

# Automated External Defibrillator Guide

## Table of Contents

| The Automated External Defibrillator (AED)                          | . 3 |
|---|-----|
| Attachment A: Medical Emergency Response Plan (MERP)                | . 5 |
| Attachment B: Monthly Maintenance Checklist for Cardiac Science AED | . 9 |
| Attachment C: Annual Equipment Maintenance Form1                    | 11  |
| Attachment D: AED Event Summary Form1                               | 13  |

#### Purpose

Texas A&M Forest Service has developed this guide for its automated external defibrillators (AEDs) located at various offices to assist with public access and use of potentially lifesaving early defibrillation to persons in the first critical moments of sudden cardiac arrest.

#### Assigned Responsibility

The Environmental Health and Safety Officer (EHSO) serves as the AED Program Manager. The Manager advises local offices on the purchase or replacement of new and/or older devices, monitoring local offices for program compliance, and with relaying incident information to appropriate oversight offices. The local office is responsible for conducting the daily, monthly, and annual maintenance checks and maintaining those records in accordance with retention policy.

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## The Automated External Defibrillator (AED)

*What is it?* AEDs such as the Cardiac Science Powerheart AED are self-testing, battery operated devices that use voice prompts as well as visual alerts and displays to guide the rescuer through a resuscitation sequence that may include defibrillation and/or cardiopulmonary resuscitation (CPR). Each AED automatically analyzes the patient's electrocardiogram (ECG) through defibrillation pads applied to the patient's bare chest. If the AED detects a shockable rhythm, the AED automatically charges and advises the operator to "Press the button to deliver a shock" or to "Stand clear" while the shock is automatically delivered. After the shock has been delivered, the AED prompts the rescuer to perform CPR for two minutes before automatically initiating a follow-up ECG analysis.

#### **AED Placement Basics**

Local offices should place AED in an easily accessible area. Use hi-vis signs visible to the public that an AED is on-site and available for use. These should be located above or around the AED station and must be visible from any direction.

To maintain the device's ability to function properly, the AEDs should be mounted in an area with a temperature between 32°F and 122°F. Exposure to temperature extremes or condensing humidity will cause the unit's *RescueReady* daily self-test to alert "SERVICE REQUIRED" until the unit has been moved to an environment with acceptable operating parameters.

RESPONDERS: See the Medical Emergency Response Plan (MERP) on page 5

ATTENTION: Once notified of an emergency, a responder shall follow the procedures outlined in **Attachment A – Medical Emergency Response Plan (MERP)**. A copy of the attachment should always accompany the AED.

#### **AED Maintenance**

All equipment and accessories necessary for support for emergency medical responses shall be maintained in a state of readiness.

#### Scheduled AED Maintenance

**Daily Maintenance:** Office staff should check the status indicator light on the AED device to ensure that it is green. If the Status Indicator light is red, refer to the troubleshooting table in the appropriate AED Operation and Service Manual that came with the device.

**Monthly Maintenance:** Office staff are requested to perform and document a monthly maintenance check to ensure proper functioning of the AED device in their building. The Monthly Maintenance Checklist and instructions are provided in **Attachment B – Monthly**.

**Equipment Maintenance Forms**. Copies of completed forms should be kept on file and will be reviewed by the EHSO during site visits. Completed monthly maintenance checklists will be retained in accordance with agency records retention requirements.

**Annual Maintenance:** Office staff shall perform a comprehensive annual inspection to ensure that diagnostics are properly functioning and to verify the integrity of the AED equipment. The Annual Maintenance Checklist and instructions are provided in **Attachment C – Annual.** 

**Equipment Maintenance Forms**. Completed annual maintenance checklists shall be retained in accordance with agency records retention policies.

Other Maintenance – Electrode Pads and Batteries

**Electrode Pads** – The office with possession of an AED will purchase replacement electrode pads prior to their expiration date.

**Batteries** – The office with possession of an AED will purchase replacement AED batteries, as necessary.

Contact the Environmental Health and Safety Officer for information on orders.

### Attachment A: Medical Emergency Response Plan (MERP)

Internal MERP – Automatic External Defibrillator (AED) Procedures

Type of Medical Emergency

Sudden Cardiac Arrest – Follow "Indications for AED Use" guidelines.

**Other Medical Emergencies** – Responders should provide only patient care that is consistent with his or her training.

#### Indications for AED Use

The AED is intended to be used by personnel who have been trained in its operation; however, an AED is designed for easy use by untrained lay people as well. **The AED device is designated for emergency treatment of victims exhibiting the symptoms of sudden cardiac arrest who are unresponsive and not breathing.** Post-resuscitation, if the victim is breathing, the AED should be left attached to allow for acquisition and detection of EKG rhythm. If a shockable ventricular tachyarrhythmia recurs, the device will charge automatically and advise the operator to deliver therapy.

#### Pediatric Patients

The program's AEDs do not include pediatric pads. The rescuer should only use adult AED pads when the child remains in cardiac arrest after at least one minute of CPR, when adequate airway measures have been employed, and when pediatric pads are not available. Pediatric defibrillation using one of the program's AEDs can be performed using the supplied adult electrodes as a last resort. Modification to AED electrode placement: Research has found that the best pediatric pad placement is achieved utilizing an anterior/posterior placement (one pad on the chest and the other on the back) for infants

and children with tiny torsos. This method of placement prevents pad overlaps which could lead to arching. However, it is still acceptable to use conventional pad placement (anterior/anterior) when needed.

#### ALERT TO RESCUERS:

Children (1-8 yo) who are unresponsive and not breathing:
Perform CPR for 2 minutes.
Check airway.
Activate EMS.
NOTE: This AED is not equipped with pediatric electrodes, and it will not deliver an attenuated shock to a child. The adult pads included with this AED should *only* be used <u>as last resort</u> on a child.

back of the child.

#### **AED Procedures**

- 1. Assess the scene for safety before approaching the victim.
- 2. Assess the victim for responsiveness
- 3. Yell for help. Tell someone to "Call 911" and "Get an AED"
- 4. Check for breathing or only gasping.
- 5. If the victim is not breathing, deliver 30 sets of chest compressions followed by 2 breaths.
- 6. Continue CPR until the AED arrives.
- 7. Stop CPR and open the lid to turn on the AED
- 8. Follow the AED's voice prompts and text displays until the EMS arrives.

#### >>> Below are the voice prompts<<<

9. After the EMS arrives, fill out an Event Summary Form and follow instructions for submittal.

#### AED Voice Prompts

- A. Peel and place pads.
- B. Analyze Rhythm: AED will prompt "Do not touch patient. Analyzing rhythm." Make sure that no one is touching the patient.
- C. Charges: If a shock is advised, AED will prompt: "Shock advised, charging..."
- D. Stand clear of the patient and follow AED instructions on how to deliver defibrillation pulse.

\*\*Remember that the AED will not advise to defibrillate all patients without a pulse. Some cardiac rhythms do not respond to defibrillation.

- E. Analyze/Charge/Pulse: After the first shock, the AED will go through CPR prompts.
- F. Rescuers give CPR for 2 minutes or delivers 5 cycles of 30 compressions and 2 breaths.
- G. Repeat/Analyze/Charge/Defibrillation Pulse: After 2 minutes of CPR, the AED will prompt "Do not touch patient. Analyzing rhythm."

If the cardiac rhythm is shockable, the AED will guide through another defibrillation pulse sequence, followed by 2 minutes of CPR. This sequence should continue until:

- No shockable rhythm is detected, or
- The pads are disconnected, or
- Emergency services personnel arrive on the scene.
- H. If at some point during the rescue the patient converts to a heart rhythm that does not require defibrillation, AED will prompt "Start CPR. Give 30 compressions then

give two breaths. Rescuer will continue to perform CPR for 2 minutes, until EMS arrives, or until prompted by the AED to stop CPR."

If a patient regains consciousness, leave AED pads in place, and make the patient as comfortable as possible until emergency services personnel arrive on scene.

#### Post Incident Procedure

After the use of an AED, follow manufacturer's guidelines on post-use maintenance and data management. An AED Operation and Service Manual for the Cardiac Science Powerheart AEDs at offices can be obtained from the EHSO.

At a minimum, the following steps should be taken to prepare the AED for the next rescue:

- Notify the EHSO (refer to section on AED use reporting).
- Retrieve rescue data (if applicable). The EHSO will retrieve the rescue data from the AED memory.
- Cleaning the AED:
  - Use a cloth dampened with an approved cleaning solution to wipe the case. Dry the case with a clean cloth. Do not spray or pour the cleaning solution on the case or submerge the AED.
  - $\circ$   $\:$  Use one of these solutions to clean the case of the AED:
    - Soapy water
    - Ethanol
    - 91% isopropyl
    - 3% bleach solution
  - When disinfecting the case, use a non-oxidizing disinfectant such as ammonium salts or a glutaraldehyde-based cleaning solution to avoid damage to the metal connectors.
- Check the expiration date on replacement pads and connect new pair of pads.
- Replace pocket mask and any other disposable supplies used.
- Close the lid of the AED and verify that the Status Indicator light on the handle is green.

#### AED Use Reporting

After the use of an AED, the primary responder must complete an AED Event Summary Form. The AED Event Summary form will document patient information including patient name, age, gender, and contact information and incident information including location and approximate time of incident and patient care provided. The AED Event Summary Form is provided in **Attachment D: Event Summary Form**. The event summary form shall be submitted to the EHSO within 48 hours after the incident has occurred. AED Event Summary records shall be retained according to agency records retention policies. This page left blank

## Attachment B: Monthly Maintenance Checklist for Cardiac Science Automated External Defibrillators

|  | Unit Serial # | Office | POC |
|--|---------------|--------|-----|
|--|---------------|--------|-----|

|                           | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---------------------------|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-----|
| Step 1                    |     |     |     |     |     |      |      |     |      |     |     |     |
| Open Lid                  |     |     |     |     |     |      |      |     |      |     |     |     |
| <u>Step 2</u>             |     |     |     |     |     |      |      |     |      |     |     |     |
| Status indicator should   |     |     |     |     |     |      |      |     |      |     |     |     |
| turn red                  |     |     |     |     |     |      |      |     |      |     |     |     |
| <u>Step 3</u>             |     |     |     |     |     |      |      |     |      |     |     |     |
| Status indicator should   |     |     |     |     |     |      |      |     |      |     |     |     |
| turn back to green within |     |     |     |     |     |      |      |     |      |     |     |     |
| 5 seconds                 |     |     |     |     |     |      |      |     |      |     |     |     |
| <u>Step 4</u>             |     |     |     |     |     |      |      |     |      |     |     |     |
| Check expiration dates    |     |     |     |     |     |      |      |     |      |     |     |     |
| on pads                   |     |     |     |     |     |      |      |     |      |     |     |     |
| <u>Step 5</u>             |     |     |     |     |     |      |      |     |      |     |     |     |
| Listen for voice prompts  |     |     |     |     |     |      |      |     |      |     |     |     |
| <u>Step 6</u>             |     |     |     |     |     |      |      |     |      |     |     |     |
| Close lid and confirm     |     |     |     |     |     |      |      |     |      |     |     |     |
| green status indicator    |     |     |     |     |     |      |      |     |      |     |     |     |
| Date                      |     |     |     |     |     |      |      |     |      |     |     |     |
| Initials                  |     |     |     |     |     |      |      |     |      |     |     |     |

#### Initial boxes as items are checked off. Keep completed the form on file.

Daily Maintenance: verify that the Status Indicator is green.

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## Attachment C: Annual Equipment Maintenance Form

## Annual Maintenance Checklist for Cardiac Science Powerheart G3, G3 Auto, and G3 Plus Automated External Defibrillators

Follow instructions as listed below. Sign on p2 when all checks are complete; keep on file.

AED Serial Number: \_\_\_\_\_ Office: \_\_\_\_\_

#### Check the Integrity of the AED's Pads and Circuitry

- 1. Open the lid. Remove the pads.
- 2. Close the lid. Confirm that the STATUS INDICATOR turns RED.
- 3. *Open the lid*. Confirm that the PAD INDICATOR is lit. Reconnect the pads.
- 4. *Close the lid*. Make sure the expiration date is visible through the clear window of the lid. Check to make sure that the STATUS INDICATOR is GREEN.
- 5. *Open the lid*. Confirm that no diagnostic indicators are lit. Check the integrity of the pads and record their expiration date.
- 6. If a pad(s) is expired, replace it. Record the pad expiration date: \_\_\_\_\_
- 7. Close the lid.

#### Check the Integrity of the Service Indicator (LED) and Circuitry

- 1. *Open the lid*. Immediately after opening, press and hold the Shock/Data/Automatic button and confirm that the Service LED is lit. Release the Shock/Continue button.
- 2. Close the lid. Verify that the STATUS INDICATOR remains RED.
- 3. Open the lid. Confirm that no diagnostic indicators are lit.
- 4. Close the lid. Verify that the STATUS INDICATOR turns GREEN.

#### Check the Integrity of the Case and AED Postings

- 1. Examine the molded case of the AED for any visible signs of stress.
- 2. Check the integrity of the spare pads and record their expiration date.
- 3. If a pad(s) is expired, replace it. Spare pad expiration date: \_\_\_\_\_
- 4. Ensure that the posted contact card is current.
- 5. Ensure "ALERT TO RESCUERS" sign is posted inside the AED box, behind the AED.
- 6. Ensure an updated MERP is available inside the AED case.

#### Update and Save AED Data on computer (optional)

- 1. Open Rescue Link Software on laptop or tablet PC.
- 2. Open the AED lid and connect to a laptop/tablet PC with a communications cable.
- 3. In Rescue Link software, Open the "Establish Communications Speed" under the "Communications" menu.
- 4. Set "AED Date and Time" under the "Communications" menu.

- 5. Save "AED Self-test History" in the "Tools" menu to the computer. Title the AED information saved with the AED Serial Number and date.
- 6. Disconnect AED from Communications Port and close lid.
- 7. Hang or place the AED inside the AED housing.
- 8. Ensure that the AED Housing Alarm is reactivated.

| <u>Notes</u>          |       |      |  |
|-----------------------|-------|------|--|
|                       |       |      |  |
|                       |       |      |  |
|                       |       |      |  |
|                       |       |      |  |
| Annual Check Performe | d by: |      |  |
| Name                  |       |      |  |
| Signature             |       | Date |  |

## Attachment D: AED Event Summary Form

| Date   | AED #              |  |  |  |  |
|--|--------------------|--|--|--|--|
| Patient Information                                    |                    |  |  |  |  |
| Name   |                    |  |  |  |  |
| Address  |                    |  |  |  |  |
| Age  | Gender Male Female |  |  |  |  |
| Incident Information                                   |                    |  |  |  |  |
| Building   | Room/Floor/Area    |  |  |  |  |
| Approximate Time                                       |                    |  |  |  |  |
| Actions/observations                                   |                    |  |  |  |  |
| Witnessed cardiac arrest Yes                           | No                 |  |  |  |  |
| Breathing upon arrival of designated responders Yes No |                    |  |  |  |  |
| Pulse upon arrival of designated responde              | ers Yes No         |  |  |  |  |
| Bystander CPR Yes No                                   |                    |  |  |  |  |
| Cardiac arrest after arrival Yes                       | _No                |  |  |  |  |
| Number of defibrillation shocks Yes                    | sNo                |  |  |  |  |
| Comments   |                    |  |  |  |  |
|  |                    |  |  |  |  |
| Rescuer's Name   |                    |  |  |  |  |
| Rescuer's Signature                                    |                    |  |  |  |  |
|  |                    |  |  |  |  |

Email this form to the EHSO at <u>safety@tfs.tamu.edu</u>, or contact the office at (979)458-6697 for alternate transmittal information.