Heart Disease and Stroke. You're the Cure.

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FACTS

A Race Against the Clock

Sudden Cardiac Arrest

OVERVIEW

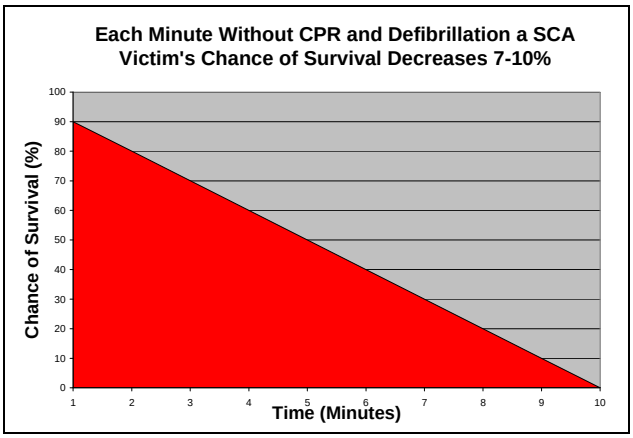
Sudden cardiac arrest (SCA) occurs when the heart's electrical system abruptly malfunctions and the heart suddenly stops beating normally. SCA is often confused with a heart attack, which typically happens when blocked arteries prevent blood from reaching the heart's muscles. There are more than 294,800 occurrences of out-of-hospital SCA each year – most of them fatal.[1]

There is hope for SCA victims, but time is the enemy. To survive the arrest, they must receive immediate cardiopulmonary resuscitation (CPR) to increase the blood flow to the heart and brain, along with an electrical shock from a defibrillator to stop the abnormal heart rhythm. For every minute without life-saving CPR and defibrillation, chances of survival decrease by 7 to 10%.[2] Tragically, an estimated 92% of out-of-hospital SCA victims die before they are discharged from a hospital.[1]

Sudden cardiac arrest is widely misunderstood. In a recent public opinion survey, about 45% of respondents did not know that SCA is a leading cause of cardiovascular death, and approximately 94% said they think raising awareness about SCA is important.[3] Research can help us better understand SCA's causes, while increased public awareness, CPR training and access to automated external defibrillators (AEDs) can save tens of thousands of lives each year.

WHAT IS SUDDEN CARDIAC ARREST?

In addition to pumping about 2,000 gallons of blood each day, the human heart has a complex electrical system that regulates and synchronizes the beating of the heart. When this system malfunctions, the heart can be sent into a dangerously erratic rhythm. Unlike the heart attack victim who may exhibit early warning symptoms, such as chest pains or shortness of breath, SCA strikes without warning. One minute a person may feel fine, and the next be unconscious and close to death



CAUSES AND RISK FACTORS

The causes of SCA are not fully understood, but coronary heart disease is a factor in approximately 70% of cases.[4] Other common risk factors include:

- Personal or family history of SCA
- Abnormal heart rhythms
- Congenital heart defects
- Congestive heart failure
- Illegal drug use, such as cocaine or amphetamines
- Heart infection

PREVALENCE

SCA cuts a wide swath throughout the U.S population. About 800 people have a SCA each day, more than the total number of Members in

the U.S. House of Representatives.[1] Although overall deaths from heart disease have declined over the past 30 years, the mortality rate from SCA has not.[5]

SCA usually occurs in adults and is the leading cause of cardiac-related death.[4] However, children are not without risk. Each year, there are an estimated 1,900 to 14,200 cases of out-of-hospital SCA in children nationwide. Approximately 5-15% are caused by an abnormal heart rhythm called ventricular fibrillation.[1] Student athletes who suffer SCA often have an underlying heart abnormality that is undiagnosed.[6]

SURVIVING SUDDEN CARDIAC ARREST

Treatment of SCA is a race against the clock. The combination of early, immediate CPR and defibrillation can more than double a victim's chance of survival. If the survival rate increased from 5% to 20%, an additional 40,000 lives could be saved annually.[5]

The American Heart Association recommends implementing the following "chain of survival" to rescue victims of SCA:

- Early recognition and access to emergency medical services (call 911 immediately)
- Early bystander CPR when needed
- Early delivery of a shock with a defibrillator when indicated
- Early advanced life support followed by post resuscitation cardiac care

GREATER ACCESS TO AEDS

The Automated External Defibrillator (AED) is a simple-to-use device about the size of a laptop computer that is used to shock the heart of a person with SCA back into a life-sustaining rhythm. AEDs can be found today in a variety of public settings – from schools to airports. Used by both trained and lay emergency responders, the AED is attached to the victim and delivers an electric shock when it detects a dangerous heart rhythm. Communities with AED programs, which include comprehensive CPR and AED training, have achieved survival rates of 40% or higher.[6] Lay responders play a crucial role in achieving high survival rates, and more AEDs and CPR training for individuals are needed to provide this life-saving treatment. But despite widespread public support for increasing federal funding for SCA research, education and treatment, funding has been cut.[5]

ACTION PLAN FOR SCA

The American Heart Association advocates a comprehensive approach for addressing sudden cardiac arrest, including:

- Greater research into its underlying causes;
- Improved data collection on out-of-hospital SCA; how SCA affects different populations; and the effectiveness of treatment methods;
- Increasing public awareness of SCA and its causes through, for example, CPR and AED Awareness Week each June;
- Supporting policies that encourage bystander CPR, as well as CPR and AED training in schools;
- Extending Good Samaritan law coverage to all AED users and program facilitators;
- Championing public policy initiatives that promote the purchasing and placement of AEDs in high-risk locations and create Medical Emergency Response Plans (MERPS);
- Passage of the Josh Miller HEARTS Act (H.R. **TBD**), which would provide increased access to AEDs in schools;
- Funding the *Rural and Community Access to Emergency Device Program* at the FY 2005 level of $9 million annually, so that more lives can be saved each year.

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