Coastal Carolina University
Athletic Training Department
Policy and Procedure Manual
Automated External Defibrillators (AED's)
Revised/Reviewed 7/2011

POLICY STATEMENT:

The National Athletic Trainers' Association (NATA), as a leader in health care for the physically active, strongly believes that the treatment of sudden cardiac arrest is a priority. An AED program should be part of an athletic trainer's emergency action plan. NATA strongly encourages athletic trainers, in every work setting, to have access to an AED. Athletic trainers are encouraged to make an AED part of their standard emergency equipment. In addition, in conjunction and coordination with local EMS, athletic trainers should take a primary role in implementing a comprehensive AED program within their setting.

PURPOSE:

According to the American Heart Association (AHA), each year, approximately 250,000 Americans die of Sudden Cardiac Arrest (SCA) outside of the hospital. As many as 7,000 children die of SCA each year. Evidence suggests that the risk of a cardiac event is higher during or immediately following, vigorous exercise. Cardiopulmonary resuscitation (CPR) is critical to maintaining the supply of oxygen to vital organs, but the single most effective treatment for cardiac arrest is defibrillation, a shock delivered to the heart using a small electrical device known as a defibrillator. The AHA recommends defibrillation within 3-5 minutes or sooner. Nationwide, survival from SCA is only about 5% without the use of a defibrillator. In communities where shocks from an AED and CPR are provided within 3-5 minutes, survival rates are as high as 48-74%.

PROCEDURE:

Medical Necessity for Use of AED
Defibrillation is a recognized means of terminating certain potentially fatal arrhythmias during a cardiac arrest. A direct current defibrillator applies a brief, high-energy pulse of electricity to the heart muscle. Automated external defibrillators, or AEDs, were introduced in 1979. AEDs accurately analyze cardiac rhythms and, if appropriate, advise/deliver an electric counter shock. AEDs are currently widely used by trained emergency personnel and have become an essential link in the "chain of survival" as defined by the American Heart Association:

- Early access
- Early CPR by first responders or bystanders
- Early defibrillation
- Early advanced life support

It is recognized that successful resuscitation is related to the length of time between the onset of a heart rhythm that does not circulate blood (ventricular fibrillation, pulse less ventricular tachycardia) and defibrillation. The AHA states with every minute it takes to respond, the chance for successful defibrillation decreases 7-10%. The provision of timely emergency attention saves lives. Athletic events (both practice and competition) present a high risk for cardiopulmonary emergencies. Therefore, by training certified athletic trainers and team physicians in the use of AEDs, the emergency response time is shortened.

Explanation of the Use of AED

Automated external defibrillator, or AED, means a defibrillator which:

- is capable of cardiac rhythm analysis
- will charge and deliver a counter shock after electrically detecting the presence of cardiac dysrhythmias
- is capable of continuous recording of the cardiac dysrhythmia at the scene
- is capable of producing a hard copy of the electrocardiogram.

Defibrillation is only one aspect of the medical care required to resuscitate a patient with a shockable ECG rhythm. Dependent on the situation, other supportive measures may include:

- Cardiopulmonary resuscitation (CPR)
- Administration of supplemental oxygen
- Drug therapy

Written Medical Protocol Regarding Use of AED

Use of the AED will follow the American Heart Association AED treatment algorithm (appendix). The AED is to be used only on patients in cardiopulmonary arrest. Before the device is utilized to analyze the patient's ECG rhythm, the patient must be:

- unconscious
- pulse less, and
- not breathing spontaneously

The device is; however, not intended for children less than eight years of age and/or victims weighing less than 90 pounds. The AED units are programmed to administer an initial set of 3 shocks at 200 Joules (J), 300 J, and 360 J. If ventricular fibrillation (VF) persists, the sports medicine staff will repeat sets of 3 stacked shocks at 360 J with 1 minute of CPR between each set until "no shock indicated" message is received. Sports medicine staff will shock until VF is no longer present, the patient converts to a perfusing rhythm, or an advanced life support team arrives on scene and assumes control.

To prepare for ECG analysis and defibrillation:

- Verify that the patient is in cardiac arrest (unconscious, no respiration, no pulse)
- Press ON/OFF to turn on the AED (the green light will light). The connect electrodes message and voice prompt will occur until the patient is connected to the AED.
- Prepare the patient for electrode placement.
- Follow the screen messages and voice prompts provided by the AED

Provisions to Coordinate with Local EMS

In the event of a cardiopulmonary emergency, the 911 emergency system should be activated as quickly as possible. The first responders should provide initial care as appropriate to the situation and coordinate with other emergency medical service providers upon their arrival in the provision of CPR, defibrillation, basic life support, and advanced life support.

Operator Considerations

The Coastal Carolina University Athletic Training Department utilizes the PhysioControl LifePak 500 AED. The Lifepak 500 is a semi-automatic defibrillator that uses a patented Shock Advisory System. This software algorithm analyzes the patient's electrocardiographic (ECG) rhythm and indicates whether or not it detects a shockable rhythm. The Lifepak 500 AED requires operator interaction in order to defibrillate the patient. The Lifepak 500 AED is intended for use by personnel (certified athletic trainers and team physicians) who have, at a minimum, the following skills and training:

- CPR training (which meets the standards of the AHA BCLS "Course C" equivalent)
- AED training equivalent to that recommended by the American Heart Association

Procedures for Training and Testing in Use of AED

Personnel using the AED must complete a training session each year, to include instruction in:

- The proper use, maintenance, and periodic inspection of the AED
- Defibrillator safety precautions to enable the user to administer a shock without jeopardizing the safety of the patient, the user, or other individuals
- Assessment of an unconscious person to determine if cardiac arrest has occurred and the appropriateness of applying an AED
- Recognizing that an electrical shock has been delivered to the patient and that the defibrillator is no longer charged
- Rapid, accurate assessment of the patient's post-shock status to determine if further activation of the AED is necessary
- The operations of the local emergency medical services system, including methods of access to the emergency response system, and interaction with emergency medical services personnel
- The role of the user and coordination with other emergency medical service providers in the provision of CPR, defibrillation, basic life support, and advanced life support
- The responsibility of the user to continue care until the arrival of medically qualified personnel

Medical Control Reporting and Incident Review

The Lifepak 500 AED digitally records patient data, including ECG rhythm and delivered shocks. A digital audio recording of scene activity is available. Recorded data may be transferred by direct connection to a printer or computer or by modem to a remote computer. Following an incident of application, the data will be downloaded from the AED and reviewed by both the medical director and the attending physician(s) at the emergency facility where emergency care was provided. In addition, a report detailing the emergency scene and treatment will be documented in writing.