Automated External Defibrillator (AED) Guidelines

Purpose

An automated external defibrillator (AED) is used to treat an individual who experiences symptoms of sudden cardiac arrest, has no pulse, is unresponsive and not breathing or not breathing normally. The AED for the Teacher Resource Center is a Powerheart AED G3 Plus manufactured by Cardiac Science Corporation. This AED is self-testing, battery-operated, and rescue-ready in a cardiac emergency. The Powerheart AED G3 Plus automatically analyzes the electrocardiogram, after the electrodes (pads) are applied to the victim’s chest and delivers a shock if needed. The Rescue Coach feature provides audible prompts and instructions to assist the rescuer with cardiopulmonary resuscitation (CPR) and operation of the AED.

Adult and Pediatric Electrodes (Pads)
Two sets of electrodes (pads) are kept with the AED – adult and pediatric. The pediatric pads should be used when the victim is an infant or child up to 8 years of age or up to 55 lbs. The rescue should not be delayed to determine the victim’s exact age or weight.

Resuscitation Kit with the AED
The resuscitation kit contains latex-free gloves; razor, scissors, towel, 4” gauze, antiseptic wipes, one-way filter facemask barrier device, and carabiner attachment.

AED Location – Receptionist’s Area
The AED will be placed in a wall cabinet and located in an area allowing the device to be easily accessed. The wall cabinet’s alarm will be set to when the door is open.

Authorized AED Users and Training
The AED is intended to be used by individuals who have been trained in its operation. Authorized AED users are individuals qualified by completing a nationally recognized training program in CPR and use of AED; e.g., American Heart Association and American Red Cross.

Responsibilities

Medical Advisor
1. Write the prescription for the AED that will be kept on file in the Central Office.
2. Review and approve emergency procedures for CPR and use of AED.

Superintendent
1. Designate someone to:
   a. Maintain records of AED training, inspection, and scheduled maintenance;
   b. Clean the AED case post-resuscitation and order replacement supplies; and
   c. Contact the manufacturer if the AED is rendered unusable for replacement.
2. Designate a minimum of two (2) employees to serve as an approved AED user and First Responder.
3. Assure all staff members are trained in the site’s emergency response protocol.
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Procedure for a Medical Emergency

First Person on the Scene
1. Stay calm.
2. Overview scene for safe entry.
3. Determine basic information such as type of emergency, location, and how it occurred.
4. Direct someone to call 9-1-1 or contact 9-1-1 yourself.
5. Direct someone to notify a trained First Responder and take the AED to scene.

Receptionist
1. Assist in activating the Emergency Medical Services (EMS) system, alerting trained AED users, and site administrator.
2. Assign someone to meet the responding EMS vehicle and direct the EMS team to the medical emergency site.
3. Update the victim’s condition to the 9-1-1 system unless a first responder at the scene assumes this responsibility.
4. Follow the site’s emergency response protocol.

Authorized AED User/First Responder
1. Determine that the area is safe to enter upon arrival.
2. Direct someone to call 9-1-1 or make the call if the call has not been made.
3. Get AED, turn AED on, and prepare the victim for placement of AED pads.
4. Determine need for adult or pediatric pads. (Adult if over age of 8 or greater than 55 lbs.)
5. Use the AED if the victim is unconscious and not breathing or not breathing normally.
6. Follow the automated AED instructions for CPR until EMS arrives.

Flow chart for use of AED and CPR

- Assess scene for safe entry.
- Victim: Unresponsive and not breathing or not breathing normally
- Call 9-1-1.
- Get AED → Turn on → Apply AED pads to chest.
- AED will analyze heart rhythm → shock, if indicated → instruct CPR
- Follow AED instructions for CPR until EMS team arrives.
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AED Instructions

**Application of AED pads:** Shave chest hair if so excessive it will prevent a good seal between electrodes (pads) and skin. Chest must be dry and free of oil. Press pads to skin.

**AED analyzes heart rhythm:** Stand clear of victim.

**Shock Delivery:**
1. If a shock is advised, the voice prompt will say, “Preparing shock. Move away from the patient.”
2. When the AED is ready to deliver a shock, the voice prompt will say, “Shock will be delivered in three, two, one” then deliver a shock. Make sure no one is touching the victim.
3. After the AED delivers the defibrillation shock, shock, the voice prompt will say “Shock delivered,” and prompt to start CPR.
4. If the rhythm changes and a shock is no longer needed, the AED will issue the prompt “Rhythm changed. Shock cancelled,” and prompt to start CPR.

**CPR Mode:**
1. The AED will then continue on with instructions for delivery of chest compressions, beginning with, “Place heel of one hand on center of chest between nipples. Place heel of other hand directly on top of first hand. Lean over patient with elbows straight. Press the patient’s chest down rapidly one third depth of chest, then release.”
2. If this is not the first delivery of CPR, then the AED will prompt, “When instructed give 30 rapid compressions. Then give two breaths. Start CPR.”
3. At the end of the compressions, the phrase “Stop compressions” will play.
4. The AED will then continue with the prompt, repeating “Give Breath” twice.
5. Following this, the phrase “Continue with compressions.”
6. This cycle will continue until the CPR time expires.
7. At the end of CPR, the phrase “Stop CPR” will be played.
8. The AED will return to the ECG Analysis Mode.
9. If the patient is conscious and breathing normally, leave the pads on the victim's chest connected to the AED.
10. Continue to follow the AED voice prompts until EMS arrives and transports the victim.

**Post Rescue:**
1. Prepare the AED for the next rescue.
2. Retrieve the rescue data stored in the internal memory of the AED by using RescueLink software installed on a PC. Give the data to EMS personnel within 24 hours of rescue.
3. Clean the AED case according the operation manual. 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. Use one of these solutions to clean the case of the AED: soapy water, ethanol, 91% isopropyl, or 3% bleach solution. The AED and its accessories cannot be sterilized.
4. Connect a new pair of pads to the AED, close the lid, and verify the Status Indicator on the handle is green.
5. Order and replace any equipment used during the rescue.
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Medical Response Documentation

Each incident involving the use of the AED will be documented (Attachment A) to include date, time, and location, reason for use, outcome, responding EMS assistance, and equipment used.

AED Self-Test System

The AED has a comprehensive self-test system that automatically tests the electronics, battery, pads, and high voltage circuitry. Self-tests are also activated every time the AED lid is opened and closed.

AED Indicators

1. RescueReady Status Indicator (Red/Green)
   The Status Indicator is located on the Powerheart G3 AED handle. When this indicator is red, maintenance is required. When the Status Indicator is green, the AED is RescueReady [battery has an adequate charge; pads are properly connected to the AED and functioning; and, integrity of the internal circuitry is good].
2. Audible Maintenance Indicator
   When the daily, weekly, or monthly self-test determines service is required, an audible beep is sounded every 30 seconds until the lid is opened or the battery power is depleted.

Scheduled Maintenance

The AED will be checked according to the manufacturer’s recommended schedule and documented (Attachment B).

Daily Maintenance
The Status Indicator will be checked to ensure that it is green. Troubleshooting guidelines in the owner’s manual will be followed if the indicator is red.

Monthly Maintenance
The following procedure will be followed each month (28 days).
1. Open the AED lid.
2. Wait for the AED to indicate status: Observe the change of the Status Indicator to red. After approximately 5 seconds, verify that the Status Indicator returns to green.
3. Check the expiration date on the electrodes (pads).
4. Listen for the voice prompts.
5. Close the lid and observe the change of the Status Indicator to red. After approximately 5 seconds, verify that the Status Indicator returns to green.
Annual Maintenance
The following tests will be performed annually to confirm proper functioning of the diagnostics:

1. Check the Integrity of the Pads and Circuitry:
   a. Open the AED lid;
   b. Remove the pads;
   c. Close the lid;
   d. Confirm that the Status Indicator turns red;
   e. Open the lid and confirm that the Pad indicator is lit;
   f. Reconnect the pads and close the lid; and,
   g. Make sure the expiration date is visible through the clear window of the lid.

2. Check to make sure that the Status Indicator is green. If the pads are not installed properly, the PAD indicator will illuminate; call customer service for assistance.
   a. Open the lid and confirm that no diagnostic indicators are lit;
   b. Check the expiration date of the pads; if expired, replace them;
   c. Check the pads packaging integrity; and,
   d. Close the lid.

3. Check the Integrity of the Service Indicator (LED) and Circuitry:
   a. Immediately after opening the AED lid, press and hold the Shock button and confirm that the Service LED is lit;
   b. Release the Shock/Continue button;
   c. Close the lid;
   d. Verify that the Status Indicator remains red;
   e. Open the lid and confirm that no diagnostic indicators are lit;
   f. Close the lid.
   g. Verify that the Status Indicator turns green.

4. Check the Integrity of the case:
   a. Examine the molded case of the AED for any visible signs of stress; and,
   b. Contact Cardiac Science customer service if the case shows signs of stress.


Cross Reference: OSHA AED Standards; Cardiac Science Powerheart AED G3 Plus Product Manual; 2015AHA/ERCGuidelinesAED Defibrillation CPR; NRMPS Bloodborne Pathogens Exposure Control Plan

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Forms: NRMPS Accident Report Form, Medical Incident (9-1-1) Form, AED Maintenance Check Form, AED Training Log

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