

# AED FactSheet

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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.

When a person suffers a sudden cardiac arrest, chances of survival decrease by 7 to 10 percent for each minute that passes without defibrillation. A victim's best chance for survival is when there is revival within 4 minutes. Experts estimate that 100,000 lives could be saved each year if AEDs were widely used.

The American College of Emergency Physicians supports increased public access to AEDs that is coordinated with community EMS systems and with appropriate training.

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

Having more people who can respond to medical emergencies and are trained to use AEDs will greatly increase survival rates for people in sudden cardiac arrest. Nearly 700 people die from cardiac arrest each day. 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.

**Question:** What is an Automated External Defibrillator?

**Answer:** An AED is a device that administers an electric shock through the chest wall to the heart. Built-in computers assess the patient's heart rhythm, judge whether defibrillation is needed, and then administers an appropriate level of shock. Audible and/or visual prompts guide the user through the process.

**Question:** How does an AED work?

**Answer:** A microprocessor inside the defibrillator analyzes the victim's heart rhythm through adhesive electrodes (some AED models require the person 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.

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**Question:** Who can use an AED?

**Answer:** 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.

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

**Answer:** 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, stopping all activity. This gives the heart an opportunity to resume beating effectively.

**Question:** Will an AED always resuscitate someone in cardiac arrest?

**Answer:** No. The AED treats only a heart in ventricular fibrillation, an irregular

heart rhythm. In cardiac arrest without ventricular fibrillation, the heart does not respond to electric currents, but needs medications. The victim also needs 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 provided.

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

**Answer:** 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.

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. Texas law protects good Samaritans who are trained and use AEDs to save lives.

**Question:** Do AEDs replace the use of CPR?

**Answer:** 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 cardiopulmonary resuscitation. CPR is still needed, starting with determining whether a

person is unconscious, without breath or pulse.

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.

**Question:** What's the difference between an AED and the defibrillators used in hospitals?

**Answer:** In-hospital defibrillators are manual, larger than AEDs, and designed to be used only by qualified medical personnel with special training to use the device and to recognize heart rhythms. Medical personnel who use the device must decide whether or not to shock the person. Manual defibrillators also have additional capabilities such as pacing and cardioversion.

AEDs are programmed to recognize different heart rhythms and to make the shock/no shock decision, so that users don't have to. They were designed so that lifesaving defibrillation could be performed as quickly as possible.

Information provided by the American College of Emergency Physicians and the Texas Department of Insurance, Division of Workers' Compensation and is considered factual at the time of publication.