

The Chain of Survival



In 1990, the American Heart Association developed the Chain of Survival. This protocol addresses the fact that most SCA episodes occur outside of a hospital, with death occurring within minutes of onset. For the Chain to be effective, quick execution of each and every link is critical. With each minute that passes, the likelihood of survival decreases 7-10%.

Time After the Onset of Attack	Survival Chances
With every minute	Chances are reduced by 7-10%
Within 4-6 minutes	Brain damage and permanent death start to occur
After 10 minutes	Few attempts at resuscitation succeed

To provide the best opportunity for survival, each of these four links must be put into motion within the first few minutes of SCA onset:

- Early Access to Emergency Care must be provided by calling 911.
 - Early CPR should be started and maintained until emergency medical services (EMS) arrive.
 - Early Defibrillation is the only one that can re-start the heart function of a person with ventricular fibrillation (VF). If an automated external defibrillator (AED) is available, a trained operator should administer defibrillation as quickly as possible until EMS personnel arrive.
 - Early Advanced Care, the final link, can then be administered as needed by EMS personnel.
- When each link in the chain works successfully, the chance of surviving SCA increases greatly.

Quick Facts:

• Likelihood of survival decreases 7-10% With each minute that passes.

• More than 70% of SCA cases occur at home.

• When defibrillation occurs within the first few minutes, survival rates can approach 80-100%.

• 83% of survivors live for at least one year, and 57% live for five years or longer.

Type of Care for SCA Victims after Collapse	Chance of Survival
No care after collapse	0%
No CPR and delayed defibrillation (after 10 minutes)	0-2%
CPR from a non-medical person (such as a bystander or family member) begun within 2 minutes, but delayed defibrillation	2-8%
CPR and defibrillation within 8 minutes	20%
CPR and defibrillation within 4 minutes; paramedic help within 8 minutes	43%

Since more than 70% of SCA cases occur at home, and another 10% to 15% occur at work, trained EMS personnel are unlikely to be at the scene at onset. Therefore, trained lay responders with quick access to defibrillation units can be a vital asset when SCA strikes. In certain environments, where the Chain is strong and when defibrillation occurs within the first few minutes of cardiac arrest, survival rates can approach 80% to 100%.

People who survive sudden cardiac arrest have an excellent prognosis: 83% survive for at least one year, and 57% survive for five years or longer. In fact, when analyzed by age group, survival rates for SCA survivors are comparable to survival rates of people who have never had an event. Clearly, early intervention can offer years of productivity and fulfillment to victims of SCA.

