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 Zoll AED® Plus is self-testing, battery-operated, and rescue-ready in a cardiac emergency. The Zoll AED® 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.

Electrodes (Pads)

It is recommended to keep two (2) sets of electrodes (pads) 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 – Determined by the School’s Athletic Director

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.

Procedure for a Medical Emergency
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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.
**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.

**Defibrillator Application**
1. Turn on the defibrillator as soon as it arrives at the scene and follow its prompts.
2. If more than one ERT or Early Defibrillation Response Team member is present, one can apply the defibrillation pads and operate the defibrillator while the other continues CPR until told to stop.

**Defibrillator Heart Rhythm Analysis**
1. When the pads are properly attached to the patient and connected to the defibrillator, the device will automatically analyze the patient for a shockable rhythm – such as ventricular fibrillation (VF).
2. Ensure that no one touches the patient during rhythm analysis.
3. On completion of rhythm analysis, the defibrillator will prompt the rescuers as to the appropriate course of action. Follow the device prompts in treating the patient.

**Defibrillation Safety Precautions**
1. If the defibrillator gives a “Shock Advised” prompt, first ensure that no one is touching by examining the patient area and loudly stating “I’m clear, you’re clear, everyone clear!”
2. Then press the shock button to deliver a shock to the patient as prompted.
3. Shock delivery will be followed by re-analysis of the patient’s heart rhythm by the defibrillator.
4. If additional shocks are advised by the defibrillator, follow the above sequence until the defibrillator prompts otherwise or EMS arrives.

**Defibrillation Shock Sequence**
Based upon early defibrillation response protocols and in accordance with defibrillator prompts, administer a shock to the patient, followed by two (2) minutes of CPR if signs of circulation are absent.

**No Shock Advised Procedure**
1. If the defibrillator gives a “No Shock Advised” prompt and the patient is not breathing and has no signs of circulation, administer CPR until the patient regains signs of circulation, the defibrillator advises to stop CPR for analysis, or EMS arrives and assumes care of the patient.
2. If the patient is not breathing but does have signs of circulation, perform rescue breathing until the patient regains adequate respiration, the defibrillator advises to not touch the patient for analysis, or EMS arrives and assumes patient care.
3. Conduct continuous monitoring of the patient’s condition and evaluation of rescue in accordance with ERT or Early Defibrillation Response Team training.
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Patient Monitoring
1. Once the defibrillator has been applied to the patient, do not turn off the defibrillator or remove the defibrillation pads unless prompted by the device (e.g., “Replace battery” or “Replace pads”).
2. The defibrillator will continue background monitoring of the patient’s heart rhythm and alert the rescuers if additional shocks are required.
3. Continue to assess the patient’s airway, breathing, and circulation and provide CPR as indicated.

Post Rescue:
1. Prepare the AED for the next rescue.
2. Cleaning
   a. Clean and disinfect unit with soft, damp cloth using 90% isopropyl alcohol or soap and water, or chlorine bleach (30 ml/liter water).
   b. Do not immerse any part of the unit in water.
   c. Do not use ketones (MEK, acetone, etc.).
   d. Avoid using abrasives (e.g., paper towels) on the LCD display, if so equipped.
   e. Do not sterilize the unit.
3. Connect a new pair of pads to the AED, close the lid, and verify the green check symbol (✓) appears in status indicator window.
4. Order and replace any equipment used during the rescue.

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 and Scheduled Monitoring / Maintenance

Status Indicator
The readiness indicator is the green check symbol (✓) appears in status indicator window. The AED is Rescue Ready [battery has an adequate charge; pads are properly connected to the AED and functioning; and, integrity of the internal circuitry is good].

If the readiness indicator is not displayed, refer to the troubleshooting table below.
## Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Recommended Action</th>
</tr>
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<tbody>
<tr>
<td>Self-test failed</td>
<td>Manually test by pressing and holding the ON/OFF button for more than 5 seconds. If unit fails test again, remove from service.</td>
</tr>
<tr>
<td>“Change batteries” prompt</td>
<td>Replace all batteries at the same time.</td>
</tr>
<tr>
<td>Red “X” in Status Indicator window OR beeping noise when unit is OFF</td>
<td>Perform manual test. Check to see if cable is attached properly to unit. Replace batteries. If unit still does not operate correctly, remove from service.</td>
</tr>
<tr>
<td>Red “X” in Status Indicator window when unit is ON</td>
<td>Power cycle the unit. If Red “X” is still present in Status Indicator window, remove unit from service.</td>
</tr>
</tbody>
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## Scheduled Monitoring / Maintenance

1. Check the readiness indicator daily.
2. Check the AED according to the manufacturer’s recommended schedule and documented (Attachment B).
3. Check the Integrity of the case:
   a. Examine the molded case of the AED for any visible signs of stress; and,
   b. Contact manufacturer’s customer service if the case shows signs of stress.

Legal References:


Cross Reference:

- OSHA AED Standards; Zoll AED® Plus product manual, 2015 AHA/ERC Guidelines AED Defibrillation CPR; NRMPS Bloodborne Pathogens Exposure Control Plan

Forms:

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

Approvals:

- Charnette H. Shade, M.D., Medical Advisor
- Superintendent, Nash-Rocky Mount Public Schools