



Turnkey AED Program Management

Affording an automated system of checks and balances, such a program improves emergency response and also saves lives.

by David Fritzsche and Drew Myklegard

Automated external defibrillators are becoming increasingly common in workplaces and public facilities across the nation. They've been endorsed by several medical research studies and health care organizations, including OSHA and the American College of Occupational and Environmental Medicine.



Diligent employers have begun to consider AED deployment an important aspect of a comprehensive employee health and safety program, especially because sudden cardiac arrest (SCA) causes 13 percent of workplace fatalities, according to OSHA. Seventy-eight percent of 200 workplaces surveyed

by ACOEM in 2003 said they had defibrillators on site, with the college estimating that fewer than 5 percent of companies had defibrillators in 1999. AEDs have shown a high degree of reliability in tests conducted by the Food and Drug Administration, and everyone naturally expects the devices to work properly after they are deployed in a workplace or public area. However, on rare occasions, an AED that is not maintained correctly may not function as intended in an emergency, and tragedy can result.

Recently, a man died of SCA in a major airport after batteries in two AEDs witnesses brought to aid him did not work properly. This incident called into question whether the AEDs were properly maintained and placed the management of the airport's AED program under intense public scrutiny.



Turnkey AED program management ensures constant readiness by covering every aspect of planning, implementation, training, maintenance, and evaluation. A Web-enabled tracking system keeps all program participants well informed and accountable to one another.

"How can we prevent this situation from happening again?" is the question every person responsible for an AED program should be asking. The answer is a comprehensive AED management program that links all participants (manufacturer, distributor, medical director, customer, trainer, local EMS, etc.) in one, integrated effort.

The components of this "turnkey" approach to AED program management are:

- 1 A high-quality, easy-to-use AED.
- 2 Medical oversight and direction.
- 3 A Web-enabled tracking and maintenance system that is accessible by all program participants.
- 4 Standardized AED/CPR training and communication.
- 5 Continual program evaluation and improvement.

An integrated program of this nature provides an automated system of checks and balances that keeps program participants well-informed and accountable to each other.

Ninety percent of sudden cardiac arrest victims survive when defibrillated within a minute or two after arrest; only 5 percent live if defibrillation is delayed for more than 10 minutes. Unfortunately, the 5 percent outcome is common in many communities. Usually caused by ventricular fibrillation or ventricular tachycardia, SCA still claims the lives of more than 335,000 Americans each year, according to American Heart Association statistics. Studies show that these fatalities happen primarily because response time to out-of-hospital cardiac arrest often still exceeds 10 minutes. With each minute that passes after the cardiac event, the chance of survival decreases by 10 percent. Early defibrillation not only saves lives, but also often allows victims to return to work and a normal lifestyle by preventing brain or heart damage from a lack of oxygen.

Choosing the AED

The stark statistics about SCA point to the importance of having a fail-safe, easy-to-use AED on site to re-establish normal rhythm to the heart. Not only must the AED be readily available; it also must be accessed and successfully operated in less than three minutes. Even the fastest EMS team will be hard pressed to get to the side of a victim in less than five to 10 minutes, studies show. Employees or individuals responding with an on-site, public access device give the victim the best chance for survival—but they must be confident enough to act without delay! Waiting or running to ask for help because the AED has an intimidating design can be fatal.

When considering various AEDs, look for product features that will add speed, reliability, and confidence to your responder team. AEDs with voice prompts, for example, literally "talk" to the user during an emergency, giving audible instructions and confidence, to those using it. Choosing an FDA-approved AED that's easy to see and find will add speed to the response because, in an alarming situation, what seems obvious under normal circumstances can be overlooked. Check into the device's reliability by investigating whether or not it has ever required a recall. Other factors to consider include self-testing capability, battery life, ruggedness of design, water and dust rating, and pediatric capability (if there's a reasonable chance the AED may be used on children).

The total number of AEDs deployed in a workplace or public area can make a big difference, too, especially because of the quick response time needed to save an SCA victim's life. That's why a lower-priced AED can add tremendous value and quality to your program. You now can buy a high-quality AED for about \$1,500.

Remember—the goal of your program is to have an AED attached to a SCA victim within three minutes of cardiac arrest. Your AED purchase should increase the odds of reaching that goal. Are the bells and whistles—such as an EKG screen and voice recording capability—offered by more expensive AEDs necessary? If you can purchase 15 AEDs instead of 10 for the same price, and if that means you'll have AEDs positioned to improve response time by a minute or two, buy the less-expensive models, assuming it reaches all quality standards. That decision can save a life.

Depending on your work or public environment, you will want to consider purchasing AED accessories, such as wall-mounted storage cases. Especially important for public access programs, these cases allow the AED and its status indicator display or light to be easily seen. These cases can be alarmed to prevent theft.

Medical Oversight and Direction

As required by federal law, a physician must provide a prescription for your program. The M.D. also serves as the AED program's architect, overseeing its every aspect. He or she makes sure the program's policies and procedures meet all federal and state regulations. Most importantly, the physician works closely with your AED program manager and local EMS providers to ensure the entire program is implemented

and maintained at the highest quality standard. This close involvement and supervision increases the chances for successful responses to SCA events and protects your employer or public facility from any potential liability.

Some states require AED medical directors to be board-certified emergency medicine physicians. Even if your state does not have this requirement, the physician who directs your program should have experience treating emergency cases of sudden cardiac arrest and implementing public access AED programs.

Putting this experience into practice, the medical director consults on who is trained, how the training is conducted, and how the program is tracked and maintained. The doctor becomes involved in decisions regarding where the AEDs are placed. To increase the chance for quick response, an AED should be placed no further than 90 seconds of brisk walking distance—about 100 yards—from any point in a workplace or public space. The devices must be accessible to individuals with disabilities.

Medical directors can supervise a site survey that measures response times with a stopwatch and accounts for physical barriers such as locked doors, elevators, and stairways.

Web-Enabled Tracking and Maintenance

Tracking the working condition and maintenance of AEDs can quickly become a complex series of tasks, especially with devices in one to several locations and with AED program managers juggling many responsibilities and issues relating to safety, health, and risk management. The key to successful tracking and maintenance is creating a Web-enabled program that keeps program participants well-informed and accountable to one another.

Turnkey AED management programs now offer software that places all vital program information online. The information includes a listing of all deployed AEDs, with their locations, serial numbers, pad and battery expiration dates, and most recent maintenance inspection dates. Maintenance checklists for each device also appear online, as do order forms for batteries, electrode pads, and other supplies and accessories. Online systems also track the names of individuals who have received AED and CPR training and the due dates of their refresher courses or recertification training.

System features can include automatic e-mails that remind program and site managers to do timely maintenance and training. As deadlines approach, reminders become increasingly urgent. If deadlines are missed, delinquent reports are listed (along with those responsible for them). This system of checks and balances generally results in excellent maintenance compliance, reducing the potential of an unsuccessful response and liability if an emergency occurs.

The trend of online AED information has reached the 9-1-1 operations of major cities, including San Francisco and New York City. The information can be viewed by 9-1-1 operators, who can relay the location of the nearest AED to a caller in an emergency.

Standardized Training and Communication

A recent research study of public access defibrillator programs published in the *New England Journal of Medicine* showed that trained volunteer responders significantly improved the survival rates of SCA victims. Another study from the University of Washington showed the average sixth grader can successfully operate an AED. Therefore, an effective AED/CPR training program will turn employees into an effective and confident team of potential life-savers. Having enthusiastic and knowledgeable instructors is very important! The quality and interactivity of the training experience often sets the tone for how diligent trained employees will be in fulfilling their AED program responsibilities.

Organizations are generally held liable for negligence in an SCA event when AEDs are not available or do not work, or when employees do not know about the availability of AEDs. These situations can be avoided

through a proactive, top-to-bottom program involving training and communication about AEDs, CPR, and SCA to all employees.

The American Heart Association recommends training all employees in basic life support, which includes recognizing the signs and symptoms of stroke, heart attack, choking, and cardiac arrest. Either through this training or another type of highlighted communication, employees should be informed about the AED program and the location of the devices.

To decide how many employees to train in AED and CPR response, you will have to weigh several factors that include the nature of your workplace or public facility, the prevalence of SCA risk factors in your workforce, and your budget. A good rule of thumb for the number to train is five individuals, per shift, for each AED. So if you have 10 AEDs and run three shifts, optimally you should train 150 people. Through a train the trainer approach, you can have employees such as nurses, safety officers, and site managers receive initial training before passing it along to other employees.

Continual Program Evaluation and Improvement

After each use of an AED in an emergency situation, the program director should make sure the used AED's pads and batteries, as well as other used supplies (CPR mask, razor, scissors, gloves, etc.), are replaced. Soon after the event, the medical director should schedule a briefing with the individuals who participated in and witnessed the response. Participants review the event in detail during this discussion with an eye toward optimal performance of the AED and the response teams.

Even if no emergency responses are needed, AED program leaders should meet periodically to discuss how the program can be improved. Response team drills that are conducted with local EMS also help to fine-tune the effectiveness of your program. Many employers and public facilities build the scope of their programs over time because of budgetary, time, and other constraints.

The liability tide has shifted in favor of having AEDs available, aided by the passing of Good Samaritan laws providing liability immunity to rescuers. Courts across the nation increasingly recognize the availability of AEDs as a required standard of care for employees and citizens in public places. AED programs must periodically be evaluated against this standard, which is expected to be raised as AEDs become an expectation of employees, customers, and citizens.

Maintaining Momentum

Multiple studies have clearly established early defibrillation through AED use as the standard in pre-hospital care. Early defibrillation is the critical link in the American Heart Association chain of survival and the only hope for most victims of SCA. OSHA, ACOEM, AHA, the American Red Cross, and the National Safety Council all endorse AEDs in workplaces and public areas.

While new AED programs are generally greeted with much enthusiasm and fanfare, some organizations do not keep up this momentum and fall into a pattern of poor maintenance, risking that the device will not perform optimally when it is needed. A turnkey AED management program can help ensure your employer or public facility will successfully respond to a cardiac event. Through high-quality AEDs, Web-enabled tracking and maintenance, responder training, and continual improvement, you will ensure your program achieves its intended, positive result: the saving of lives.

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