended use of the AED; office area, dusty or wet environment. AED supply vendors are included in Appendix C.

There are several major elements to consider for placement of AED units. The [Guidelines for Public Access Defibrillation \(PAD\) Program in Federal Buildings](#) and the [American College of Occupational and Environmental Medicine](#) provide information. An optimal response time of 3 minutes or less is recommended by Federal Occupational Health PAD Guideline. Survival rates decrease by 7 to 10 % for every minute that defibrillation is delayed.

Other considerations include:

- Workforce demographics; age, health considerations, and occupancy numbers
- Visitors; large gathering areas, cafeterias
- Specialty areas; exercise and work out areas
- Building layout; large facilities, unusual floor plans, physical barriers, and building codes

For ease of use and security, consider the following for AED placement:

- Near a campus phone to call 911 and activate EMS
- Located in a well marked area
- The area should be easily accessible for use, with consideration for the potential for tampering and theft. Alarmed cabinets are available.
- Optimal height for potential responders and in accordance with accessibility and ADA (Americans with Disabilities Act) guidelines, including height considerations, and a 4 inch or less protrusion from the wall.

Additional items to be placed with AED's:

- CPR and AED instructions
- Spare AED battery and electrode pads, note the expiration dates
- Nitrile gloves
- CPR barrier masks
- Scissors to easily remove clothing
- Disposable razor to dry shave a victims chest to place the pads
- Toweling to wipe hair or moisture from skin

Signage

Buildings equipped with AED units should be identified with signage indicating the availability of a unit. Universally recognized signage is available from the AED vendors for placement at entrance areas and at the unit location. The locations of the units should also be incorporated into the Emergency Evacuation Plans signage for the building.

Training

CPR and AED training is voluntary unless it is part of a written job description. Examples of mandatory CPR/AED trained personnel include DPS emergency responders and high voltage electrical personnel. Departments with AED units are strongly encouraged to provide training for staff. The availability of an AED unit and trained personnel in the work environment should allow for greater survival rates from a cardiac arrest.

Combined CPR and AED training can be provided by recognized training organizations such as; the American Heart Association, American Red Cross, American Safety & Health Institute, and National Safety Council. Training resource information is provided in [Appendix C. Bloodborne Pathogen training](#) must be completed on an annual basis for employees expected to respond, as part of their job duties.

Written training records are to be maintained by the Departmental AED Coordinator.

Training should include at a minimum:

- Recognition of the signs and symptoms of sudden cardiac arrest.
- Instruction for CPR and AED protocols.
- Specific instructions to contact the Department of Public Safety to access emergency medical services; call 911, identify the problem and your location (the University of Michigan building, cross streets or other landmark information, room and floor location), send extra staff to the building entrance to meet the responders.
- Location of the AED units in the building.
- Refresher training, as required by the training organization selected.

AED Unit Maintenance

The AED Departmental Coordinators are responsible for the routine inspection and maintenance of the AED's according to the manufacturer recommendations. The battery packs and pads need to be replaced prior to their expiration dates and other supplies replaced as needed.

An annual survey will be conducted in January by OSEH to assure appropriate placement and maintenance of the units, and to review departmental training and maintenance records.

Examples of an inspection form, inspection tags and signage are provided in [Appendix D](#) and are available from OSEH. Inspection and maintenance records for the AED units must be maintained in a departmental file with other AED Program information.

Post Event Procedures

When an AED has been utilized in a rescue situation it is imperative to return the unit to service as soon as possible. It is assumed DPS will be involved in all situations involving use of an AED and provide the written report of activities and make the necessary contacts with other University departments.

Actions to be taken after an AED unit has been used in an emergency situation include:

- Notify the Chief Health Officer, Risk Management and OSEH.
- Remove the AED from service and have the event documentation retrieved. This service is available from the AED vendor through OSEH.
- Decontaminate the AED and restock the AED bag with items that were used during the event.
- A written report of the event will be provided by DPS to the Chief Health Officer, Risk Management, and OSEH. The report should include information from the lay responders, EMS Responders; DPS, Huron Valley Ambulance, and/or Ann Arbor Fire or Police, and whether the victim was an employee, visitor or student. The post event form is located in Appendix D.
- A Work Connections Injury & Illness form must be completed and submitted for faculty and staff. <http://www.umich.edu/~connect/forms.htm>
- FASAP (Faculty and Staff Assistance Program) and EAP (Employee Assistance Program) services should be considered for staff involved in the event and coworkers.

TECHNICAL SUPPORT:

All reference guidelines, regulations, and other documents are available through OSEH (7-1142).

ADDITIONAL RESOURCES:

American Heart Association
<http://www.americanheart.org>

Washtenaw County Chapter of the American Red Cross
<http://www.wc-redcross.org/>

AED Vendor “That AED Guy” www.thataedguy.com

ATTACHMENTS:

[Appendix A – AED Locations and Maps](#)
[Appendix B – AED Sample Departmental Program](#)
[Appendix C – AED Supply and Training Resources](#)
[Appendix D – Example of Inspection and Maintenance Forms](#)