American Heart Association®

Learn and Live℠

AED

Automated External Defibrillation

Implementation Guide

Making the Commitment to Saving Lives

Each year, more than 950,000 adult Americans die from cardiovascular disease, making it the No. 1 cause of death in the United States. At least 250,000 Americans die of sudden cardiac arrest (SCA) before they reach a hospital. SCA strikes people of all ages and all degrees of fitness. It usually strikes without warning. Many of these lives can be saved if bystanders quickly phone 911 and begin CPR, and if trained responders provide defibrillation within minutes.

By choosing to implement an AED (automated external defibrillator) program at your facility or site, you have made the commitment to saving lives and to improving the Chain of Survival in your workplace community.

Most often, SCA is caused by an abnormal heart rhythm called ventricular fibrillation (VF) that prevents the heart from pumping blood. The treatment for VF is defibrillation. Defibrillation is the delivery of an electric shock to the heart that stops VF and allows a normal heart rhythm to resume.

Providing defibrillation on-site with an AED increases survival rates for VF cardiac arrest. In places where AED programs provide immediate CPR and deliver the first shock within 3 minutes after collapse, reported survival rates from VF cardiac arrest are as high as 74%. Currently only about 5% of all sudden cardiac arrest victims survive in places where no AED programs have been established to provide prompt CPR and defibrillation.

***Defibrillation** is the only effective therapy for ventricular fibrillation. For each minute that passes without CPR and defibrillation, the chance of survival decreases **7% to 10%**.*

What is the Chain of Survival?

More people can survive SCA if bystanders act quickly to start the Chain of Survival. The Chain of Survival consists of the actions needed to treat a life-threatening emergency.

The adult Chain of Survival has 4 vital links:

Early Access—Recognizing that an emergency exists and quickly phoning EMS (emergency medical services). In most communities, 911 is the EMS number.

Early CPR—Starting CPR immediately after cardiac arrest. CPR circulates oxygen-rich blood to the brain and heart. It buys time for the victim until defibrillation can be performed.

Early Defibrillation—Defibrillating the victim as soon as the AED arrives. This is most effective within 3 to 5 minutes.

Early Advanced Care—Trained healthcare providers arriving quickly to give advanced care.

With a strong **Chain of Survival** in every workplace and community, more lives can be saved.

In most cases of cardiac arrest, the critical link is **Early Defibrillation.**

Implementing Your Facility's AED Program

The following information will help you develop an AED program for your site. This guide focuses on things to consider when developing your program. It highlights key factors and provides options to help you make necessary decisions about medical oversight of your program, state and local requirements for AEDs, location of defibrillators, notifying local EMS, and selection of people to serve as trained responders for the program.

The **American Heart Association** is dedicated to helping businesses and communities establish AED programs. Staff is available to assist you throughout the decision-making process and to develop training solutions that meet your specific needs. For more information, contact us at **1-877-AHA-4-CPR (1-877-242-4277)**.

The Goal of an Effective AED Program

The goal of an AED program is to increase the rate of survival of people who have sudden cardiac arrests. Effective AED programs deliver a shock to a victim within 3 to 5 minutes of collapse (3 minutes is optimal, 5 is acceptable). For every minute without immediate CPR and defibrillation, the odds of survival decrease 7% to 10%. Because more AEDs have become available, lives are saved daily.

Common Elements in All AED Programs

The environment where your AED program is being implemented will drive the design of the program. But all AED programs must include choosing a program coordinator, ensuring that the program receives the support of key decision-makers, and reviewing state and local requirements for AED programs.

Program Coordinator

Choosing a dedicated program coordinator is important to implementing a successful AED program. A program coordinator is someone on-site who can be responsible for day-to-day activities of the program. One of the program coordinator's most important responsibilities throughout implementation is communicating with key decision-makers, selected program responders, employees, and the public.

Support from Decision-makers

During the initial planning phase of your AED program, it is critical to get buy-in from anyone who will influence decisions about the program. Who these people are will vary depending on the setting of the program. Invite decision-makers and influencers to a presentation about the importance of AED programs and the need for AEDs in your organization. This will help you to identify program supporters and potential barriers early in the process. Developing a cross-functional team of representatives from different areas in your organization also is highly recommended.

Review of State and Local AED Requirements

State and local requirements for AED programs play an important role in setting program constraints. Most states specify what type of responder training is expected, how to work with state and local EMS, and how to maintain or renew the AED program. Be aware of these key requirements as you start implementation:

- Most state laws require a state-licensed physician to act as a medical supervisor of the program.
- Most state laws require you to notify local EMS of AED programs or to register AED programs with local EMS.
- Most state laws require that responders complete a nationally recognized training CPR/AED course for lay responders, such as the American Heart Association's *Heartsaver AED* course.

Legal Concerns?

All 50 states have Good Samaritan laws. These provide limited immunity for certain AED program participants. Some states also provide limited immunity for the company or facility that acquires the AED(s), the people providing training, and the person who uses the AED. The federal Cardiac Arrest Survival Act also provides limited immunity for lay rescuers and acquirers of the AED.

"The expense was minimal. The training was very easy. When we got the defibrillators, our goal was to have half of our staff trained in their use."

—Loren Sheffer
Owner,
Volvo Dealership,
Delray Beach, FL

Implementation Tips

Who are your program's decision-makers and influencers?

They can include

- Risk management
- Environmental health and safety
- Legal
- Human resources
- Corporate security
- Building managers
- Property owners
- Tenants
- Board members
- Union leaders

Implementation Tips

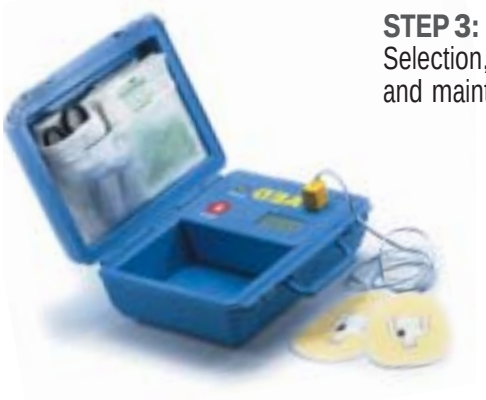
Where can we find our state's AED regulations?

To view a summary of your state's legislation as it relates to AED programs, go to **www.americanheart.org/cpr**. Click on Corporate Training, AED programs, AED Legislation-State Requirements. For more detailed information, contact the American Heart Association or your state EMS office.

The 4 Key Steps
for Implementing Your Facility's Successful AED Program

STEP 1:
Medical oversight and quality improvement

STEP 2:
Notification of local EMS



STEP 3:
Selection, placement, and maintenance of AEDs

STEP 4:
Designation and quality training of on-site responders

STEP 1: Medical Oversight and Quality Improvement

The US Food and Drug Administration (FDA) has cleared AEDs for public use with a physician's prescription. The physician also can offer leadership and medical expertise to ensure the safe implementation of an AED program. Other medical professionals, such as occupational health nurses provide "medical oversight" (medical support and supervision) of the program as long as a physician provides the prescription.

What is Medical Oversight?

The role and time commitment of the physician or healthcare provider offering medical support and oversight for the program varies depending on the size and other characteristics of the program. His or her main responsibility is to oversee the initial implementation process. Someone else should be designated program coordinator and be responsible for day-to-day program implementation.

As an advocate of the AED program, the medical professional should be able to provide the energy and dedication needed to help get the program started, and then provide ongoing guidance and support. He or she also can serve as a visible spokesperson for the program.

The program's medical professional also approves the initial AED training. His or her level of involvement in hands-on training often depends on the size of the program, the availability of other appropriate instructors, and the professional's management style. In some programs he or she may be directly involved in training sessions. In others he or she simply may provide guidance to the program coordinator.

Medical Professional's Key Duties

- Providing medical leadership and expertise
- Serving as an advocate and possibly a spokesperson for the program
- Identifying and reviewing local and state AED regulations
- Assisting in coordinating the program with local EMS
- Helping develop program procedures, such as the following:
  - —Internal Medical Emergency Response Plan (MERP)
  - —Training plan for targeted responders
  - —Maintenance plan for the AEDs
  - —Quality review and improvement plan for the AED program
  - —Internal communication plan

Implementation Tips

Where can we go to find a medical professional to oversee our program?

Potential resources include:

- Emergency medicine physicians
- Occupational health physicians or nurses
- State and local medical societies
- Local EMS
- State EMS office

Ensuring Program Quality

The physician or other medical professional supervising the program also guards the program's quality. He or she should

- Help develop the emergency response procedure for the facility
- Advise about the proper location of AEDs
- Advise about how responders should be notified of an emergency
- Conduct a review each time the AED is used. The main purpose of the review is to give responders positive feedback and practical suggestions for improvement. Talking to rescuers about their feelings following the emergency is important. The review allows problems in the program to be quickly spotted and fixed.

STEP 2: Notification of Local EMS

Notifying the EMS system of your AED program is a key step in implementing the program. Most states require you to coordinate your AED program with local EMS and to provide follow-up data to EMS after any use of the AED. These are important responsibilities. In states that require registration or application for AED programs, the medical professional or the program coordinator completes this process. Regardless of your state's requirements, you should view local EMS as a partner in placing AEDs and in developing internal procedures for quality improvement and incident review.

Key Issues to Discuss with Local EMS

- Location of AEDs on the property
  Tell EMS where AEDs are located on-site in order to save critical minutes during a cardiac emergency. Depending on the capabilities of the EMS system, the dispatchers may be able to tell 911 callers where the AED is if callers do not know.

- Transfer of patient care
  Develop written policies and procedures for transferring patient care to local EMS when EMS arrives at the emergency. This process will be based on existing EMS protocols. The written policies and procedures must be communicated to the on-site trained rescuers. This step is critical so that the program responders will be prepared for the action EMS personnel take once they arrive at the scene.

Implementation Tips

How should we notify EMS about our facility's AED program?

The medical professional providing oversight for your program will help you to coordinate EMS notification. Also, a sample EMS notification letter can be found at **www.americanheart.org/cpr**. Click on Corporate Training, AED programs, Sample Notification Letter to City EMS Director.

In some cases a formal registration process is required. Contact your local EMS system for help.

- Sharing event data
  Depending on the type of AED, cardiac event information is recorded on a removable data card or obtained by connecting the AED to an off-site computer via modem.

  All AEDs capture heart rhythm and device data. This data should be collected and shared by the AED program coordinator and EMS.

  State regulations and the practices of local EMS will drive the decision to capture more data. Some states require that a standard "incident report" or "AED use sheet" be completed and submitted to the state EMS office or the local EMS agency. Information about this requirement is most often provided in the state AED registration materials.

STEP 3: Selection, Placement, and Maintenance of AEDs

Choosing Your AED

Several AEDs on the market are suitable for workplace and community AED programs. The American Heart Association does not recommend one device over another. Selection of an AED will be influenced by the needs of the program site. You can find a current list of FDA-cleared AEDs at **www.americanheart.org/cpr**. Click on Corporate Training, AED programs, FDA Cleared AEDs.

Implementation Tips

Where should AEDs be placed in our facility?

Possible locations include

- Security guard station
- Main reception area
- Walls of main corridors
- Cafeteria
- Fitness facility
- Near elevators
- In secured or restricted access areas

Determining AED Placement

Effective AED programs are designed to deliver a shock to a victim within 3 to 5 minutes of collapse. When deciding where to place AEDs, use a 3-minute response time as a guideline to help you determine how many AEDs you need and where to place them.

Companies should determine if there are places on-site where the incidence of sudden cardiac arrest may be higher, such as corporate health clubs, or that are hard to reach quickly. Also consider areas where many people gather, such as cafeterias. Suggestions for AED placement are located above.

Below are additional questions to help guide your placement strategy. There are no right or wrong answers to these questions. Once you know the answers to these questions, it will be easier for you to decide where to place AEDs.

Should the AED be secured or unsecured?

A secured AED is one that is locked in an office, a wall-mounted cabinet, or other enclosed space. An unsecured device typically is placed in a public area and is not locked.

Will the AED have a notification system?

- Automatic Notification System

This type of system automatically notifies trained responders when the AED is removed or its cabinet is opened. This notification may be sent directly to local EMS or to an in-house security system that will then notify EMS.

- Audiovisual Alarm

This type of alarm activates lights or an audio alarm when the AED is removed or its cabinet is opened.

Maintaining Your AED

Conduct scheduled and preventive maintenance checks according to the manufacturer's recommendations. The program coordinator or another designated person can do the maintenance checks. This person develops a written checklist to assess the readiness of AEDs and their supplies. This checklist supplements regularly scheduled, more detailed maintenance checks recommended by the manufacturer. At a minimum, the checklist should include the following:

- Verify placement of AEDs (are they where they are supposed to be?)
- Verify battery installation and expiration
- Check the status/service indicator light
- Inspect exterior components and sockets for cracks or other damage
- Check supplies (razor, towel, barrier device, scissors, extra battery, disposable gloves, and an extra set of electrode pads)

AED Characteristics

- Lightweight and portable
- Easy to use, safe and effective
- Automatically analyzes heart rhythms
- Determines whether defibrillation is advised
- Guides the user through defibrillation
- Follows comprehensive "self-checking" protocols
- Prompts the rescuer to begin CPR

Putting AEDs Back Into Service After an Emergency

After a cardiac arrest occurs, it is critical to get the AED back into service as soon as possible. The written procedure for maintaining the AED should contain a section on this process. Here is a list of activities that should be included:

- Check and replenish supplies as appropriate (includes electrode pads, towel, razor, barrier device, and disposable gloves). Make sure that someone is designated to order and replenish supplies and does so.
- Clean and disinfect the device
- Check the battery and replace it if needed
- Check the device and housing for cracks or other damage
- Return the AED to its designated place with appropriate supplies

STEP 4: Designation and Quality Training of On-site Responders

Identifying Responders

The American Heart Association recommends that as many trained responders as possible have access to defibrillators. In a perfect world everyone would be trained. But you will need to consider budget and staff time when deciding how many can be trained. When identifying responders, consider people who typically are on the premises and already respond to emergencies as part of their jobs. Security guards and members of safety response teams are excellent candidates for becoming trained responders. Another possibility is people willing to respond to cardiac emergencies as part of the AED program, such as office personnel or residents, depending on the AED program site.

Implementation Tips

The American Heart Association recommends a regular review of CPR and AED skills every 6 months for all potential AED users.

Once you identify appropriate responders, make sure to obtain approval from their department heads. If these department heads are not already identified as decision-makers, begin including them in program updates. This is important. Also make sure that there are appropriate budget allocations for proper training.

Training Requirements

To determine how to train your responders, review your state and local requirements for AED programs. These requirements will outline acceptable curriculums, training organizations, and renewal intervals. From there you can plot your training program schedule.

Initial training should teach responders

- How to recognize the warning signs of a heart attack
- How to respond to an emergency
- Why and how to activate local EMS
- How to buy time for the victim by performing 1-rescuer CPR until the AED arrives
- How to assess the patient and determine if you should use an AED
- How to attach AED pads and ensure that the device is used properly
- How to follow safety protocols to protect the user and bystanders
- How to deal with unusual situations (such as a victim with an implanted defibrillator or a victim lying in water)
- How to use all emergency response skills in an emergency

Implementation Tips

Who are possible candidates to respond?

Potential responders could include

- Security guards
- People already trained in CPR
- Fire wardens
- Building managers
- Employee volunteers
- On-site property management staff

Response Procedures

Responders also need to be trained in the internal Medical Emergency Response Plan (MERP). Typically the oversight physician or medical professional creates the MERP. The MERP should include how responders will be notified of an emergency and the location of the victim, who will call 911, and where the AED is located. A sample MERP is included for you to tailor to your environment. The responders also must be informed of the policy and procedure for transferring patient care to local EMS upon their arrival.

Skills Reviews

Conducting skills reviews is critical to ensure that responders are prepared to perform the necessary skills during an emergency. Examples of how to review skills include performing mock drills, scenario practice, and demonstrations of CPR and AED skills. The Student Refresher CD included in American Heart Association training materials also can be used to remind responders of critical information. The goal is to have trained responders practice activating the emergency response system, getting an AED to the victim within 3 to 5 minutes of collapse, and using their CPR and AED training.

Retraining

Nationally recognized courses, such as *Heartsaver AED*, have a standard renewal time frame. The American Heart Association recommends that formal retraining occur every 2 years, in addition to conducting regular skills reviews.

Documentation of Procedures

Written procedures should guide AED program implementation. These procedures should help trained responders, decision-makers, and employees involved in the AED program understand practices and expectations. Once written procedures are in place, they should be distributed to all appropriate program participants, then updated regularly. Following are sample outlines of plans for various policies and procedures that should be included in the overall AED program implementation plan:

Internal Medical Emergency Response Plan (MERP)

(A sample plan can be found at **www.americanheart.org/cpr**. *Click on Corporate Training, AED programs, Sample Internal MERP.)*

- Activating the system
  - — How responders will be notified (directly or through a point of contact within the program)
  - — Who will call 911
  - — How employees will be informed of the MERP
- Location of AEDs and how they are accessed (secured or unsecured)

Training Plan

- Who will be trained and serve as responders
- What course will be used
- Where training will take place
- What the time frame will be for training and renewal
- How skills reviews will be conducted

Maintenance Plan

- Who will be responsible for performing maintenance checks
- What maintenance procedures will be included (manufacturer's recommendations as well as internal)
- When checks will take place
- How AEDs will be put back into service following an emergency
- Who will be responsible for ordering and restocking supplies

Transfer of Patient Care Procedures

Transfer of patient care procedures outline what the response team should do once EMS arrives. They also prepare the response team for the actions that the EMS professionals will take when they are on the scene.

- Should be developed with local EMS and then communicated to the internal response team
- Should be based on existing EMS protocols

Post-event Procedures

- Evaluate internal MERP

  The event review provides important feedback for responders to the emergency. The responders should receive comments on specific activities that were performed properly and according to the internal MERP and actions that can be improved. Some examples to use in your post-event procedures are

  — *Evaluate response times*
    - How much time elapsed between finding the victim and calling 911
    - How much time elapsed between activating the internal MERP and getting the AED to the victim

  — *Identify strategies for improvement*
    - Discuss and implement strategies
    - Incorporate improvements into skills reviews and mock drills

- Provide emotional support

  Responders to a cardiac emergency need significant support to ensure that the event does not damage their emotional health. It is important to allow responders to voice their fears and concerns in a non-threatening environment. The AED program's medical professional should ensure that proper attention is provided to responders soon after the event. Also, local EMS can recommend community resources to support responders following an emergency.

- Monitor outcome

  In conjunction with local EMS, develop a communication system to follow victims of cardiac emergencies through the healthcare system. Incorporate information about outcome into the responders' feedback.

Implementation Tips

What tools can be used to activate our facility's emergency response procedures?

Tools could include

- Overhead paging system or intercom
- Beepers for trained responders
- Phone tree with a dedicated emergency response line
- Internal radio dispatch

Internal and External Communication Plan

External Promotion

Depending on the AED program site, the program may be promoted to clients customers, vendors, and the outside community. This campaign can be conducted through publications distributed outside the organization and through local newspapers or other media. Media will be more interested in writing a story about the program when the worksite is involved in saving a life. They will most likely want to interview the victim and the responders involved.

Internal Promotion

After initial implementation of the AED program, provide information to all program participants (employees, visitors, etc) about what an AED program is, why it is important, and how to activate the MERP. To maximize the program's effectiveness, everyone must know how and when to notify trained responders to get to the scene of an emergency. Information can be communicated via any of the following:

- Company-wide or internal newsletter
- Email
- Posters
- Stickers identifying locations of AEDs
- Staff or departmental meetings
- Membership meetings
- Speaker luncheon
- Closed-circuit TV
- Phone stickers
- Paycheck flyers

Implementation Tips

Create an Internal Newsletter

Start promoting your facility's AED program with an article in an internal publication or email. Include sidebars featuring cardiac arrest statistics (e.g., most cardiac arrests occur outside the hospital) and stories or testimonials about local CPR/AED saves.

Follow up with a series of articles highlighting each link in the Chain of Survival and the ways in which people can work to strengthen each link.

To help in the distribution of ECC materials, the American Heart Association has partnered with three companies that provide high quality customer service and support. To order, contact one of the following:

Channing Bete Company

One Community Place
South Deerfield, MA 01373-0200
Phone: 1-800-611-6083
Fax: 1-800-499-6464
www.channing-bete.com

Laerdal Medical Corporation

167 Myers Corners Road
PO Box 1840
Wappingers Falls, NY 12590-8840
Phone:1-888-LMC-4AHA (562-4242)
Fax: 1-800-227-1143 or
1-845-298-4545
www.laerdal.com

WorldPoint ECC, Inc.

151 S. Pfingsten Road, Suite E
Deerfield, IL 60015
Phone: 1-888-322-8350
Fax: 1-888-281-2627
www.worldpoint-ecc.com

For more information on training contact:

American Heart Association®
Learn and Live℠
National Center
7272 Greenville Avenue
Dallas, Texas 75231-4596
www.americanheart.org/cpr

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AED Program Implementation Checklist

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Identify:

- Program decision-makers and influencers ____
- Physician to provide prescription for AED ____
- Medical oversight (physician or other medical professional) ____
- Targeted responders ____
- State and local requirements for AEDs ____
- Local EMS system requirements (if applicable) ____

Decide:

- Type of AED ____
- Placement of AEDs
  - Limited vs. open accessibility ____
  - Secured vs. unsecured ____
  - Automatic notification system: yes or no ____
  - Audio-visual alarm: yes or no ____
- Options on AEDs
  - Voice/environmental data: yes or no ____
  - Manual override: yes or no ____
  - Display screen: yes or no ____
  - Modem, data card, chip or cassette tape ____
- Number of AEDs ____
- Method of notifying EMS ____
- Method of activating internal Medical Emergency Response Plan (MERP) ____
- Number of employees to be trained ____
- Training program ____
- Retraining program and interval
  - Skills review (refresher, update, etc.) ____
  - Formal retraining ____
- Method for ensuring AED readiness ____
- Method for scheduling and conducting AED maintenance checks ____
- Method for educating participants on how to activate the internal MERP ____
- Method for internally and externally promoting the AED program and Chain of Survival for participants ____
- Method for capturing data ____
- Method for patient care transfer to local EMS agency ____
- Method for event review ____
- Methods for quality improvement ____
- Method for rescuer debriefing ____
- Method for putting AED back into use ____
- Method for monitoring patient outcome ____

Write:

- Internal response procedures for use of the AED (reflect site-specific variables such as type of AED, activation method, hazards, etc.) ____
- AED maintenance procedure ____
- Transfer of patient care procedure (coordinate with local EMS) ____

Contact:

- State office of EMS for registration purposes (if applicable) ____
- Local EMS agency ____
- Local dispatch center ____
- American Heart Association for training information ____
- AED manufacturer if AED maintenance is needed ____