

Saving lives takes a team effort. Is your community prepared to handle sudden cardiac arrest (SCA)?

What if all the basics are in place? Is it advisable to augment the community response system by establishing an on-site defibrillation readiness program, sometimes referred to as a Public Access Defibrillation (PAD) program?

### **Basic SCA survival checklist for communities**

#### **Early access**

- Does your community have Enhanced 9-1-1 coverage?
- Does the public know how to recognize a cardiac emergency?
- Does the public know to call 9-1-1 (or the local emergency number) immediately in the event of an apparent cardiac emergency?

#### **Early CPR**

- Are emergency dispatchers trained to give callers instructions in CPR?
- Is most of the teen and adult population trained in CPR?

#### **Early defibrillation**

- Do state laws and regulations permit first-arriving emergency personnel and trained laypersons to use defibrillators?
- Are all first-responding emergency personnel equipped with defibrillators?
- Are these personnel trained to deliver the first shock within 60 seconds of their arrival?
- Is the average "call-to shock" time five minutes or less in at least 90 percent of cases?

#### **Early advanced care**

- Does your community have paramedics or emergency physicians prepared to provide early advanced care?

If you can answer "yes" to each of these questions, the chances for SCA survival in your community are strong.

If *any* answer is "no", the chances for SCA survival are greatly diminished.

### **Enhanced SCA survival checklist for on-site locations**

Even if a community has done everything possible to strengthen its chain of survival, the community defibrillation program can only do so much. If, for example, you live in a rural area and EMS has long distances to cover, or an urban area, where EMS has to contend with traffic and high-rise buildings, the time to first shock may be delayed. This is why many locations-- such as airports, office complexes, industrial complexes, residential communities, shopping centers, entertainment centers, sports centers, transit centers and schools—have established on-site defibrillation programs.

How do you know whether you need an on-site AED program? Here are some criteria to consider:

- Does the EMS response time to this location exceed five minutes for more than 10% of responses?
- Does this location have an at-risk population?
- Is this location considered a higher-risk location?
- Can an active, hands-on medical director be identified for this location?
- Does this location have personnel willing and able to respond to cardiac emergencies to provide CPR and defibrillation?

If the answer to each of these questions is "yes," then it may be wise to consider implementing an on-site AED program.

#### At-risk individuals

Sudden cardiac arrest, by definition, is unexpected. It can happen to anyone, any time, regardless of age, race or gender. However, some people are at greater risk than others. Here are some factors that increase individual risk:

- Men age 40 or older
- Post-menopausal women
- High blood pressure
- High cholesterol
- Sedentary lifestyle
- Diabetes
- Personal history of heart disease
- Family history of heart disease

#### Higher-risk locations

##### *The home*

When sudden cardiac arrest occurs outside the hospital, it occurs most often in the home. For this reason, families of some at-risk individuals have elected to place AEDs in their homes and to be trained in CPR and AED use. This approach is still considered experimental. Researchers are investigating whether or not home defibrillation will prove to be an effective and cost-effective strategy for improving survival.

##### *Public locations*

A number of studies have looked at the frequency of sudden cardiac arrest in public locations (i.e., not in private residences) with variable results. Most studies seem to indicate that the majority of non-residential events occur as isolated events. As a result, it is difficult to predict where sudden cardiac arrest will occur in the future.

Nevertheless, these studies have identified locations that seem to have a higher incidence of sudden cardiac arrest. These include:

- Airports
- Businesses
- County jails
- Dialysis centers
- Gaming establishments
- Golf courses
- Large industrial sites

- Homeless shelters
- Nursing homes
- Physician offices (cardiology, internal medicine, family medicine)
- Shopping malls
- Sports complexes
- Streets and highways
- Trains and ferries
- Urgent care centers

### **PAD formula for identifying higher-risk locations**

The jury is still out on the ideal placement of AEDs in community settings--one of the fundamental topics being addressed by a multi-site clinical trial called the [Public Access to Defibrillation \(PAD\)](#) study, based at the University of Washington. However, it may be helpful to consider the formula used in the PAD study to identify higher-risk locations. The formula is as follows:

Step 1: Take the number of individuals at a particular location.

Step 2: Multiply this number by the percentage of individuals age 50 or over.

Step 3: Multiply this number by the average number of hours spent at the location each day.

Step 4: Multiply this number by 350 if the location is residential, or by 250 if the location is non-residential.

This number equals the number of exposure hours. Locations with 1.4 million exposure hours per year may experience .48 cardiac arrest a year.