

# Occupational Health & Safety

## Personal Experiences Create Ardent Advocates for AEDs

By Gintaras A. Vaisnys, Glenn W. Laub, M.D., Ray Valek · *December 2007*

### Persistence and generosity saved Keith White's life, even before he landed hard on a concrete dance floor after suffering sudden cardiac arrest.



Keith White was dancing with his wife, Ingrid, at a dinner celebrating the 60th anniversary of Immaculate Heart of Mary Church in Cincinnati. He remembers feeling dizzy, then slipping from her arms, a victim of sudden cardiac arrest (SCA).

Although White is a very active parishioner, he was unaware the church obtained an automated external defibrillator (AED) just 10 days before the dinner dance. For Sister Carole Temming, the parish's nurse, getting the AED was the result of reading about the benefits of the lifesaving devices and becoming determined to find a way to get one. "I continued to bring it up (to the members of the church's health ministry). I felt it was needed," she recalls. "I finally made a phone call to someone in the parish, where I got a response saying that they would donate the defibrillator."

That "someone" was a parishioner who is an officer at Cintas, the AED's distributor. He anonymously provided the AED just in time to save White. "There was a purpose for having the defibrillator," says

Temming, who says the parish now has three AEDs on hand for the church, school, and athletic fields.

After receiving treatment for two blood vessel blockages, White became involved with the American Heart Association, telling his story to community groups and volunteering for special events. He also asked our company whether he could become a distributor. He and Ingrid now run Cansco International, Inc., which markets the lifesaving devices to businesses, schools, churches, and other organizations in Cincinnati and beyond. "I enjoy letting people know that this unit can make a difference— it saves lives and saved my life," White says. "Don't think about the money aspect. Once a life is lost, it's lost."

### Turning Pain into Motivation

Bert Cattoni, owner of Cardiac Rescue Systems and distributor for Defibrillators USA, lost a 19-year-old daughter to SCA. "She died in her sleep. She was going to go to work the next morning and never woke up," he remembers. Cattoni has turned this painful experience into a motivation that recently saved the life of an Illinois River towboat worker employed by American River Transportation Company (ARTCO), the marine division of Archer Daniels Midland Co.

"I have been targeting the marine industry," Cattoni says, noting his family's long involvement in the industry.

“My brother owns Illinois Marine Towing Company, which operates on the Illinois River. I recognized the need (for AEDs) on tow boats in the same way that it has been mandated for airliners to have AEDs on board. It makes sense that towboats or any marine vessel would have them on board: There’s no way an ambulance is going to arrive on time to a vessel and make a save. These fellows are generally in remote locations in between towns, left to their own devices in an emergency. ARTCO agreed with that.”

As a result, Cattoni has worked with the company to place AEDs on 85 towboats. ARTCO President Royce Wilken said purchasing the AEDs was the best investment the company ever made. The investment included AED/CPR training to each person working on a towboat crew.

Despite the headway being made by ARTCO and other companies, SCA remains a significant cause of death in America’s workplaces. According to OSHA, 13 percent of all workplace fatalities are caused by SCA. More than 400,000 individuals die of SCA in the United States each year, health experts estimate.

In response to these facts and because AEDs are more affordable now, businesses and other organizations across the country have deployed AEDs and organized trained rescue teams. According to the American Heart Association (AHA), these first responder teams report SCA survival rates between 50 and 75 percent in some locations. These rates compare to average out-of-hospital survival rates of only 6.4 percent in the United States and Canada, AHA says. Still, however, most workplaces do not have AEDs.

However, the success of the workplace rescue teams is driving a higher demand and expectation for AED programs among employees, as well as among patrons of retail businesses, golf courses, health and sports clubs, and other enterprises that have many customers on the premises each day.

### **Training Workplace Teams**

Jayne Ross is among the many Cintas AED/CPR trainers across the nation providing AED/CPR training sessions that follow guidelines recommended by AHA, the Red Cross, or OSHA. Ross conducted a session with several people at a California sports club. During the six-hour training, the first-response team rehearsed various scenarios and repeatedly rehearsed on mannequins. “They were quite impressed and quite excited when they were done (with the training),” Ross says.

A few months later, “I got a message saying, ‘One of the accounts you trained saved two lives in April,’” she recalls. Her trainees saved two men who were playing tennis within a two-week timeframe. In each case, the lifesavers arrived on the scene and delivered the first shock within three minutes. One man was revived on the first shock. The second received CPR and was revived on the second shock.

Of course, this news was very gratifying for Ross, who ran the trainees through everything they would need to do in an emergency situation. Training content generally provides information on ventricular fibrillation, bloodborne pathogens, how to check and open airways, and use of an AED. The sessions also review several real-life clinical scenarios, allow trainees to practice using the AED on a mannequin, and go through the proper sequence of actions to be taken during an emergency.

Ross says it’s a good idea for organizations to train several individuals. That way, one or two people are not responsible for doing everything that needs to be done in the first few minutes after SCA. For example, while one or two rescuers work hands-on with the victim opening the airway and checking breathing and circulation, others can get the AED and call 911. To determine how many employees should receive AED/CPR training, workplaces should consider the size and nature of their facilities, SCA risk factors among employees and patrons, and budget.

AED/CPR trainers also acquaint individuals with Good Samaritan laws that protect first-responders from

liability in emergency situations. In several cases, courts have identified AEDs as a “required standard of care” for employees and citizens in public areas. Now, organizations may be held liable for negligence in an SCA event if AEDs are not available or if employees are unaware AEDs are available on site.

Training sessions also review the most recent updates to the AHA guidelines, which are:

1. An emphasis on effective chest compressions. Studies of actual resuscitation show that half of the chest compressions given by professional rescuers are too shallow and the compressions are interrupted too often. The new guidelines strongly emphasize the importance of high-quality chest compressions at a rate of 100 per minute during CPR.
2. A single compression-to-ventilation ratio (30:2) for single rescuers. The recommendation of 30 chest compressions followed by two one-second-long rescue breaths simplifies CPR in situations where only one rescuer is on the scene.
3. A recommendation that each rescue breath should be one second long and produce a visible chest rise.
4. A recommendation that a single defibrillating shock, followed by immediate CPR, be used in cases of SCA.
5. A recommendation to use AEDs on children 1 year of age and older.

The guidelines state that a planned and practiced response is the most important aspect of a successful AED/CPR program. Other important elements to consider when planning an AED program include physician oversight, a link with the local EMS system, debriefing after each incident involving a rescue, ongoing AED maintenance and quality improvement, and regular training and certification updates.

### **The Importance of Reducing Time of Response**

With an on-site lay rescuer program, workplaces have been able to reduce the time it takes to reach and revive a SCA victim. Survival rates dramatically increase, to as high as 70 percent, when the victim is reached within three minutes. Survival decreases by about 10 percent for each minute of delay after that, and only 5 percent of victims survive when reached after 10 minutes. Studies show that even the fastest off-site EMS teams take from five to 10 minutes to reach SCA victims.

Cintas trainer Mark Hemphill saw the on-site approach work after an individual he trained saved a golfer who had suffered SCA on the green of an 18th hole. The first shock was provided within three minutes and revived the golfer. EMS arrived on the scene 20 minutes later. Hemphill recalls that the lifesaver said using the AED was “just like I was taught. I turned it on, and it told me what to do.”

Even though most AEDs have become very easy to operate, Hemphill says most individuals don’t realize that until they go through training. Therefore, the training serves the very important purpose of building the confidence of the lifesaving team so they can perform quickly and flawlessly in an emergency situation.

Explaining an AED’s features—such as audible voice prompts that provide step-by-step instruction during emergency situations, self-testing capability, battery life, and durability—and how to apply the defibrillating pads is a very important aspect of the training because it helps trainees overcome the fear factor that many have at first, Hemphill says. For example, many trainees are concerned they will somehow operate the device incorrectly, causing harm to the patient or damage to the AED. Hemphill assures them the AED won’t deliver a shock when the victim is in regular heart rhythm. “By the end of the training, they realize how easy it is to use,” he says.

## More and More Saved by AEDs

During the past several years, thousands of individuals have been fortunate enough to be involved in AED lifesaving activities in churches and schools, on river boats and tennis courts, at golf and health clubs, and in workplaces and public areas. Along with those saved, these individuals have become some of the most ardent advocates for AED deployment.

Cintas trainer Sue Kastenson has been providing CPR & AED training for Trans International, a Milwaukee-area company, for the past five years and had never before been associated with an AED lifesave. Then, one afternoon, seven-year company employee Matt Spranger collapsed, and the team of first responders she trained went into action.

Carolyn Trokan was the first on the scene. She checked Spranger's airway, opened his shirt, and cut off his T-shirt for the AED. Spranger was breathing at first but then stopped. Chest compressions began while Ann Vetter brought the AED to the scene and John Engel provided rescue breathing.

"We hooked the pads up, and the machine took over," Trokan remembers. "Shortly after we pushed the (shock) button, within seconds, Matt started to breathe again and his color returned." Following Kastenson's advice, the others "rendered assurance" during the lifesave, Trokan says. For example, when she was placing the pads on Spranger's chest, she looked up and asked Dennis Schaefer whether she was doing it right, and he nodded his head affirmatively. He also offered to take over the physically taxing chest compressions if the others tired. Danielle Higginson and Cindy Curasi watched for the EMS team to arrive and quickly guided them to the scene. "We all know what to do, and when we react, things fall into place," says Mariana Tetzlaff.

The Trans International workplace includes just under 100 employees, and the company accommodates four- and five-day work weeks, as well as several different work shifts during the course of the day and night. For these reasons, the first response team has employees from each work shift and from different corners of the building. This planning ensures lifesavers can reach a victim within 30 seconds.

The volunteers receive training updates from Cintas every two years and meet every six months on their own to review a DVD and other materials. Now, the team is "a well-oiled machine," says Engel. "It doesn't take long for us to respond and to know what we're doing."

Kastenson agrees. "They did the work; I just taught them," she says. "In every class, I always give the encouragement: 'Here's what you've been taught, and you've been certified. You never know how you will use it.'"

Kastenson recalls that Spranger's wife called Cintas and left a message on her boss's voice mail. "She wanted to find out who the instructor was who helped save her husband's life," Kastenson remembers. "When I listened to her message, it gave me the chills. She wanted to thank the instructor for helping those who were trained. She was very grateful."

Spranger says his wife referred to the Trans International office as "the safest place." He remembers her saying, "Thank God you were at work and not at home." Adds Engel, "More companies should take the precautions that we have."

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