



# GUIDE TO SETTING UP AND OPERATING YOUR AED PROGRAM

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## **Guide to Setting Up and Operating Your AED Program**

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The St. Margaret Foundation (Foundation) is a community-based, not-for-profit organization dedicated to improving the health of individuals living and working in western Pennsylvania. One of the Foundation's primary priorities is community health. Toward that end, the Foundation operates a program known as Pittsburgh United for Life-Saving Emergencies (PULSE) which is tasked with making automated external defibrillators (AEDs) more widely available throughout the community. To help achieve this goal, PULSE donates AED equipment and AED program support to qualified and selected organizations.

### **Notices**

This *Guide to Setting Up and Operating Your AED Program* is provided for general informational purposes only. Neither the St. Margaret Foundation nor PULSE provide AED program management services and neither assumes operational responsibility for any aspect of a donee's AED program. If you need help with your AED program, you should engage the services of a competent professional.

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# Guide to Setting Up and Operating Your AED Program

## Introduction

This *Guide to Setting Up and Operating Your AED Program* (Guide) describes minimum design, administrative and operational requirements you need to address in order to create, implement and properly maintain your automated external defibrillator (AED) program. Due to the widely variable nature of AED programs and AED program sites, this Guide cannot address all possible AED program configurations. You should use reasonable judgment when applying information in this Guide to your AED program.

As you develop or fine-tune your AED program, you should keep the long term in mind. While sudden cardiac arrest strikes more victims than any other disease in the U.S., the probability that someone at your AED program site will experience this condition on any given day is quite low. Typically, a particular AED may only be used perhaps once every five years. You must therefore develop your program to be ready to react quickly both now and at any moment in the future.

Also keep in mind that defibrillation programs in non-medical settings cannot reasonably be expected to perform to the same standards as professional emergency medical response systems, and people who volunteer to help potential sudden cardiac arrest victims may not be trained healthcare professionals. As a result, even well designed and operated AED programs may not function as intended every time they are needed. This Guide recognizes the underlying nature of AED programs by describing an approach that seeks to increase the likelihood of success but cannot assure it.

## Definitions

Following are some important definitions to keep in mind as you utilize this Guide.

**Automated External Defibrillator (AED).** An automatic or semi-automatic medical device capable of cardiac rhythm analysis and defibrillation after electronically detecting the presence of ventricular fibrillation or ventricular tachycardia.

**AED Program.** The framework within which people, systems, methods, equipment, and actions are configured to prepare for and respond to suspected sudden cardiac arrest emergencies prior to the arrival of traditional emergency medical services resources. AED programs are also sometimes referred to as “Public Access Defibrillation (PAD) Programs”, “Early Defibrillation Programs” or “Community-Based AED Programs.”

**AED Program Site.** An identified public or private venue that implements an AED program.

**AED Response Zone.** A defined physical area of an AED program site within which a minimum of one AED is deployed.

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**AED Training.** The transfer of knowledge and skills designed to enable a person to recognize a potentially unconscious, pulseless, and non-breathing individual who may be experiencing sudden cardiac arrest and initiate the retrieval and use of an AED.

**Defibrillation.** The discharge of an electrical current through the heart muscle for the purpose of restoring a blood circulating cardiac rhythm.

**Sudden Cardiac Arrest (SCA).** The sudden, abrupt loss of heart function. Most sudden cardiac arrests occur when the electrical impulses in the heart become rapid (ventricular tachycardia) or chaotic (ventricular fibrillation) or both. This irregular heart rhythm (arrhythmia) causes the heart to suddenly stop beating normally.

## Developing Your AED Program

The following sections outline key tasks that are important for the creation, implementation and operation of an effective AED program. Depending upon the characteristics of your AED program sites, other factors may also need to be considered.

### Document AED Program Site Information

To ensure you properly consider the many factors that may impact your AED program design, it is important for you to document important characteristics of your AED program sites. Information to be captured for each AED program site should include:

1. Site address;
2. Primary and secondary contact information;
3. Name of the building owner or manager;
4. Type of tenancy or business;
5. Number of floors;
6. Approximate size in square feet of each floor;
7. Approximate total staff and daily visitors in each building;
8. Normal operating hours;
9. Manufacturer, model, and software version associated with each AED.

This information will, among other things, help you evaluate the legal and regulatory environment applicable to your sites, calculate the number of total AEDs you will need to cover each site, and consider the number of people who should receive formal AED and CPR training.

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## Review Legal and Regulatory Environment

It is important to review AED laws and regulations that may impact your AED program. Under Pennsylvania law, certain AED owners and users are offered Good Samaritan immunity if they meet stated conditions.

AED owners may be immune from civil liability for AED related activities so long as they:

- 1) Ensure that expected AED users receive training;
- 2) Maintain and test their AEDs as recommended by the AED's manufacturer;
- 3) Require AED users to activate the emergency medical services systems immediately upon AED use; and
- 4) Assure that AED data is made available to requesting emergency medical services personnel.

Trained AED users who use an AED in good faith may be immune for all but intentionally harmful or grossly negligent acts. Unfortunately, untrained AED users are not currently offered Good Samaritan immunity in Pennsylvania. Untrained individuals are not prohibited from using AEDs though they may be subject to a bit greater scrutiny in the unlikely event of a lawsuit.

Pennsylvania's AED Good Samaritan immunity law is included at the end of this Guide. Laws do sometimes change so it is important for you to check the current state of the law annually.

## Identify the AED Program Team

A number of people will be involved in your AED program. Below are examples of key AED program team roles and responsibilities that should be considered for your organization.

### AED Program Executive Sponsor

- Review and approve final AED program design
- Review and approve completed AED program documentation
- Authorize communications plan, resources and budget required to implement and operate your AED program

### AED Program Operations Coordinator

- Coordinate activities between your AED program and the AED program medical director
- Coordinate AED program activities between and among internal personnel
- Serve as the central point of contact for anyone within or outside your AED program seeking information about the program
- Acquire AEDs in the numbers and at the times specified for your AED program
- Install, or have installed, AEDs at appropriate locations within your AED program sites

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- Ensure monitoring, testing, maintenance and replacement of AEDs, batteries, electrodes and accessories occurs as required
  - Acquire necessary supplies and accessories
  - Fulfill external agency notification and registration functions that may be required
  - Ensure that all employees serving as AED response team members are trained as required and monitor these positions for absence and turnover
  - Ensure, to the extent possible, that information used in development of your AED program is accurate
  - Ensure that communications systems designated for use in your AED program are operational
  - Coordinate post-sudden cardiac arrest event activities
  - Ensure all other aspects of your AED program are properly implemented

### **AED Program Medical Director**

- Issue or obtain a prescription authorizing your AED program to acquire AEDs, if required
- Review and approve the medical components of your AED program design
- Provide oversight for review of incidents involving the application, use, attempted use or non-use of an AED
- Report SCA events to outside agencies, as required

### **AED Response Team and Training**

To be effective, your AED programs must be designed to increase the chances an AED will be rapidly retrieved and used when needed. A sufficient number of persons must be authorized to act in defined response roles in order to achieve this objective. This Guide recognizes that the larger the pool of potential responders, the more likely rapid defibrillation will occur. Thus, this Guide contemplates that your AED response team may be comprised of individuals formally affiliated with your AED program, e.g., employees and consultants, as well as individuals not formally affiliated with your AED program, e.g., guests, visitors and other bystanders.

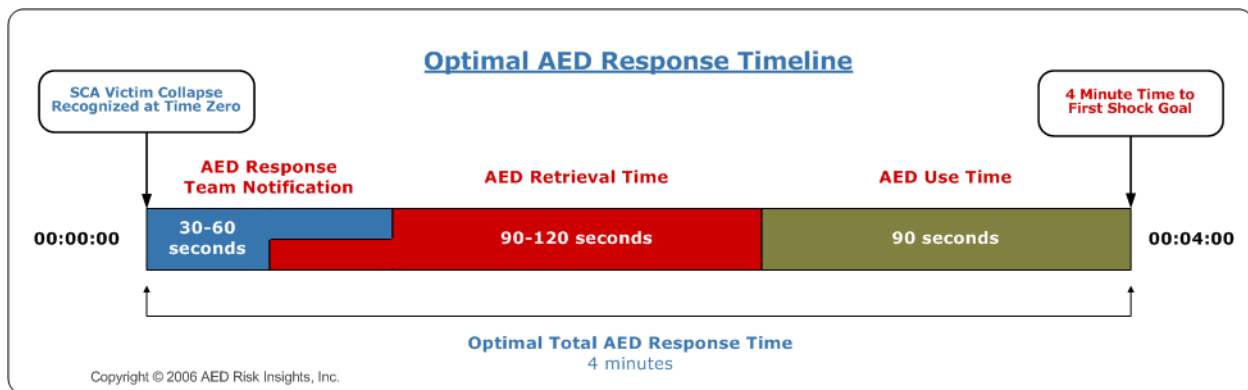
As you consider how to structure your AED response team, keep the following factors in mind. AED retrieval and AED use are two separate activities. Anyone should be permitted to retrieve an AED. With regard to AED use, you have two general options. You may elect to permit only trained individuals to operate an AED or, as a better option, you may permit any willing bystander to use an AED, especially if a trained person is unavailable.

Remember, AEDs are very easy to use, even by untrained individuals. The goal is to deliver a life-saving defibrillator shock as quickly as possible after a potential sudden cardiac arrest victim is first identified. Remember also that you cannot hurt an SCA victim with an AED since the device will only deliver a shock when one is needed. You cannot make a sudden cardiac arrest victim worse, you can only help.

If you elect to allow only trained individuals to use an AED, then you should train a sufficient number of people such that at least one trained person is expected to be available within each AED response zone during 98 percent of normal operating hours. If you allow untrained individuals to operate AEDs, then you should train a sufficient number of people such that at least one trained person is expected to be available within each AED response zone during 95 percent of normal operating hours.

## Establish an AED Response Time Objective and Define AED Response Zones

Time is the single most critical variable impacting the probability of survival for sudden cardiac arrest victims. The faster an AED is used, the greater the chances of survival. To meet recommendations found in medical research and national guidelines, you will need to structure your AED program to ensure that an AED can be retrieved and used within 4-5 minutes from the time a potential sudden cardiac arrest victim is first identified. This 4-5 minute period is comprised of three components: notification time, retrieval time, and use time as shown in the following chart:



Because an AED must be retrieved within 90-120 seconds, each device can only cover a limited area of your AED program site. At a maximum, an AED must be located within 300 feet of any place sudden cardiac arrest may occur. Thus, each AED can cover up to a maximum area of 283,000 square feet ( $\text{Pi} \times \text{R}^2$  where the radius "R" = 300 feet). Each of these areas is referred to as an AED response zone and each response zone should contain at least one AED. This is the best way to ensure an AED will be used within your established AED response time objective. Remember, AED response times may be longer if you have an insufficient number of AEDs to cover all areas of your AED program sites.

As you consider how to best define your AED response zones, keep in mind that a number of factors can impact the area each AED can cover. While 283,000 square feet is the typical maximum area, the following factors can reduce the actual size of each AED response zone:

- Actual horizontal and vertical dimensions and layout of the physical space
- The density of people moving through or congregating in the physical space
- Physical barriers and obstructions that may deter, delay, or prevent access
- Interior doorways and access points

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- The distance between buildings, if multiple buildings are to be included within a single AED response zone
  - Mechanical and electronically controlled access points
  - Personnel monitored access points
  - Stairwells and stairwell doors
  - Elevators
  - Escalators
  - AED storage, access and retrieval policies

### **Establish AED Storage and Access Methods**

AEDs are often placed in alarmed, wall mounted, storage cabinets that can be opened by anyone. They may also be stored in other types of locations. When deciding where to store your AEDs, it is very important that you ensure the devices are easily and quickly accessible. Locking AEDs in rooms, cabinets or drawers can result in situations where your AED is inaccessible and cannot be retrieved at a critical time. The best approach is to store your AEDs in visible, highly trafficked areas in a manner that allows quick and easy access by anyone. Visibility reminds people of the AED's whereabouts and easy access helps reduce response time.

### **Establish an Equipment Inspection, Servicing and Replacement Program**

The delivery of defibrillation therapy requires that AED hardware be in proper working order, AED batteries be within useful life and have a sufficient amount of stored energy, and AED electrodes be within useful life. The following operational activities are important to ensure the operational readiness of all AEDs deployed throughout your AED program.

Your best source of information about how to maintain your AED equipment is found in the AED Owner's Manual published by the manufacturer and provided with each of your AED models (AED Owner's Manuals are also available online at manufacturer websites). As a general rule, however, you should perform the following tasks at intervals no greater than monthly:

#### **AED hardware**

- Inspect for damage or foreign substances and service or replace as required by manufacturer recommendations.
- Check visual status indicator and service or replace as required by manufacturer recommendations.

#### **AED batteries**

- Inspect for damage or foreign substances and service or replace as required by manufacturer recommendations.
- Check visual status indicator, if applicable, and service or replace as required by manufacturer recommendations.

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- Check for energy level and recharge or replace as required by manufacturer recommendations.
  - Check for expiration date and replace, at a minimum, when the expiration date is within 90 days of the inspection date.
  - Recharge or replace after use as required by manufacturer recommendations.

### **AED electrodes**

- Inspect packaging for damage and replace as required by manufacturer recommendations.
- Check visible cables for damage and replace as required by manufacturer recommendations.
- Check for expiration date and replace, at a minimum, when the expiration date is within 90 days of the inspection date.
- Discard and replace after use.

### **Develop AED Program Communications Tools**

You should develop and deploy AED program communications tools in the following areas: Internal communications, event communications and post-event communications. A comprehensive communications program can help make your AED program more effective.

#### **Internal AED Program Communications**

Internal AED program communications inform employees, contractors, consultants, guests, visitors and other bystanders about elements of your AED program. Providing AED program information to those working at or visiting your site is a way to keep everyone informed, supportive and ready to act if necessary. Examples of internal communications include:

- Distributing the names, work locations and contact telephone numbers of those who have received AED training
- Sending everyone information about:
  - The purpose and capabilities of AEDs
  - The AED program and its benefits
  - The presence and location of AEDs
  - How to recognize an individual who may be experiencing sudden cardiac arrest
  - How to respond in the event of a suspected sudden cardiac arrest emergency
  - How to quickly retrieve and use an AED
- Posting highly visible AED location signage at each entrance and near each AED

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## AED Program Event Communications

To increase the chances an AED will be quickly retrieved and used when needed, it is important for you to develop event communications methods that are capable of:

- Promptly alerting AED response team members of the need to respond to the location of a suspected SCA victim
- Promptly initiating the rapid retrieval of an AED to the location of a suspected SCA victim
- Promptly notifying local emergency medical services resources of the existence and location of a suspected SCA emergency

You should also develop a written event protocol that informs readers about:

- How to promptly activate the AED program and initiate an AED response team response to the location of a suspected SCA victim
- How to ensure the prompt retrieval of an AED to the location of a suspected SCA emergency
- How to promptly notify local emergency medical services resources about the existence and location of a suspected SCA emergency
- AED access, retrieval and use policies for the AED program site
- AED placement locations

## AED Program Post-Event Communications

After an AED is used, you should promptly notify your AED program medical director. He or she will probably want to download and review event data from your AED. In addition, you may also need to make this data available to local emergency medical services officials. If appropriate and permissible, you may want to notify employees that an SCA event occurred, how the AED program performed, and the status of the SCA victim. Check with your medical director, however, before sharing this information.

## Additional Resources

For more information about AED programs, visit [www.AEDRiskInsights.com](http://www.AEDRiskInsights.com). In addition to other useful articles and reports, be sure to look for the document entitled “AED Program Design Guidelines: A Framework for the Placement, Retrieval and Use of AEDs in Non-Medical Settings.”

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## PENNSYLVANIA GOOD SAMARITAN IMMUNITY LAW

42 Pennsylvania Statutes § 8331.2

(a) General rule.--Except as otherwise provided in this section, any individual who is trained to use an automated external defibrillator in accordance with subsection (c) and who in good faith uses an AED in an emergency shall not be liable for any civil damages as a result of any acts or omissions by such individual in using the AED, except any acts or omissions intentionally designed to harm or any grossly negligent acts or omissions which result in harm to the individual receiving the AED treatment.

(b) Requirements.--Any person who acquires and maintains an AED for use in accordance with this section shall not be liable for civil damages provided that the person:

(1) Ensures that expected AED users receive training pursuant to subsection (c).

(2) Maintains and tests the AED according to the manufacturer's operational guidelines.

(3) Provides instruction requiring the user of the AED to utilize available means to immediately contact and activate the emergency medical services system.

(4) Assures that any appropriate data or information is made available to emergency medical services personnel or other health care providers as requested.

(c) Training.--For purposes of this section, expected AED users shall complete training in the use of an AED provided by the American National Red Cross or the American Heart Association or through an equivalent course of instruction approved by the Department of Health in consultation with a technical committee of the Pennsylvania Emergency Health Services Council.

(d) Obstruction of emergency medical services personnel.--Nothing in this section shall relieve a person who uses an AED from civil damages when that person obstructs or interferes with care and treatment being provided by emergency medical services personnel or a health professional.

(e) Exception.--Any individual who lacks the training set forth in subsection (c) but who has access to an AED and in good faith uses an AED in an emergency as an ordinary, reasonably prudent individual would do under the same or similar circumstances shall receive immunity from civil damages as set forth in subsection (a).

(f) Definitions.--As used in this section, the following words and phrases shall have the meanings given to them in this subsection:

"Automated external defibrillator" or "AED." A portable device that uses electric shock to restore a stable heart rhythm to an individual in cardiac arrest.

"Emergency." A situation where an individual is believed to be in cardiac arrest and in need of immediate medical attention to prevent death or serious injury.

"Good faith." Includes a reasonable opinion that the immediacy of the situation is such that the use of an AED should not be postponed until emergency medical services personnel arrive or the person is hospitalized.

[Current as of February 1, 2008]