

Global Safety, Health and Occupational Medicine

Automatic External Defibrillators (AEDs) Guidelines

For several years, Automatic External Defibrillators (AEDs) have been available for use in situations involving sudden cardio respiratory arrest. AEDs allow minimally trained bystanders or emergency technicians to apply a burst of electricity over the cardiac area to restore the heart to its normal rhythm.

The American Heart Association (AHA), the College of Occupational and Environmental Medicine (ACOEM) and other health care organizations support use of AEDs. In 1999 and 2000, 13 percent of workplace fatalities reported to OSHA were due to sudden cardiac arrest (SCA). Today, AED's widespread use is perceived by some as a significant advance in public safety. Most importantly, the efficient and effective use of this tool can only occur when the basic components of a comprehensive emergency response plan are present. These devices must be used as part of a program that provides rapid use of CPR, quick arrival of trained emergency medical responders and safe transport to appropriate hospital emergency care. **AEDs are not recommended in workplace settings without a well-organized system of emergency response.**

XXXXXXXX Occupational Medicine has developed guidelines for determining the applicability of incorporating the AED as a tool to be added to the overall emergency response programs at our locations. These guidelines should be followed whenever a site is considering the use of AEDs.

1. AEDs should be included in settings with enough risk to justify their use. The decision process is complex and requires input from the site medical provider and safety/health personnel as well as emergency response personnel from the site and the community. Corporate Occupational Medicine staff will also provide assistance as needed.
2. AEDs should be used as part of a well designed emergency response team whose response time is under four minutes, and is in compliance with country-specific mandates and recommendations.
3. The overall location emergency program, including the use of AEDs, must be coordinated with local emergency medical responders and the local hospital.

4. The emergency protocols must be reviewed and approved by the local physician that supports the site's overall emergency response program. Medical approval requires review of these guidelines as well as local emergency response practices and regulations.
5. The emergency response team members using the AEDs must have current first aid, CPR and AED training. All training must comply with local and country laws for training or qualifications of the AED users. Training must be provided annually for all users.

The following outlines the minimum program requirements for AED use.

1. ***Establishment of a centralized management system for the AED program.*** It is recommended that a centralized management system be established for the workplace AED program within each organization. It is important that clear lines of responsibility be established for the program, and that roles are defined for those who oversee and monitor the program.

It is recommended that administrative coordination of workplace AED programs be provided by a licensed health care professional or an appropriately qualified health or safety professional responsible for workplace emergency programs. It is recommended that the day-to-day management of the AED program be supervised by the administrative coordinator in consultation with the program medical director for issues of medical control.
2. ***Medical direction and control of the workplace AED program.*** All workplace AED programs will be medically supervised by an appropriately qualified physician or health care provider licensed for independent practice and be in compliance with medical control requirements of the administrative code of the state or country where the AED is provided. The responsibilities of the program medical director will include helping to develop and/or approving medical aspects of the program. Specific areas where medical direction is important include providing the written authorization required in most locations to acquire an AED, ensuring provisions are made for appropriate initial and continued AED training, and performing a case-by-case review each time an AED is used at the site. Additional responsibilities include establishing or integrating the AED program with a quality control system, compliance with regulatory requirements (see recommendation #3) and ensuring proper interface with EMS.
3. ***Awareness of and compliance with federal, state, and country regulations.*** The AED program medical director and management responsible for the worksite AED program will identify and comply with relevant state and country legislation on public access defibrillation (PAD) and the federal Cardiac Arrest Survival Act. These regulations may impose specific requirements that vary from state to state; therefore, a single corporate policy may be insufficient unless it meets the most stringent requirements imposed by all jurisdictions where a workplace AED program is in place.

Federal and state AED legislation requires that every person expected to use an AED be properly trained. Course content must include CPR, use of the AED, and

should be integrated with other first aid responder programs at the workplace. It is recommended that CPR and AED skills review and practice be conducted at least annually, and encouraged semi-annually. Individual countries may also have specific regulations regarding AED use.

4. ***Development of written AED program description for each location.*** A written document describing the workplace AED program will be prepared for each location where an AED will be placed. It is recommended that such a written document address all of the 12 recommended program elements stated in this document.
5. ***Coordination with local emergency medical services.*** As is required by many state PAD regulations, it is important that information about each workplace AED program be communicated to community emergency medical services (EMS) providers and coordinated with EMS response protocols.
6. ***Integration with an overall emergency response plan for the worksite.*** It is recommended that the workplace AED program should be a component of a more general medical emergency response plan, rather than a freestanding program. It is important that the emergency medical response plan describe in sufficient detail the continuum of personnel, equipment, information, and site activities associated with managing the range of anticipated occupational injuries and illnesses for a patient who is not breathing or in sudden cardiac arrest. It is recommended that all employees be informed about the medical emergency response plan including the proper means for notifying trained internal and community emergency responders in the event of a suspected cardiac arrest, or other medical emergency. It is recommended that, when a workplace AED program is in place, the part of the workplace medical emergency response plan dealing with suspected cardiac events included specific recommendations about the following:
 - a. notification of workplace medical personnel and first aid responders during all operating times of the site;
 - b. assessment of the situation by the first trained responders at the scene;
 - c. notification of the community emergency medical service (EMS) system;
 - d. appropriate first aid including body substance isolation procedures and use of CPR and AEDs by first aid responders if indicated;
 - e. clinically appropriate patient transport from workplace to medical facility, including how appropriate continuation of care will be ensured;
 - f. responder debriefing and equipment replacement; and
 - g. methods to review the follow-up care received by the patient.
7. ***Selection and technical consideration of AEDs.*** It is recommended that selection of AED equipment be based on the most current recommendations of the American Heart Association (AHA), available in Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care or the most recent version. (As an example, the AHA guidelines state that compared to higher-energy escalating (200 J, 300 J, 360 J) monophasic-waveform defibrillators, relatively low energy level (= 200 J) biphasic waveform

defibrillation devices have been shown to be “safe and of equivalent or higher efficacy for termination of VF.” It is also recommended that if a higher-energy escalating monophasic defibrillator has been previously acquired, it may be utilized so long as training of responders adequately addresses particular aspects of such devices.)

8. *Ancillary medical equipment and supplies for the workplace AED program.*

In addition to the AED, other medical equipment and supplies are required to support the safe and complete management of workplace cardiac emergencies. Therefore, it is recommended that the following supplies be provided in addition to the defibrillator as part the AED program:

- bloodborne pathogens responder and clean-up kits to ensure compliance with body substance isolation procedures;
- CPR barrier masks;
- AED responder kits to support electrode pad connections. Items include a razor (to shave chest hair) and towel (to dry sweat from the chest or after removal of a nitroglycerine transdermal patch); and
- a CPR audio prompting device to guide action and timing sequences of CPR ventilations and compressions.

9. *Assessment of the proper number and placement of AEDs and supplies.* It is recommended that when practical, AEDs be placed in locations throughout a workplace that will allow initiation of resuscitation and use of the AEDs (the “drop-to-shock” interval) within 5 minutes of recognized cardiac arrest. Estimating time needed for transport and set up the AED for various work areas can help determine if a proposed location for AED placement is appropriate.

10. *Scheduled maintenance and replacement of AED and ancillary equipment.* It is important that AEDs be maintained in optimal working condition. It is recommended that, at a minimum, the AED manufacturer’s recommended service schedule be followed, and that records of all servicing and testing be maintained. It is also recommended that any workplace AED program ancillary medical equipment and supplies used be maintained as recommended by the manufacturers or suppliers. It is recommended that all emergency equipment be evaluated, serviced, or replaced as necessary following use. It is recommended that records be maintained of the dates and details of servicing or replacement of AED’s or ancillary equipment and supplies used.

11. *Establishment of an AED quality assurance program.* It is recommended that an AED quality assurance program be established that includes at least the following components:

- a. Medical Review:** A case-by-case review for every use of each AED to treat a human by an appropriately qualified physician. (See also the recommendation above on “Medical Direction and Control.”)
- b. Recordkeeping:** 1) records of all AED-related training including names of instructors, workplace personnel trained, courses completed, and dates of initial, review, renewal, or

skill practice classes; 2) records of all AED locations, service and updates; and 3) records of medical reviews of AED implementation. **c. Program Evaluation:** Standardized methods to assess the efficacy of the program, and a system to remediate or improve components as necessary.

12. ***Periodic review and modification of the Workplace AED Program Protocols.*** It is recommended that all components of the workplace AED program be reviewed at least annually and modified as appropriate. As personnel or work practices evolve, there may be need to change the location, means of access, or procedures used to implement AEDs in the workplace.

Summary

Development of programs to utilize AEDs is a reasonable and appropriate aspect of an emergency response program to manage sudden cardiac arrest, an important cause of morbidity and mortality among working age adults. Implementation of such an AED program, should be a component of a more general worksite emergency response plan, requires clearly defined medical direction and medical control.

If you have questions regarding these guidelines, you can contact XXXXXX at XXXXXX.