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## Automatic External Defibrillators (AED) on Campus

Automatic External Defibrillators (AED) are a proven method of reducing morbidity and mortality from sudden cardiac arrest (heart attack). An AED is a device that attaches to a victim's chest to assess the heart's rhythm and, if needed, automatically recommends whether or not a shock be delivered to correct the heart's rhythm. An adult who has just gone into sudden cardiac arrest is most likely in urgent need of defibrillation and a metered electrical charge can often restore the heart to healthy function and save a life. To provide a realistic chance of survival, defibrillation must be available soon after cardiac arrest.

The automatic external defibrillator (AED) will enable University personnel or the public who are trained in First Aid/CPR/AED to deliver early defibrillation to victims in the first critical moments after a sudden cardiac arrest. Responder's use of the AED should not replace the care provided by emergency medical service (EMS) providers but it is meant to provide a lifesaving bridge during the first few critical minutes it takes for advanced life support providers to arrive. Upon arrival of the EMS providers, patient care should be transferred.

At the University of Massachusetts – Amherst, University Health Services, the University Police Department, and the Athletics Department each have stand-alone AED programs coordinated by their departments to ensure training, equipment, and compliance requirements are met.

All other departments that place AEDs in service within their area come under a campus-wide Automatic External Defibrillator Program managed under Environmental Health and Safety. A representative from EH&S acts as the AED coordinator for the University and is the liaison between the Medical Director for western Massachusetts, the local fire department, and the University.

Any department wishing to purchase an AED and become part of the University's program should contact Robert Laford and Environmental Health and Safety for more information.

Each participating department identifies an individual within their department to be the department's liaison to EH&S to assist in managing the program for that department.

Departments are responsible for initial and annual training costs of staff members, purchase costs of the defibrillators and subsequent needed supplies and maintenance of the unit.

EH&S works with the individual departments in (1) providing the necessary initial and on-going training, (2) acquiring the approval to purchase the equipment from the Medical Director, (3) assists in the procurement of the approved equipment, (4) identifying the installation location

within the department, and (5) interfacing with community members involved in an incident when an AED is needed and used in an emergency.

Thanks to CPR instructors in EH&S, UMass EMS, University Health Services, UMPD, Kinesiology, Housing Services, Athletics, Early Childhood Education, Physical Plant, and others, over 500 people on campus are trained in Cardio Pulmonary Resuscitation (CPR) and use of Automatic External Defibrillators (AED) each year.

Having campus community members trained in CPR and the use of AEDs is valuable for each member and visitor to the University. Recognizing that an emergency exists and contacting 911, providing immediate patient care (including CPR), and initiating the use of a nearby AED are each links in the Cardiac Chain of Survival. Combined with the final link – the intervention of Advanced Life Support care given by trained medical personnel, promotes better opportunities for an individual's survival during a cardiac emergency.

For more information on the University's Automatic External Defibrillator Program or Cardio Pulmonary Resuscitation/AED training, please contact Environmental Health and Safety.

AED Locations on Campus – June 2018

Campus Center Complex (Hotel Lobby)

Central Heating Plant

Computer Science (Main Office Lobby)

Dining Services – Blue Wall Café, Hillside at Worcester Dining Common, Franklin Dining Common, Berkshire Dining Common, and Hampshire Dining Common

Dubois Library (Main Lobby)

UMass EMS (EH&S) – 5 Units assigned with EMTs  
1 unit in Draper 117

Athletics – Multiple Units assigned to Athletic Trainers/Boyden Gym  
-- Boyden Pool  
-- Totman Pool  
-- Recreation Center (4 units)

Health Services – 1 Unit in the Walk-in Clinic at the Health Center  
- 2<sup>nd</sup> Unit at Center for Counseling and Psychological Health in 252 Bartlett

Housing Services

(1). - Housing Operations Offices in Berkshire House (119), North Village (C2), and Housing M&O Central Office at the Agricultural Experiment Station building on Tillson Farm Road

Department of Kinesiology (Exercise Science) – Totman (2 units) (One Unit in the Body Shop, one unit available in lab in rooms 163.

Life Sciences Lab Building – Human Testing Center (Suite of S360/370)  
Human Magnetic Resonance Center (hMRC) (Suite S230)

Marston Hall (College of Engineering room 126)

Mullins Center – 1 Unit in Security Room of Main Arena and 1 unit in the Reception Office of the Practice Rink

Physical Plant -- At the Reception Area (Main Level)  
-- At the Central Stores cage on the Ground level  
-- At the Reception Area (Third Level)

Skinner Hall - College of Nursing, 2<sup>nd</sup> floor corridor

UMass Police – Multiple Units on patrol and in Police Station

Renaissance Center (East Pleasant Street)

Station Services Building – Tilson Road (Res Life Operations office)

Student Union Complex (Center for Student Development Office)

Whitmore Administration Building – (2<sup>nd</sup> floor foyer by Bursar's Teller Line)



North Village

Renaissance Center

UMass Police

Defibrillator Locations on Campus (AEDs)



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## AED Frequently Asked Questions

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**Q What is sudden cardiac arrest?**

**A** Sudden cardiac arrest (SCA), one of the leading causes of death in the United States, strikes over 300,000 victims each year, of which about five percent survive. Sudden cardiac arrest cases are usually due to abnormal heart rhythms called arrhythmias, the vast majority of which are ventricular fibrillation. Ventricular fibrillation is a condition in which the heart's electrical impulses suddenly become chaotic; causing the heart's pumping action to stop abruptly. Victims collapse and quickly lose consciousness, often without warning. Unless a normal heart rhythm is restored, death follows within a matter of minutes. The cause of sudden cardiac arrest is not well understood. Many victims have no history of heart disease, or if heart disease is present, it has not functionally impaired the victim. Unlike a heart attack, which is the death of muscle tissue from loss of blood supply, many victims of SCA have no prior symptoms. SCA can strike anyone, at any time, anywhere.

**Q What is the current treatment for SCA?**

**A** A series of four critical steps, called the "Cardiac Chain of Survival," have been identified for the treatment of SCA:

- Early access to care (i.e., calling 911 or another emergency number);
- Early cardiopulmonary resuscitation (CPR);
- Early defibrillation; and
- Early institution of advanced cardiac life support.

A break in any of the four links in the chain can compromise the victim's chance for survival; however, early defibrillation is recognized as the most critical step in restoring cardiac rhythm and resuscitating a victim of SCA.

**Q What is defibrillation?**

**A** Defibrillation is the treatment of irregular, sporadic or absent heart rhythms by an electrical current to the heart. It is the only definitive treatment for SCA. Defibrillation administered within four minutes after collapse is most successful. Every minute a victim is unconscious translates to approximately a ten percent decrease in the likelihood of resuscitation. After ten minutes, very few resuscitation attempts are successful. Thus, the most important element in the treatment of SCA is providing rapid defibrillation therapy. CPR may help prolong the window of survival, but it cannot reverse SCA.

**Q What is the American Red Cross doing to increase public access to AEDs?**

**A** In addition to being the leading training agency for first aid, CPR and AED information and skills, the Red Cross is committed to strengthening existing state and federal legislation that extends the reach of AEDs into the community. For the last several years, the American Red Cross has championed legislation to increase public access to defibrillation.

**Q If treatment for SCA exists, why are survival rates low?**

**A** Time. Only one out of every 20 SCA victims survives - though many of these lives

could be saved through early defibrillation. With a brief window of opportunity for effective treatment, it is vital that responders reach the victim and defibrillate within the first ten minutes of SCA.

Despite announcements from the American Red Cross, the American Heart Association and others calling for the broad deployment of AEDs, the penetration of AEDs among emergency responders is remarkably low. Because of other outside influences, response times and survival rates vary from one location to another. Metropolitan and rural areas are the hardest hit. Improved access to early defibrillation will greatly improve the national survival rate, which is presently about five percent.

**Q Why do we need AEDs in the workplace? Do my employees need to be trained to use an AED?**

**A** Approximately 150 million Americans go to work every day where they spend more than half of their waking hours. The American Red Cross advocates CPR and AED training in the workplace to help keep American workers safe. The Red Cross believes that proper training in CPR and AED and quick activation of the EMS system combined can help to save more lives. When CPR and defibrillation are used together, as outlined in the Cardiac Chain of Survival, a better outcome can be obtained. The Red Cross also advocates increased public access to AEDs in places such as corporate offices, shopping malls, airports, sports stadiums and other places where large groups of people gather and the risk of an SCA incident is very likely.

**Q: Do all AEDs work the same?**

**A:** All AEDs direct the rescuer to either give a shock or perform CPR. However, each device has its own method of communicating with the potential rescuer. The potential rescuer should follow the manufacturer's directions and device prompts when operating an AED.

**Q Is a prescription from a physician necessary to purchase an AED in a workplace environment?**

**A** According to FDA rules, a physician prescription is needed in order to purchase an AED.

**Q Is a medical director needed to purchase an AED?**

**A** It varies by state. The majority of states have a requirement for a medical director or medical oversight.

**Q What is the relationship between the American Red Cross and AED manufacturers?**

**A** To help the Red Cross meet its mission of saving lives, agreements have been established with AED manufacturers to allow Red Cross chapters the opportunity to facilitate the purchase of AED units and provide CPR and AED training to customers. Many chapters have taken advantage of the opportunity. If a chapter is not eligible to coordinate the purchase of AEDs, it can provide the customer with information on how to obtain a device.

**Q Why not rely on traditional emergency caregivers?**

**A** Outside of a controlled medical environment, paramedics and EMTs are traditionally the first to arrive on the scene of a sudden cardiac arrest. Both groups are trained in basic first aid and emergency care, but they may or may not be equipped with and trained to use AEDs. Congested urban streets, high-rise office buildings and remote or heavily secured worksites can all slow traditional emergency medical responders from reaching SCA victims within the critical first ten minutes after SCA occurs.

**Q Why are so few emergency responders equipped with AEDs?**

**A** Older generations of defibrillation technology made the deployment of AEDs among many groups of potential responders impractical. Older devices were large, heavy (weighing as much as 20 lbs.), expensive and it was necessary for the operator to perform daily maintenance checks. These devices also required highly skilled operators, who needed frequent retraining to maintain skills. Taken together, these factors have prevented this lifesaving technology from being broadly deployed.

**Q Could a responder deliver an unnecessary shock?**

**A** An AED is designed to allow the operator to deliver a shock only when the device has detected the presence of a life-threatening arrhythmia, and with some AEDs, the device will detect the need to provide a shock and then proceed to administer it. If it does not detect a shockable rhythm, it will instruct the rescuer to perform chest compressions and rescue breaths as needed.

**Q Is it safe to use an AED on a metal surface?**

**A** Recent research findings released by AED manufacturers support that it is indeed safe to defibrillate a victim on a metal surface as long as the appropriate safety precautions are taken. Specifically, care should be taken that the defibrillation electrodes do not contact the conductive surface and that no one is touching the victim when the discharge button is pressed.

**Q Is it safe to use AEDs around water?**

**A** Generally, the victim should not be in a puddle of water, nor should the rescuer be kneeling in a puddle of water when operating an AED. AEDs can be used in a variety of environments including rain and snow. Always use common sense when using an AED and follow the manufacturer's recommendations.

**Q Are AEDs easily portable?**

**A** Yes. An AED is about the size of a laptop computer or smaller. It is light and easy to carry.

**Q How much does an AED cost?**

**A** A defibrillator costs approximately \$1,500 in the United States.