

**David Marcus**  
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**Automatic External Defibrillator**

Cardiac arrest is the single leading cause of death worldwide. During a sudden cardiac arrest (SCA), the electrical system of the heart has a short circuit, which causes the heart to quiver rather than pump normally. SCAs typically happen because of an abnormal heart rhythm known as ventricular fibrillation (VF).

SCA occurs more than six hundred times every day in the U.S. alone, killing at least 250,000 people each year. It also kills more people than house fires, AIDS, guns, prostate and breast cancer, and automobile accidents, combined. SCA usually happens without warning and the majority of people have not been previously diagnosed with heart disease. Every minute that a victim goes without treatment the chance of survival decreases by ten percent.



Traditional defibrillators to treat SCAs are big, complicated, and costly. Engineers were asked to create a small, simple, and less expensive device, to help people have a better chance of survival until the EMTs arrive. This invention, the Automatic External Defibrillator (AED), offers an effective, easy, and affordable solution to treating sudden cardiac arrest.

About the size of a laptop computer, AEDs also utilize highly accurate computerized technology in order to help both the user and patient. An AED is easy to operate. It uses voice prompts to instruct the rescuer on what to do.



Once the machine is turned on, the rescuer will be told to place two electrodes, attached to the AED, to the victim's chest. Once they are applied, the AED will begin to monitor the victim's heart rhythm. If a heart rhythm emerges that seems to be unstable, the machine will charge itself and instruct the rescuer to stand clear of the victim and press the shock button. This shock delivers a 15-amp AC current that produces 710 volts applied through the chest for 0.15 seconds.

Because of this technology, AEDs are used throughout the U.S to increase the survival rate of people who suffer an SCA. In most cases, EMTs, police, firefighters, and even the armed forces are required to know how to use an AED and have access to one as part of their job. Furthermore, all fifty states now have AED Good Samaritan provisions that help protect laypersons in corporate offices, shopping malls, airports, sports stadiums, schools, community centers, and other public places where one might be called upon to assist a victim.

Today the cost of AEDs varies from manufacturer and model. On average the price for a single AED unit is about \$3,000.

Sources:

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