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THE USE OF AUTOMATED EXTERNAL DEFIBRILLATORS (AED’s) FOR THE INTERSCHOLASTIC ATHLETE: A POSITION STATEMENT
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The objective of this position statement is to provide physicians, coaches, and administrators who serve the member schools of the Ohio High School Athletic Association (OHSAA) with guidelines concerning Automated External Defibrillators (AED’s) and their possible benefit and use in the school setting based on current medical evidence and research. This position statement is not intended as a proposed standard of care and should not be interpreted as such. Rather, it only describes reasonable practice for the school. Individual treatment decisions will turn on the facts and circumstances presented to the emergency responders at the time of an event. This statement was developed by the Joint Advisory Committee for Sports Medicine (JACSM) of the Ohio State Medical Association. The committee is a collaborative effort of five professional organizations concerned about sports medicine and the interscholastic athlete in Ohio.

An AED is a medical device that can recognize the presence or absence of ventricular fibrillation or tachycardia and determine whether defibrillation should be performed and delivers a shock through electrodes attached to the victim’s chest. Throughout the process, voice and screen prompts guide the rescuer. No shock is recommended or delivered for other types of cardiac arrhythmia. The AED is designed to be used by non-medical personnel with little or no training, although a four-hour program coupled with basic life support training is recommended.

In the United States, 220,000 people (nearly all adults with coronary artery disease) die from sudden cardiac arrest each year. Before complete arrest, the heart often develops ventricular fibrillation or ventricular tachycardia, irregular heart rhythms in which the heart muscle contractions are disorganized and the effective pumping of blood ceases. Defibrillation is the delivery of an electrical impulse to the heart that allows it to return to a normal coordinated rhythm, and is the most effective treatment for ventricular fibrillation or tachycardia in adults. Ventricular fibrillation is a shockable rhythm, but conditions are optimal for only a few minutes after the onset of V-fib. The sooner defibrillation is provided via an AED, the better the victim’s chance of survival. When provided within the first five minutes of a cardiac arrest in the general population, the odds may be up to 50% that the victim’s life will be saved. With each passing minute, the chance of successful resuscitation is reduced by 7-10%. After 10 minutes, there is very little chance of success. Unfortunately, the success rate in school age athletes has historically been significantly less than in the general population.

Sudden cardiac arrhythmia is a rare event in school age youth and children. As of 2014, it was estimated that sudden arrhythmia occurs in 1.14 per 100,000 student athletes during the years 2009 –
2011. With 89% boys and 11% girls. The most common causes associated with sudden death are hypertrophic cardiomyopathy, anomalous coronary arteries, left ventricular hypertrophy, and long QT syndrome. Traditionally the most practical cardiac screening method has been the medical history, but even a thorough history will detect only 18-50% of athletes at risk. Screening by ECG may increase sensitivity, but the logistical and economic factors involved have so far made these unlikely solutions. Current work in this area is a continuing process and may change in the future. The best screening tool is echocardiogram for detecting hypertrophic cardiomyopathy and anomalous coronary arteries, but economic and logistic factors have prevented its wide spread use to date.

Because of the rare occurrence of cardiac arrest in youth, ages under 18, it has been difficult to ascertain the effectiveness of AEDs in this population. However, they have been shown to be safe and possibly effective for individuals eight years of age or older, and the FDA has approved AED use for this age group. These devices have been shown to accurately detect “shockable” and “non-shockable” rhythms in children.

The JACSM believes:

It is essential:

That individuals responsible for overseeing or managing an event be able to provide (themselves or others) basic life support and be able to contact and initiate the EMS system in the event of a sudden cardiac arrest.

That each school establishes an Athletic Emergency Action Plan (AEAP) consistent with the OHSAA “Anyone Can Save A Life” recommended AEAP regarding decisions for the medical care of its students, staff, and attendees and that it have as one of its specific goals a response plan that targets a victim’s collapse to defibrillation time as five minutes or less.

That the AEAP be practiced by each athletic team or venue personnel and players at least once per season.

It is desirable:

To provide AED’s at as many event sites as possible.

That the AEAP should have as its specific goal a response plan (when this is practical) that includes a communication system and a mechanism for transporting an AED and a trained operator to the site of an emergency.

That all personnel responsible at a school-sponsored athletic event or practice are trained in basic life support, First Aid, CPR, Sudden Cardiac Arrest and AED use. Note: By Ohio law, all interscholastic coaches, paid and volunteer, in the state of Ohio must have current C.P.R. certification and possess the Pupil Activity Coaching Permit, indicative of four hours of sports first aid training.

During times when multiple events are occurring simultaneously and at activities in which students are spread out over long distances, such as golf events, cross country, etc., the JACSM recognizes that logistics may make it difficult, if not impossible to provide AED’s in all necessary locations simultaneously.