

## 19-0101 – Public Access Defibrillation - Automatic External Defibrillator (AED)

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### Authority

Health and Safety Code Division 2.5, California Code of Regulations, Title 22, Division 9

### Introduction

Early Defibrillation is one of the keys to the success of the cardiac arrest Chain of Survival, when combined with early access to the 911 System, early CPR and early access to Advanced Life Support (ALS).

### Purpose

To assist in establishing guidelines for placement and use of Automated External Defibrillators (AED) in the community.

### Guidelines for AEDs

1. On September 8, 2015, SB 658 was signed into law and changed several laws regarding civil liability for placement and use of AEDs in the community. The California Health and Safety Code Division 2.5 was updated to reflect these changes. It now states that a person or entity that acquires an AED for emergency use is not liable for any civil damages resulting from the use of an AED to provide emergency care if that person or entity does all of the following:
  - a. Comply with all regulations governing the placement of an AED
  - b. Notify the local EMS agency of the existence, location and type of AED:

State law requires that the local EMS agency be notified when an AED is placed in a location. This is done by submitting a completed Notification of Public Access Defibrillator / AED Site Notification form (Policy #09-0302A) to Nor-Cal EMS
  - c. Maintain and test the AED according to the manufacturer's guidelines
  - d. Test the AED at least twice a year and after each use
  - e. Inspect all AEDs on the premises at least every ninety (90) days and maintain records of the maintenance and testing of the AED as required by statute
2. When an AED is placed in a building, the building owner shall do all the following:
  - a. At least once a year, notify the tenants as to the location of the AED units and provide information to tenants about who they can contact if they want to voluntarily take AED or CPR training
  - b. At least once a year, offer a demonstration to at least one person associated with the building so that the person can be walked through how to use an AED properly in an emergency. The building owner may arrange for the demonstration or partner with a nonprofit organization to do so
  - c. Next to the AED, post instructions, in no less than 14-point type, on how to use the AED
3. When an AED is placed in a public or private K-12 school, the principal shall ensure that the school administrators and staff annually receive information that describes sudden cardiac arrest, the school's emergency response plan, and the proper use of an AED. The principal shall also ensure that instructions, in no less than 14-point type, on how to use the AED are posted next to every AED. The principal shall, at least annually, notify school employees as to the location of all AED units on the campus.
4. Use of the AED is to be reported to Nor-Cal EMS, utilizing the Public Access Defibrillator/AED Use Notification form (Policy # 09-0302B).

The following are **no longer required** to place an AED in the community:

1. Medical Oversight (Physician approval) is no longer required to purchase, place or use an AED, UNLESS a Health Studio.
2. CPR certification and training of at least one employee during business hours is no longer required.

## Implementation Guidelines for PAD / AED Program

### **There are 4 key elements to establishing a Public Access Defibrillation program. These include:**

1. Having designated rescuers trained in CPR and in how to use an automated external defibrillator (AED)
2. Having a physician to provide medical oversight and direction
3. Integrating your program with the local emergency medical services (EMS) system
4. Using and maintaining the AED(s) according to the manufacturer's specifications

### **Steps:**

#### **1. Gain consensus**

Within your company or organization begin to identify the key decision makers and arrange a meeting to gain support. The American Heart Association can assist you with presentation materials.

#### **2. Review the law and regulations**

Review Federal, State and local laws and regulations regarding Public Access Defibrillation program requirements. Consult your local Emergency Medical Services (EMS) Agency. The California laws and regulations that pertain to AEDs are Title 22, and AB 658.

#### **3. Identify your response team**

Identify who would be most likely to respond in an emergency – this will help determine how and where AEDs are mounted or stored.

#### **4. Select equipment and vendor**

Some considerations in selecting the AED may include: Reputation of the AED manufacturer for the product's quality and customer service, compatibility with the equipment used in the local EMS system, and ease of operation of the AED.

#### **5. Design Policies and Procedures**

These may include:

- a. Who manages the AED program
- b. When the AED should be used, when it should not be used
- c. Training required to use the AED
- d. Locations of AEDs and other equipment (such as gloves and pocket mask for CPR)
- e. Notification process for internal AED responders and external emergency medical services responders
- f. Maintenance schedule for equipment
- g. Training and refresher training policies

#### **6. Determine the quantity and location for AEDs**

The American Heart Association recommends defibrillation in less than 3 to 5 minutes, ideally in less than 3 minutes. When determining the quantity and location for AEDs, use this 3-minute response time as a guideline.

#### **7. Develop a budget**

Consider costs related to equipment, training and promotion of your program.

#### **8. Purchase and deploy AEDs and other supplies**

#### **9. Required notification**

Once your AED(s) is/are purchased and training is complete notification of the local EMS Agency as to the location of the AED is required by regulation. In the Nor-Cal EMS Region register your AED by sending a completed Public Access Defibrillator / AED Site Notification form ([Policy #09-0302A](#)) to Nor-Cal EMS. Use of the AED is to be reported to Nor-Cal EMS, utilizing the Public Access Defibrillator/AED Use Notification form ([Policy # 09-0302B](#)).

**10. Promote your program**

- a. Everyone within your organization needs to know about the program. They should know how to respond if they witness a sudden cardiac arrest. Start all meetings with “housekeeping” letting all who are attending know that you have an AED and where it is located.
- b. Check with your community leaders. If they are seeking HeartSafe Community designation your AED will give them “heartbeats” to be used toward designation.

**AED Checklist**

<b>Completed by the AED owner (☐)</b>	<b>Requirements under California AB 658</b>	<b>Action the AED owner must do:</b>
	Notify the local Emergency Medical Services (Nor-Cal EMS) Agency of the existence, location and type of AED. Update this information with any changes	Submit a completed Notification of Public Access Defibrillator / AED Site Notification Form (Policy #09-0302A) to Nor-Cal EMS.
	Maintain and test AED according to manufacturer's guidelines: Test the AED at least every 90 days Test, and replace components if needed after use or expiration	Maintain a test/maintenance log. Keep records for two years
	Notify building tenants of the location of the AED unit	Create flyer, memo, email Must be completed and documented Annually
	Post instructions on how to properly use the AED next to the device in at least 14-point font	Create poster, flyer etc. and post next to AED cabinet or keep attached to AED
	Offer a demonstration on how to properly use an AED in an Emergency	Complete and document annually
	Encourage building tenants to voluntarily take CPR and AED training	Complete and document annually
	*Public and Private K-12 schools must provide information on the school's emergency response plan, the proper use of an AED and sudden cardiac arrest to administrators and staff annually.	Complete and document annually

**Frequently Asked Questions about AEDs****What does AED stand for?**

Automated external defibrillator

**What's an AED?**

An AED is a device used to administer an electric shock through the chest wall to the heart. Built-in computers assess the patient's heart rhythm, judge whether defibrillation is needed, and then administer the shock. Audible and/or visual prompts guide the user through the process.

**How does an AED work?**

A microprocessor inside the defibrillator interprets (analyzes) the victim's heart rhythm through adhesive electrodes (some AED models require you to press an ANALYZE button). The computer analyzes the heart rhythm and advises the operator whether a shock is needed. AEDs advise a shock only to ventricular fibrillation and fast ventricular tachycardia. The electric current is delivered through the victim's chest wall through adhesive electrode pads.

**Why are AEDs important?**

AEDs are important because they strengthen the Chain of Survival. They can restore a normal heart rhythm in victims of sudden cardiac arrest. New, portable AEDs enable more people to respond to a medical emergency that requires defibrillation. When a person suffers a sudden cardiac arrest, their chance of survival decreases by 7% to 10% for each minute that passes without defibrillation, AEDs save lives.

**Who can use an AED?**

Most AEDs are designed for use by non-medical personnel such as police, flight attendants, security guards, and other lay rescuers who have been properly trained. Having more people in the community who can respond to a medical emergency by providing defibrillation will greatly increase sudden cardiac arrest survival rates.

**What is a cardiac arrest?**

A cardiac arrest means that the heart stops pumping blood through the body. Without a constant blood supply, the brain stops working almost immediately and the person goes unconscious.

**Is cardiac arrest the same thing as a heart attack?**

No. A heart attack is caused by a sudden blockage of a small artery that supplies blood to the heart muscle. When the blood supply is cut off, that portion of the heart muscle dies and this is what causes the pain. Some people who have heart attacks may experience a cardiac arrest.

**Does a cardiac arrest only happen after a heart attack?**

No. Anyone can have a cardiac arrest at any time. Heart attacks are only one potential cause of cardiac arrest.

**Why does someone experiencing a cardiac arrest need an AED?**

In a cardiac arrest, the heart most often goes into uncoordinated electrical activity called ventricular fibrillation. The heart twitches ineffectively and can't pump blood. The AED delivers electric current to the heart muscle, momentarily stunning the heart, stopping all activity. This gives the heart an opportunity to resume beating effectively.

**Will an AED always resuscitate someone in cardiac arrest?**

The AED treats only a heart in ventricular fibrillation (VF), an irregular heart rhythm. In cardiac arrest without VF, the heart doesn't respond to electric currents but needs medications. The victim needs breathing support. AEDs are less successful when the victim has been in cardiac arrest for more than a few minutes, especially if no CPR was provided.

**Questions about AED Placement****What is public access to defibrillation?**

Public access to defibrillation (PAD) means making AEDs available in public and/or private places where large numbers of people gather or people who are at high risk for heart attacks live.

**How should AEDs be placed?**

According to the American Heart Association, it is recommended that all EMS first response vehicles and ambulances be equipped with an AED or another defibrillation device (semiautomatic or manual defibrillator), which is the current Santa Clara County standard. The AHA also supports placing AEDs in

targeted public areas such as sports arenas, gated communities, office complexes, doctor's offices, shopping malls, etc.

### **Why is notifying the local EMS office important?**

The California Health and Safety Code requires any person or entity that acquires an AED to notify an agent of the local EMS agency of the existence, location, and type of AED acquired. It's important for the local EMS system to know where AEDs are located in the community. In the event of a sudden cardiac arrest emergency, the 911 dispatcher will know if an AED is on the premises and will be able to notify the EMS system as well as the responders already on the scene.

### **If AEDs are so easy to use, why do people need formal training in how to use them?**

An AED operator must know how to recognize the signs of a sudden cardiac arrest, when to activate the EMS system, and how to do CPR. It's also important for operators to receive formal training on the AED model they will use so that they become familiar with the device and are able to successfully operate it in an emergency. Training also teaches the operator how to avoid potentially hazardous situations.

### **Can anyone buy an AED?**

Yes, recent changes to the California Health and Safety Code no longer require a physician's prescription to obtain an AED.

### **How much does an AED cost?**

The price of an AED varies by make and model. AEDs can cost \$800-\$4,000.

### **Which AED model does the AHA recommend?**

AHA does not recommend a specific device. All AED models have similar features, but the slight differences allow them to meet a variety of needs. The AHA encourages potential buyers to consider all models and make a selection based on the buyer's particular needs.

## **Questions about AED Use**

### **Is an AED safe to use?**

An AED is safe to use by anyone who's been trained to operate it. Studies have shown the devices to be 90% sensitive (able 90% of the time to detect a rhythm that should be defibrillated) and 99% specific (able 99% of the time to recommend not shocking when defibrillation is not indicated). Due to the wide variety of situations in which it will typically be used, the AED is designed with multiple safeguards and warnings before any energy is released. The AED is programmed to deliver a shock only when it has detected VF. However, potential dangers are associated with AED use. That's why training, including safety and maintenance, is important. The American Heart Association (AHA) recommends that persons who live or work where an AED is available for use by lay rescuers participate in the AHA's Heartsaver AED Course. AEDs are so user-friendly that untrained rescuers can generally succeed in attaching the pads, pressing ANALYZE (if required), and delivering shocks. However, untrained rescuers may not know when to use an AED, and they may not use an AED safely, posing some danger of electric shock to themselves and others. Also, untrained rescuers probably would not know how to respond to the victim if the AED prompts "no shock indicated." An operator needs only to follow the illustrations on the electrode pads and the control panel and listen and follow the voice prompts (for example, "Do not touch the patient."). An AED will deliver a shock only when a shock is advised, and the operator pushes the SHOCK button. This prevents a shock from being delivered accidentally.

### **Are AEDs safe to use on children?**

An AED should not be used on a child younger than 8 years old or weighing less than about 55 pounds.

### **Will I get zapped if I shock a victim in the rain or near water?**

It's remotely possible to get shocked or to shock bystanders if water is standing near or underneath the patient. Try to move the patient to a dry area and cut off wet clothing. Also be sure that the skin has been toweled dry so the electrode pads will stick to the skin. At the moment you press the SHOCK button, you must make sure that no one, including yourself (the AED operator), touches any part of the victim.

**Can an AED make mistakes?**

An AED will almost never decide to shock an adult victim when the victim is in non-VF AEDs "miss" fine VF only about 5% of the time. The internal computer uses complex analysis algorithms to determine whether to shock. If the operator has attached the AED to an adult victim who's not breathing and pulseless (in cardiac arrest), the AED will make the correct "shock" decision more than 95 of 100 times and a correct "no shock indicated" decision more than 98 of 100 times.

**Why do you stop CPR as the electrode pads are placed and analysis occurs?**

For the AED to analyze accurately, the victim must be motionless. Sometimes there will be an agonal respiration (a gasping breath that can occur when the heart is stopped) that causes some movement. AEDs can recognize this extra motion and indicate, "motion detected" to the operator. This warns the operator to assess carefully for extra movements from the victim or other people at the scene.

**Why should a lay rescuer continue CPR after the arrival of emergency medical services (EMS) professionals?**

It's helpful to EMS professionals to be able to set up their equipment, including the defibrillator, while lay rescuers continue CPR. The EMTs will take over CPR and reconfirm that the victim is in cardiac arrest.

**Why does it seem that the victim goes without CPR for so long during defibrillation, and why does an AED shock so many times?**

After prescribed periods of CPR, the machine analyzes the victim's rhythm. The victim must remain motionless while the AED decides to shock and delivers the shock. Sometimes the victim doesn't change from VF to non-VF at once. These victims require multiple shocks. If repeated shocks are needed, the shocks are "stacked" in sets of three to increase their effectiveness.

**Besides using an AED, how else might a lay rescuer help at the scene of a sudden cardiac arrest?**

Lay rescuers are most often asked to call 911 and get the AED. The lay rescuer can assemble the pocket face mask and begin providing mouth-to-mask ventilations. Responders might provide CPR or continue defibrillation if a workplace defibrillator is used. Support and direction to bystanders, friends, and family are appropriate. When EMS personnel arrive, the lay rescuer can provide directions and help get information about the patient.

**What actions should a CPR responder take after using an AED on a person in cardiac arrest?**

There should be some type of debriefing for EMS personnel or lay rescuers involved in a resuscitation attempt. Also, the voice-rhythm-shock record should be collected from the AED's event documentation system. The AHA strongly recommends that AEDs used in a public access or home-responder setting have both rhythm and voice event documentation. AEDs can record and store (as a minimum) the following information:

1. Patient rhythm throughout the resuscitation.
2. Response of the AED (shock versus no shock; shockable rhythm versus non shockable rhythm).
3. Event and interval timing.
4. Audio recording of the voices and actions recorded at the scene of a cardiac arrest.