

***Arrest the Risk***  
**Sudden Cardiac Arrest (SCA)**  
**Backgrounder**

Sudden cardiac arrest (SCA) is a condition in which the heart suddenly and unexpectedly stops beating. If this happens, blood stops flowing to the brain and other vital organs. SCA usually causes death if it is not treated within minutes.<sup>i</sup>

SCA is one of the leading causes of death in the United States each year. In fact, SCA claims one life every 90 seconds, taking more lives each year than breast cancer, lung cancer or AIDS. Unfortunately, 95 percent of people who experience SCA die as a result, mainly because treatment within minutes is not accessible.

**Sudden Cardiac Arrest is not a Heart Attack**

Most people do not know the difference between SCA and a heart attack. Because time is crucial to saving someone who is having a sudden cardiac arrest, it is important to understand the difference. As an analogy, think of the human heart as a house. In a house, there are many systems that keep it running properly, including an electrical system and a plumbing system. In a heart, there are also different systems that keep it beating correctly.

The heart's electrical system is what is affected when SCA occurs. During SCA, the heart stops beating and no blood is pumped to the rest of the body. This could be compared to losing electricity in your house. The heart "electricity" must be turned back on, typically through electrical shock.

A heart attack, typically known as a myocardial infarction (MI), affects the "plumbing" of the heart. A heart attack is caused by a blockage in a blood vessel that interrupts the flow of blood causing an area of the heart muscle to die. This causes a "blood backup" in the heart, similar to a backup in a plumbing line in a house. The heart must be "unclogged," with drug therapy or surgery, in order to continue the blood flow to the rest of the body.

While both cause serious problems and possible death, SCA often occurs abruptly and without warning. In fact, two-thirds of SCA deaths occur without any prior indications of heart disease, while heart attacks often have previous signs and symptoms.

**Risk Conditions for Sudden Cardiac Arrest**

SCA can happen to people of all ages and health conditions. While signs and symptoms are often not present, there are certain risk conditions for SCA:

- A previous heart attack.
- A family history of sudden death, heart failure or massive heart attack.
- An abnormal heart rate or rhythm of unknown cause.
- An unusually rapid heart rate that comes and goes, even when at rest.
- Episodes of fainting of unknown cause.

- A low ejection fraction (EF), which is a measurement of how much blood is pumped by the ventricles with each heartbeat. A healthy heart pumps 55 percent or more of its blood with each beat. Less than 35 percent indicates an elevated risk of SCA.

### **Minutes Matter**

The time it takes for help and treatment to occur is a life and death situation during SCA. Ninety-five percent of those who experience SCA die because they do not receive life-saving defibrillation within four to six minutes, before brain and permanent death begin to occur.

If a SCA emergency is suspected, the following steps are recommended:

1. Know the signs of SCA and react quickly. SCA strikes immediately and without warning. Victims will fall to the ground/collapse, become unresponsive and will not breathe normally, if at all.
2. Call 911 as soon as possible.
3. Start CPR as quickly as possible. If you don't know CPR, conduct Hands-Only™ CPR, which is providing chest compressions by pushing hard and fast in the middle of the victim's chest with minimal interruptions at approximately 100 beats per minute (or hum the Bee Gees song "Staying Alive"). Studies of real emergencies have shown Hands-Only™ CPR, to be equally or more effective than conventional CPR.
4. If available, use an automated external defibrillator (AED) as soon as possible. AEDs are a computerized medical device that can check a person's heart rhythm and recognize and deliver a shock to a heart that needs it.

### **Prevention and Treatment**

While there are often no signs or symptoms prior to SCA, there are things people can do to decrease the likelihood of experiencing SCA.

- Live a healthy lifestyle – exercise regularly, eat healthy foods, maintain a healthy weight and avoid smoking.
- Treat and monitor all health conditions including high blood pressure, high cholesterol and diabetes. Ask a doctor about ejection fraction monitoring to determine if risk.
- Control or stop abnormal heart rhythms that may trigger life-threatening arrhythmias through proper medication, implantable cardioverter defibrillators (ICDs), and in some, cases surgical procedures.
- Know family heart history and understand the risks for other cardiovascular-related conditions, like heart failure. Communicate these to a physician.

While treatment guidelines recommend ICDs as the standard of care for patients at risk for SCA, a large percentage of patients at highest risk do not receive this treatment, especially African Americans and women.<sup>ii</sup> In addition, studies have shown that African Americans are significantly less likely than Caucasians to have electrophysiologic studies (which would identify abnormal heart rhythms) or to get an ICD.<sup>iii</sup> While reasons for this are still being investigated, it has been shown that sudden cardiac death rates are higher among African Americans.<sup>iv</sup>

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### **References**

<sup>i</sup> *What is Sudden Cardiac Arrest?* (1, April 2011). Retrieved August 27, 2012, from National Heart Lung and Blood Institute: <http://www.nhlbi.nih.gov/health/health-topics/topics/scda/>

<sup>ii</sup> National Medical Association. (2008). *Sudden Cardiac Arrest: Advancing Awareness and Bridging Gaps to Improve Survival*. Washington, DC: NMA.

<sup>iii</sup> Agency for Healthcare Quality and Research. (2003). *Treatment to Prevent Sudden Cardiac Death*. Washington, DC: AHRQ.

<sup>iv</sup> CDC. (2002). State-Specific Mortality from Sudden Cardiac Death --- United States, 1999. *MMWR*, 123-6.