

FACT SHEET: Automated External Defibrillators (AEDs)

An automated external defibrillator (AED) is a portable device used to administer an electric shock to the heart and restore the heart's normal rhythm during sudden cardiac arrest. Ventricular Fibrillation (VF), the abnormal heart rhythm that most often leads to sudden cardiac arrest, is treatable. If the heart can be shocked quickly with an AED, a normal heart rhythm may be restored.

In the past, defibrillators were complicated and cumbersome. Only medical professionals with extensive training in heart rhythm interpretation could use them. Today, defibrillators used in public places and in the home are automated, portable and easy to use. They are no longer limited to emergency room and are now placed in airports, schools, offices, houses of worship, gyms, and most recently in homes. It is estimated that approximately 20 percent of all police cars carry AEDs to improve response times to assist SCA victims.

An AED consists of a small computer (microprocessor), electrical circuitry, and adhesive electrode pads. The electrodes collect information about the heart's rhythm. The microprocessor interprets the rhythm. If the heart is in ventricular fibrillation, the microprocessor recommends a defibrillating shock. The shock is delivered by way of the electrode pads, through the victim's chest wall, and into the heart. The shock stuns the heart momentarily, stopping all activity. This gives the heart a chance to restart normal electrical activity and resume beating effectively.

While AED and CPR training are available and recommended for those responsible for managing a public access to defibrillation (PAD) program, training is not required to use an AED. These machines have voice prompts to easily assist a novice at successfully using the device. It is important for bystanders who witness the collapse of an SCA victim to act quickly. If a person does not need the shock of an AED, the machine will not deliver a shock. It is not possible to hurt someone with an AED; they can only be used to save someone's life.

It is essential that defibrillation be administered immediately following the cardiac arrest. If the heart does not return to a regular rhythm within 5-7 minutes, this fibrillation could be fatal. If defibrillated within the first minute of collapse, the victim's chances for survival are close to 90 percent. For every minute that defibrillation is delayed, survival decreases by 7 percent to 10 percent. If it is delayed by more than 10 minutes, the chance of survival in adults is less than 5 percent.

Most AEDs are prescription devices and must be labeled with the prescription statement required by law (CFR 801.109), a physician who oversees the PAD program at a facility must write a prescription for most AEDs in order for the facility to purchase it. This is easily accomplished and there are many who are willing to help start a PAD program. In addition, one model of AED has been cleared by the FDA for over-the-counter sale and in-home use.