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**Automated External Defibrillator (AED) Program**

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## **I. INTRODUCTION**

Heart disease is a significant health problem that, according to the American Heart Association, affects nearly 8 percent of all Americans and results in nearly 350,000 deaths each year. While several electrical abnormalities can result in sudden cardiac arrest, the majority begin with ventricular fibrillation. Rapid treatment of ventricular fibrillation, through the application of a controlled electrical shock, is essential to the victim's survival. The American College of Occupational and Environmental Medicine (ACOEM) recommends placement, when practical, of Automated External Defibrillators (AEDs) in sufficient workplace locations to allow initiation of resuscitation and use of the AED (the so-called "drop to shock" interval) within 5 minutes of recognized cardiac arrest.

With the development of AEDs, early recognition and correction of sudden cardiac arrest by lay rescuers can significantly improve the outcome of cardiac arrest. While Cardiopulmonary Resuscitation (CPR) can prolong the chances of survival, it cannot reverse Sudden Cardiac Death. However, AEDs are not a substitute for CPR (cardiopulmonary resuscitation). Anyone trained to operate an AED must be trained in CPR, since early CPR is a critical step in resuscitation to help reestablish the circulation of blood and the delivery of oxygen to the body. AEDs may also prompt the rescuer to continue CPR while it is analyzing the heartbeat of the patient.

## **II. PURPOSE**

The purpose of the Automated External Defibrillator (AED) Program is to provide a means for safely placing AEDs in strategic campus locations. AEDs will enable timely defibrillation to victims in the first critical moments after a sudden cardiac arrest. Use of the AED will not replace the care provided by emergency medical services (EMS) providers, but it is meant to provide a lifesaving bridge during the first few critical minutes it takes for EMS providers to arrive. Upon arrival of the EMS providers, patient care should be transferred to them.

## **III. POLICY**

The University Police are the primary providers of AED services campus wide. Buildings and programs may purchase and deploy additional AEDs if they meet the requirements of this Program. Each building or program that obtains an AED must have an AED Coordinator and at least four individuals who have volunteered and are trained in CPR and AED use (Lay Rescuers).

## **IV. REFERENCES**

A. ND Century Code 32-03.1, "The Good Samaritan Act" contains requirements for AEDs.

## V. DEFINITIONS

- A. **Arrhythmia:** abnormality of the heartbeat. The arrhythmia that most often causes sudden cardiac death is ventricular fibrillation. It prevents the heart from pumping blood and deprives the body of oxygen. The only way to reverse ventricular fibrillation is defibrillation.
- B. **Automated External Defibrillator (AED):** computerized devices that can help prevent death due to sudden cardiac arrest. These devices monitor the heart rhythm and can, if need be, deliver an electric shock to the chest wall
- C. **Defibrillation:** An electric “SHOCK” delivered to the heart to correct certain life threatening heart rhythms.
- D. **Lay Rescuers:** Individuals who volunteer to be AED users. North Dakota law requires, “every individual expected to use the automated external defibrillator to receive American Heart Association or American Red Cross training in cardiopulmonary resuscitation and automated external defibrillator use.”

## VI. RESPONSIBILITIES

### A. Safety and Environmental Health

1. Maintain a list of AED locations and trained personnel.
2. Ensure that the Regional EMS Coordinator is aware of all AEDs at the University.
3. Coordinate debriefing reviews of all AED uses.
4. Assist in making the required training available to AED Coordinators and Lay Rescuers.
5. Review all departments that have AED’s on an annual basis for compliance with the Program.

### B. Building Supervisor or Department Chair

1. All costs associated with training, maintenance, purchasing, and use of the AED are the responsibility of Department or program that has the AED.
2. Ensure that the AED is kept in a location that is secure yet readily accessible and well marked.
3. Appoint an AED Coordinator.

### C. AED Coordinator

1. Ensure that the AED is maintained and tested in accordance with the manufacturer’s requirements.
2. Monitor and record the status of the AED on at least a monthly basis.
3. Ensure department personnel are trained in accordance with guidelines established by the University AED Program.
4. Ensure that adequate AED-related supplies and recommended ancillary medical equipment are kept on-hand.
5. Maintain required personnel training and unit maintenance and testing records related to the department’s AED program.
6. Ensure that electrodes and other consumables are replaced as needed following AED use.

7. Ensure that an incident report is filed after any AED use and participate in any post use review.

#### D. Lay Rescuer

1. Obtain and remain current in CPR and AED training through the American Heart Association or the American Red Cross.
2. Must offer immediate assistance to any individual in apparent cardiac distress.
3. Must act “as an ordinary, reasonable, prudent person” while administering emergency care with an AED. **(NDCC 32-03.1-02.3.2)**
4. Participate in the post use review.

### VII. PLACEMENT OF AEDs

- A. AEDs should be placed in locations considered to present a higher than normal risk for occupants to suffer sudden cardiac arrest. The decision to obtain an AED is the responsibility of the administration of the department or program.
- B. The Department or program must maintain at least four trained and certified lay rescuers.
- C. The location of all AEDs must be reported to the Safety and Environmental Health Office. The notification should also include the make and model of the AED, the name of the responsible Department or program, the name of the AED Coordinator, and a list of all Lay Rescuers.
- D. The AED must be placed in a location where it is relatively secure from theft or vandalism, yet clearly marked, and readily accessible in event of an emergency.
- E. All necessary supplies and equipment must be stored with the AED, including first aid supplies needed for CPR.
- F. There must be a clearly labeled protocol for the AED; the protocol must include calling 911. **(NDCC 32-03.1-02.3.1.c)**

### VIII. CERTIFICATION AND TRAINING REQUIREMENTS

- A. Lay Rescuers shall comply with the following requirements:
  1. Lay Rescuers must volunteer to be AED users, they cannot be appointed by a supervisor. A program or building must have a minimum of four Lay Rescuers in order to have an AED. Contact the Safety and Environmental Health Office if there are circumstances that limit the possible number of volunteers to less than four.
  2. Lay Rescuers must be initially certified and must maintain current certification in a program through a nationally recognized training organization such as the American Heart Association (AHA) or American Red Cross (ARC) in CPR and the use of an AED.
- B. The AED Coordinator will ensure compliance with these requirements and maintain all the documents and records concerning the implementation of the AED Program.

## IX. RESPONSE TO AN INCIDENT

The first step in any medical emergency must be to call 911. The second step is to evaluate the victim to determine what emergency measures may be appropriate. A Lay Rescuer should have adequate training to determine if an AED might be helpful. Lay Rescuers, or other non-licensed or certified individuals offering aid, must “relinquish direction of care of the injured person when an appropriate person licensed or certified by this state or by any state or province to provide medical care or assistance assumes responsibility for the care of the injured person.” (NDCC 32-03.1-03.)

The individuals offering care must do so in accordance with their training, experience, and the specific procedures for the AED. Use of the AED should follow these guidelines:

- A. Assess responsiveness. Tap shoulder and shout, “Are you ok?”
- B. If not responsive make sure emergency response has been activated and 911 called.
- C. If possible, obtain appropriate personal protective equipment (gloves, CPR mask, etc).
- D. Check ABCs
  1. Assess airway. Head tilt, chin lift to open airway.
  2. Assess breathing. Look, listen, and feel. If no breathing, use mask to deliver two rescue breaths.
  3. Assess circulation. Check pulse. If absent, begin chest compressions and continue CPR. **If a patient has no pulse and the defibrillator is immediately available, it gets connected to the patient before chest compressions are started. (Use the AED as soon as possible!)**
- E. Early Defibrillation
  1. As soon as defibrillator arrives, connect it.
  2. Place AED near head of patient.
  3. Turn on AED.
  4. Apply electrodes to bare chest.
    - a. If excessive hair, shave away
    - b. Dry chest if wet.
    - c. Do not apply defibrillator pads over a pacemaker or implanted defibrillator. The defibrillator must not be used on individuals with pacemakers or implanted defibrillators.
    - d. Try to remove any “nitro patches” or “nitro paste” or other patches from the patient.
  5. Make sure that electrodes are connected to AED.
  6. Allow AED to analyze. Do not touch patient during this.
  7. If indicated, shock. Be sure nobody touches the patient during the shock.
  8. Continue as per the AED protocol as taught. The American Heart Association Protocol calls for the following possible steps:

- a. Follow verbal and visual prompts from the AED
- b. Apply defibrillation pads
- c. Clear patient verbally & visually prior to shock delivery
- d. Deliver shock
- e. Check pulse
  - 1) Absent? Perform CPR
  - 2) Present? Support airway and breathing
- f. Defibrillate up to 3 times
- g. Continue until AED prompts, “Do not touch the patient...” or EMS arrives
- h. Check pulse
  - 1) Absent? Perform CPR for 1 min
  - 2) Present? Support airway and breathing
- i. Continue sequence of 3 shocks and 1 minute of CPR until a “no shock” prompt or EMS arrives.

#### F. Transfer of care

1. When EMS arrives, responders working on the victim should communicate important information to the EMS providers
  - a. Victim’s name, if known
  - b. Any known medical problems, medications, or allergies
  - c. Time the victim was found.
  - d. Initial and current condition of victim.
  - e. Number of shocks delivered, and length of time AED used
2. Assist EMS providers as requested

#### G. Post-Use Procedure

1. The Safety and Environmental Health Office and AED Coordinator should be notified.
2. The AED coordinator will ensure:
  - a. Any used electrode pads, batteries, razors, gloves, and other items are replaced or are functioning.
  - b. Unused supplies are inspected for damage or old expiration dates and replaced as needed.
  - c. The AED is be cleaned if needed.
  - d. The incident is documented in an Incident Report.

**\*\*The priority is to get the AED functional as soon as possible so that it is ready again for any future need\*\***

## **X. MAINTENANCE AND TESTING**

The AED Coordinator is responsible to ensure that the AED is maintained and tested in accordance with the manufacturer's recommendations.

## **XI. PROGRAM EVALUATION:**

- A. Following any use of an AED, the Safety and Environmental Health Office will coordinate a debriefing and review of the incident. The debriefing will include as a minimum, the Director of Environmental Health and Safety, the AED Coordinator for the AED that was utilized, and the Lay Rescuer(s) involved.
- B. On an annual basis the Safety and Environmental Health Office will review the AED program and all departments that have AED's.