

# Automated External Defibrillators (AED)

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## Main Points

A victim's best chance for survival is when there is revival within 4 minutes.

Having more people who can respond to medical emergencies and trained to use AEDs will greatly increase survival rates for people in sudden cardiac arrest.

ACEP supports increased public access to AEDs that is coordinated with community EMS systems and with appropriate training. AEDs can be used and maintained by anyone with a few hours of training, like using a fire extinguisher or administering CPR.

AEDs are most effective when standards are in place for appropriate training, equipment maintenance and ongoing monitoring of quality of care.

Everyone is only one step away from a medical emergency.

## What is an Automated External Defibrillator?

An Automated External Defibrillator (AED) is a small, lightweight device used to assess a person's heart rhythm. If necessary, it administers an electric shock to restore a normal rhythm in victims of sudden cardiac arrest. Built-in computers assess the patient's heart rhythm, judge whether defibrillation is needed, and administer an appropriate level of shock. Audible and/or visual prompts guide the user through the process.

## How does an AED work?

A microprocessor inside the defibrillator analyzes the victim's heart rhythm through adhesive electrodes (some AED models require the operator to press an ANALYZE button). The computer then advises the operator whether a shock is needed. When the operator responds to the prompt to give a shock, an electric current is delivered through the victim's chest wall through adhesive electrode pads.

## Why are AEDs important?

When a person suffers a sudden cardiac arrest, chances of survival are reduced by 7 to 10 percent with every minute that passes without CPR and defibrillation. AEDs can restore a normal heart rhythm in victims of sudden cardiac arrest, which may be a heart attack or sudden death. New, portable AEDs enable more people to respond to a medical emergency requiring defibrillation.

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## Who can use an AED?

Anyone trained to use cardiopulmonary resuscitation (CPR) can be trained to use an AED. Most AEDs are designed to be used by people without medical backgrounds, such as police, firefighters, flight attendants, security guards and lay rescuers. AEDs are most effective when standards are in place for appropriate training, equipment maintenance and ongoing quality-of-care monitoring.

## When a person's heart stops beating, why should an AED be used?

When a heart's rhythm goes into an uncoordinated electrical activity called fibrillation, the heart twitches ineffectively and can't pump blood. This condition often accompanies severe heart attacks when the patient's heart appears to have stopped beating.

The AED delivers electric current to the heart muscle, momentarily stunning the heart and stopping all activity. This gives the heart an opportunity to resume beating effectively.

## Will an AED always resuscitate someone in cardiac arrest?

No. The AED treats only a heart in ventricular fibrillation, which is an irregular heart rhythm. In cardiac arrest without ventricular fibrillation, the heart does not respond to electric currents, but needs medications. The victim also requires breathing support. AEDs are less successful when the victim has been in cardiac arrest for more than a few minutes,

especially if no CPR was administered.

### **Should AEDs be available on airplanes and in other public places?**

Yes. Since seconds count when a person experiences a heart attack, ACEP supports widespread distribution of AEDs, as long as it is coordinated with existing EMS systems and includes proper training. Logical places for AEDs include police cars, theaters, sports arenas, public buildings, business offices and airports. An increasing number of commercial airplanes are now equipped with AEDs and enhanced medical kits.

Approximately 300,000 people die from cardiac arrest every year. The broad deployment of a new generation of portable defibrillators for use by trained lay rescuers can help to save countless lives from this deadly and unpredictable event.

Chicago's O'Hare International and Midway airports were the first airports in the United States to provide defibrillators to employees. Some companies may be concerned about liability from employees using AEDs, but many states already have passed Good Samaritan laws to protect laypersons. Most states have such laws.

### **Do AEDs replace the use of CPR?**

No. When a person experiences cardiac arrest, CPR will help keep oxygen flowing to the brain, but the electric shock of an AED vastly improves the chances of restarting the heart. AEDs can be used as part of CPR. CPR is still needed, starting with determining whether a person is unconscious, breathless or pulseless.

To help spread the use of AEDs, the American Red Cross has incorporated AED training into standard CPR training for the nation's businesses. The American Red Cross trains approximately 6 million people each year in lifesaving first aid and CPR.

For more information on this and other topics, visit [www.EmergencyCareForYou.org](http://www.EmergencyCareForYou.org).