Trained Responder Staffing For CPR/AED Programs

By Greg Landin, Captain/Paramedic, Ret.

Sudden cardiac arrest (SCA) is a leading cause of death in the United States accounting for an estimated 295,000 occurrences of out-of hospital SCA per year, with only an 8% survival rate. It can be successfully treated in many victims by a time electrical shock using an automated external defibrillator (AED), but time is critical. Using AEDs helps saves lives because they can help restore normal heart rhythm before emergency personnel arrive. Communities with comprehensive AED programs have achieved survival rates of 40 percent or higher.[1]

Today's training for Lay Rescuers is based on a teamwork model, identical to that used by Emergency Medical Services in our communities. The term Emergency Response Team is most commonly used to describe this group of lay rescuers. It is not uncommon to need three to five rescuers present to manage a cardiac arrest in the workplace. Additional personnel will be needed to facilitate the other non-rescue functions of an emergency including ushering in the responding EMS providers, crowd control, and communications.

Every AED program is unique based on many factors. These factors include the intended populous, the physical surroundings, governmental requirements, the hours of operation (or use), and all have bearing on how an AED program should be designed and implemented.

The Intended Populous

Is your program expected to protect your employees? What about your visitors? What is the age and health of the populous? How many individuals will each AED be expected to protect? Identifying the number of visitors and/or employees at a location can be helpful in determining the need for an AED. No research is yet available that shows a threshold number for placing AEDs. However, common sense indicates that locations with large numbers of employees, visitors, or both have a greater need for an AED than locations with lower numbers. Additionally, determining whether a location needs an AED based upon the "high risk" of visitors/ employees should also be considered.

High-Risk Activity

Assessing the "high risk" activity at a location can be helpful in determining the need for an AED. Obviously, a health/exercise facility with an aging population has a higher risk for incidence than a location with minimal physical activity.

Physical Surroundings

Is the area you are planning to protect one floor, multiple floors, one building, a full campus? Horizontal response time will be affected by security doors, equipment, furniture, cubicles, and crowded venues. Vertical response time will be hampered by elevator wait times, stair case

placement in relation to the scene of the emergency, and the number of floors to be traveled. It is general practice to place an AED on each floor to eliminate the variable of elevator wait times.

Governmental Requirements

Does your state have legislation that mandates an AED program and if so, does it quantify the number to be trained?

Hours of Operation

Is your facility an eight to five weekday operation or are you 24/7? Will there be after hours access to the AED if employees are working late? Accessibility is a factor that will need to be considered and addressed for a successful AED program.

Travel Time

Currently there's no research that indicates a recommended coverage area for an AED, however achieving a 3-minute response time (round-trip) should be the primary guide to making placement decisions.[2] With survival rates decreasing 7–10 percent for every minute CPR and defibrillation is delayed, having short response times for your trained rescuers can significantly impact the lives of your employees if this intervention is needed.[1]

Let's explore the different methodologies to quantify the number rescuers that should be CPR/ AED trained.

Calculations

At one time, the State of California utilized an equation based on the number of AEDs in a particular location. The ratio was one person trained for each AED up to five AEDs. In my humble opinion, the sum resulted in a sub-minimal number to be trained and put the entity establishing the AED program at risk of not having any trained employees to initiate CPR and treatment with an AED.

This formula didn't take into consideration any of the factors previously mentioned. If an AED program is to be implemented in a five story structure with one AED at each level, then with this formula only one rescuer is to be trained per floor. Now take into account those trained responders that will be "Unavailable". "Unavailable" includes the employees that might be on vacation, on sick leave, out of the office on business or lunch, or have a modified work schedule. The advantage of this method is that you know you are meeting the bare minimums as mandated and is usually less costly on the training side of the equation. The disadvantage is that utilizing this formula is insufficient coverage for many AED programs especially those with challenging vertical response times.

Another approach is to create a ratio of trained rescuers to total populous to be protected. In this scenario, one rescuer per "X" employees is designated and implemented. Although this might be a better methodology than above, it would have to take in account all of the Unavailable employees as previously mentioned. The advantage to this method is that it is easy to calculate. The disadvantage is that choosing a correct ratio is a "best-guess" situation.

The last approach is to make it available to all interested employees. This will usually generate the largest group for training. The advantage to this method is that it will provide for the maximum number available to respond as well as serve as resource to the community. Reports

cite that employer provided emergency training is utilized more frequently in the community than at work. The disadvantage to this method might be the training and retraining costs.

Typically, we find that most agencies have utilized a blend of the above methods. In all cases, it is best use of the available training dollars to train more than what you determine will be necessary so as to account for members on the response team that will retire, are transferred or are promoted. With most training agencies, the cost-per-person to train in CPR/AED will decrease with increased class sizes.

At all costs, don't make the mistake of failing to train enough personnel for your AED program. When an emergency arises, there should never be a void of trained personnel to implement the CPR/AED response that you've invested in.

A word of warning: Do not depend on a fire station or ambulance agency that might be nearby to replace the training your agency will need. Dependance on these resources will provide a false sense of security. All too frequently we see a critical medical emergency that occurs next to a Fire/EMS station and the fire personnel are out on a previous emergency, or the station is on a permanent closure or a rotating closure schedule. In urban settings, Fire/EMS stations are located 5-10 minutes apart and the next due piece of equipment may be out of position to respond to your emergency in a timely fashion.

Who To Train

When identifying responders, consider people who typically are on the premises and already respond to emergencies as part of their jobs (i.e. safety officers, security officers). Another possibility is utilizing people willing to respond to medical emergencies such as floor wardens, onsite property management staff, and office personnel.[2] Typically, volunteers tend to be dedicated response personnel as they have expressed a desire to participate. If you designate or mandate participation, your training costs will have a tendency to increase due to a later "opt-out".

As another resource for your trained responders, don't forget to utilize those that are already trained as a result of their participation in the military, a volunteer fire department, a sports coaching position, Boy Scout/Girl Scout leader positions, etc...

In summary, cost/benefit considerations are helpful for developing AED programs. The creation of a trained group for emergency response would serve both day-to-day medical emergencies as well as natural or man-made disasters. The training dollars that are spent are an investment in the health and safety of the workforce. The ultimate employee perk of CPR/AED training just might be a life that is saved.

About the Author:
Captain/Paramedic Greg Landin (ret) is a 30 year veteran of the fire service throughout the Sacramento area. He is the founder/president of Rescue Training Institute, and he currently serves as an American Heart Association Training Center Coordinator. He also serves as a Master Instructor and Training Center Coordinator for the Health & Safety Institute.

Footnotes:

[1] American Heart Association, Sudden Cardiac Arrest - Advocacy
http://www.heart.org/HEARTORG/Advocate/IssuesandCampaigns/Sudden-Cardiac-Arrest---Advocacy_UCM_312652_Article.jsp

[2] 2001, American Heart Association: Placing AEDs —Where and How Many? Pamphlet

[3] American Heart Association, AED Implementation Guide
http://www.heart.org/idc/groups/tga-public/@wcm/@private/@ecc/documents/downloadable/ucm_309676.pdf

[4] Sac Metro Fire Announces Station Closure
http://www.capradio.org/articles/2011/08/01/sac-metro-fire-announces-station-closure