

**SUDDEN CARDIAC ARREST:
THE CHAIN OF SURVIVAL**

In 1991, the American Heart Association (AHA) published "Improving Survival from Sudden Cardiac Arrest: The Chain of Survival Concept." This paper identified the idea that all communities should adopt the principle of early defibrillation and that all personnel who are expected, as part of their professional duties, to perform basic CPR, should be equipped with an AED and be trained to operate it. Since then, the AHA has advocated that health professionals who have a duty to respond to a person in cardiac arrest should have a defibrillator available either immediately or within 1 to 2 minutes.

The AHA's Chain of Survival depicts the critical actions required to treat life-threatening emergencies, including heart attack, cardiac arrest, stroke, and foreign body airway obstruction. The links within this "Chain of Survival" include:

1. Early Access to the emergency response system;
2. Early CPR to support circulation to the heart and brain until normal heart activity is restored;
3. Early Defibrillation to treat cardiac arrest caused by Ventricular Fibrillation; and
4. Early Advanced Care by EMS and hospital personnel.

The first link, Early Access to the emergency response system, includes early recognition of the cardiac emergency and early notification of rescue personnel via a universal 9-1-1 telephone system as well as an internal alert system within specific facilities to trigger a response by designated trained and equipped personnel.

The second link, early CPR, is a set of actions that the rescuer performs in sequence to assess and support airway, breathing and circulation.

The third link, early Defibrillation, is the delivery of a shock to the heart to convert the heart's rhythm from Ventricular Fibrillation back to a normal heart rhythm.

The fourth link, early Advanced Care, relates to the response of highly trained and equipped pre-hospital EMS personnel (paramedics) who can respond to the patient and provide for the administration of drugs, advanced airway procedures, and other interventions and protocols, prior to the arrival of the patient at an advanced care facility.

However, in order for the patient to have the best chance of surviving an out-of-hospital cardiac arrest, CPR and early defibrillation must be provided within the first 4 minutes of the cardiac arrest, followed by Advanced Life Support within the first 8 minutes of the arrest.

