

**An EMS Medical Director's  
Supplement to Implementation  
of a Public Access Defibrillation  
(PAD) / AED Program**

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# **I. Introductory Comments**

DRAFT

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Appendix A-F  
Community Survival Curve  
Section III

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**The Task Force objective was to develop a model program to assist the local medical director in promoting a PAD program for their community.**

*We hope that this is a useful guide for EMS medical directors nationwide.  
Thanks to Dr. Bill Jermyn for his insight and leadership on this project and thanks  
to all of the valuable contributions listed above.*

This supplement represents the completion of one of the American College of Emergency Physicians (ACEP) EMS Section taskforce objectives (2005-2006). Sections I – V contains the essential components of this supplement, and Appendix A – H contains valuable supplemental material.

The specific objective for this Task Force was to "develop a model program to assist the local medical director in promoting a PAD program for their community." The intent of this supplement is to serve as a resource for EMS medical directors to aid in the implementation of a public access defibrillation (PAD) / AED program. It is not intended to be an all-inclusive, comprehensive reference guide. This guidebook is a compilation of contributions from several different EMS leaders from different high-performance EMS systems within the United States.

Section 2 contains an outstanding review of the components and considerations of a "HeartSafeCommunity." It reviews some important facts and figures pertaining to sudden cardiac arrest and the role of a PAD/AED program. It reviews important links in the chain of survival and is a valuable reference that EMS medical directors should find extremely useful.

Section 3 contains some EMS system operational material that is useful in implementing a PAD/AED program. This section describes some of the specific components of a system implemented within the Orange County EMS System (Orange County, Florida). The example documents reviewed in this section can be extrapolated to any system.

Section 4 contains information from another high-performance EMS system (Pinellas County, Florida). It describes the application of developing a community-wide survival curve as a tool in providing system continuous quality improvement information.

Section 5 is a recent memo that was released from the American Heart Association (Florida ECC Training Network) that is a clarification for AED use in current training and actual field responses with reference to the new emergency cardiac care guidelines that were released in December of 2005.

Appendixes A – F contain useful supplemental sample memos, letters and programs that have been successfully implemented in other high performance EMS systems and can be extrapolated in part or in whole to other local communities.

Appendix G is a supplemental companion set of slides that can be used as a teaching aid to the Section 2, HeartSafeCommunity considerations.

Appendix H lists some of the common websites for additional material.

## **II. HeartSafeCommunity Considerations**

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## **Introduction**

There are over 460,000 deaths from "out-of-hospital" cardiac arrest each year in the United States, about half of which occur suddenly. Heart attacks, which are caused by a blockage of a coronary artery, can lead to cardiac arrest. The most common underlying cause of sudden cardiac arrest is an abrupt disorganization of the heart's rhythm called ventricular fibrillation, which can be triggered by a heart attack or can just represent a catastrophic rhythm disturbance. The victim will die unless the cardiac arrest is treated within minutes (defibrillation or CPR followed by defibrillation). Early CPR and defibrillation are the two most critical determinants of survival from sudden cardiac arrest in adults. As important as it is, early defibrillation is not the only important aspect of treatment. Defibrillation works best when CPR is provided until the AED arrives and when defibrillation is followed by advanced care, including airway and breathing management and medications.

Anyone who has a duty to respond to persons in cardiac arrest should be trained in CPR and should undergo refresher training on a regular basis. Regardless of duty, anyone who may be able to reach a victim of cardiac arrest before EMS arrives should know how to do CPR. Laypersons are most likely to arrive first at the scene of an arrest and chances are they will know the victim. In 75 to 80 percent of cases, sudden cardiac arrest occurs in the home. Another 10 to 15 percent of cases occur in the workplace. This is why almost everyone can and should learn CPR.

## **The Chain Of Survival**

Survivors of sudden cardiac arrest usually have four things in common:

- Someone witnessed the event, recognized the emergency, decided to help, confirmed unresponsiveness and called 9-1-1 or the local emergency number;
- Someone started CPR immediately
- Someone arrived quickly with a defibrillator
- Professional emergency medical services (EMS) personnel provided advanced life support, including airway and breathing support and medications.

In the ideal situation, there is a strong community Chain of Survival.

This includes a strong early access link, a strong early CPR link, a strong early defibrillation link and a strong early advanced life support link.

**Early access:** *The first person at the scene of the collapse:*

- Recognize the emergency
- Decide to help
- Establish unresponsiveness
- Call 9-1-1 or local emergency number

**Early CPR:** *Trained citizen:*

- Provide rescue breathing
- Provide chest compressions if pulse is absent and AED is not yet available

**Early defibrillation:** *Trained and authorized responder:*

- Defibrillate as soon as possible.

**Early advanced care:** *Professional medical personnel:*

- Give advanced medical care, including airway and breathing support and medications

### **The Vision of the HeartSafeCommunity Program**

The ultimate vision of the HeartSafeCommunity Program is to improve survival in sudden cardiac arrest victims in Columbus by establishing the following core goals:

- Increase public awareness of the need for early EMS access, early CPR and early defibrillation
- Promote more widespread citizen CPR training such that a certain defined percentage of the population would be trained in CPR
- Identify locations where AED's could be placed for maximum community benefit and facilitate their placement
- Help generate funding resources to pay for the training and education costs and AED expense
- Establish a cardiac arrest registry to serve as a data storehouse for all cardiac arrests in this region
- Promote and support research of the treatment of Sudden Cardiac Arrest

**In order to address the need for establishing a public campaign such as HeartSafeCommunity, the following is recommended:**

- **Establish a task force**
- **Frame the issues pertinent to the community**
- **Develop a statement of need**
- **Promote media coverage**
- **Seek funding sources**
- **Establish timeline with measurable results**

### **Establish a task force**

The recommended task force representatives would be high-level decision-makers and demonstrate commitment to the cause. The task force should be large enough to include representation from key organizations, but small enough to be effective. To gain broad-based community support, it is recommended that a task force be established of the following individuals:

Once the task force is formed, we would:

- **Elect a chairperson**
- **Name the campaign and choose a slogan or catch**
- **Identify the central point of contact (e.g., chairperson) and contact information**
- **Create a branding or logo that would easily identify the project and its goals.**

### **Framing the issues**

The task force's next job is to frame issues by developing a mission statement. The mission statement will be used internally to keep members focused, and externally to project a clear message to the community. The mission statement includes a description of our vision and goals. For example, our mission statement might read:

***“HeartSafeCommunity is a program to increase the number of lay persons who are able to perform CPR and to facilitate the placement of AED’s in key locations that would result in an increased survival rate from Sudden Cardiac Arrest.”***

## Our Core Goals would include:

- Increase public awareness of the need for early EMS access, early CPR and early defibrillation
- Promote more widespread citizen CPR training such that a certain defined percentage population would be trained in CPR
- Identify locations where AED's could be placed for maximum community benefit and facilitate their placement
- Help generate funding resources to pay for the training and education costs and AED expense
- Establish a cardiac arrest registry to serve as a data storehouse for all cardiac arrests in this region
- Promote and support research of the treatment of Sudden Cardiac Arrest

## Statement of Need

The statement of need is used to address the goals identified. As an example, it might read like this:

***Sudden cardiac arrest is one of the leading causes of death among adults in North America. Each year, it claims the lives of a quarter of a million people in the United States alone.***

***Many victims would be alive today if someone had provided immediate CPR and defibrillation. In fact, the shorter the time from collapse to treatment, the better the chances of survival.***

***We believe that if more citizens in our community are trained in CPR and if we can utilize and place Automatic External Defibrillators, or AED's, we can drastically reduce the time from collapse to treatment and save more victims of Sudden Cardiac Arrest.***

***Early CPR and defibrillation initiatives in other parts of the country have successfully reduced the time from collapse to treatment and achieved survival rates as high as 30 to 45 percent for treatable cases of cardiac arrest. We believe there is an urgent need to ensure that victims of sudden cardiac arrest in Columbus have rapid access to CPR and defibrillation. We believe that with rapid access to CPR and defibrillation, we will be able to save an average of 10-20 lives each year. We believe the citizens of our community deserve to have access to this life-saving opportunity.***

***Signed, Members of the HeartSafeCommunity Task Force***

### **Promote media coverage**

The next step is to develop a media coverage action plan. This plan outlines specific tasks, the person responsible for each task and the target completion date. The media representative on our task force will play a strategic role in developing and implementing the media coverage action plan.

### **Media coverage action plan**

- Identify influential community groups and individuals
- Write and distribute appeal letters
- Collect and collate letters of support
- Develop a press kit
- Identify media outlets
- Select and prioritize specific media targets
- Meet with contact persons at selected media targets
- Plan specific media events

### **Identify influential community groups and individuals**

It is important to generate grassroots community support. The goal is not only to increase public awareness but also to create public demand for improving survival from Sudden Cardiac Arrest. This step entails identifying community groups and individuals to enlist their support.

#### **Targets include:**

- health organizations
- hospitals
- medical offices
- businesses
- civic organizations
- senior centers
- churches
- political leaders
- local dignitaries.

## **Write and distribute appeal letters**

The task force would invite these groups and individuals to write letters supporting our initiative. In our invitation or appeal, we would include a brief cover letter, the statement of need from our campaign blueprint and a sample letter of support. For example, our letter might read like this:

Dear \_\_\_\_\_

There are over 460,000 deaths from "out-of-hospital" cardiac arrest each year in the United States, about half of which occur suddenly. Heart attacks, which are caused by a blockage of a coronary artery, can lead to cardiac arrest. The most common underlying cause of sudden cardiac arrest is an abrupt disorganization of the heart's rhythm called ventricular fibrillation, which can be triggered by a heart attack or can just represent a catastrophic rhythm disturbance. The victim will die unless the cardiac arrest is treated within minutes (defibrillation or CPR followed by defibrillation). Early CPR and defibrillation are the two most critical determinants of survival from sudden cardiac arrest in adults. As important as it is, early defibrillation is not the only important aspect of treatment. Defibrillation works best when CPR is provided until the AED arrives and when defibrillation is followed by advanced care, including airway and breathing management and medications.

We, the members of the HeartSafeCommunity Campaign would like to make sure that future victims of sudden cardiac arrest in Columbus have the best possible chance for survival.

We are seeking letters from community leaders like you to support the HeartSafeCommunity Campaign. Would you kindly review the enclosed statement of need and send a letter of support to HeartSafeCommunity chairperson by June 1<sup>st</sup>, 2004. A sample letter of support is enclosed for your convenience.

Thank you in advance for helping us improve the health and safety of our families, friends and neighbors here in Columbus, Ohio.

Sincerely, (Campaign chairperson)

## **Sample letter of support**

(Date)

Dear (Campaign chairperson):

On behalf of (organization), we would like to endorse the HeartSafeCommunity Campaign. We recognize that sudden cardiac arrest is a leading cause of death in our community and that CPR and rapid defibrillation is critical for survival. We believe that your campaign will help save many lives in our community and we pledge our support for this noble cause.

Sincerely,

(Name of organization representative or individual)

**The letters of support will be collated and used later for press kits and presentations.**

### **Develop a press kit**

Our media press kit should include these items:

- A cover letter that introduces media contacts to the campaign mission
- A "backgrounder" that includes a list of task force members and their affiliations and the statement of need from our campaign blueprint
- A news release (e.g., announcing the launching of our campaign)
- The letters of support gathered
- Position statements from national organizations that endorse the need for early defibrillation

### **Identify media outlets:**

Decide which types of media will work best and identify specific contacts.

### **Television**

Local television stations may be interested in our mission if there is a news "hook." If a newsworthy event can be tied to our mission, network news shows may televise brief reports. Cable television talk shows provide excellent opportunities for more in-depth reporting. Short videos promoting early defibrillation that can be broadcast with permission are effective at communicating the goals of HeartSafeCommunity.

## **Radio**

Scripts for public service announcements (PSAs) and news releases that list spokespersons from our campaign that are available for interviews can be effective ways to utilize radio in the campaign.

## **Print**

Local newspapers provide the best means for in-depth coverage. Coverage on the front page above the fold, on the editorial page and in lifestyle columns tends to attract high readership. One very effective technique is for the task force to submit an editorial opinion (op-ed). Letters to the editor from task force members, community leaders and concerned citizens can also be very persuasive. Buying ad space is another effective alternative.

If we can convince the media that our campaign is of vital importance to the community, it can become the catalyst that sways public opinion. Community awareness and support will enhance fund-raising efforts. The effectiveness of our public awareness and support campaign will have a direct bearing on fund-raising initiatives.

## **Seek Funding Sources**

Annual costs can include the following:

- Devices \$3,000 per unit
- Peripheral equipment costs (about \$75 per device)
- Maintenance (about \$100 per device)
- Insurance (variable)
- Training costs (variable: includes personnel and equipment)
- Program management costs (variable)
- Event documentation costs (variable)
- Quality assurance tools (variable)
- Community-wide CPR training (variable)

## **Funding Options**

- Local corporations and industries
- Local civic organizations
- Private foundations
- Public charities
- Government grants
- Traditional fund-raisers
- Local city/county government

**Company-sponsored foundations are dedicated to community service projects. Examples of company foundations with a specific interest in Sudden Cardiac Arrest survival are:**

- The Medtronic Foundation, which provides grants for AED training projects (Contact: The Medtronic HeartRescue Program, 7000 Central Avenue, NE, Minneapolis, MN 55432; 612-514-8200; 612-514-3464 (fax); [www.medtronic.com](http://www.medtronic.com))
- The Prudential Helping Hearts Program, which provides funds for AED's for non-profit organizations, such as volunteer fire departments and EMS squads This program was temporarily suspended but may be reinstated in January, 2001. (Contact: The Prudential Helping Hearts Program, 751 Broad Street, Newark, NJ 07102-3777; 973-802-8888; [www.prudential.com](http://www.prudential.com))
- The Asmund S. Laerdal Foundation, which provides grants for practical projects in the field of acute medicine. (Contact: The Asmund S. Laerdal Foundation, 167 Myers Corners Road, Wappingers Falls, NY 12590. ([www.laerdal.com/html/foundation.html](http://www.laerdal.com/html/foundation.html)))

**Funding from local businesses**

- Identify potential corporate and industrial donors.
- Find out the names, titles and contact information for those in charge of corporate and industrial funding.
- Send a one-page concept letter that outlines:
  - The name of our organization
  - The current status of cardiac arrest survival in our community
  - The importance of early defibrillation and early CPR for victims of sudden cardiac arrest
  - The estimated number of lives that could be saved in our community if AED's and increased citizen CPR were available
  - How much money is needed to fund the HeartSafeCommunity program in total and what is being requested
  - Cite other funding sources that have already been identified, if any, to demonstrate existing support for the project.
- Follow up letters with phone calls to discuss the proposed HeartSafeCommunity program in greater detail and answer any questions the potential corporate or industrial donor may have.
- Offer to meet with corporate funding decision-makers, if their time permits, to make a personal appeal or even a brief presentation.

**Local civic organizations**

Many civic organizations have giving programs dedicated to community service and health projects. Examples include:

- American Legion: [www.legion.org](http://www.legion.org), has a specific program addressing community HeartSafeCommunity programs.
- Elks Clubs: [www.elks.org](http://www.elks.org) .
- Kiwanis Clubs: [www.kiwanis.org](http://www.kiwanis.org)
- Lions Clubs: [www.lions.org](http://www.lions.org)
- Rotary Clubs: [www.rotary.org](http://www.rotary.org).
- The Masons offer a specific AED funding program in Pennsylvania.
- Columbus Medical Association

### **Private foundations**

Private foundations are non-governmental, non-profit organizations with a principal fund maintained to serve the common good. Private foundations typically award grants to tax-exempt, non-profit organizations. This permits contributions to be tax deductible.

The Foundation Center is an information clearinghouse that has established cooperating centers throughout the United States, usually located in public libraries in major cities. (The Foundation Center, 888 Seventh Avenue, New York, NY 10106; 800-424-9836; 212-620-4230; [www.fdncenter.org](http://www.fdncenter.org)) Hospital foundations are another source of funding that should be considered.

### **Public charities**

Public charities are philanthropic organizations that derive their funds from contributions from the general public. Public charities generally provide grants to non-profit organizations. The National Directory of Grantmaking Public Charities is available through the Foundation Center ([www.fdncenter.org](http://www.fdncenter.org))

### **Government grants**

Some government agencies have dedicated funds set aside for community health projects and are poised to fund worthy projects with clear benefits.

### **Federal government funds**

Federal funders generally look for projects that can serve as prototypes or models for other communities and look for evidence of strong community support.

In general, funds for local projects are more readily available through city, county and state governments, compared with federal sources.

### **State government funds**

At the state level, dedicated health funds sometimes are generated through taxes and fees from vehicle registration and drivers' licenses and speeding tickets. Our state EMS agency, the Ohio Department of Health, and state congressional offices may have funds available through grants or other sources.

### **Local government funds**

Community health advocates have secured local government funds simply by making presentations at town, city or county council meetings that describe how a program such as HeartSafeCommunity could help save lives in the community and why such a program would be a fiscally sound investment. The City Of Houston recently did this and the program was a huge success. Political leaders are unlikely to oppose cost-effective programs that voters consider fundamental to community health and well-being.

### **Traditional fund-raisers**

Many communities have been effective in raising funds for programs like HeartSafeCommunity through traditional fund-raisers. Here are some suggestions:

- Sponsor a CPR marathon and get pledges
- Sponsor a CPR mass-training event-use registration fees to fund AED's
- Sell something (e.g., first aid kits, baked goods, used books)
- Raffle donated items from area businesses
- Hold a group garage or rummage sale
- Sponsor a holiday event (e.g., a Christmas craft fair or haunted house)
- Sponsor a pancake breakfast or spaghetti supper
- Sponsor a refreshment stand at a local sports event or concert
- Sponsor a golf tournament
- Sponsor bingo games
- Conduct direct mail, telephone or door-to-door campaigns requesting community donations
- Hold an AED telethon
- Write letters to the editor, addressing the need for a community HeartSafeCommunity program, citing recent local events in which an CPR or an AED saved a life or could have saved a life, and appealing for community donations

It may be advantageous to become affiliated with a non-profit organization or consider forming one. This status provides a stronger incentive for potential donors, since donations to non-profit organizations are tax deductible.

**Resources for creating non-profit organizations are available through:**

- National Center for Nonprofit Boards: [www.ncnb.org](http://www.ncnb.org)
- Support Centers of America: [www.igc.apc.org](http://www.igc.apc.org)
- American Society of Association Executives: [www.asaenet.org](http://www.asaenet.org)

**Figuring out program costs**

The estimated yearly costs of a HeartSafeCommunity program would include:

- AED device costs (divided by the expected life of the device in years)
- Peripheral equipment costs (divided by the expected life of the equipment in years)
- Annual maintenance and insurance costs
- Annual AED and CPR training costs
- Annual incremental salary costs of program personnel
- Annual cardiac arrest registry costs

**AED device costs**

Ideally, the goal in terms of AED placement is to place enough AED's to ensure that no more than five minutes elapses from the time the 9-1-1 call is made until the first shock is delivered in high risk areas. To do this, we will have to consider the size and general health of our population and the area of our community in square miles.

**Some of the criteria to consider when determining the location of an AED are:**

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?

<i>Men age 40 or older</i>	<i>Post-menopausal women</i>
<i>High Blood Pressure</i>	<i>High cholesterol</i>
<i>Sedentary lifestyle</i>	<i>Diabetes</i>
<i>History of heart disease in family or personally</i>	

Does the location have personnel willing and able to respond to cardiac emergencies to provide CPR and defibrillation?

***The key is to reduce time to defibrillation by ensuring that whoever typically gets there first is ready to defibrillate.***

Category	Examples	Duty to respond to cardiac arrest
Emergency medical responders	physicians, nurses, paramedics, EMTs	primary job responsibility
Traditional first responders/ Public safety emergency responders	firefighters, police officers	primary job responsibility or secondary job responsibility
Targeted first responders/ Designated public service responders	security guards, flight attendants, ship crews, ski patrol, lifeguards, nursing home personnel, retirement community personnel, non-hospital health care workers, industrial first aiders, etc.	secondary job responsibility
Targeted citizen responders	friends, relatives, co-workers of high-risk individuals	volunteers acting as Good Samaritans
Other citizen responders (Public access defibrillation)	individuals interested in helping protect public health	volunteers acting as Good Samaritans

**Is this location considered a higher-risk location?**

<b><i>Airports</i></b>	<b><i>Businesses</i></b>
<b><i>County jails</i></b>	<b><i>Dialysis centers</i></b>
<b><i>Gaming establishments</i></b>	<b><i>Golf courses</i></b>
<b><i>Large industrial sites</i></b>	<b><i>Homeless shelters</i></b>
<b><i>Nursing homes</i></b>	<b><i>Doctor's offices</i></b>
<b><i>Shopping malls</i></b>	<b><i>Sports Complexes</i></b>
<b><i>Streets and highways</i></b>	<b><i>Trains and ferries</i></b>
<b><i>Urgent Care Centers</i></b>	<b><i>Homes</i></b>

The following is a list of participating public locations in Milwaukee County for their AED placements:

American Senior Living Center - Marjorie Home	American Senior Living Center - Hampton Home
American Senior Living Center - Fardale Hom	YMCA - South Shore
Metavante Corp.	YMCA Southwest
Metavante Corp., Lake Park	YMCA - North Central Branch
P&H Mining Equipment	YMCA - Downtown
Ramada Inn - Downtown	Wisconsin Athletic Club - Downtown
Reuss Federal Plaza	Windsor House
Southridge Athletic Club	West Park Place
Southridge Mall	Tower Automotive
YMCA - Southtown Center	Sunrise Apartment
YMCA - Parklawn Branch	YMCA - West Suburban Branch
M&I Bank Trust	Bayshore Mall
Ladish Company, Inc.	Knights of Columbus
Four Points Sheraton	Fleet Mortgage Company
Family House	American Senior Living Center - Michele

One way to determine whether a location would benefit from an AED is to use the following formula:

- 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 arrests a year.

The average cost for an AED is \$3,000. Some AED manufacturers and distributors provide lease-to-own options, which cost approximately \$200 a month per AED over a three-year period. Manufacturers expect AED's to last up to five years.

### **Peripheral equipment costs**

In addition to the costs of AED's themselves, there are the costs of AED accessories such as extra batteries, electrode pads and cables. The costs of these accessories total approximately \$500/defibrillator. Some AED models also require battery chargers, which cost about \$200. This equipment will last up to five years with normal use.

### **Maintenance and insurance costs**

Maintenance costs vary according to the type of device. The primary costs associated with maintenance involve replacement of AED batteries and electrode pads. Two batteries/AED are recommended so that you always have a spare. Lead acid batteries, which cost about \$150, have to be replaced about every two years. Lithium batteries, which cost about \$100 to \$300, have to be replaced every one to five years, depending on the capacity of battery and usage patterns. Pads cost approximately \$20 a pair. At least two sets should be kept on hand for each AED because they are discarded after use. Unused pads should be replaced after two years because they slowly dry out over time. Replacement insurance and warranty and service contracts may need to be purchased from some manufacturers.

### **Training costs**

One factor to consider is the cost of training the local community in CPR. A strong CPR program aiming to have a higher percentage of the adult population trained in CPR will help increase the number of survivors and the effectiveness of the entire program. If community energies are spent promoting CPR awareness and education, most CPR training costs can be endured by individuals, who pay a small fee for a short CPR course or a learn-at-home video or computer-based program.

Costs associated with training may include the following:

1. Instructor fees
2. CPR manikins, (basic torso models cost about \$500);
3. AED trainers, which cost from \$400 to \$1,000, including accessories
4. Computer cards that are inserted into the AED allow it to function as a training simulator and cost approximately \$200

5. Educational materials (e.g., videos, educational booklets)
6. Electrode pads
7. Rental or purchase of audiovisual equipment (optional).

### **Salaries of program personnel**

The chief costs in non-volunteer EMS systems are the wages and benefits of EMS personnel. Instructors and administrative support staff within the Columbus Division of Fire may already be available to facilitate this change in terms of offering training. A proposed budget for Fire Personnel has been prepared by Chief Cox from the Columbus Division of Fire and is included in the appendices.

### **Annual cost of a Cardiac Arrest Registry**

In order to document improvements in the treatment of Sudden Cardiac Arrest we should take the time to evaluate the impact of this investment on survival. This means consistently collecting data on each and every case of out-of-hospital cardiac arrest. Each time a cardiac arrest occurs, the key time points and clinical variables should be entered into a database. This allows an understanding of system performance and an evaluation of the effect of any system changes. This should also give us the capability to obtain measurable results. The EMS responder must faithfully document this information shortly after the arrest. Then, someone must enter the case information into a computerized database. The cost of time dedicated to data entry should be calculated as a program cost. This is where the Cardiac Arrest Registry would serve as our data collection center.

The data would be collected from participating EMS services and corresponding receiving hospitals for all out-of-hospital cardiac arrests. Prehospital data will be abstracted from EMS run reports, medical records from hospitalized patients will be reviewed, and follow up contact with surviving patients will be sought or death certificates obtained when possible. A survival analysis will be calculated based upon the Utstein template. Benchmarking reports will be prepared on a quarterly basis. These reports will be distributed to participating agencies and institutions and will compare each agency against the compiled data. Reports will include: call to first shock time (calculated), percent of patients presenting in ventricular fibrillation, number of patients who receive bystander CPR, and survival to hospital discharge. Aggregated demographic information will also be provided. Agencies and receiving institutions will not be specifically identified in any reports unless specific permission is obtained prior to publication. Individual patient confidentiality will be maintained at all times, and no patient specific information will be released.

The following items would be helpful to track for HeartSafeCommunity:

- Number of cardiac arrest cases treated
- Percentage of patients with a pulse on hospital arrival
- Percentage of patients alive 30 days after the event
- Percentage of patients found to be in ventricular fibrillation
- Percentage of patients with CPR administered by a bystander
- Percentage of patients for whom the person who called 911 to report the emergency was given telephone instructions in CPR
- Percentage of patients who had an AED applied to their chest before the first responding EMS personnel arrived at the patient's side.
- Demographic information on where most instances of SCA occur in terms of zip codes, building types, and proximity to a fire station.

#### Establishing a timeline and measuring results

In terms of measuring results, the CARDIAC ARREST REGISTRY will provide the data necessary to be able to determine if the changes being proposed make any substantive positive effect on the community as a whole. The CARDIAC ARREST REGISTRY could present an annual report to the community. This report could outline the following:

- 1) Overall survival from SCA broken down by:
  - specific presenting cardiac arrhythmia
  - zip code
  - location of arrest
  - time to defibrillation
  - time to hospital
  - relation to any on-going research studies
  - time to intubation
  - time to first cardiac drug
  - bystander CPR or not
  - AED used or not
- 2) Frequency of episodes of SCA broken down by:
  - Age
  - Race
  - Gender

## **How to evaluate cost-effectiveness of HeartSafeCommunity program**

No one can put a price on a life. If only one life is saved, the effort may be worthwhile. But when it comes to making decisions about community programs, it's important to factor in cost-effectiveness.

Cost-effectiveness analysis is a method used to determine the value of a medical intervention. There are certain fundamentals involved in coming to some conclusions.

The basic formula is:

<b>Cost per life saved= Cost of the program / Number of lives saved</b>
---

Since the HeartSafeCommunity program costs are only estimates at this time, it is important to come up with some sort of proposed budget. Most cost-effectiveness analyses are "adjusted" in terms of how long a person lives after being resuscitated (average years of survival).

The modified formula is:

<b>Cost per life year gained = Program costs of the program per year / Number of lives saved x average number of years survival</b>
---

### **Potential effectiveness**

In order to estimate how many lives can realistically be saved in one year with HeartSafeCommunity, we can assume that in the US the average annual incidence of sudden cardiac arrest is about one case per 1,000 adults. An estimated 60 percent of cardiac arrests are witnessed by someone. This means that for every 1,000 adults in our community, 0.60 cases of witnessed cardiac arrest will occur each year. About one-half will be in ventricular fibrillation according to national averages.

The number of survivors depends on whether CPR and defibrillation are initiated in a timely manner. If HeartSafeCommunity has established these goals:

- To ensure that bystander CPR is provided in at least half of all cases of SCA
- To ensure that the "call to shock" time is five minutes or less in 90 percent of cases

If these goals are achieved, we can expect an estimated 45 percent of victims in witnessed ventricular fibrillation to survive and leave the hospital. By conservative estimates, they will live an average of three more years.

#Adults	#Arrests per year	#Witnessed x60%	#VF x50%	#Survivors per year x45%	#Life years gained x3 Years
1,000	1	0.6	0.3	0.14	0.4
10,000	10	6.0	3.0	1.4	4.1
25,000	25	15	7.5	3.4	10.1
50,000	50	30	15	6.8	20.3
75,000	75	45	22.5	10.1	30.4
100,000	100	60	30	13.5	40.5
750,000	750	450	150	68	200

The cost per life year gained is found by dividing the incremental costs calculated by the life years gained.

Formula = Cost per life year gained = Incremental costs of the program per year / No. of lives saved x average number of years survival

Example: For 50,000 adults and costs of \$55,000:

Agency and community cost per life year gained= \$55,000 / 20.3 = \$2,709

Thus, in our example, the agency and community cost per life year gained = \$2,709.

To become an effective advocate of SCA readiness in our community, we will need to know the costs of implementing the HeartSafeCommunity program and the number of lives that are likely to be saved. Only the additional costs directly related to the HeartSafeCommunity program should be considered for the cost-effectiveness analysis. These incremental costs can be divided by the predicted number of lives to be saved times the average number of years of survival to calculate what it will cost the community for each life year gained.

## **Suggested Action Items to Initiate HeartSafeCommunity**

- **Buy-in from all city decision makers**
- **Establish a task force to frame and develop program**
- **Investigate funding sources for program**
- **Begin participating in SCA research**
- **Establish cardiac arrest registry within Columbus Division of Fire**

## **Top 10 take-home messages for HeartSafeCommunity**

1. Sudden cardiac arrest is one of the leading causes of death among adults in North America.
2. A combination of early 911 access, early CPR, early defibrillation and dispatcher-aided CPR may save another 10-20 victims of sudden cardiac arrest victims in Columbus annually.
3. In order to give the citizens of Columbus every opportunity to survive SCA we need to create an approach that can rapidly deliver CPR and defibrillation to the patient in SCA before the arrival of EMS.
4. CPR is easy to learn and has a positive effect on outcome in SCA.
5. The shorter the time from collapse to defibrillation, the better the chances of survival.
6. Anyone who has a duty to respond to victims of sudden cardiac arrest should be trained in CPR and equipped with an AED.
7. AED's are simple to use and training takes about two to four hours and established training programs are readily available.
8. HeartSafeCommunity must abide by federal and state laws and regulations.
9. Creating public awareness and support for HeartSafeCommunity requires teamwork.
10. Finding funding for HeartSafeCommunity may be a challenge.

# APPENDICES

## Summary of AED Legislation for Ohio

### AED Legislation Update

April 3, 2002

STATE	AED GOOD SAMARITAN LAW FOR LAYPERSONS	IMMUNITY FOR RESCUERS	IMMUNITY FOR AQUIRERS AND ENABLERS	IMMUNITY FOR MEDICAL DIRECTOR	IMMUNITY FOR AED TRAINERS
Alabama	X	Yes	Yes	Yes	Yes
Alaska	X	Yes	No	No	No
Arizona	X	Yes	Yes	Yes	Yes
Arkansas	X	Yes	Yes	Yes	Yes
California	X	Yes	Yes	Yes	Yes
Colorado	X	Yes	Yes	Yes	No
Connecticut	X	Yes <sup>1</sup>	No	No	No
Delaware	X	Yes	Yes	Yes	Yes
Florida	X	Yes <sup>1 2</sup>	Yes	No	No
Georgia	X	Yes <sup>1</sup>	Yes	Yes	Yes
Hawaii	X	Yes <sup>1</sup>	No	No	No
Idaho	X	Yes	Yes	Yes	No
Illinois	X	Yes	Yes	Yes	Yes
Indiana	X	Yes	Yes	No	No
Iowa	X	Yes	No	No	No
Kansas	X	Yes <sup>1</sup>	No	Yes	Yes
Kentucky	X	Yes	Yes	Yes	Yes
Louisiana	X	Yes <sup>1</sup>	Yes	Yes	Yes
Maine	X	Yes	Yes	Yes	Yes
Maryland	X	Yes	Yes	Yes	No
Massachusetts	X	Yes	Yes	Yes	No
Michigan	X	Yes	Yes	Yes	Yes
Minnesota	X	Yes	No	No	No
Mississippi	X	Yes <sup>1</sup>	No	Yes	Yes
Missouri	X	Yes <sup>1</sup>	No	No	No
Montana	X	Yes	Yes	Yes	Yes
Nebraska	X	Yes	No	No	No
Nevada	X	Yes <sup>1 2</sup>	Yes	No	No
New Hampshire	X	Yes	Yes	No	No
New Jersey	X	Yes	Yes	Yes	Yes
New Mexico	X	Yes	Yes	Yes	Yes
New York	X	Yes <sup>1</sup>	Yes	No	No
North Carolina	X	Yes	Yes	Yes	Yes
North Dakota	X	Yes	Yes	Yes	Yes
Ohio	X	Yes	No	Yes	Yes
Oklahoma	X	Yes	Yes	No	No
Oregon	X	Yes	Yes	Yes	Yes
Pennsylvania	X	Yes <sup>3</sup>	Yes	No	No
Rhode Island	X	Yes <sup>2 3</sup>	Yes	Yes	Yes

STATE	AED GOOD SAMARITAN LAW FOR LAYPERSONS	IMMUNITY FOR RESCUERS	IMMUNITY FOR AQUIRERS AND ENABLERS	IMMUNITY FOR MEDICAL DIRECTOR	IMMUNITY FOR AED TRAINERS
<i>South Carolina</i>	X	Yes	Yes	Yes	No
<i>South Dakota</i>	X	Yes	Yes	Yes	Yes
<i>Tennessee</i>	X	Yes	Yes	Yes	Yes
<i>Texas</i>	X	Yes	Yes	Yes	Yes
<i>Utah</i>	X	Yes <sup>1</sup>	No	No	No
<i>Vermont</i>	X	Yes	Yes	Yes	No
<i>Virginia</i>	X	Yes	Yes	Yes	No
<i>Washington</i>	X	Yes	Yes	Yes	No
<i>West Virginia</i>	X	Yes	Yes	Yes	Yes
<i>Wisconsin</i>	X	Yes	Yes	Yes	Yes
<i>Wyoming</i>	X	Yes	Yes	Yes	Yes
<i>District of Columbia</i>	X	Yes	Yes	Yes	Yes

- <sup>1</sup> "Immunity for Rescuers" includes people licensed to practice medicine, surgery, or dentistry, or who are licensed as Registered or practical nurses, or people who are medical technicians.
- <sup>2</sup> "Immunity for Rescuers" includes any hospital for which the patient enters for medical care or hospital employee who provides medical care.
- <sup>3</sup> "Immunity for Rescuers" includes any person who lacks AED training, but who has access to an AED and uses it in good faith in an emergency as an ordinary prudent person would have done in the same or similar circumstances.

# APPENDICES

## Summary of AED Legislation for Ohio

### OHIO AED LAW

*The following is a summary containing relevant portions of the law(s). This material is not intended as legal advice and may contain inaccurate or incomplete information.*

#### Background

On December 17, 1998, the Governor of the State of Ohio signed [House Bill 717](#). This legislation "provides that a person who has obtained appropriate training on how to perform automated external defibrillation and has successfully completed a course in cardiopulmonary resuscitation may perform automated external defibrillation...[and] provides civil and criminal immunity to a person who performs automated external defibrillation in good faith regardless of whether the person has appropriate training..." This legislation adds Sections 2305.235 and 3701.85 to the Ohio Revised Code.

#### AED Definition

"Automated external defibrillation" means the process of applying a specialized defibrillator to a person in cardiac arrest, allowing the defibrillator to interpret the cardiac rhythm, and, if appropriate, delivering an electrical shock to the heart to allow it to resume effective electrical activity"

#### Use Compliance Requirements

"A person who possesses an AED shall do all of the following:

1. Require expected users to complete successfully a course in AED use and CPR...
2. Maintain and test the defibrillator according to the manufacturer's guidelines;
3. Consult with a physician regarding compliance with the requirements of [this legislation]"

"A person who possesses an AED may notify an emergency medical services organization of the location of the defibrillator."

"When automated external defibrillation is not performed as part of an emergency medical services system or at a hospital...an emergency medical services system shall be activated as soon as possible."

## Training Requirements

Expected users are to complete training in CPR and AED use **"that is offered or approved by the American Heart Association or another nationally recognized organization."**

## Liability

**"Except in the case of willful or wanton misconduct, no physician shall be held liable in civil damages for injury, death, or loss to person or property for providing a prescription for an automated external defibrillator approved for use as a medical device by the United States Food and Drug Administration or consulting with a person regarding the use and maintenance of a defibrillator."**

**"Except in the case of willful or wanton misconduct, no person shall be held liable in civil damages for injury, death, or loss to person or property for providing training in automated external defibrillation and cardiopulmonary resuscitation."**

**"Except in the case of willful or wanton misconduct or when there is no good faith attempt to activate an emergency medical services system...no person shall be held liable in civil damages for injury, death, or loss to person or property, or held criminally liable for performing automated external defibrillation in good faith, regardless of whether the person has obtained appropriate training on how to perform automated external defibrillation or successfully completed a course in cardiopulmonary resuscitation."**

# **APPENDICES**

## **AED TRAINING**

**Learning to use an AED is surprisingly simple. Many people report that it is far easier than learning CPR. Current AED courses usually last about three to four hours to allow ample time for hands-on practice and to help increase user competence and confidence. AED training and related resources are offered through the American Heart Association, the American Red Cross, EMP America, the National Safety Council and others. AED manufacturers also offer training resources.**

**Most states regulate health care training for public safety personnel so we should check with state authorities to make sure the training program is consistent with state guidelines.**

**AED training curricula vary, but generally emphasize:**

- **A working knowledge of CPR**
- **Safety for both victims and rescuers**
- **Proper placement of electrodes**
- **Delivering the first shock as quickly as possible, ideally within 60 seconds from time of arrival at the victim's side**
- **Plenty of hands-on practice, with one instructor and one AED or AED trainer for every four to six students**

**The following sample AED class outline demonstrates the simplicity of AED training.**

**Sample AED class outline**  
***Prerequisite: CPR training***

- **Distribute course materials to students two weeks prior to class. Course materials may include instructional booklets and videos, local AED protocols, skills checklists, and operating guidelines for the specific device that will be used.**
- **Present introductory lecture. (20 minutes)**
- **Demonstrate how to use the AED. (20 minutes)**
- **Review local AED treatment protocols. (20 minutes)**
- **Supervise practice. Each student should have the opportunity to manage at least three scenarios. (60 minutes)**
- **Discuss medical direction, device maintenance, continuing education, documentation and quality assurance. (15 minutes)**
- **Administer written evaluation. (Optional) (30 minutes)**
- **Administer practical evaluation following skills checklist. (60 minutes)**

- **Provide remedial training for those who do not successfully complete evaluation process.**

The AED protocol has seven basic steps:

- **Check unresponsiveness.**
- **Call 9-1-1 and retrieve the AED.**
- **Open the airway and check for breathing. If there is no breathing or breathing appears abnormal, give two slow breaths.**
- **Check for a pulse. If there is no pulse, turn on the AED. A second rescuer should continue CPR until the AED is attached.**
- **Attach the AED electrode pads.**
- **Analyze the heart rhythm. Make sure no one is touching the victim.**
- **Press the "shock" button, if advised. Make sure no one is touching the victim.**

AED's are very safe and effective when used properly. Therefore, it is important to follow the operating instructions that come with each AED. For all AED's, there are certain basic precautions:

- **Attach the AED only to victims who are unresponsive, who are not breathing normally and who have no pulse.**
- **AED's, as currently configured, are intended for use among adult victims of sudden cardiac arrest, not children. If the victim appears to be less than eight years old or appears to weigh less than 25 to 30 kg. (55 to 65 lbs.), do not attach the AED.**
- **It is safe to use AED's in all weather conditions, including rain and snow. In wet weather, wipe the chest dry before placing electrodes. If the victim is lying in water, move him or her to a relatively dry area before attaching the AED.**
- **Never place AED electrode pads directly on top of medication patches, such as nitroglycerin. Patches should always be removed and the skin wiped dry before placing defibrillator pads on the skin. Make sure to wipe your own skin dry if you come in contact with the medication.**
- **If the victim has a pacemaker or an internal defibrillator with a battery pack (visible as a lump under the skin about two inches long), avoid placing pads directly on top of the implanted medical device, if it is possible to do so and still maintain proper pad placement.**
- **If the victim is lying on a metal surface, such as bleachers or a stretcher, avoid contact of the electrodes with the metal surface.**

Emergency responders may go for several years before encountering a victim in cardiac arrest. Lay rescuers may use an AED only once in a lifetime. Therefore, it is important to review AED skills on a regular basis. The ideal frequency for retraining is unknown, but most experts recommend reviewing AED skills every three to four months.

Brief review sessions (about 30 to 60 minutes long) are an effective way to keep AED skills fresh. Sessions should be used to review AED operation and maintenance, review standing orders,

practice protocols using various scenarios, critique recent cases, and evaluate skills. As an alternative to classroom review sessions, computer-based interactive training is available from some AED manufacturers.

#### **Training costs**

AED training costs will vary based upon how many people will be trained at any one time. Please refer to the budget in the appendices section to see the costs estimated for Columbus Division of Fire to provide training for this endeavor.

#### **Licensure and certification**

Guidelines for AED knowledge and skills are provided by the American Heart Association, and training programs are provided by the AHA, the American Safety and Health Institute, the American Red Cross, EMP America, the National Safety Council and others. Successful completion of an AED course means that certain classroom performance standards have been met. Licensure and certification, however, are usually a function of governmental bodies. If you have questions about how licensure and certification may apply in your community, contact state and local EMS authorities.

AED training materials are readily available from a variety of sources. Initial AED training takes about two to four hours and features an emphasis on practice. A ratio of one instructor and one AED or AED trainer for every four to six students is recommended. Short review sessions should be conducted regularly to help maintain skills.

# **III. Sample EMS System Program**

DRAFT

This section describes material derived from the Orange County EMS System in Orange County, Florida. It begins with a public access defibrillation (PAD) ordinance that can be used as a valuable aid to an EMS system medical director for implementation of a PAD program. Following the ordinance is a document entitled "AED Prescription/Authorization Use" and represents components of safe and effective EMS medical director authorization for AED use in the community. In this example, this prescription/authorization use is tied to the general county ordinance. Again, these documents can be extrapolated to fit other local communities. Next, the AED registration form represents a critical link in community AED use. A sample registration form is provided here and represents the process whereby purchases of AED's in the community "register" the existence of the AED with the EMS system. A critical component of this process is once the EMS system receives this information it must be transferred to the local computer aided dispatch center. The most important part of the AED being registered with the EMS system is that it's location is identified at the dispatch operator's computer screen at the time a 911 call is placed concerning a potential cardiac arrest situation. An electronic file of the Excel spreadsheet is contained on the CD companion to this guidebook. Finally, there is a sample memo a Community Heart Ready Award followed by a useful AED fact sheet.

**ORDINANCE NO 20 \_\_\_\_\_**

**AN ORDINANCE TO BE KNOWN AS THE ORANGE COUNTY PUBLIC ACCESS DEFIBRILLATION PROGRAM FOR ORANGE COUNTY; PROVIDING FOR FINDINGS AND PURPOSE; PROVIDING FOR APPLICABILITY; PROVIDING FOR REQUIREMENTS AND PROCEDURES; PROVIDING FOR CONFLICT AND SEVERABILITY; PROVIDING FOR AN EFFECTIVE DATE.**

WHEREAS, the Board of County Commissioner of Orange County, (hereinafter referred to as “the Board”) provides Paramedic Advanced Life Support for the citizens and visitors of unincorporated Orange County through Orange County Fire Rescue Department (hereinafter sometimes referred to as “EMS”); AND

WHEREAS, the American Heart Association has determined key to improve survival rates from sudden cardiac arrest is to reduce the time to deliver defibrillation therapy in a timely fashion; and

WHEREAS, the American Heart Association reports that recent breakthroughs in automatic external defibrillation, (hereinafter referred to as “AED”), technology have resulted in the availability of devices that have been proven to be safe and effective in treating sudden cardiac arrest; and

WHEREAS, the American Heart Association has determined that these new devices are virtually maintenance free, safe and easy to use with minimum training, are small, lightweight, durable and inexpensive; and

WHEREAS, the American Heart Association has determined that widespread availability of AED’s will make sudden cardiac death a truly treatable disease, preventing hundreds of unnecessary deaths; and

WHEREAS, the American Heart Association has determined that it is in the best interest of the public to make AED's available to the general public, but that the public be trained on the use of the AED's and the activation of emergency medical services systems immediately upon using the AED; and

WHEREAS, the Florida legislature has determined that certain procedures should be implemented to ensure proper use of AED's and has enacted 401.2915, *Florida Statutes*, outlining these procedures; and

WHEREAS, it is the intent of this Ordinance to set minimum standard for use and training for the Orange County Public Access Defibrillation Program; and

WHEREAS, the Orange County Department of Emergency Medical Services will develop and coordinate this program.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF ORANGE COUNTY, FLORIDA, that:

SECTION ONE: Title and Citation

This Ordinance shall be known and may be cited as the "Orange County Public Access Defibrillation Program Ordinance".

SECTION TWO: Findings and Purpose

Pursuant to Section 125.01(1)(e), *Florida Statutes*, the Board of County Commissioners of Orange County, Florida finds that it is empowered to provide ambulance and emergency medical services. Pursuant to Article VIII of the Constitution of the State of Florida, the Board of County Commissioners of Orange County, Florida further finds it has the authority to exercise broad home rules powers and as such finds that it is in the best interest of the citizens of Orange County to enact this Ordinance.

It is the purpose of this Ordinance to create the Orange County Public Access Defibrillation Program, which will establish guidelines for use and training requirements and procedures for Automatic External Defibrillators (hereinafter known as AED's).

SECTION THREE: Applicability

Notwithstanding any provisions of any other county zoning or other ordinance to the contrary, this article shall apply to, and be enforced in the incorporated as well as the unincorporated areas of the county.

Hospitals, as defined in 395.002(12), *Florida Statutes*, are exempt from the provisions of the Ordinance.

SECTION FOUR: Requirements and Procedures

The following shall be the requirements and procedures for use and training of the AED program:

- a) No AED shall be used in the incorporated and unincorporated areas of Orange County without first complying with the requirements and procedures set forth in this section.
- b) Each individual, organization, entity, or company will be responsible for the coordination and purchase of the AED(s) through private vendors, as well as obtaining required medical prescription.
- c) The implementation of an AED may occur only after a written notification is made to the Orange County Department of Emergency Medical Services by the individual, organization, entity, or company purchasing the AED(s). The written notification must contain the facility or business name, street address, specific location of the AED, the approximate number of people who work, live, or visit the location, facility,

or business annually, the total number of persons trained or to be trained on the use of the AED(s), name of manufacturer, description, model number, color of each AED.

Additionally, the written notification shall contain the name of the program coordinator for the individual, organization, entity, or company and medical oversight physician.

d) Prior to implementing an AED, the individual, organization, entity, or company will obtain standardized training for all intended users of the AED. The training will consist of a course in cardiopulmonary resuscitation or successful completion of a basic first aid course that includes demonstrated proficiency in the use of an AED.

e) Any person who uses an AED shall activate the local EMS system by calling 9 – 1 – 1 prior to or immediately upon use of the AED.

f) The Orange County Medical Director may conduct an incident review after use of an AED that includes gathering clinical data and information from the person that used the AED and from the AED itself.

g) The owner and user of the AED will consent to the quality assurance review by the Medical Director after the use of an AED or the retrieval of clinical data from the device itself.

h) In-service training of individuals on the AED will be the responsibility of the owner of the AED and will be done on an annual basis, and shall consist of review of the techniques on the use of the AED and CPR.

SECTION FIVE: Conflict and Severability

In the event this Ordinance conflicts with any other ordinance of Orange County or other applicable law, the more restrictive shall apply. If any phrase or portion of the Ordinance is held invalid or unconstitutional by the court of competent jurisdiction, such

portion shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining portion.

SECTION SIX: Inclusion in the Code Laws and Ordinances

The provisions of this Ordinance shall become and be made a part of the Code of Laws and Ordinances of Orange County, Florida. The sections of the Ordinance may be renumbered or relettered to accomplish such, and the word “ordinance” may be changed to “section”, “article”, or any other appropriate word.

SECTION SEVEN: Effective Date

This Ordinance shall take effect immediately upon the filing of the Ordinance with the office of the Secretary of State of Florida.

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Office of the Medical Director

4401 Vineland Road, Suite A-11, Orlando, Florida 32811-7179

Telephone (407) 650-4031 (ext. #228)
Fax (407) 318-3288

AED Prescription/Authorization Use

Authorization is granted to representatives or employees of:

(Organization,, Company Name or Individual)

for the purchase and use of an Automatic External Defibrillator (AED) based on the following criteria:

- The use of the device is limited to persons who have received AED training within two years at a nationally recognized CPR/AED course
The organization has appointed an AED program coordinator who will maintain documentation of current AED training for intended users of the device
The use of the device occurs simultaneously with activation of the local 911 system
The local EMS system will be notified of AED availability and location
The organization maintains a service agreement for the AED with the vendor or other appropriate party
The organization accepts responsibility for housing, operating, and maintaining the device in accordance with manufacturer recommendations
This authorization will be renewed on a bi-annual basis
This is with the understanding that this prescription applies exclusively with Orange County Resolution # 2003-M-35.

This authorization is dependant upon the company/organization/individual complying with the above criteria. This authorization can be used for purchase of multiple devices, when this will better serve the needs of the organization. This authorization is also applicable to previously purchased AED's, as long as all of the conditions above are met. To assure the most appropriate volume and distribution of AED's within an organization, contact the American Heart Association for guidance.

Renewals are the responsibility of the Organization/Company/Individual. Renewals should be sent to Orange County EMS, 4401 Vineland Rd Ste A-11, Orlando, FL 32811

Date of Authorization:

\_\_\_\_\_

Medical Director
Medical License #:

Organization AED Program

Signature

Date

Coordinator (Please Print)

Date of Expiration:

Microsoft Access - [AED]

File Edit View Insert Format Records Tools Window Help

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Registration # 3

Business or Facility Name Orlando-Orange County Expressway Authority

Business or Facility Address 525 S. Magnolia Avenue

City  Zip Code

Physical Location of AED Administrative Offices Bldg.

Physical Address of AED Location 525 S. Magnolia Avenue, Orlando Annual # of Persons Who Work @ This Location 45

Annual # of Persons Who Reside @ This Location 0 Annual # of Persons Who Visit This Location 22000

Primary AED Contact Agnes Flagler Job Title Human Resources Admin.

Contact's Address 525 S. Magnolia Avenue Contact's City Orlando

Contact's Office Phone Contact's Cell Phone Contact's Fax

Record: 1 of 91

Form View NUM

Start Avian Flu Sum... AED Databas... AED 8:46 AM

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# Orange County AED Registration Form

Please Print

Business or Facility Name \_\_\_\_\_

Business or Facility Address \_\_\_\_\_

City \_\_\_\_\_ Zip Code \_\_\_\_\_

Physical Location of AED \_\_\_\_\_

Physical Address of AED Location \_\_\_\_\_

Annual # of Persons Who Work @ This Location \_\_\_\_\_

Annual # of Persons Who Reside @ This Location \_\_\_\_\_

Annual # of Persons Who Visit This Location \_\_\_\_\_

Primary AED Contact \_\_\_\_\_

Job Title \_\_\_\_\_

Contact's Address \_\_\_\_\_

Contact's City \_\_\_\_\_

Contact's Office Phone \_\_\_\_\_

Contact's Cell Phone \_\_\_\_\_

Contact's Fax \_\_\_\_\_

AED Manufacturer \_\_\_\_\_

AED Type \_\_\_\_\_

AED Model \_\_\_\_\_

AED Serial Number \_\_\_\_\_

AED Color \_\_\_\_\_

AED Oversight Physician \_\_\_\_\_

Maintenance Plan Implemented Y / N

Date AED Activated \_\_\_\_\_

<b>Registration #</b>
<b>Business or Facility Name</b>
<b>Business or Facility Address</b>
<b>City</b>
<b>Zip Code</b>
<b>Physical Location of AED</b>
<b>Physical Address of AED Location</b>
<b>Annual # of Persons who work @ This Location</b>
<b>Annual # of Persons who Reside @ This Location</b>
<b>Annual # of Persons who Visit This Location</b>
<b>Primary AED Contact</b>
<b>Job Title</b>
<b>Contact's Address</b>
<b>Contact's City</b>
<b>Contact's Office Phone</b>
<b>Contact's Cell Phone</b>
<b>AED Type</b>
<b>Contact's Fax</b>
<b>AED Manufacturer</b>
<b>AED Model</b>
<b>AED Serial Number</b>
<b>AED Color</b>
<b>AED Oversight Physician</b>
<b>Maintenance Plan Implemented</b>
<b>Date AED Activated</b>

DR

Contact:  
Rachel Akers- Communications Director  
(407) 843-1330 office  
rachel.akers@heart.org



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### **American Heart Association Honors Orange County For Leading The Way To Save Lives**

(Orlando, FL / September 19, 2006) The American Heart Association presented Orange County with a *Heart Ready Award* at the County Commission meeting, honoring the county's efforts to save lives from sudden cardiac arrest. On behalf of the American Heart Association, Bob Guilfoyle, Orange County Sheriff's Corporal and heart disease survivor, presented the prestigious award to the Orange County Board of Commissioners, after sharing his survival story.

The American Heart Association was pleased to renew Orange County's Heart Ready status (county was also recognized in 2005) honoring efforts of the "Chain of Survival," which is a four step process designed to save victims of sudden cardiac arrest. Those steps include calling 9-1-1, performing cardiopulmonary resuscitation (CPR), administering early defibrillation with an Automated External Defibrillator (AED), and getting victims early advance care.

Corporal Bob Guilfoyle found out firsthand the critical need for early access to an AED (a small, portable device that can send an electric shock through the chest wall to the heart and restore a patient's heart rhythm to normal levels). During a St. Patrick's Day parade in Orlando in 2001, Guilfoyle, a drum major in a bagpipe band, suddenly put a hand to his chest and dropped to the pavement. Within minutes, he was rescued by firefighters "a few floats behind," who had a "brand-new defibrillator" on board, he said. It was used to bring his heart back into a regular rhythm.

"I had no pain, no warning signs and no memory of it at all," recalled Guilfoyle, referring to his sudden cardiac arrest. "All I know is I died for a while and woke up later in the hospital."

Guilfoyle said he was "dead, then alive" at least five times, before a combination of cardiopulmonary resuscitation, or CPR, to get his blood circulating, and defibrillation to get his heart rhythmically pumping again, worked to save his life.

Orange County received recognition for excelling in placing/tracking (AEDs), utilizing the Utstein template outcome measurement, providing CPR training to county employees, having enhanced 9-1-1 and utilizing an Emergency Medical Dispatch (EMD) system.

For more information about Heart Ready County, City or Community, call your American Heart Association at 407-843-1330 or visit us online at [www.americanheart.org](http://www.americanheart.org)

###

## **AED FACT SHEET**

- Sudden cardiac arrest claims about 340,000 lives each year – or around 930 every day - nationwide.
- 95 percent of cardiac arrest victims die. The AHA goal is to increase the survival rate from 5 percent to 20 percent.
- If every community could achieve a 20 percent sudden cardiac arrest survival rate, between 45,000 and 50,000 people would be saved each year.
- For every minute a cardiac arrest victim is not defibrillated, his or her chances of survival declines 7-10 percent.
- About 80 percent of all sudden cardiac arrests happen at home, so being trained to perform cardiopulmonary resuscitation (CPR) can mean the difference between life and death for a loved one.
- Cardiac arrest is caused by a life-threatening abnormal heart rhythm that can result from heart attack, respiratory arrest, electrocution, drowning, choking or trauma, or it can have no known cause.
- When cardiac arrest occurs, the victim collapses and loses consciousness, stops normal breathing and loses blood pressure. Brain death starts to occur in just four to six minutes after someone experiences sudden cardiac arrest.
- If defibrillation can be performed within the first 1-3 minutes, there is a 70-80 percent chance of survival.
- The use of effective bystander CPR nearly doubles a victim's chance for surviving sudden cardiac arrest.
- CPR is not a substitute for defibrillation. CPR helps maintain vital blood flow to the heart and brain until defibrillation can be administered.
- Although automated external defibrillators (AEDs) were invented in the 1980s, technological advances have led to the development of more compact, portable versions.
- AEDs are safe for trained lay rescuers to treat sudden cardiac arrest because the devices automatically analyze the heart rhythm and only allow an electric shock when necessary. AEDs are easy to use, compact, battery-operated, lightweight and durable.
- Florida has a Good Samaritan law that protects people who provide emergency care – including CPR and AEDs - in good faith. Good Samaritan immunity generally prevails when a citizen responds to an emergency and acts as a reasonable and prudent person would under the same conditions.
- The American Heart Association offers a variety of CPR and AED training courses for the general public. For more information, call 1-877-AHA-4CPR or visit the website at [www.americanheart.org](http://www.americanheart.org)

# **IV. Community Survival Curve**

## **Building and Understanding a Community Survival Curve**

According to the 1982 Farmington Study, every 29 seconds, someone in the United States suffers a heart attack and every minute someone dies from one. Sudden Cardiac Death (SCD) is one of the leading causes of death and a major public health problem, representing 30% of all non-traumatic and 50% of all coronary artery disease related deaths. In the United States, approximately 300,000 to 400,000 sudden deaths occur annually, and about two thirds of these victims are above the age of 65 years<sup>1</sup>. Unfortunately, survival from cardiac arrest remains relatively low.

Today, the probability for a patient's survival is determined mainly by the interval between the patient's collapse and the delivery of the first defibrillatory shock. Research has informed us that a patient defibrillated within the first minute or two after their collapse has more than a 90 percent chance to be discharged from the hospital<sup>2,3</sup>. For each minute of sudden cardiac arrest, the likelihood of surviving the event decreases by approximately 2% to 10% per minute<sup>4,5</sup>. The shorter the time from collapse to defibrillation, the better the chances of survival<sup>6</sup>.

Figure 1 is referred to as the Patient's Survival Curve, where minutes are represented on the "x" axis and the percentage probability of a patient's survival is represented on the "y" axis. As the curve moves out and away from the patient's time of collapse, the probability of the patient surviving the event lessens. This depressing statistic means that if we have not managed to defibrillate a patient within 10 minutes of their collapse, the probability of surviving the event approaches zero.

According to the American Heart Association (AHA), clinical and epidemiological studies have confirmed two observations:

- Almost every adult (over 90% in most studies) who survives sudden non-traumatic cardiac arrest is resuscitated from Ventricular Fibrillation (VF)
- The success of defibrillation is remarkably time-dependent.

The Patient Survival Curve is quite graphic and easily understood by the reader; however, can we apply this same approach to understanding a community's delivery of early defibrillation? Can we describe the community's survival based upon the Community's Survival Curve? Can we measure the benefit of providing lay public, BLS and ALS defibrillation? The answer is "yes" to all, and quite persuasively!

## Building the Community Survival Curve

Pinellas County EMS is considered a national model of excellence. It is a single tier, all Advanced Life Support (ALS/Paramedic) dual response system where the average response time to deliver a paramedic to an emergency scene is 4.2 minutes. Typically, the system manages between 900 and 1,000 sudden cardiac arrests (SCA) annually. In 2003, the system managed 973 events where 260 patients (27 %) presented in VF/VT. From the 260 VF/VT events, 159 or (61%) had valid shock information for analysis and inclusion in the Community Survival Curve. This number was further reduced by 10 to 149 for the events that were witnessed by EMS (These cases were excluded from the response calculations, as their inclusion would distort the overall response performance measures). 34.5% of the SCA patients had Return of Spontaneous Circulation (ROSC) with an Utstein Template survival of 19%.

Figure 2 represents Pinellas County EMS's latest Community Survival Curve. Several important factors need to be understood prior to accurate interpretation of this curve. First, in order to parallel the Utstein Style Template's strict definitions<sup>7</sup>, the curve actually starts at the time of the patient's collapse, not at the time of the 9-1-1 call for assistance. It makes sense that the patient's survival clock begins ticking at the moment of arrest. Determining this time is an extremely difficult task in most situations; bystanders and family members tend not to carry a stopwatch to mark the beginning of the interval. Most "down times" offered by families are subjective, as confirmed by interviews with our SCA survivors and their families. From these discussions, we estimate that the average time from discovery of a person in cardiac arrest to dialing 9-1-1 may be as long as two minutes.

Although the specific time of an individual arrest can sometimes be heard or visibly witnessed and plotted specifically, for the purpose of the Community Survival Curve, we assume a two minute collapse to 9-1-1 call interval. Even though the two minute estimate may be on the long side, it is probably more desirable for the purpose of building the Community Survival Curve and taking from it lessons for community improvement to underestimate community performance rather than overestimate it. Leaving out the consideration of time from recognition to 9-1-1 call altogether will always provide overestimates.

The "call received" (first ring at 9-1-1) time is much more reliably identified. This time is a classic EMS performance data point used in the determination of several important system measurements, including "response time". Pinellas County EMS's VF/VT cardiac arrest-specific interval from 9-1-1 call receipt to "at patient" (Pinellas County's definition of "response time") is 5 minutes and 58 seconds (4 minutes and 40 seconds to arrive on scene plus 1 minute and 18 seconds to arrive "at patient"); therefore, the collapse to "at patient" interval for these patients is just shy of 8 minutes. All of these time intervals, including arrest recognition to 9-1-1 call and receipt of 9-1-1 call to emergency unit arrival with

the patient are subject to on-going improvement efforts through community education, improvement of technology, vehicle maintenance programs, and other quality assurance activities.

The final time interval of interest is the time to first defibrillatory shock for the VF/VT SCA patient. Actions included in the interval from “at patient” to “first shock” need to be specifically studied and documented in order to optimize performance in this phase. These actions include turning on the device, applying the pads, performing the initial rhythm analysis, and shock delivery if advised. This analysis can be applied to both professional rescuer and public access (PAD) defibrillation. (A full discussion of effective PAD programs is beyond the scope of this article.) Pinellas County EMS personnel advise dispatch of both “at patient” and “first shock” times; the system’s goal is to achieve “first shock” within ninety seconds (indicated by the blue zone on Figure 2).

The Community Survival Curve in Figure 2 includes histograms reflecting system “first shock” performance. One hundred twenty of one hundred forty nine shocks, or 88%, were delivered at eight to twelve minutes from time of collapse, with the average first shock occurring at ninety-six seconds after arrival “at patient”. With the likelihood of survival decaying by 2 to 10% <sup>4,5</sup> per minute after cardiac arrest, it is clear that making first defibrillation available on average at nine minutes and thirty-four seconds along the Survival Curve is not the optimum answer to achieving cardiac arrest survival.

### **What can we learn from a Community Survival Curve?**

Understanding and examining all of the elements of the Community Survival Curve can assist a community in developing multiple strategies to improve its SCA survival rates. As previously noted, the EMS system can focus on improvements in community education, technology, medical education, measurement and reinforcement of key performance indicators, vehicle safety and response capabilities and other quality assurance activities. Where BLS response times are consistently shorter than ALS response times, the addition of automated or semi-automated external defibrillators can contribute to shifting the community’s place on the survival curve to the left.

Perhaps even more importantly for the community, the Survival Curve graphically illustrates the potential contribution of public access defibrillation (PAD) programs. If first defibrillation is the defined end-point of the Community Survival Curve, enhancing the community’s ability to furnish that first shock with automated external defibrillators (AED’s) prior to EMS arrival will likely have the most significant impact of all. The time period used to construct the Pinellas County Community Survival Curve happens not to have included any occasions of PAD AED use; however, with 361 AED’s registered with the county as being available during that time and over 475 devices now registered, it is probably only a matter of time before the influence of the PAD programs appears on the

curve. That positive impact is made more probable by a county ordinance requiring AED registration and tracking, with the availability of AED location information to Emergency Medical Dispatch (EMD) providers.

### **Other applications for the Community Survival Curve?**

Several newer studies<sup>8,9</sup> have recommended the initial withholding of EMS defibrillation when response time is longer than three minutes in favor of performing two to three minutes of CPR prior to defibrillation. Applying this information to the Pinellas County Community Survival Curve, it is clear that the majority of patients treated by EMS, with its five minute and fifty-eight second time from call received to “at patient”, would be subject to CPR prior to defibrillation. It is likely that the only way to consistently intervene within the window of time prior to the requirement for CPR will be to get an AED to the patient within three to five minutes of patient collapse, thus increasing the importance of PAD programs.

### **Conclusion:**

Pinellas County EMS has applied the Patient Survival Curve concept in a way never considered during its development. The initial intended application of the Patient Survival Curve was purely educational, distinctly tying together duration of a patient’s collapse with their probability of survival. However, the same concept can clearly be used to illustrate a Community Survival Curve that plots the comprehensive effect of many interventions, including both public and professional and lay and trained rescuers. Factors influencing each segment of the continuum can be identified, dissected, addressed, and remeasured. The Community Survival Curve also clearly indicates that the responsibility for improving cardiac arrest survival truly does lie at the community level, with many opportunities for improved partnerships between local EMS agencies, community groups, governmental jurisdictions and other healthcare providers.

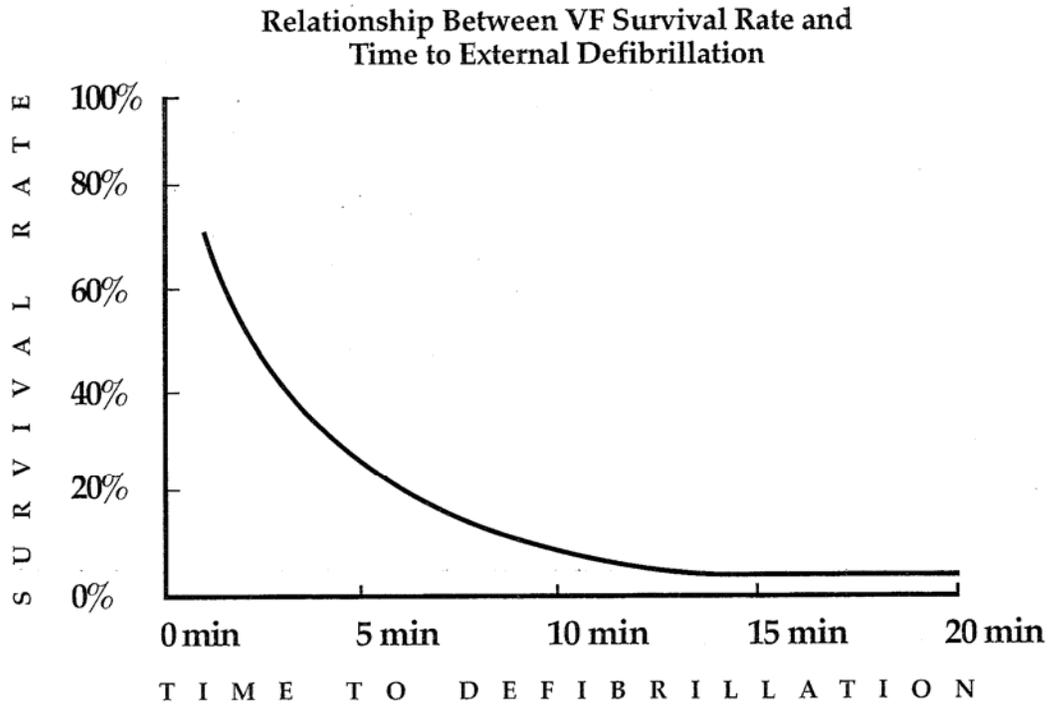
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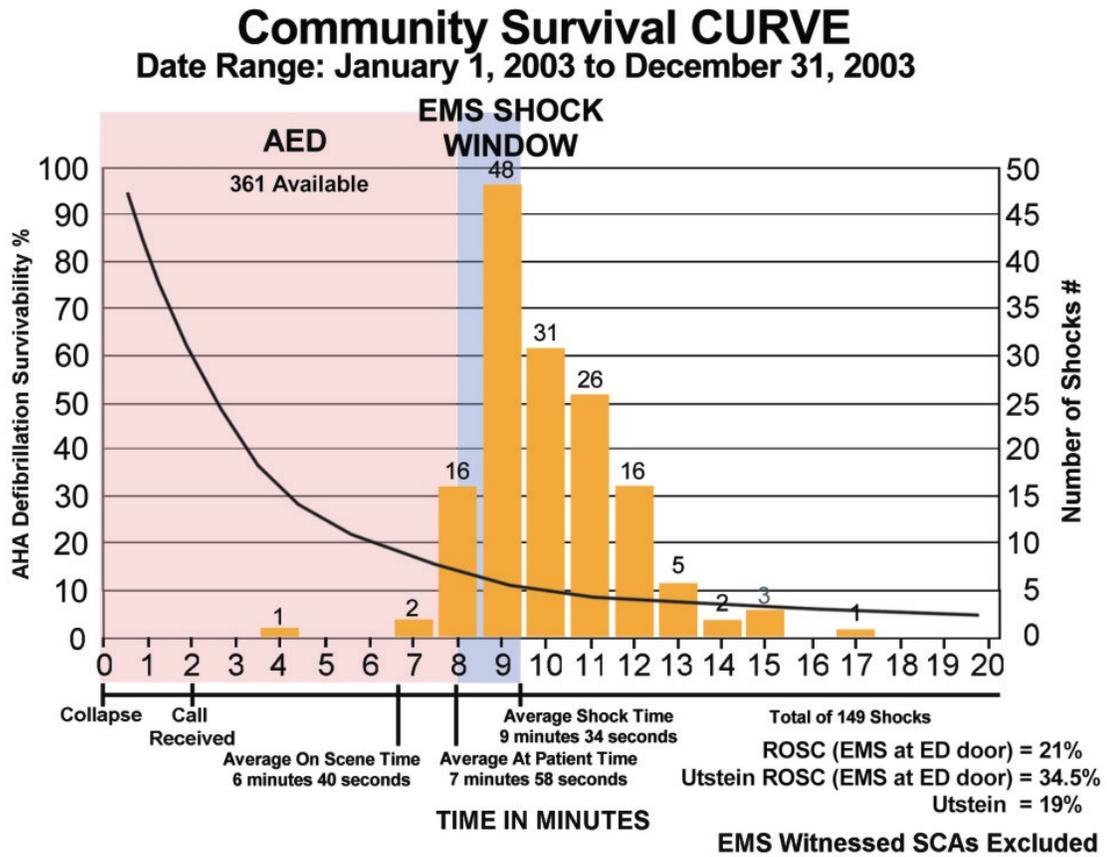
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727-582-2202

Figure 1



DRAFT

Figure 2



DK

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# **V. Guidelines 2005 AED Usage Clarification**

DRAFT

# Memo

August 1, 2006

TO: Florida ECC Training Network

FROM: Joe Scott, MD, Florida ECC Committee Chair  
Jeanine Hartin, RN, Florida Basic Life Support National Faculty

SUBJECT: Clarification for using AEDs in new training and in actual responses

The American Heart Association Guidelines for CPR and Emergency Cardiovascular Care were released in the Fall of 2005. This latest consensus in cardiovascular and educational science has led to several significant and positive changes to basic life support recommendations and AHA training products.

One of these changes was to the best-known science for the use of AEDs in sudden cardiac arrest. Specifically:

**Previous Guidelines indicated:**

*For treatment of cardiac arrest with a "shockable" rhythm, rescuers delivered up to 3 shocks without any CPR between the shocks. After 3 shocks rescuers would give about 1 minute of CPR and then check the rhythm.*

**2005 UPDATED Guidelines indicate:**

*When using an AED, all rescuers should deliver 1 shock followed by immediate CPR. The CPR should begin with chest compressions. All rescuers should allow the AED to check the victim's rhythm again after about 5 cycles (about 2 minutes) of CPR.*

To address the 2005 Guidelines, previously purchased AEDs should be re-programmed; however, until manufacturers are able to meet this need, all properly maintained AEDs will help save the life of a sudden cardiac arrest victim. As a result, students must be prepared to use AEDs programmed to the 2000 and/or 2005 guidelines. Therefore, AHA Instructors will be teaching new guidelines while addressing how the rescuer should use an AED that is in compliance with the 2000 guidelines.

To ease confusion, Instructors should inform the learner to follow all voice prompts of the AED they are using during the rescue.

To clarify in a real cardiac arrest situation, the rescuer will likely:

- Check for responsiveness
- Open airway, check for normal breathing
- If no normal breathing, give 2 rescue breaths then 30 compressions and repeat until the AED arrives.
- When an AED arrives, **turn on and follow its commands**
  - ♥ This means to simply **follow the voice prompts on the AED they are using**
  - ♥ Further direction to students should include a message that compressions and rescue breathing should be as constant and continuous as their AED permits

Please see your BLS/Heartsaver Instructor materials and the *2005 Guidelines for CPR & ECC* for more information. (viewable in entirety at [www.americanheart.org/eccguidelines](http://www.americanheart.org/eccguidelines))

# Appendix Explanation

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Appendix A and B represent a sample memo and letter that medical directors may find useful.

Appendix C represents a sample PAD program information documentation utilized in the San Francisco Fire Department.

Appendix D contains the PAD program standards for the San Francisco Fire Department.

Appendix E describes a unique and innovative approach to public access defibrillation that was utilized in San Francisco.

Appendix F represents a sample AED policy and procedure guide to the deployment of an AED program at a federal location.

As stated earlier, Appendix G is a companion set of slides to the HeartSafeCommunity considerations section (Section 2).

Appendix H represents a listing of some common websites that contain useful additional information about AED's and PAD programs.

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**Appendix A.  
Which AED?**

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**SAMPLE MEMO:**

With regard to which AED you should purchase:

At this time, there are multiple AED manufacturers. Each machine is slightly different, and each vendor will tell you why their machine is the best. However, there is limited clinical evidence supporting one machine over another. To date, there is no level I (randomized controlled trials) evidence supporting one manufacturer over another.

The machines and all the accessories necessary for public access run about \$2500.00 a piece give or take a few hundred dollars depending on which machine. (a bulk buy will bring down the price).

While there is a theoretical advantage to having the same AED and ambulance defibrillator, in real life it is not an issue.

An effective risk management strategy for implementing a PAD program is to utilize one type of AED. That way, ALL employees of an organization will be familiar with the same AED. You should look at all of the major AED's, decide which one you think is most-user friendly, which company/representative will give you the best service, and get the most number of AED's for your buck.

Here is a website (AED Superstore) that contains all of the major manufacturers of AED.

[http://www.aedsuperstore.com/?engine=adwords!2868&keyword=%28aed+superstore%29&match\\_type=](http://www.aedsuperstore.com/?engine=adwords!2868&keyword=%28aed+superstore%29&match_type=)

Sincerely,

EMS Medical Director

**Appendix B.**  
**Setting up a PAD**

## **SAMPLE LETTER:**

Thank you for taking the time to consider implementing a Public Access Defibrillation (PAD) in \_\_\_\_\_.

In order to implement a PAD program, an organization such as yours would need to do the following:

- Purchase Automatic External Defibrillators (AED's)-refer to your local EMS system for more information about manufacturers of AED's. Each machine, complete with signage and emergency box and supplies will run about \$2500.00 give or take.
- Determine a core group of employees that would be trained to respond with the AED in the event of a medical emergency at any AED site.
- Provide physician medical direction to the PAD program. Your local EMS system may have a plan in place already.
- Provide administration, support, advice, review of any incidents, and Quality Improvement activities. Your local EMS system is generally interested in being involved in these activities (possibly, at no cost to you).
- Develop, sign and train employees on a PAD program Policy & Protocol.
- Develop a maintenance plan, or sign an agreement with one of the manufacturers

EMS systems are available to do quick site visit with any of your staff in order to review the layout of the proposed sites and to determine the optimal reasonable number of AED's to place. The current American Heart Association standard is that an AED be placed within 90 seconds brisk walking distance from any potential cardiac arrest.

Finally, I know you have legal concerns that must be addressed by your legal counsel. But I am certain that counsel will confirm that \_\_\_\_\_ State Law has extended Good Samaritan protection to any company, organization or employee that sets up a PAD program in good faith. And while that protection extends to anyone who might grab the AED out of its case and try to use it, we may choose to keep the AED's in secured locations and not extend their use to the public, but put up signs saying that AED's exist in the locations and to let an officer know if there is a medical emergency. Frankly, public organizations may be more potentially liable for not having AED's that they would be by implementing such a program.

Again, I thank you for your time and effort, and I look forward to working with you and your staff on this important public safety enhancement.

\_\_\_\_\_, MD  
EMS Medical Director

**Appendix C.**  
**PAD Program Data**  
**Form**



**5. Training Organization contact information:**

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Name	Phone Number
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**6. Please attach your documentation of regular AED maintenance, self-checks and battery checks required by manufacturer. (You may attach a separate form if you have one which documents this.)**

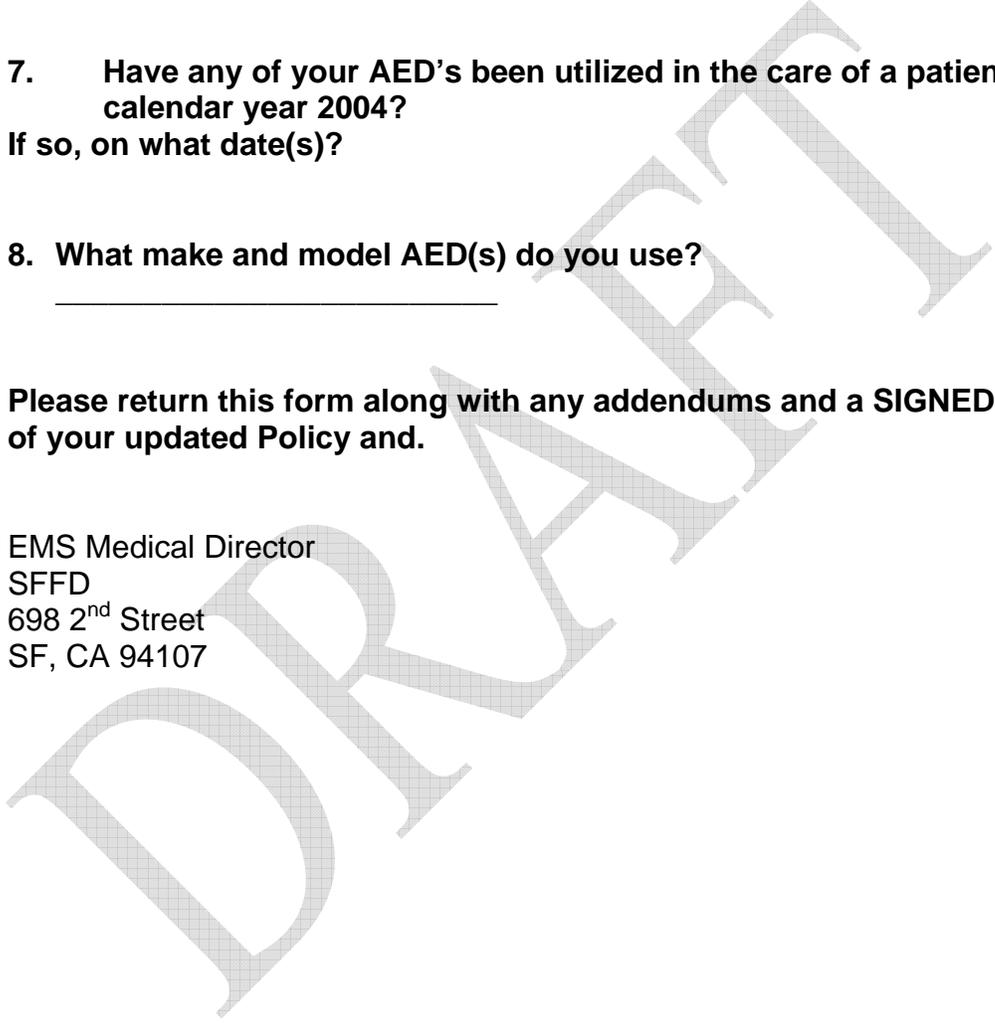
**7. Have any of your AED's been utilized in the care of a patient in calendar year 2004?  
If so, on what date(s)?**

**8. What make and model AED(s) do you use?**

---

**Please return this form along with any addendums and a SIGNED copy of your updated Policy and.**

EMS Medical Director  
SFFD  
698 2<sup>nd</sup> Street  
SF, CA 94107



**Appendix D.**  
**PAD Policy Template**

(Insert Site Name) Policy, Protocol and Program Standards  
for (Emergency Employee) Public Access Defibrillation  
(PAD)



Insert Site Chief/Director/CEO  
Site Name

Insert Program Coordinator  
Site Name

**Chief of Department, SFFD**

***EMS Medical Director, SFFD***

**April, 2005**

## **Public Access Defibrillation (PAD) Program Standards for the (Insert PAD Program site name here)**

### **Purpose**

To provide a policy, protocol and program standards for the (insert site name) Public Access Defibrillation (PAD) site which operates its program with the assistance of the San Francisco Fire Department.

### **Authority**

The authority to establish a Public Access Defibrillation (PAD) program arises from the following:

- California Health and Safety Code Sections 1795.5, 1799.107, 1797.190, and 1797.196.
- California Code of Regulations Title 22, Division 9, Chapter 1.8, Sections 100031 through 100041.
- San Francisco Emergency Medical Services Section Policy Reference No. 2170.

### **Definitions**

**AED:** Automatic External Defibrillator.

**AHA:** American Heart Association

**BLS:** Basic Life Support

**Civilians:** Persons who are not PAD site employees or professional emergency medical services personnel.

**CPR:** Cardiopulmonary resuscitation

**EPPAD:** Emergency Employee Public Access Defibrillation

**EMS:** Professional employees of the emergency medical services system within San Francisco

**Medical Director:** The licensed physician who authorizes the PAD site and provides medical direction to the PAD program.

**PAD:** Public Access Defibrillation.

**PAD Site:** A site within the City and County of San Francisco operating a PAD program.

**PAD Site Employees:** Employees of the PAD site who have been trained and authorized to utilize an AED.

**Program Coordinator:** A designated person for the organization with the overall responsibility for the PAD program.

**Site Coordinator:** A designated person at the PAD Site who is responsible for the administrative oversight of the PAD program.

### **Policy**

The (insert site name) believes that Public Access Defibrillation is a worthwhile and laudable program. It shall be the policy of the

(insert site name) to support such a program with the assistance of the San Francisco Fire Department in order to maximize public safety and health for our employees and members of the public who visit (insert site name).

### **Program Coordinator/Site Coordinator**

If an organization has more than one site, the Program Coordinator may designate individual Site Coordinators, who will be responsible for the duties of the Program Coordinator at their individual sites.

The Program/Site Coordinator for (insert site name) shall work with the Medical Director to ensure that (insert site name) employees are certified to American Heart Association (AHA) standards to perform Basic Life Support (BLS)-CPR and to utilize an AED.

The Program/Site Coordinator shall maintain a current list of all employees who are certified in CPR/PAD and shall forward any changes in that list immediately to the Medical Director.

The Program/Site Coordinator shall ensure that at least one trained and certified employee shall be on duty during all site business hours and that there are sufficient numbers of employees trained to meet this goal.

The Program/Site Coordinator shall work with the Medical Director to ensure that each (insert site name) employee who is trained and certified in CPR/PAD shall undergo yearly skills evaluation, and remediation when necessary.

The Program/Site Coordinator shall remove an AED from service and replace it with a spare immediately after its use and shall notify the Medical Director as soon as possible following the utilization of an AED. Utilization shall be defined as any instance in which an AED is turned on for anything but routine maintenance or battery change.

When initiating a spare unit or when returning a unit to service, a routine maintenance and battery check shall be performed and documented in the maintenance log.

### **AED Maintenance**

The Program/Site Coordinator shall maintain a log indicating where all AED's for (insert site name) are located, their last date of routine maintenance, the next scheduled date of maintenance, routine testing, the next date of testing, the next date of battery change,

and any and all uses of the defibrillator. The AED manufacturer determines the maintenance and battery replacement schedules for its AED's. The site coordinator shall be responsible for ensuring that regular maintenance, testing and battery changes occur as required.

### **Medical Direction**

The SFFD EMS Medical Director will provide medical direction to the (insert site name) PAD program.

The Medical Director shall ensure that the (insert site name) PAD program complies with all federal, state and local regulations regarding PAD.

The Medical Director shall approve the training organization, curriculum, instructors and the written and skills tests for PAD, and shall ensure that the training organization is approved by the San Francisco Department of Public Health's Emergency Medical Services and Emergency Operations Section (EMSEOS).

The Medical Director shall complete the San Francisco Department of Public Health EMS Section "Notice of New Automatic Defibrillator Program" and shall forward such notice to the EMS Section.

The Medical Director shall notify the Emergency Communications Center (911) of the number and placement of AED's at (insert site name) and request that the Combined Emergency Communications Center 911 call-takers instruct members of the public who call from the address of (insert site name) that, if needed, an AED is located at that site, as part of the "pre-arrival instructions".

The Medical Director shall ensure that the (insert site name) PAD program meets or exceeds AHA standards and guidelines regarding PAD.

The Medical Director or his/her designee shall review all utilizations of an AED at (insert site name) within 72 hours of notification. The Medical Director shall provide written and verbal feedback regarding each utilization to the Site Coordinator who will review this feedback with the appropriate staff at (insert site name). The goal of such feedback shall be to improve performance of individuals as well as the (insert site name) PAD program in general.

## **Training**

The Program/Site Coordinator and Medical Director shall determine the optimal number of (insert site name) employees who shall be trained to perform CPR and utilize the AED.

Those employees shall complete a basic CPR course according to the standards set forth by the American Heart Association or American Red Cross. Employees shall have CPR certification prior to undertaking AED training.

AED training shall be conducted by an entity approved by the local EMS Agency to perform AED training. The Medical Director shall approve the training organization, curriculum, written and skills tests, and the instructors. The AED course shall consist of not less than four hours of training, but may be reduced to two hours if those undertaking the training have had their CPR card renewed in the past 12 months.

All persons completing the AED training and who successfully complete the written and skills testing will receive a card indicating they are authorized to utilize an AED.

The Site Coordinator shall work with the Medical Director to ensure that employees who are trained in CPR and AED use undergo yearly training and skills proficiency demonstration that shall be no less than one hour in duration.

## **PAD Protocol**

Upon learning that an employee or a member of the public is ill at (insert site name), employees shall quickly access the patient, if possible. The employee shall then determine the patient's level of consciousness, and assess them for breathing and pulse. If emergency assistance is required, the employee shall access 911 via a "land-line" telephone or pay phone and tell the 911 call-taker in plain language what is wrong with the patient. If no landline phone or payphone is available, the employee shall utilize a cell-phone and dial 415-558-3268 for direct access to San Francisco 911 emergency medical operators. DO NOT DIAL 911 FROM A CELLPHONE.

If it is not possible to access the patient, employees shall immediately call 911 and tell the 911 call-taker as much information as you know about the sick patient and his/her location.

If the patient is unconscious and the employee cannot tell if the patient has a pulse or is breathing, he or she shall direct someone to get the AED as quickly as possible and bring it to the patient's side. Then begin CPR.

Once the AED is at the patient's side, expose the patient's chest and activate the AED. Follow the AED protocol exactly until EMS arrives.

If the patient begins breathing on his/her own and a pulse can be felt, DO NOT PERFORM CPR. Monitor the patient closely for changes in breathing or pulse until EMS arrives.

If the machine does not recommend shocking the patient, but the patient is unconscious, not breathing, and you cannot feel a pulse, continue CPR until EMS arrives.

### **Quality Improvement**

The (insert site name) PAD program shall utilize the concepts of Quality Improvement in order to better the program and to increase the likelihood that an employee or a member of the public will survive a sudden cardiac arrest that occurs at (insert site name).

### **Reporting**

The Site Coordinator and the Medical Director shall issue a report every 12 months regarding the activities of the PAD program at (insert site name) and shall make this report available to our employees, administration, the San Francisco Fire Department and the Medical Director of the Department of Public Health EMS Section.

### **Policy/Procedure/Protocol & Standards Review**

The Site Coordinator, Medical Director and appropriate staff, shall review this document at least annually, and shall make revisions to this document as necessary.

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Signature of Department Chief

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Signature of Program Coordinator

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Chief of Department, SFFD

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EMS Medical Director, SFFD

**Appendix E.**  
**Adopt a Defibrillator**

DRAFT

**A PROPOSAL TO IMPROVE THE AVAILABILITY OF  
PUBLIC ACCESS DEFIBRILLATION WITHIN THE  
CITY AND COUNTY OF SAN FRANCISCO**

**“ADOPT-A-DEFIBRILLATOR”**



**THE HONORABLE GAVIN NEWSOM  
MAYOR OF SAN FRANCISCO**

**PREPARED BY THE SAN FRANCISCO FIRE DEPARTMENT**

**GLENN ORTIZ-SCHULDT, EMS CHIEF**

**FEBRUARY 1, 2005**

## **A Proposal to Improve the Availability of Public Access Defibrillation within the City & County of San Francisco**

### **How significant is the problem of sudden cardiac arrest?**

Cardiac arrests occurring outside the hospital claim more than 225,000 lives per year in the United States. Defibrillation is widely felt to be the most successful method of resuscitating those patients in cardiac arrest. However, patient survival depends on many factors including access to 911, delivery of proper CPR, rapid arrival of first-responder personnel who are capable of defibrillation, and rapid arrival of Advanced Life Support (ALS) personnel (paramedics). The American Heart Association recognizes these items as links in the "Chain of Survival". A weakness in any of the links weakens the entire chain, and therefore, decreases the probability of survival. **It is believed that for each minute that passes without defibrillation, the likelihood that a patient will survive to hospital discharge decreases by 10%.** After 10 minutes without defibrillation, there is little chance that the patient will survive. Not surprisingly, in San Francisco (as well as all major U.S. cities) the cardiac arrest survival rate is dismal.

The time it takes to defibrillate a sudden cardiac arrest victim includes the time it takes for a witness to recognize that a medical emergency exists, time for activation of the EMS system, time to dispatch the appropriate response personnel, transit time, and setup and activation of defibrillator equipment upon arrival. Unfortunately, in a densely populated metropolitan setting such as San Francisco, this total response time is often greater than ten minutes. Obviously, this severely limits the ability of the EMS personnel to successfully defibrillate a sudden cardiac arrest patient. This explains why the cardiac arrest survival rate is dismal throughout the United States. In San Francisco, during 2001, only 22% of the patients who were eligible for defibrillation survived to be discharged from the hospital.

In San Francisco, Firefighter-EMTs equipped with defibrillators arrive on the scene of medical emergencies within 5 minutes and 30 seconds 90% of the time. However, the time it takes bystanders to recognize that a patient is in cardiac arrest, the time to access 911, the time to dispatch EMS rescuers, and the vertical nature of San Francisco's topography and architecture add additional minutes to the time it actually takes to get to the patient. Thus, one can understand why patients are often not defibrillated until 10 or more minutes have elapsed. Clearly, the likelihood of survival for a patient in cardiac arrest would be greatly increased if trained personnel and defibrillators were available at the moment and actual location where the patient collapses.

The newest generation of Semi-Automatic External Defibrillators (AEDs) are so safe and easy to use that a movement to place these machines in public venues and to allow the lay public to use these machines has developed in the hopes of saving more lives through faster defibrillation. This movement is called "Public Access Defibrillation (PAD)". It is currently supported by the American Heart Association (AHA) and the American Red Cross. Former President Clinton directed government regulators to promulgate regulations requiring the installation of defibrillators in Federal buildings and on commercial aircraft. The natural focus for the placement of these defibrillators is in locations with large groups of people and/or where the response time for emergency personnel may be prolonged due to building layout, design, or crowd volume.

Because the AHA and the Red Cross have only recently begun to train laypersons to use defibrillators, the number of citizens available to utilize publicly placed defibrillators is still very small. Therefore, when placing defibrillators in public venues it is prudent to train a small group of employees who regularly work at that venue to use the defibrillators (such as security officers, regularly assigned clerical staff, etc.) For this reason we recognize and make a distinction between PAD (Public Access Defibrillation) and EEPAD or Emergency Employee/Public Access Defibrillation.

### **What preliminary work has been done in San Francisco regarding Public Defibrillation?**

In 1998 "3<sup>rd</sup> Generation" Automatic External Defibrillators became available. These defibrillators are smaller, lighter and significantly less expensive than older models of defibrillators. More importantly, they are incredibly safe and easy to use. The American Heart Association and other emergency medical care professional organizations began advocating for the public placement of these defibrillators for use by employees of public venues and by the public in the setting of sudden cardiac arrest.

In late 1999, at the direction of Mayor Willie L. Brown, Jr. and San Francisco International Airport Director John L. Martin, the SFFD initiated the **Airport Rapid Resuscitation Early Shock Trial (ARREST)**. The goal of ARREST was to determine the feasibility of implementing a Public Access Defibrillation (**PAD**) program for the City and County of San Francisco. This pilot program demonstrated that we have the knowledge and expertise to implement a City-wide PAD program.

## What has occurred since then?

At a Board of Supervisors meeting on June 12, 2000 then Supervisor Gavin Newsom requested “the SFFD and the City Administrator determine the cost of implementing a City facility (all city buildings) AED (Automated External Defibrillator) program, including the placement in appropriate location, maintenance of equipment, the training of city personnel, signage, and administrative costs.” Fire Department EMS Division personnel and staff from the City Administrator’s Office worked together to prepare a proposal to implement a City-wide PAD program. Although this proposal was developed, the cost was considered prohibitive given the financial status of the City.

Thus today, San Francisco has a piecemeal approach to PAD; there is no City policy or program. A number of private corporations and entities in San Francisco have independently begun their own small PAD programs and registered with the City’s EMS regulatory agency the Department of Public Health’s Emergency Medical Services & Emergency Operations Section (EMSEOS). These programs may utilize different AED’s, training standards, internal policies, medical direction, quality improvement programs, and venue oversight.

In addition, with Chief Hayes-White’s approval, the SFFD now facilitates PAD/EEPAD programs at:

- The San Francisco International Airport
- San Francisco County Jails
- San Francisco City Hall
- San Francisco Fire Department Headquarters
- San Francisco Opera House
- San Francisco Symphony House
- San Francisco War Memorial
- San Francisco Golf Club
- The UCSF Millberry Union Gym
- The American Heart Association San Francisco Headquarters
- The San Francisco Department of Public Works
- The Federal Reserve Bank of San Francisco
- Gold’s Gyms of the Bay Area
- Levi Strauss World Headquarters
- The Lady Shaw Senior Center
- MUNI (Municipal Railway)
- San Francisco Police Department (in development)
- Nordstrom’s (in development)
- The Gap World Headquarters (in development)
- The Bay Area Rapid Transit System (BART) (in development)
- The Port of San Francisco (in development)
- San Francisco Unified School District (under discussion)

While all of the SFFD facilitated programs utilize similar training standards, policies, medical direction, quality improvement, and venue oversight, we believe that the City needs a coordinated effort to ensure the appropriate expansion of PAD where it may have the greatest good for the greatest number of residents and visitors to San Francisco.

### **Can San Francisco improve the availability of PAD for its residents and visitors?**

Yes, and we should do so as soon as possible. Experience with PAD in casinos in Las Vegas and in airports such as O'Hare and SFO have demonstrated that PAD programs can be successfully implemented and that the potential exists to save many lives with a modest investment in hardware, training, administration and oversight.

Public Access Defibrillation programs are already in place or being piloted in many cities including Las Vegas, Chicago, Los Angeles, and Houston. The EEPAD pilot program at San Francisco International Airport has demonstrated the safety and feasibility of such a program. Implementation of an EEPAD program for the City's large public buildings is a sound public policy decision. Because of its expertise in cardiac arrest management, Quality Improvement, and prehospital emergency medicine training, the San Francisco Fire Department is the natural choice to facilitate such a program.

The Fire Department recommends a gradual implementation of the PAD program. The first phase of this program would place AED's in up to eight buildings in the Civic Center area. City staff who work in these buildings and who choose to volunteer for the program would receive AED and CPR training.

A comprehensive training and quality management program emphasizing all links in the "chain of survival" is necessary for a Public Access Defibrillation program to succeed. The SFFD will provide authorization to use the AED through its EMS Medical Director. The SFFD will also provide "Medical Direction" including quality improvement activities required by State and local EMS regulations. The mechanism to complete these tasks is already in place through the Department's Cardiac Arrest Quality Improvement Program.

How can San Francisco Implement a City-wide PAD Program Without Taking Funding from Already Existing Important City Programs?

### ***ADOPT-A-DEFIB: "A Partnership in Public Safety and Health"***

Umbrella Organization:

The City and County of San Francisco

Facilitating Organization:

The San Francisco Fire Department

Sponsoring Organization:

The San Francisco Foundation

We believe that a charitable foundation is in a unique position to partner with the City in this effort. There would be an established donor pool with a demonstrated commitment to improving the public health of San Franciscans.

**Proposal:**

Form a “Partnership for Public Safety and Health” between the City and County of San Francisco and a charitable foundation within San Francisco.

The City will adopt policy establishing the “Adopt-A-Defibrillator” Program as the means to improve availability of PAD in the City & County of San Francisco. The Mayor will appoint the SF PAD Program Steering committee with the following proposed members:

**Proposed Members (or their designees)**

Co-Chair: The Honorable Bevan Dufty, SF Board of Supervisors  
Co-Chair: Joanne Hayes-White, Chief of Department, SFFD  
Co-Chair: Dr. Sandra Hernandez, Director, SF Foundation  
Mitchell Katz, MD, Director, San Francisco Department of Public Health  
Heather Fong, Chief of Police  
Anne Marie Conroy, Director, Mayor’s Office of Emergency Services  
Richard Shortall, Acting Director, Mayor’s Office of Emergency Services  
Lucy Jewitt, The Fritz and Lucy Jewitt Foundation  
Michael Casner, MD, Medical Director of Training, SFFD  
Glenn-Ortiz-Schuldt, EMS Chief, SFFD  
Jim Fazackerly, EMS Operations Chief, SFFD  
Andy Zanoft, Director of Quality Improvement, SFFD  
Alan Gelb, MD, FACEP, Chief, Emergency Services, SFGH  
Eric Isaacs, MD, FACEP, QI Director, SFGH Emergency Services  
Nora Goldschlager, MD, Chief of Cardiology, SFGH  
John Brown, MD, Medical Director, Department of Public Health EMS Section  
Todd Kessinger, MD, President, SF Emergency Physicians’ Association  
Ron Smith, Hospital Council of Northern California  
Robert Lull, MD, San Francisco Medical Society  
Karen Strain, Operation Heartbeat, American Heart Association  
Pete Howes, Executive Officer, PIO, SFFD  
Bill Jones, Acting Director, City Purchasing  
Dennis Herrera, City Attorney  
Ed Harrington, Controller

## **Specific Roles and Responsibilities:**

### **The City**

The City, through the Mayor's Office, shall provide leadership and administrative support to develop the program.

### **The SFFD**

The Fire Department will function as the designated coordinator and shall be responsible for performing all duties necessary to implement and oversee the City's Public Access Defibrillation program. The SFFD Medical Director and PAD Program Manager will evaluate AED placement, approve the training curriculum, manage the continuous quality improvement program, and submit all required reports to the DPH EMS Section, the Mayor's Office and the Board of Supervisors. The Fire Department PAD Program Manager will assist and consult with the Medical Director and EMS Chief on the implementation and management of all phases of the program.

### **The San Francisco Foundation**

The Foundation shall seek donors to "adopt-a-defibrillator". These donors will provide funding for one automated external defibrillator (AED) to be placed in a City building such as City Hall, the Main Library, a district police station, etc. Donors will be notified of the placement of the AED that they fund and a plaque will be mounted on that defibrillator in public view. Each time that AED is used, the donor/donor family will be notified that their AED was used in an attempt to save a life.

### **Initial Goal:**

Donor funding of 100 AED's at approximately \$2000.00 per machine. This amount includes wall mounting and signage. However, at least two AED manufacturers have expressed an interest in partnering with San Francisco to develop a "matching grant program". Such a program would provide one free AED for every AED purchased, thereby doubling the effectiveness of the "Adopt-A-Defib" concept. This would result in the placement of 100 AED's in San Francisco City Buildings.

### **What are the regulatory requirements of a Public Access Defibrillation program?**

No individual may use an Automatic External Defibrillator (AED) without being authorized to do so by a physician licensed in the State of California.

Title 22 of the California Code of Regulations sets forth the training standards for use of the automated external defibrillator (AED) by non-licensed or non-certified personnel. In addition, the San Francisco Department of Public Health's EMS Section, led by Dr. John Brown, regulates and oversees the provision of Emergency Medical Services in the City. The EMS Section has promulgated Policy 2170, which sets forth PAD Provider Standards. The California State Senate has enacted SB911 (effective January 1, 2000), which provides specific and limited civil immunity for prescribing physicians, trainers, users, and sponsors of PAD programs.

Regulations require that the basic AED course last 4 hours. These standards also mandate that individuals obtain and maintain certification in CPR as part of the authorization process. The CPR course typically takes an additional 4 hours. Authorized users must demonstrate proficiency in CPR and use of the AED annually.

Included in these standards are requirements for "Medical Control" which includes procedures for initial training and testing of authorized users of the AED and the development of a mechanism to assure the continued competency of AED users. Additionally, the prescribing physician is responsible for reviewing each incident of AED use and for ensuring suitable storage of that review. The findings resulting from these reviews must be regularly reported to the San Francisco Department of Public Health EMS Section.

### **What would a Citywide PAD program entail?**

A program of this size requires medical direction, administration, and oversight. The San Francisco Fire Department will provide authorization to use the AED and "Medical Direction" through the SFFD EMS Medical Director. The SFFD will provide a PAD Coordinator, administrative and clerical support to oversee the program.

### **How would City employees be trained?**

AED training lasts four hours and is considered separately from training in CPR. Training could be accomplished either in a classroom setting OR on-line in a modular format. Skills training and testing could be performed by a consortium of volunteers from SFGH departments of Emergency Services, Cardiology, Medicine, Nursing, the American Heart Association San Francisco Office, the San Francisco Emergency Physicians' Association, Private AED/CPR training entities, The San Francisco Medical Society, the San Francisco Paramedic Association, UCSF, the City College of San Francisco, and the San Francisco Unified School District.

Training supplies include manuals, manikins, sterile face shields, and defibrillators, audio-visual equipment, and course completion cards/certificates. The cost of these materials would be partly factored into the AED donor amount.

### **After initial training, what training or testing is required?**

City EEPAD volunteers will be required to demonstrate yearly skills proficiency in AED use and CPR. All training will be documented and a list of currently certified personnel will be available in each building and forwarded to the DPH EMS Section.

### **How would the AED's be placed in City buildings?**

The number of AED's needed for each building can be determined based on facility use and size of the building, consistent with current American Heart Association guidelines. AED's should be located in immediately accessible areas that allow for a three-minute response time defined as the time it takes to go from the victim to the device and back to the victim. The Department of Public Health EMS Section and the Department of Emergency Communications will be advised of each location where a defibrillator is placed.

There are two basic options for installation. The first, used at the Airport, is a strategically placed wall-mounted box with a glass door similar to those used for firefighting equipment. This type of installation, which also includes a highly visible sign and an alarm to alert both in-house security personnel and the local 911 Communications Center, is considered optimal. However, it is recognized that many of the buildings that have been chosen are architecturally unique. In these buildings it might be preferable to place the AED's at readily accessible public offices and counters after consultation with the City Architect. A highly visible sign would be installed to alert potential users of AED availability.

### **How would the program be coordinated and staffed?**

The cost of the defibrillators and training are only a portion of the requirements (costs) for a Public Access Defibrillation program. The multitude of tasks involved in the effective management of this program requires the following personnel.

#### **1. Medical Director**

The SFFD EMS Medical Director has agreed to serve as the Medical Director of the City's PAD Program as part of his ongoing duties with the City, with no additional costs involved. The SFFD Assistant Medical Director will assume these duties when the Medical Director is out of town or otherwise unavailable.

## 2. PAD Program Manager

This person shall hold the rank and qualifications of an H-3 or H33 Paramedic Captain (RC). The responsibilities of this person shall include but will not be limited to:

- Site Determination
- AED Placement
- Training
- Direction of Site Coordinators
- Curriculum development
- scheduling of refresher training/skills evaluation through building liaison
- skills instructor training
- reports to the Medical Director

The SFFD will make this position available through an ADA exempt light duty assignment.

## 3. Clerical

0.5 FTE clerical support will also be necessary for data entry, completion of certification cards and recognition certificates, and for curriculum revision and updates. The SFFD and the Mayor's Office could provide this support.

### What is the bottom line? What will this cost the City?

Cost to the City & County of San Francisco:

NEED	COST (\$)
AED Equipment and Accessories:	\$0 (Through donation)
Wall Mounting/Signage/ Carrying Cases:	\$0 (Through donation)
Medical Direction	\$0 (Through the SFFD MDs)
Training and CQI Materials and Supplies:	\$0 (Through donation)
Administrative Costs:	\$0 (Through Mayor's Office & SFFD)
PAD Program Manager:	\$0 (Through existing FD personnel)
Legal Considerations/purchasing	Through existing departments
<b>TOTAL COST TO THE CITY: 0 DOLLARS</b>	

Regardless of how the AED's are purchased, under Adopt-A-Defib, there would be no cost to the City. The two leading AED manufacturers have expressed an interest in developing a "matching grant" program for San Francisco to help it launch its City-wide PAD program. This might mean that for every AED purchased through the Adopt-A-Defib program, another AED would be donated to the City by the manufacturer. This matching grant proposal should definitely be investigated further.

### **What are the advantages of implementing a Citywide PAD Program?**

This project is consistent with the mission of providing the highest level of public health and safety protection to the residents of and visitors to San Francisco. This project provides a unique opportunity for positive exposure in the press and other media on a national level.

The American Heart Association-San Francisco Chapter, the San Francisco Emergency Physicians Association, the Department of Public Health EMS Section, the Director of Health, and the Fire and Health Commissions would almost certainly be unanimous in their support of the implementation of a City-wide PAD program.

### **Are there any potential disadvantages to the program?**

Some might argue that this program should not be implemented.

- **Such critics might argue that this concept is largely untested.** While this was true a number of years ago, a recent prospective national study examined the impact of such a program on public health and cardiac arrest survival. This study demonstrated a 50% increase in cardiac arrest survival following the implementation of a PAD program. In addition, in small venues in which PAD has been piloted, such as Las Vegas casinos and Chicago's O'Hare Airport, survival from v-fib cardiac arrest has increased from approximately 20% prior to PAD, to 60% with PAD. In addition, because we know that survival drops 10% for each minute a cardiac arrest victim goes without defibrillation, and we are confident that the San Francisco EMS system is already responding as quickly as humanly possible to these calls, the only possible way to improve survival is by implementing such a program.
- **Critics might argue that allowing City employees or the public to use these sophisticated medical devices is unsafe and unwise.** We would argue that these machines are extremely easy to use and that many failsafe mechanisms are built into the machines to ensure that no patient can be shocked who does not need to be shocked. In addition, the passage of SB911 ensures protection to the City and its employees

regarding the implementation of such a program, providing it is done so in the manner outlined in this proposal. We would recommend a review by the City Attorney to ensure such protection exists.

- **Critics might argue that the funding for such a program might be better spent on other public health initiatives such as heart disease prevention education, pedestrian safety, substance abuse treatment on demand, or community mental health programs.** We would argue that while such programs are certainly worthy of continued (if not improved funding), there is currently no City funding of an effort to improve our community's sudden cardiac arrest survival rate.

### **How would the Community be advised of the progress of the program, if approved?**

An update on training, use of the defibrillators, and outcome of patients treated with a City AED will be presented to the Mayor and the Board of Supervisors at 12 months following implementation of the program. At that time, the Board may request a proposal to expand the program to other venues throughout the City.

### **What is the proposed timeline for implementation?**

An optimistic start date for this program is July 1, 2005. This represents the potential first day of work for the Fire Department PAD Program Manager. Six months should be allowed for development of a donor brochure, defibrillator purchasing plan, installation of the machines, and preparation of the training program.

### **Future Directions: Thinking Out of the Box**

In the future, the City might consider expansion of PAD beyond the major City buildings. Other possible ways to improve the availability of Public Access Defibrillation might include:

- Making AED's available in SFFD Battalion Chiefs and Fire Inspector's Vehicles.
- Discussions with SFPD Chief Heather Fong making AED's available through SFPD patrol cars.
- Discussions with Sheriff Michael Hennessey making AED's available through Sheriff's Department vehicles.
- Discussions with MUNI Chief Michael Burns making AED's available stations, and in MUNI LRV's.
- Discussions with DPW Director Edwin Lee making AED's available in DPW vehicles.

- Discussions with City Contractors that utilize large fleets of vehicles such as PG&E, SF Water Department, COMCAST, Sunset Scavenger and taxi companies the requirement that they equip their vehicles and train their employees for PAD.

## Conclusion

Sudden cardiac arrest is a significant public health problem facing our citizens. Yet, despite continued improvements in prevention and education, EMS system design and response, and the Fire Department's cardiac arrest quality improvement program, survival rates for victims of cardiac arrest remains dismal. We believe that the only possible means to improve the cardiac arrest survival rate in San Francisco is through the implementation of a Public Access Defibrillation (PAD) Program. Given the current state of the economy, utilizing the "Adopt-A-Defibrillator" concept would be an appropriate way to implement this policy and program without impacting already existing city services.

Respectfully Submitted,

S. Marshal Isaacs, MD, FACEP  
EMS Medical Director, SFFD  
Clinical Professor of Medicine, UCSF  
Attending Physician, Emergency Services  
San Francisco General Hospital

**Appendix F.**  
**Federal Reserve Bank**  
**AED Procedures**

DRAFT

# **Federal Reserve Bank of San Francisco**

## **Automated External Defibrillator (AED) Policies and Procedures**

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**San Francisco  
Los Angeles  
Portland  
Salt Lake City  
Seattle  
Phoenix**

**December 2003**

**Office of Emergency Management**

# Federal Reserve Bank of San Francisco

## AED

### POLICIES AND PROCEDURES

Signatures by the appropriate representatives put these policies and procedures into effect. The policies and procedures will stay binding until a revision is made, upon which all appropriate representatives will sign said revision, or the program is terminated, and the policies and procedures will be considered null and void. Deviation from policy and procedures may cause physician to rescind authorization of the program.

The policies and procedures will be initiated and put into effect starting **December 1, 2003**. An annual review and revision will be conducted if necessary. Approval requests must be submitted in writing.

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John Troccoe

Date

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S. Marshal Isaacs, MD

Date

California License #  
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**Federal Reserve Bank of San Francisco**  
**AUTOMATED EXTERNAL DEFIBRILLATOR (AED)**

**POLICIES AND PROCEDURES**

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# Federal Reserve Bank of San Francisco

SECTION NAME: AED Overview

SECTION NUMBER: 1.0

DATE: December 1, 2003

PAGE: 1 of 1

SUPERSEDES: New

This document applies to **Federal Reserve Bank of San Francisco's** use of the Philips HeartStart OnSite Automatic External Defibrillator (AED).

Any and all use of the AED, training requirements, policies and procedures reviews, and post event reviews will be under the auspices of the "Medical Director" **Physician Dr. Marshal Isaacs** a licensed physician in California (**license #**).

DRAFT

# Federal Reserve Bank of San Francisco

SECTION NAME: Definitions

SECTION NUMBER: 2.0

DATE: December 1, 2003

PAGE: 1 of 1

SUPERSEDES: New

This section defines terms related to AED policies and procedures

## **Definitions**

1. "AED" shall refer to the Philips HeartStart OnSite, an automated external defibrillator capable of cardiac rhythm analysis, which will charge and deliver a shock after electronically detecting and assessing ventricular fibrillation or rapid ventricular tachycardia when applied to an unconscious patient with absent respirations and no signs of circulation. The automated defibrillator requires user interaction in order to deliver a shock.
2. An "authorized individual" shall refer to an individual, who has successfully completed a defibrillator-training program, has successfully passed the appropriate competency-based written and skills examinations, and maintains competency by participating in periodic reviews. The authorized individual also adheres to policies set forth in this manual.
3. AED Service Provider means any agency, business, organization or individual who purchases an AED for use in a medical emergency involving an unconscious person who has no signs of circulation. This definition does not apply to individuals who have been prescribed an AED by a physician for use on a specifically identified individual.
4. "Prescribing Physician" is a physician licensed in California, who issues a written order for the use of the AED by authorized individuals.
5. "Medical Director" meets the requirement of a prescribing physician and may also be the prescribing physician. The Medical Director ensures that all AED regulatory requirements are implemented.

# Federal Reserve Bank of San Francisco

SECTION NAME: Program Coordinator

SECTION NUMBER: 3.0

DATE: December 1, 2003

PAGE: 1 of 1

SUPERSEDES: New

At all times, while these policies and procedures are in effect, **Federal Reserve Bank of San Francisco** will maintain a program coordinator. The person is responsible for the overall coordination, implementation, and continued operation of the program.

1. The program coordinator or alternate contact will be available in person or by phone within a reasonable amount of time to answer any questions or concerns of the authorized individuals.
2. The program coordinator or designee shall ensure that all issues related to training, such as scheduling of basic and periodic reviews, maintenance of training standards and authorized individual status, and record keeping is managed on a continuing basis.
3. The program coordinator or designee will assure that all equipment stock levels are maintained and/or ordered as stipulated in "Equipment Requirement" and readiness checks and record maintenance are done in accordance with Title XXII requirements and manufacturer's recommendations.
4. If the program coordinator or designee needs to have a quality assurance issue addressed, she/he may contact Health Education Services or the Medical Director.
5. The program coordinator will have a list of the appropriate telephone numbers in compliance with above paragraphs, numbers 1 and 4. (Appendix A). If any contact information changes, the program coordinator will be notified within 72 hours.
6. The program coordinator or designee shall notify the local EMS agency of the existence, location and type of AED at client name.
7. The program coordinator at the inception of these policies and procedures is **Lt. Frank Segovia**

# Federal Reserve Bank of San Francisco

SECTION NAME: Equipment Requirement

SECTION NUMBER: 4.0

DATE: December 1, 2003

PAGE: 1 of 1

SUPERSEDES: New

The type and amount of AED equipment will be maintained as outlined below as equipment is used or exceeds the expiration date. The program coordinator or designee will assure replacements are ordered as soon as possible. Equipment is located as shown in Appendix C.

The following stock levels and expiration dates will be checked every month and maintained as follows:

Item Description	Quantity
HeartStart OnSite AED <sup>1</sup>	5
Hard Carrying Case with Quick Reference Card	1 per AED
Defibrillator Pads Cartridge	2 sets/AED
Battery Pack	1 per AED plus 1 replacement

Readiness will be checked at least monthly and after every use. Records will be maintained using Appendix D

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<sup>1</sup> The Bank has five AED's; two are HeartStart OnSite Models.

# Federal Reserve Bank of San Francisco

SECTION NAME: Training Requirements

SECTION NUMBER: 5.0

DATE: December 1, 2003

PAGE: 1 of 2

SUPERSEDES: New

The training requirements for an authorized individual are outlined below.

The course shall consist of not less than **four** hours and will comply with the American Heart Association or American Red Cross standards. The required hours for an AED training program can be reduced by no more than **two** hours for students who can show they have been certified in a basic CPR course in the past year and demonstrate that they are proficient in the current techniques of CPR.

1. The full four-hour course will include the following topics and skills:
  - a. Basic CPR skills
  - b. Proper use, maintenance, and periodic inspection of the AED
  - c. The importance of CPR, defibrillation, advanced life support, adequate airway care, and internal emergency response system
  - d. How to recognize the warning signs of heart attack and stroke
  - e. Overview of the local EMS system, including 9-1-1 access, and interaction with EMS
  - f. Assessment of an unconscious patient to include evaluation of airway, breathing, and circulation, to determine if cardiac arrest has occurred and the appropriateness of applying and activation of AED.
  - g. Information relating to defibrillator safety precautions to enable the individual to administer shocks without jeopardizing the safety of the patient or the authorized individual or other nearby persons to include, but not limited to:
    - 1) Age and weight restrictions for the use of the AED
    - 2) Presence of water or liquid on or around the victim
    - 3) Presence of transdermal medications, implanted pacemakers or automatic implanted cardioverter-defibrillators
  - h. Recognition that an electrical shock has been delivered to the patient and that the defibrillator is no longer charged
  - i. Rapid, accurate assessment of the patient's post-shock status to determine if further activation of the AED is necessary
  - j. Authorized individuals responsibility for continuation of care, such as the repeated shocks if necessary, and/or accompaniment to the hospital, if indicated, or until the arrival of professional medical personnel
2. All successful participants will receive an AED course completion card.

# Federal Reserve Bank of San Francisco

SECTION NAME: Training Requirements  
DATE: December 1, 2003  
SUPERSEDES: New

SECTION NUMBER: 5.0  
PAGE: 2 of 2

3. The required text will meet the *standards* of the American Heart Association or American Red Cross, although it does not have to be the AHA or ARC text.
4. Basic and review sessions will be conducted according to the following schedule:
  - a) CPR/AED renewal will be conducted at least every other year.
  - b) Periodic reviews will be at the discretion of the Medical Director, with a one-year minimum. Program coordinator may schedule reviews more often if deemed necessary.
5. Training records will be maintained by **Federal Reserve Bank of San Francisco** and will include documentation of defibrillation skills proficiency.

# Federal Reserve Bank of San Francisco

SECTION NAME: AED Protocols

SECTION NUMBER: 6.0

DATE: December 1, 2003

PAGE: 1 of 3

SUPERSEDES: New

## **In order to be eligible to use an AED on an appropriate patient, the individual will:**

Meet the training requirements set forth in these policy and procedures.

Pass competency-based written and skills recognition examinations.

Comply with the requirements set forth in these policies and procedures. Failure to comply with these requirements shall result in the suspension of the individual's authorization.

The authorization period for a trained responder will stay in effect as long as he/she adheres to the program guidelines.

Authorization shall be rescinded in the event of termination of the individual's association with **Federal Reserve Bank of San Francisco**

While AB2041 allows AED to be applied to patients by individuals who have not been trained in CPR and AED, the law also requires organizations with AED's to have authorized individuals.

# Federal Reserve Bank of San Francisco

SECTION NAME: AED Protocols

SECTION NUMBER: 6.0

DATE: December 1, 2003

PAGE 2 of 3

SUPERSEDES: New

## Internal Emergency Response System

First person on the scene:

1. Will initiate the Chain of Survival by

Initial protocol for the unconscious victim is as follows:

1. Upon arrival, assess the scene safety; use universal precautions
2. Assess patient for unresponsiveness
3. Assess breathing
4. Assess signs of circulation
5. Perform CPR until AED arrives

Begin AED treatment:

1. Turn on AED and follow the prompts. If the patient is over age 8, the adult cartridge should be used; if the patient is age 8 and under, the pediatric cartridge should be used.
2. Dry shave chest with disposable razor if indicated. Discard razor in a safe manner. Wipe chest if it is wet.
3. Apply defibrillation pads. Make sure the AED pads are placed in the proper location and that they make good skin contact with the chest. Do not place AED pads over the nipple, medication patches or implanted devices.
4. Deliver a shock to the patient when advised by the AED after first clearing the patient area. Administer additional shocks as prompted by the AED until the AED advises no shock or a series of three consecutive shocks has been delivered.
5. When advised by the AED, check the patient's airway, breathing and signs of circulation, and initiate CPR if signs are absent.
6. Continue to follow AED prompts and perform CPR until EMS takes over.

# Federal Reserve Bank of San Francisco

SECTION NAME: AED Protocols  
DATE: December 1, 2003  
SUPERSEDES: New

SECTION NUMBER: 6.0  
PAGE: 3 of 3

## When EMS Arrives:

1. Authorized individual working on the patient should document and communicate important information to the EMS provider such as:
  - a. Patient's name
  - b. Time patient was found
  - c. Initial and current condition of the victim
2. Assist as requested by EMS personnel

## Post-use Procedure:

1. Complete documentation of the sudden cardiac arrest event no more than 24 hours following the event.
2. Give all documentation to the program coordinator.
3. Program Coordinator will contact Health Education Services to download event data from AED. **Do not remove the battery.**
4. Coordinator will assure that documentation is sent to the Medical Director within one week of the event.
5. Program coordinator or designee should conduct emergency incident debriefing as needed. Health Education Services may be included in the debriefing, if necessary

## Equipment Maintenance:

1. Inspect the exterior and connector for dirt or contamination
2. Check supplies, accessories and spares for expiration dates and damage
3. Check operation of the AED by removing and reinstalling the battery and running a battery insertion test

# Federal Reserve Bank of San Francisco

SECTION NAME: Quality Assurance

SECTION NUMBER: 7.0

DATE: December 1, 2003

PAGE: 1 of 2

SUPERSEDES: New

After AED use, the following quality assurance procedures will be utilized.

1. The program coordinator or designee shall be notified within 24 hours. Quality assurance shall be maintained by way of retrospective evaluation of the medical care rendered by the authorized individuals on scene and during transfer of the patient to the appropriate transporting agency personnel.
2. If grief counseling is deemed necessary, referrals may be made to professional grief counseling organizations.
3. In addition to information obtained from the AED, documentation of the incident shall be completed as follows:
  - a. Documentation shall be initiated whether or not defibrillatory shocks are delivered.
  - b. The following information shall be provided if known: (AED Post Incident Report, Appendix B)
    - 1) Date
    - 2) Event location
    - 3) Person's name
    - 4) Person's address**
    - 5) Person's telephone number
    - 6) Person's sex
    - 7) Estimated time elapsed from person's collapse until initiation of CPR, if witnessed or heard
    - 8) Total minutes of CPR prior to application of defibrillator
    - 9) Other treatment rendered in addition to CPR and defibrillation
    - 10) Person's response to treatment rendered, i.e., regained pulse and breathing
    - 11) Name of transporting agency
    - 12) Name of authorized individual completing the report

# Federal Reserve Bank of San Francisco

SECTION NAME: Quality Assurance

SECTION NUMBER: 7.0

DATE: December 1, 2003

PAGE: 2 of 2

SUPERSEDES: New

4. The AED Post Incident Report is to be sent to the medical director.
5. The medical director, program coordinator, and/or designee will review the AED record of the event and the AED Post Incident Report and interview the authorized individuals involved in the emergency to ensure that:
  - a. The authorized individuals quickly and effectively set up the necessary equipment.
  - b. When indicated, the initial defibrillatory shock(s) was delivered within an appropriate amount of time given the particular circumstances.
  - c. Adequate basic life support measures were maintained.
  - d. Following each shock or set of shocks, as appropriate, the person was assessed accurately and treated appropriately.
  - e. The defibrillator was activated safely and correctly.
  - f. The care provided was in compliance with the internal emergency response guidelines set forth in Section 6.0 of this document.
6. The medical director will determine the occurrence and the range of action to be taken in response to identified problems or deficiencies, if any, as well as actions to be commended and notify the coordinator.
7. Following the post incident review, a copy of all written documentation concerning the incident will be sent to the medical director and maintained on site for a period of not less than seven (7) years from the incident date.

## APPENDIX A:

### Federal Reserve Bank of San Francisco

#### CONTACT PHONE LIST

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For information and assistance regarding the AED program, the individuals listed below may be contacted. Every effort should be made to first contact the program coordinator or alternate contact. Only in a case of an emergency event or when the program coordinator or alternate cannot be reached, will contact be made with Health Education Services or the medical director. If any contact information changes, the program coordinator will be notified within 72 hours.

#### *PROGRAM COORDINATOR*

Lt. Frank Segovia  
Phone: (415) 974-3347  
Cell: (415) 559-0391  
Fax (415) 974-2400  
E Mail: frank.segova@sf.frb.org

#### ALTERNATE CONTACT

Sgt. Kevin O' Driscoll  
Phone: (415) 974-2726  
Fax: (415) 974-2400  
E Mail: kevin.o'driscoll@sf.frb.org

#### ALTERNATE CONTACT

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John Troccoe  
Phone: (415) 974-3278  
Fax: (415) 974-2400  
E Mail: john.a.troccoe@sf.frb.org

#### *MEDICAL DIRECTOR*

Dr. Marshal Isaacs  
Phone: (415) 558-540-0442  
Pager: (415) 540-0442  
E Mail: marshal.isaacs@sfgov.org

#### AED CONSULTANT

Julianne Brawner  
Health Education Services  
Phone: (650) 321-6500  
Cell: (650) 823-6940  
E Mail: hes6500@comcast.net

## APPENDIX B:

### AED POST INCIDENT REPORT

Patient's last name	Patient's first name	Patient's address	
Phone number ( )	City	State	Zip
SEX: <input type="checkbox"/> Male <input type="checkbox"/> Female	Incident Date:	AED operator:	
Incident date:		Assistant:	
Location:		Assistant:	
Estimated time from patient's collapse until CPR begun:		Estimated total time of CPR until application of AED	
Was arrest witnessed? Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/>	By whom:	Time:	
Was CPR started? Yes <input type="checkbox"/> No <input type="checkbox"/>	By whom:	Time:	
Did the patient ever regain a pulse?	Time:	Did the patient begin breathing?	Time:
Did Patient ever regain consciousness?	Time:	Hospital patient taken to:	Time:
Other treatment:		Transporting agency:	

Communications: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Comment/concerns: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Report completed by: \_\_\_\_\_ Date: \_\_\_\_\_

Prescribing physician  
 Review/recommendations \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

COORDINATOR REVIEWED:	DATE:	REVIEWED WITH RESPONDERS:	DATE:
PHYSICIAN REVIEWED:	DATE:	COMMENTS:	

## **APPENDIX C: Equipment Location**

- 1) Ground floor near Conference Center.
- 2) Fourth floor near Cafeteria entrance and Conference Center.
- 3) Basement-Assigned to Emergency Medical Technicians - response equipment.
- 4) Basement-Assigned to Emergency Medical Technicians - training unit.
- 5) FRB-SF Executive Protection transportation vehicle.

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## APPENDIX D:

# AUTOMATIC EXTERNAL DEFIBRILLATOR OPERATOR'S CHECK LIST

<b>DATE</b>																			
<p style="text-align: center;"><b>SUPPLIES AVAILABLE</b></p> <p>a. Two sets of defibrillation cartridges, within expiration date, undamaged</p> <p>b. One set of pediatric defibrillation cartridge for Lobby site</p> <p>c. Ancillary supplies: towel, razor, shears, barrier pack</p> <p>d. Spare battery within "install before: date"</p>																			
<p><b>STATUS INDICATOR</b></p> <p>a. Self test okay, verify by noting status indicator</p>																			
<p><b>ONSITE UNIT</b></p> <p>a. Clean, no dirt or contamination</p> <p>b. No damage present</p>																			
INSPECTED BY:																			

REMARKS, PROBLEMS, CORRECTIVE ACTION:

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## APPENDIX E: GOOD SAMARITAN LAWS

### BILL NUMBER: AB 2041    CHAPTERED BILL TEXT

CHAPTER 718  
FILED WITH SECRETARY OF STATE SEPTEMBER 20, 2002  
APPROVED BY GOVERNOR SEPTEMBER 20, 2002  
PASSED THE ASSEMBLY AUGUST 28, 2002  
PASSED THE SENATE AUGUST 27, 2002  
AMENDED IN SENATE AUGUST 22, 2002  
AMENDED IN SENATE AUGUST 14, 2002  
AMENDED IN ASSEMBLY APRIL 16, 2002

INTRODUCED BY Assembly Member Vargas

FEBRUARY 15, 2002

An act to amend Section 1714.21 of the Civil Code, to amend Section 1797.190 of, and to amend, repeal, and add Section 1797.196 of the Health and Safety Code, relating to liability.

#### LEGISLATIVE COUNSEL'S DIGEST

AB 2041, Vargas. Liability: emergency care.

Existing law provides immunity from civil liability to any person who completes a basic cardiopulmonary resuscitation (CPR) or automatic external defibrillator (AED) course that complies with regulations adopted by the Emergency Medical Services (EMS) Authority and the standards of the American Heart Association or the American Red Cross, and who, in good faith, renders emergency care by the use of an AED at the scene of an emergency, without the expectation of receiving compensation for providing the emergency care.

This bill would revise those provisions by deleting the requirement that a person complete a basic CPR or AED course. The bill would further provide immunity from civil liability to a person or entity that acquires an AED for emergency use and renders emergency care, if that person or entity is in compliance with specified requirements.

Existing law authorizes the EMS Authority to establish minimum standards for AED use and training by unlicensed or uncertified individuals. Existing law requires specified persons to meet those standards.

This bill would expand the authorization to establish standards and would delete the requirement that specified persons meet those standards.

This bill would also require that the supplier of an AED notify the local EMS authority of the existence, location, and type of AED acquired, and provide to the acquirer specified information governing the use and maintenance of the AED. The bill would additionally require certain persons or entities that have acquired an AED to ensure employee training in CPR and AED use, as specified, and to follow particular emergency safety procedures. The bill would specify that the above requirements shall remain effective until January 1, 2008.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 1714.21 of the Civil Code is amended to read:

1714.21. (a) For purposes of this section, the following definitions shall apply:

(1) "AED" or "defibrillator" means an automated or automatic external defibrillator.

(2) "CPR" means cardiopulmonary resuscitation.

(b) Any person who, in good faith and not for compensation, renders emergency care or treatment by the use of an AED at the scene of an emergency is not liable for any civil damages resulting from any acts or omissions in rendering the emergency care.

(c) A person or entity who provides CPR and AED training to a person who renders emergency care pursuant to subdivision (b) is not liable for any civil damages resulting from any acts or omissions of the person rendering the emergency care.

(d) A person or entity that acquires an AED for emergency use pursuant to this section is not liable for any civil damages resulting from any acts or omissions in the rendering of the emergency care by use of an AED, if that person or entity has complied with subdivision (b) of Section 1797.196 of the Health and Safety Code.

(e) A physician who is involved with the placement of an AED and any person or entity responsible for the site where an AED is located is not liable for any civil damages resulting from any acts or omissions of a person who renders emergency care pursuant to subdivision (b), if that physician, person, or entity has complied with all of the requirements of Section 1797.196 of the Health and Safety Code that apply to that physician, person, or entity.

(f) The protections specified in this section do not apply in the case of personal injury or wrongful death that results from the gross negligence or willful or wanton misconduct of the person who renders emergency care or treatment by the use of an AED.

(g) Nothing in this section shall relieve a manufacturer, designer, developer, distributor, installer, or supplier of an AED or defibrillator of any liability under any applicable statute or rule

of law.

SEC. 2. Section 1797.190 of the Health and Safety Code is amended to read:

1797.190. The authority may establish minimum standards for the training and use of automatic external defibrillators.

SEC. 3. Section 1797.196 of the Health and Safety Code is amended to read:

1797.196. (a) For purposes of this section, "AED" or "defibrillator" means an automated or automatic external defibrillator.

(b) In order to ensure public safety, any person or entity that acquires an AED is not be liable for any civil damages resulting from any acts or omissions in the rendering of the emergency care under subdivision (b) of Section 1714.21 of the Civil Code, if that person or entity does all of the following:

(1) Complies with all regulations governing the placement of an AED.

(2) Ensures all of the following:

(A) That the AED is maintained and regularly tested according to the operation and maintenance guidelines set forth by the manufacturer, the American Heart Association, and the American Red Cross, and according to any applicable rules and regulations set forth by the governmental authority under the federal Food and Drug Administration and any other applicable state and federal authority.

(B) That the AED is checked for readiness after each use and at least once every 30 days if the AED has not been used in the preceding 30 days. Records of these checks shall be maintained.

(C) That any person who renders emergency care or treatment on a person in cardiac arrest by using an AED activates the emergency medical services system as soon as possible, and reports any use of the AED to the licensed physician and to the local EMS agency.

(D) For every AED unit acquired up to five units, no less than one employee per AED unit shall complete a training course in cardiopulmonary resuscitation and AED use that complies with the regulations adopted by the Emergency Medical Service Authority and the standards of the American Heart Association or the American Red Cross. After the first five AED units are acquired, for each additional five AED units acquired, one employee shall be trained beginning with the first AED unit acquired. Acquirers of AED units shall have trained employees who should be available to respond to an emergency that may involve the use of an AED unit during normal operating hours.

(E) That there is a written plan that describes the procedures to be followed in the event of an emergency that may involve the use of an AED, to ensure compliance with the requirements of this section.

The written plan shall include, but not be limited to, immediate notification of 911 and trained office personnel at the start of AED procedures.

(3) Building owners ensure that tenants annually receive a brochure, approved as to content and style by the American Heart Association or American Red Cross, which describes the proper use of an AED, and also ensure that similar information is posted next to any installed AED.

(4) No less than once a year, building owners will notify their tenants as to the location of AED units in the building.

(c) Any person or entity that supplies an AED shall do all of the following:

(1) Notify an agent of the local EMS agency of the existence, location, and type of AED acquired.

(2) Provide to the acquirer of the AED all information governing the use, installation, operation, training, and maintenance of the AED.

(d) A violation of this provision is not subject to penalties pursuant to Section 1798.206.

(e) The protections specified in this section do not apply in the case of personal injury or wrongful death that results from the gross negligence or willful or wanton misconduct of the person who renders emergency care or treatment by the use of an AED.

(f) Nothing in this section or Section 1714.21 shall be construed to require a building owner or a building manager to acquire and have installed an AED in any building.

(g) This section shall remain in effect only until January 1, 2008, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2008, deletes or extends that date.

SEC. 4. Section 1797.196 is added to the Health and Safety Code, to read:

1797.196. (a) For purposes of this section, "AED" or "defibrillator" means an automated or automatic external defibrillator.

(b) In order to ensure public safety, any person who acquires an AED shall do all of the following:

(1) Comply with all regulations governing the training, use, and placement of an AED.

(2) Notify an agent of the local EMS agency of the existence, location, and type of AED acquired.

(3) Ensure all of the following:

(A) That expected AED users complete a training course in cardiopulmonary resuscitation and AED use that complies with regulations adopted by the Emergency Medical Services (EMS) Authority and the standards of the American Heart Association or the American

Red Cross.

(B) That the defibrillator is maintained and regularly tested according to the operation and maintenance guidelines set forth by the manufacturer, the American Heart Association, and the American Red Cross, and according to any applicable rules and regulations set forth by the governmental authority under the federal Food and Drug Administration and any other applicable state and federal authority.

(C) That the AED is checked for readiness after each use and at least once every 30 days if the AED has not been used in the preceding 30 days. Records of these periodic checks shall be maintained.

(D) That any person who renders emergency care or treatment on a person in cardiac arrest by using an AED activates the emergency medical services system as soon as possible, and reports any use of the AED to the licensed physician and to the local EMS agency.

(E) That there is involvement of a licensed physician in developing a program to ensure compliance with regulations and requirements for training, notification, and maintenance.

(c) A violation of this provision is not subject to penalties pursuant to Section 1798.206.

(d) This section shall become operative on January 1, 2008.

**Appendix G.  
HeartSafe Community  
Teaching Slides**

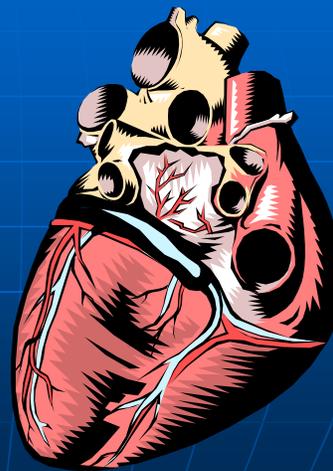
DRAFT



*A Proposal to Make Your City  
the Best Place in the World to  
be if you have a  
Sudden Cardiac Arrest*

## Sudden Death Syndrome

- 460,000 deaths per year in U.S.
- 20-25% arrive at hospital with pulse



# Chain of Survival in Sudden Cardiac Arrest

**Early Access To Care**

**Early CPR**

**Early Defibrillation**

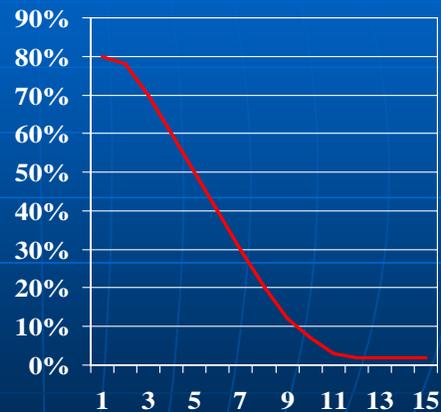
**Early and Expert  
Advanced Life Support**



HeartSafe Community

## Time To Defibrillation

- Survival is inversely proportional to time to defibrillation



HeartSafe Community

## How can we favorably impact survival from SCA?

- **Death from sudden cardiac arrest (SCA) can be significantly reduced if cardiopulmonary resuscitation (CPR) and defibrillation are administered before emergency medical services (EMS) arrive.**

HeartSafe Community

## How can we favorably impact survival from SCA?

- Increase citizen CPR training
- Increase AED locations
- Establish cardiac arrest registry
- Increase public awareness of the need for early EMS access, early CPR and early defibrillation
- Promote and support of the treatment of Sudden Cardiac Arrest

HeartSafe Community



## Increase citizen CPR training

- Bystander CPR proven to impact survival from SCA
  - Citizen-initiated CPR is strongly and independently associated with a better health-related quality of life in adult out-of-hospital cardiac arrest patients who survived to 1 year, according to a substudy of the Ontario Prehospital Advanced Life Support Study (OPALS), the largest prehospital cardiac arrest study ever conducted.
  - In a study done in Oakland County, Michigan by Swor RA, et al, in assessing whether bystander CPR (BCPR) on collapse affects initial rhythm and outcome in 722 patients with witnessed, unmonitored out-of-hospital cardiac arrest (OHCA), they found that patients who receive BCPR are more often found in VT/VF and have an increased rate of live discharge, with controls for age and response and definitive care intervals

HeartSafe Community



## Increase AED Locations

### Public Access Defibrillation PAD trial

- The PAD Trial trained approximately 20,000 volunteer rescuers at 24 sites in the U.S. and Canada. Each site identified between 20 and 70 community units with a potential for out-of-hospital cardiac arrests, such as apartment complexes, shopping centers, senior centers, office buildings, and sports venues. Each study unit was randomly assigned to train volunteers in CPR only (recognition of cardiac arrest symptoms, instruction to call 911 for EMS support, and performance of CPR) or in CPR and the use of an AED. Defibrillators were distributed to the sites offering training in the use of an AED. All volunteers received 2 to 4 hours of initial training and most were retrained one or more times during the study.

HeartSafe Community



## Increase AED Locations

### Public Access Defibrillation PAD trial

- The majority of victims in both groups were men in their late 60s or early 70s. Increased survival of cardiac arrest victims was primarily found in the CPR plus AED "public" sites — rather than in the residential locations.
- The number of survivors of sudden cardiac arrest markedly increased when the victims were helped by community volunteers trained to perform not only CPR but also to use an automated external defibrillator (AED). Over an average 21.5 months, there were 29 cardiac arrest survivors to hospital discharge in the group assigned to CPR plus AED compared to 15 survivors in the group assigned to CPR only.

HeartSafe Community



## Increase AED Locations

- **Studies have shown that on casinos and airplanes that have installed automated external defibrillators (AEDs) and trained people to use them, people who suffer SCA there have a greater than 50 percent chance of being resuscitated and surviving to hospital discharge.**

HeartSafe Community

## “The Casino AED Project”

- Since 1997:
- 170+ Uses
- Survival Rate before: 14%
- Survival Rate after:

**55%**

HeartSafe Community

## Chicago O'Hare Airport



# Chicago O'Hare Airport

- Unique Signage
- Easy Visibility
- Easy Access by Public and Employees
- "One minute to an AED from anywhere in the building"
- First 2 Months of Operation:
  - 8 Uses, 7 Saves
  - 2 Uses by Laypersons



HeartSafe Community



## Establish Cardiac Arrest Registry

- The objective of the Cardiac Arrest Registry would be to establish a comprehensive database from which the survival rate from out-of-hospital cardiac arrest can be calculated.
- This registry would track all out-of-hospital cardiac arrests and would provide outcome data to provide a means of comparing survival rates in your region with other areas of the USA and to serve as a base upon which future therapies may be evaluated.
- A cardiac arrest registry will allow us to know which buildings and locations were more likely to experience cardiac arrest events; and could make informed decisions about deployment of automated external defibrillators (AEDs).

HeartSafe Community

# “Resuscitation Medicine”



HeartSafe Community



## ■ Potential Community Benefits

- Better survival from SCA
- Positive message for community
- Better utilization of EMS resources
- National attention to Columbus
- Participation in cutting-edge research
- “Best place in the country to have SCA”



## HeartSafe Community

### ■ Suggested Action Items

- Buy-in from all city decision makers
- Establish a task force to frame and develop program
- Investigate funding sources for program
- Begin participating in SCA research
- Establish cardiac arrest registry

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## HeartSafe Community

### ■ Questions for Task Force

- Safety
- Medical Direction
- Training
- Liability
- Cost
- What % of population to train in CPR
- Where to recommend AED placement

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# **Appendix H. AED Resources**

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# **AED Resources**

Below are some common websites that contain much more supplemental material and packets that can assist a medical director in implementing a PAD/AED community program.

1. American Heart Association (AED Program Q & A)  
<http://www.americanheart.org/presenter.jhtml?identifier=3011859>
  2. Sudden Cardiac Arrest Association  
<http://www.suddencardiacarrest.org/>
  3. University of Pittsburgh (Out-of-Hospital Defibrillation lecture series)  
<http://www.pitt.edu/~super1/pcfront.htm>
  4. American Red Cross  
<http://www.redcross.org/services/hss/courses/aed.html>
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