

Automated External Defibrillators

Many sudden cardiac emergencies are related to **ventricular fibrillation** (a fatal abnormal heart rhythm). **Defibrillation**, done by “shocking” the heart with a measured dose of electricity, may allow the heart to resume a functional rhythm. Defibrillation is the only effective treatment for ventricular fibrillation. If defibrillation is applied early in the rescue sequence, persons experiencing a cardiac arrest have improved chances of survival.

Traditional manual defibrillators are available in emergency care response vehicles, hospitals, and other health care facilities but require life support training for their proper and safe use. **Automated external defibrillators** (AEDs) are small (laptop computer–sized) units that have the capability to analyze the heart rhythm, determine if a shock should be given, then deliver the appropriate electrical therapy. This requires little training on the part of the responder and can easily be used by laypersons. The August 9, 2006, issue of JAMA includes an article about automated external defibrillators.



USE OF AUTOMATED EXTERNAL DEFIBRILLATORS

- If you see an unconscious person, the emergency medical system should be activated immediately by calling 911 or the local emergency medical number outside of the United States.
- Begin basic life support, including **cardiopulmonary resuscitation** (CPR—providing breaths and chest compressions) if needed.
- If an AED is available, place the pads on the person's naked chest (remove all clothing, wipe the chest off if it is wet). The pads should be placed with the upper pad on the right side of the breastbone, and the lower pad on the lower left chest. If the machine has a picture showing placement of the pads, follow those instructions.
- Turn the device on and follow the voice prompts. The AED will analyze the rhythm and instruct you to press the shock button if the heart rhythm is ventricular fibrillation or certain types of **ventricular tachycardia** (another dangerous, possibly fatal, abnormal heart rhythm).
- Everyone should make sure they are clear of the patient or any object touching the patient before the shock button is pressed to avoid electrical injury. The device delivers the electrical therapy (the shock), and then reanalyzes the heart's rhythm.
- If spontaneous breathing returns after the shock, the treatment has been successful. Otherwise CPR should resume as soon as possible, providing oxygen and blood flow to the heart and the brain and maximizing the chance for survival.

Sources: American Heart Association; American Red Cross; National Heart, Lung, and Blood Institute

FOR MORE INFORMATION

Learn how to perform CPR and basic life support. For information about classes in your area, please contact the organizations below.

- American Heart Association
800/242-8721
www.americanheart.org
- American Red Cross
www.redcross.org

INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page Index on JAMA's Web site at www.jama.com. Many are available in English and Spanish. A Patient Page on cardiopulmonary resuscitation was published in the January 19, 2005, issue; one on implantable cardioverter-defibrillators in the April 26, 2006, issue; and one on cardiac arrest in the January 4, 2006, issue.

Janet M. Torpy, MD, Writer

Cassio Lynn, MA, Illustrator

Richard M. Glass, MD, Editor

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