

## Guidelines for the use of automated external defibrillators (AEDs) in workplace settings

The American College of Occupational and Environmental Medicine (ACOEM) supports the establishment of programs by employers to use automated external defibrillators (AEDs) to manage sudden cardiac arrest in workplace settings. In establishing a workplace AED program, it is important to obtain support for the program from the organization's leadership, including agreement about the goals, implementation requirements and costs of the program.

ACOEM recommends that employer-sponsored programs for the use of AEDs in workplaces and public settings, include all of the following elements:

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.
2. **Medical direction and control of the workplace AED program**  
It is recommended that all workplace AED programs be under the direction and control of an appropriately qualified physician. It is recommended that all workplace AED programs 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 where the AED is provided. It is recommended that the responsibilities of the program medical director 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. It is recommended that 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.

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.

3. **Awareness of and compliance with federal and state regulations**  
It is important that both the AED program medical director and management responsible for the worksite AED program identify and comply with relevant state legislation<sup>49</sup> on public access defibrillation (PAD) and the federal Cardiac Arrest Survival Act.<sup>50</sup> 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.

As federal and state AED legislation requires that every person expected to use an AED be properly trained, it is recommended that training be recognized and standardized. 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.<sup>51</sup>

4. **Development of written AED program description for each location**  
It is recommended that a written document describing the workplace AED program 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 guideline.
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 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
  - a. 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.<sup>51</sup> These 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.”<sup>51</sup> 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<sup>52</sup> to ensure compliance with body substance isolation procedures
  - CPR barrier masks with oxygen port to permit delivery of supplemental oxygen<sup>51</sup>
  - 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);<sup>53</sup>
  - appropriate portable emergency oxygen equipment<sup>51,54</sup> to increase oxygen during resuscitation and to support inhalation following restoration of breathing; and
  - a CPR audio prompting device<sup>51</sup> 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 (e.g., emergency oxygen) 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 AEDs 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. Record keeping:**
    - 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

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

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