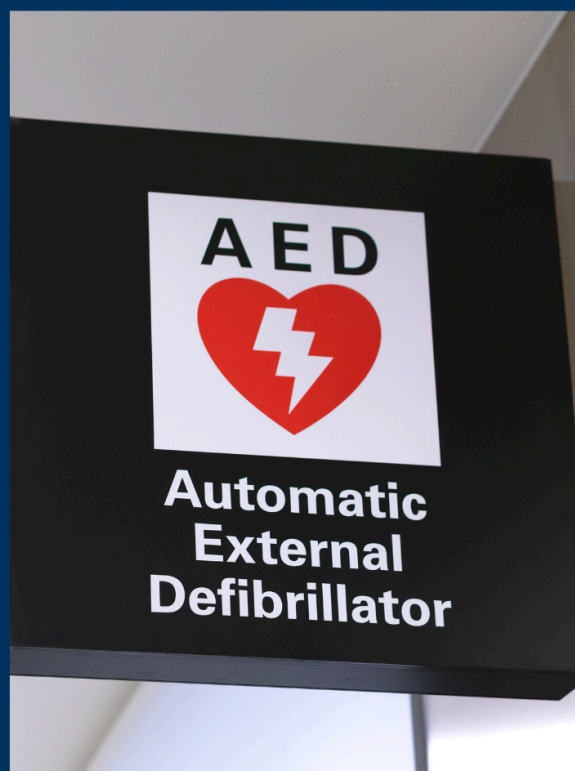




**Berkeley** EH&S  
UNIVERSITY OF CALIFORNIA  
OFFICE OF ENVIRONMENT,  
HEALTH AND SAFETY

# Automated External Defibrillator (AED) Program



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For more information about safety at work, visit: [ehs.berkeley.edu](https://ehs.berkeley.edu)

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# Automated External Defibrillator (AED) Program

## I. Purpose

According to the American Heart Association's 2022 update on cardiovascular health, instances of out-of-hospital Sudden Cardiac Arrest (SCA) continue to rise in the United States coinciding with the COVID-19 pandemic, and disproportionately affect vulnerable populations and communities of color. The University of California, Berkeley (UC Berkeley) strives to increase survivability for those suffering from SCA by spreading awareness and broadening public access to Automated External Defibrillator (AED) devices on campus. These devices are intended to provide a lifesaving bridge during the critical minutes between the onset of SCA and the arrival of Emergency Medical Services (EMS) personnel.

As of January 1, 2017, an AED is required to be installed in newly constructed high-occupancy buildings. Additionally, as of January 1, 2020 an AED is required to be installed in all high occupancy buildings that undergo modifications, renovations, and tenant improvements amounting to \$100,000 or more in a single calendar year. This requirement applies to commercial, educational, institutional, and factory buildings with an occupancy load of 200 or more. This includes assembly buildings, auditoriums, and theaters with an occupancy of greater than 300 people. In assembly buildings, there is no dollar threshold for improvements made. For more information, see HSC §19300, linked in [Appendix D](#).

## II. Scope and Applicability

The UC Berkeley Automated External Defibrillator (AED) Program is administered by the Office of Environment, Health & Safety (EH&S). The AED Program applies to UC Berkeley faculty, staff, and other entities who have obtained, or are planning to obtain an AED device on campus, particularly: building managers, department safety coordinators, facilities services, EH&S, and University Health Services. This document serves to establish consistent guidelines for the application, installation, maintenance, and training for stakeholders under the AED Program, in compliance with applicable laws and regulations.

This Program does not limit who may render aid with an AED during an SCA event. However, the information presented in this document does not substitute for hands-on First-Aid or CPR/AED training. For more information about training, see "[Training & Notification](#)".

## III. Definitions

### **Automated External Defibrillator (AED or defibrillator):**

A portable automated computerized medical device that is used to help those experiencing sudden cardiac arrest. An AED is programmed to analyze an individual's heart rhythm, recognize rhythms that require defibrillation, and provide voice and visual instructions for the device operator, including, if indicated, to push the button to deliver an electric shock.

### **Cardiopulmonary Resuscitation (CPR):**

An emergency lifesaving procedure to support and maintain breathing and circulation for a person who has stopped breathing (respiratory arrest) and/or whose heart has stopped (cardiac arrest).

### **Emergency Medical Services (EMS):**

Professional community responder agency for emergency events, who provide acute medical care and patient transportation to a medical facility for more advanced treatment.

### **Sudden Cardiac Arrest (SCA):**

A condition in which the heart suddenly and abruptly stops beating or fails to produce a pulse, stopping blood flow to the brain and other vital organs. SCA usually causes death if not treated within minutes.

## IV. Responsibilities

### **Requesting Department**

Departments seeking to place an AED device in their building shall:

- Adopt all financial responsibility for acquiring a new or replacement AED and its components. These costs may be shared with other departments in the building and include: the AED unit, the AED cabinet, installation by Facilities Services, and other costs associated with upgrades for each AED unit that may be required.
- Notify EH&S AED Program Coordinator ([aed@berkeley.edu](mailto:aed@berkeley.edu)) of intent to obtain or upgrade an AED or cabinet.
- Purchase AED unit and components from the approved vendor/manufacturer. Once AED components are purchased, contact Facilities Services for installation. Contact EH&S for guidance.
- Provide a designated building contact person for access during quarterly AED inspections.
- Update AED Program Coordinator of changes or issues with the AED unit, cabinet, and other supplies, observed between inspection periods.

## Responsibilities Cont'd

### EH&S / AED Program Coordinator

The AED Program Coordinator shall:

- Provide guidance, monitoring, and periodic re-evaluation for this Program.
- Maintain an inventory of university-owned AEDs and their locations.
- Coordinate with AED Consultant to conduct and document quarterly inspections to verify that the Program is in compliance with regulations and standards.
- Coordinate with AED Consultant to purchase and replace batteries, pads, broken glass, and other supplies as needed.
- Assist in obtaining patient information in the event of [AED use](#), and provide [AED Post Use Form](#) to the Prescribing Physician.
- Review records as required and as necessary with AED Consultant and Prescribing Physician.

### Prescribing Physician

The Prescribing Physician is a campus medical professional that is tasked with overseeing the implementation of the AED program and shall:

- Provide medical direction and expertise on proper AED use.
- Review, approve, and update guidelines for emergency procedures related to AED use.
- In the event of an AED emergency use, review all incident information.
- Assess, along with the AED Program Coordinator and AED Consultant, in making recommendations for improving future responses to incidents as needed.

### AED Consultant

The AED Consultant works closely with AED Program Coordinator and campus entities to:

- Assure compliance with state and local regulations regarding AED use.
- Conduct quarterly inspections of AEDs and replace any supplies as needed.
- Maintain an inventory of university-owned AEDs and their locations.
- Maintain AED equipment according to manufacturer specifications.
- In the event of an AED emergency use, download data from AED and inform both the Program Coordinator and Prescribing Physician of incident and relevant information.

## V. AED Location

### Visibility & Risk

AEDs are usually located in lobbies so that they are highly visible and are seen by the greatest number of people. Alternately, they may be situated near the employee entrance, and areas of high risk including but not limited to:

- High voltage electrical areas
- Toxic chemical storage
- Laboratories/Shops with dangerous machinery or processes
- Exercise/Recreational Facilities
- Conference Rooms/Auditoriums
- Large congregation areas for employees, students, or guests

Consult with your Building Manager/Department Safety Specialist or EH&S to assess the risks associated with your specific location.

### Timing (Rapid Access to AED)

AEDs should be placed no further than 90 seconds (briskly walking) from the farthest place it is expected to be used. The worst-case scenario is that a person at the farthest point has to run and get the AED and come back. That time would then be a 3 minutes round trip. Ideally, the AED is ready to provide a shock within 5 minutes to prevent permanent brain damage. In large buildings, it is best to identify multiple places for AED locations. It is better to have the AED by the stairwell as it is not wise to take an elevator in an emergency use scenario. If the stairwell is by the elevator, it is good to have the AED across from the elevator door so that staff will see it and know where to obtain it if needed.

### Accessibility of AED Cabinets

#### Protrusion

Per ADA requirement ([Appendix D](#)), any wall-mounted cabinet that protrudes more than 4 inches shall have the bottom corner no higher than 27 inches from the floor in a walkway. Please note that most existing AED cabinets installed on campus have a standard depth of 6 inches and may need to be reinstalled or relocated to comply with ADA requirements. Contact Disability Access & Compliance at [access@berkeley.edu](mailto:access@berkeley.edu) for more information on reinstalling or relocating an AED cabinet to meet ADA compliance requirements.



## VI. AED Maintenance

### Quarterly Inspections

The AED Program Coordinator and the AED Consultant are responsible for maintaining the AED device, cabinets, and components throughout the lifespan of the AED. With the assistance of the Program Coordinator, the AED consultant shall conduct a full equipment inspection for each AED according to the manufacturer's guidelines and maintain inspection records for review. Full inspections are conducted quarterly (every 90 days).

### Cabinets

AED cabinets shall be securely mounted and easily accessible. Cabinets shall be equipped with an audible alarm that sounds when the cabinet is opened. Alarm batteries are to be replaced annually. A "How to Use" Quick Reference Guide shall be provided in the vicinity of the cabinet in no less than 14-point font-type.

### First-Aid Response Kits

#### Response Kit

First-aid response kits shall be included in the AED cabinet. Verify the kit is supplied with:

- Scissors
- Barrier mask
- Gloves
- Towelette
- Razor

First aid kit items should be stored out of their plastic wrappers for quick access in case of emergency.

#### Trauma Kits

First-Aid response kits provided in AED cabinets do not meet the requirements of "Trauma Kits" as defined by the Tactical Response to Traumatic Injuries Act (AB 2260).

The upcoming AB 2260, requires certain high occupancy buildings constructed on or after January 1, 2023, to comply with certain requirements, including acquiring and placing at least 6 trauma kits on the premises, periodically inspecting and replacing the contents of the trauma kits, providing contact information for training, and notifying tenants of the building or structure of the location of the trauma kits. For more information, see FAQs and Appendix D.



## AED Maintenance Cont'd

### AED Device & Case

Properly functioning AED devices will conduct a periodic self-check for the integrity of the installed pads, batteries, and electronic systems and will display their status with an indicator light flashing green. Quarterly inspections will assess the condition of the AED device, case, installed pads, spare pads, and batteries. Any materials past their expiration date will be replaced at the time of inspection.

### Inspection Recordkeeping

Results of quarterly inspections will be maintained online by the AED Consultant and shall be used to review and further develop the AED Program.

### Monthly / Periodic Inspections

It is recommended that building managers, department safety coordinators, or a designated building staff person conduct periodic inspections of the AED device in their building on a monthly basis. This can be accomplished by checking the flashing status indicator light located at the top of the AED device and tracking the expiration dates indicated on the AED Check Tag in [Appendix A](#).

## VII. AED Use Event

Whenever an AED is applied to a patient (whether or not defibrillator shocks are delivered), the AED Program Coordinator shall provide both electronic data and written documentation to the Prescribing Physician for review.

In the event that installed pads of the AED are used to discharge an electric shock to an individual suffering SCA, used pads and cartridges shall be removed and replaced with an appropriate model prior to reuse of the AED device. A spare pad cartridge is provided inside the AED case and should be checked for expiration prior to installation into the AED device.

### Post Use Form

Information regarding the use of the AED shall be gathered by an on-site responder and EH&S on the “[Post Use Form](#)” provided in the AED cabinet. The information shall be presented to the prescribing physician for review. A copy of this form is provided in [Appendix A](#).

## Replacement AED

After an AED is used, event data is downloaded from the device and reviewed by the prescribing physician and AED consultant. Contact the EH&S AED Program Coordinator to receive a replacement model.

## VIII. Training & Notification

Building managers or Department Safety Coordinators shall, at least once a year, offer a demonstration to at least one person associated with the building so that the person can be shown how to use an AED properly in an emergency. All tenants must also be notified annually as to the location of the AED unit(s) in their buildings and provided with contact information if they want to voluntarily take CPR/AED training.

Pursuant to [CIV §1714.21](#) Section 1(b) "Any person who, in good faith and not for compensation, renders emergency care or treatment by 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 emergency care." For more information, see links provided in Appendix D.

## Appendix A: Program Forms & Templates

### AED Check Tag

It is important to be able to periodically verify that an AED has been properly inspected and maintained. The AED Check Tag is provided as a record of the inspections with the AED unit. To fill out the AED Check Tag, do the following:

⊕

AED✓CHECK

AED SERIAL NO. \_\_\_\_\_

MODEL NO. \_\_\_\_\_

AED Coordinator \_\_\_\_\_

Phone No. \_\_\_\_\_

**RECORD THESE DATES**

Installed Pads Exp Date . . . . . \_\_\_\_\_

Spare Pads Exp Date . . . . . \_\_\_\_\_

Installed Battery Exp Date. . . . . \_\_\_\_\_

Spare Battery Exp Date  
(if applicable) . . . . . \_\_\_\_\_

**INSPECT YOUR AED**

- Pads and Battery Exp Dates
- Backup Battery Exp Date (if applicable)
- AED Status Indicator
- AED Response Kit Contents
- General Condition

DATE	BY

[ Write the AED's serial number and model number (found on the back of the unit) ]

[ Write the name and phone number of the person responsible for the AED program ]

[ Fill out this section. This inspection tutorial shows where this information is found ]

[ Inspect these components of your AED ]

[ Write the date of the inspection and initial the entry ]

## UC Berkeley AED Post Use Form

**Instructions:** This form is to be completed as much as possible on-site by the layperson or professional responders after addressing an SCA event. A copy of this form is to be placed inside campus AED cabinets. Return completed form to EH&S AED Program Coordinator.

**\*On-site responder to complete this form within 24 hours to EH&S AED Program Coordinator at (510) 365-4476\***

Patient Name ( First name, Last Name):				Date of Birth:	
Gender*:	<input type="checkbox"/> Male	<input type="checkbox"/> Female	Patient Address:		Patient Phone:
	<input type="checkbox"/> Non-Binary	<input type="checkbox"/> Unknown			
*If the patient is unresponsive, select unknown			City:	State:	Zip:
Incident Date:		Location (Doe Lobby, Evans Floor 2, etc.):			
AED Operator ( First Name, Last Name):				Contact Phone:	
Assistant Operator ( First Name, Last Name):				Contact Phone:	
Assistant ( First Name, Last Name):				Contact Phone:	
Was cardiac arrest witnessed?			By Whom:		Time:
Yes      No      Unknown					
Was CPR started?			By Whom:		Time:
Yes      No      Unknown					
Was the AED used?		Were shocks given?		Estimated time from collapse until start of CPR:	
Yes      No		Yes      No			
Did the patient regain movement, make sounds, etc?			Time:		Estimated total time of CPR until AED applied:
Yes      No					
Did the patient ever regain consciousness?			Time:		
Yes      No					
Did the patient begin normal breathing?			Time:		
Yes      No					
Hospital Patient taken to:			Transported by:		Time:
Comments / Other treatments:					
Physician Comments:					
COORDINATOR REVIEWED:			Date:		Report Completed By:
RESPONDER REVIEWED:			Date:		
PHYSICIAN REVIEWED:			Date:		Date:

## Appendix B: Troubleshooting / Technical Notes

### AED Models

In order to make AED maintenance as efficient as possible, it is preferable to install the same model of AED across campus. AED units have components with expiration dates, and batteries that need to be replaced from time to time. Having the same model of AEDs installed avoids cumbersome parts procurement that would result from having different models across campus.

The most commonly installed model on campus is the Philips HeartStart OnSite AED, however obtaining devices and replacement components have been affected by the ongoing Field Safety Notice. More information can be found by contacting EH&S, or on the [Philips website](#).

### Field Safety Notice

Philips Medical Systems “Philips”, manufacturer of the HS1/ OnSite AED issued a Field Safety Notice on 2/14/2022 regarding the Philips M5071A (adult) and M5072A (infant/child) AED pads. Gel separation may occur between the foil and adhesive backing on some pads from above-mentioned models. This gel separation may decrease the effective bare skin contact area when applying the pads for use. At this time, Philips does not recommend early replacement of installed Philips M5071A (adult) and M5072A (infant/child) AED pads. For more information, contact EH&S AED Program Coordinator.

### FAQ's

Refer to the model specific user manual for specific troubleshooting guidelines.

#### Why is my AED beeping?

A self-test error has occurred, there is a problem with the pads or the battery power is low. Press the i-button (information) for instructions.

#### Can I clean my AED?

The outside of the AED and its carry case can be cleaned with a soft cloth dampened in soapy water, chlorine bleach (2 tablespoons per quart or liter of water), or ammonia-based cleaners.

#### REMINDERS:

- Do not use isopropyl (rubbing) alcohol, strong solvents such as acetone or acetone-based cleaners, abrasive materials, or enzymatic cleaners to clean your AED.
- Do not immerse the AED in fluids or allow fluids to spill onto it.
- Do not sterilize the AED or its accessories.

## FAQ's Cont'd

### **What happens if my AED components, batteries or First Aid kit supplies expire?**

Contact EH&S AED Coordinator for resupply information.

### **Why does an alarm sound whenever the cabinet is opened?**

Campus AED cabinets are armed with an audible alarm that sounds whenever the cabinet door is accessed. This is designed to alert nearby persons and bring attention to the SCA. If your alarm has been removed or disabled, please contact EH&S for options to repair or replace the alarm components.

Departments may also have the option of upgrading the alarm to instead send a silent alarm to UCPD when the cabinet is opened. This option will dispatch a UCPD response to the site when the cabinet is accessed, but will not emit an audible alarm. Departments are responsible for the cost of upgrading the alarm, but EH&S can help coordinate the purchase.

### **What's the difference between a "Trauma Kit" and a first aid Response Kit?**

The response kit included in the AED cabinet is meant to aid in the quick response to SCA. A trauma kit, however, is designed to provide materials and information to treat a traumatic bleeding event. Trauma kits must contain an approved tourniquet, one bleeding control bandage, one pair of non-latex protective gloves, a marker, one pair of scissors, and instructional documents from an approved partner of the United States Department of Defense.

### **Where can I get First-Aid and CPR/AED training?**

Certification and training are not required to use an AED. However, Department Safety Coordinators are encouraged to offer building occupants an annual campus community-oriented training by contacting the [Berkeley Medical Reserve Corps](#). To coordinate large or department-wide group training, please contact the EH&S AED Coordinator.

## Appendix C: Medical Authorization Form

### AED Medical Authorization Form

**ORGANIZATION:** UC Berkeley, EH&S

**ADDRESS:** 2111 Bancroft Way, 4th Floor, MC 1150

**CITY, STATE, & ZIP:** Berkeley, CA 94720

**CONTACT PERSON:** Patrick Kaulback, Assistant Health & Safety Manager; REHS

**CONTACT PHONE:** office (510) 812-0035 | cell (510) 812-0035

**EMAIL ADDRESS:** [pkaulback@berkeley.edu](mailto:pkaulback@berkeley.edu)

I hereby prescribe AED(s) to be used at the organization listed above.

**MEDICAL DIRECTOR:** Erika Schwilk, MD, MPH      **MEDICAL LICENSE:** A93001

**ADDRESS:** 2222 Bancroft Way, Berkeley, CA 94720

**PHONE:** 510-643-6996

**EMAIL ADDRESS:** [eschwilk@berkeley.edu](mailto:eschwilk@berkeley.edu)



## Appendix D: Standards and Regulations

California Code, Health and Safety Code - HSC § 1797.196

California Code, Health and Safety Code - HSC § 19300

California Code, Civil Code - CIV § 1714.21

United States. (2010). 2010 ADA Standards for Accessible Design. Washington, D.C.:  
Dept. of Justice

### Proposed Legislation

Tactical Response to Traumatic Injuries Act, Assem. Bill 2260, 2021-2022 Reg. Sess.  
(Cal. 2022)