

American Heart  
Association®



*Learn and Live*™

# *Saving Lives*



With the  
Chain of  
Survival

**S**udden cardiac arrest is a major cause of death in the United States. It claims about 335,000 lives each year. That's 5 lives every 8 minutes.

Sudden cardiac arrest means that the heart stops pumping blood. This can happen suddenly, without warning. Often it's due to an abnormal heart rhythm or a heart attack. There can be other causes of cardiac arrest, too. Other examples are accidental electrical shock or submersion (near-drowning).

Right now the survival rate for sudden cardiac arrest is about 5%. If survival rates from cardiac arrest were increased to 20%, about 40,000 lives could be saved. A strong Chain of Survival can increase a victim's chance of survival.

What's the Chain of Survival? It is an American Heart Association metaphor that uses the links in a chain to describe the actions needed to save a victim's life.

- ♥ **Early access**
- ♥ **Early CPR**
- ♥ **Early defibrillation**
- ♥ **Early advanced care**



***A strong Chain of Survival can help many victims, including those who have a heart attack, stroke, or other emergency.***



by phone enables callers to care for victims until help arrives. Without trained EMDs, victims may face delays that could mean the difference between life and death.

**Awareness of early warning signs.** Early access only happens if you know who to call and when to call. Many people deny (or don't know) the symptoms of a cardiovascular emergency. Instead of phoning 911 first, some people call loved ones or their own doctor. This wastes precious time. That's why everyone needs to learn the warning signs and to call 911 first.

Some heart attacks are sudden and intense — the “movie heart attack,” where no one doubts what's happening. But most heart attacks start slowly, with mild pain or discomfort. Often the people affected aren't sure what's wrong and wait too long before getting help. Here are some of the signs that can mean a heart attack is occurring.

### **Warning signs of a heart attack:**

- ♥ Chest discomfort. Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness, or pain.
- ♥ Discomfort in other areas of the upper body. Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw, or stomach.

- ♥ Shortness of breath. This feeling can occur with or without chest discomfort.
- ♥ Other signs. These may include breaking out in a cold sweat, nausea, or lightheadedness.

If you suspect someone is having a heart attack, tell the victim to sit quietly and phone 911 or your local emergency services number immediately.

Many people will not admit that they may be having a heart attack. They may make excuses or want to call their own doctors first.



Calling 911 will bring other rescuers who can provide basic and advanced life support. EMS personnel can begin caring for the victim as soon as they arrive and can treat any complications of a heart attack while on the way to the hospital. Your call also will increase the likelihood that the victim will receive the newest treatments. EMS can alert the hospital about the arrival of a victim with a heart attack. The hospital will then be better prepared to administer drugs such as clot-busters that may dissolve the clot and stop or

reduce heart damage. But new drugs are effective only if they are given within the first few hours after the onset of symptoms of a heart attack. That's why it is important to act quickly and start the Chain of Survival.

Another emergency situation is cardiac arrest. Time is extremely critical in cardiac arrest. It is important to immediately recognize the signs and symptoms and take action.

### **Signs of cardiac arrest:**

- ♥ Collapse and unresponsiveness
- ♥ Normal breathing stops
- ♥ Loss of signs of circulation (no normal breathing, coughing, or movement)

### **Early CPR**

Early CPR means giving CPR promptly and properly when it's needed. When CPR is performed, rescue breathing and chest compressions circulate oxygen-rich blood to vital organs. This buys time for the victim until defibrillation (the next link in the Chain of Survival) can be given. This Early CPR link is stronger when bystanders or callers know CPR and EMDs can give CPR instructions by phone.



***To find training centers near you that offer American Heart Association CPR training, call 1-877-AHA-4CPR (1-877-242-4277), or visit [www.americanheart.org/cpr](http://www.americanheart.org/cpr).***

## **Early Defibrillation**

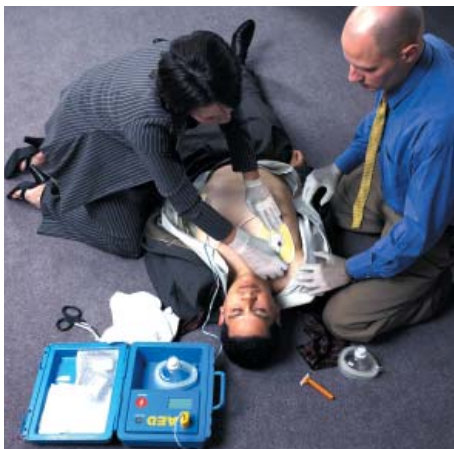


Early defibrillation means delivering an electric shock to the heart within minutes of a cardiac arrest. Defibrillation is performed with a device called a defibrillator.

Automated external defibrillators (AEDs) are user-friendly, computerized defibrillators. They use voice prompts to lead a rescuer through the steps of defibrillation. Trained rescuers can use AEDs to give a potentially lifesaving electrical shock to a victim's heart during cardiac arrest.

Early defibrillation is often called the critical link in the adult Chain of Survival. That's because it's the best way to successfully treat most cardiac arrests. Defibrillation delivers a shock to the heart to stop the abnormal heart rhythm and allow a normal rhythm to resume. Time is critical. If a normal heart rhythm isn't restored in minutes, the person will die. In fact, for every minute without early CPR and rapid defibrillation, the chances of survival drop 7% to 10%. After 10 to 12 minutes of cardiac arrest, there is little chance of survival.

Traditionally EMS personnel have provided defibrillation. However, quick EMS response isn't always available. Even the best EMS systems are delayed by heavy traffic, secured buildings, and gated communities. Large building complexes and high-rises also pose problems. In some communities and facilities, EMS personnel or traditional first responders with AEDs can't reach cardiac arrest victims within the critical four minutes after collapse. For these situations, the American Heart Association advocates establishing automated external defibrillator (AED) programs.



AED programs equip lay rescuers with AEDs and train them to perform CPR and use AEDs. This helps ensure that the people most likely to arrive first at a medical emergency are equipped to help. These people include fire-fighters, law enforcement and security officers, industrial facility staff, and retirement community workers, among others.



## The American Heart Association recommends that AED programs

- ♥ Have medical oversight to help ensure quality control
- ♥ Work together with the local EMS system
- ♥ Train designated rescuers in Heartsaver® AED (a CPR and AED training program)
- ♥ Use and maintain AEDs according to the manufacturer's directions

***To learn more about implementing an AED program in your community, call 1-877-AHA-4CPR (1-877-242-4277), or visit [www.americanheart.org/cpr](http://www.americanheart.org/cpr).***





## **Early Advanced Care**

Early advanced care means having qualified paramedics and other healthcare providers respond to cardiac arrests and begin treating the victim as soon as possible. These professionals can stabilize people who suffer a cardiovascular emergency. Ideally, advanced cardiovascular care should be available within minutes of collapse or the onset of symptoms. This gives victims the greatest chance of long-term survival.



*To learn more about emergency care activities and how you can help make the Chain of Survival stronger in your community, contact your nearest American Heart Association office by calling 1-877-AHA-4CPR (1-877-242-4277).*



Training materials for American Heart Association courses can be obtained through your local training center or through the following distributors.

## **Channing Bete Company**

One Community Place

South Deerfield, MA 01373-0200

Phone: 1-800-611-6083

Fax: 1-800-499-6464

[www.channing-bete.com](http://www.channing-bete.com)

## **Laerdal Medical Corporation**

167 Myers Corners Road

PO Box 1840

Wappingers Falls, NY 12590-8840

Phone: 1-888-LMC-4AHA  
(562-4242)

Fax: 1-800-227-1143 or  
1-845-298-4545

[www.laerdal.com](http://www.laerdal.com)

## **WorldPoint ECC, Inc.**

1326 S. Wolf Road

Wheeling, IL 60090

Phone: 1-888-322-8350  
1-847-419-1728

Fax: 1-888-281-2627  
1-847-419-1802

[www.worldpoint-ecc.com](http://www.worldpoint-ecc.com)

American Heart  
Association® 

*Learn and Live*<sup>SM</sup>

National Center

7272 Greenville Avenue

Dallas, Texas 75231-4596

[www.americanheart.org/cpr](http://www.americanheart.org/cpr)