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Proponent Testimony, Ohio House Bill 47 (HB 47)
Ohio Senate Health Committee
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Dear Chairman Huffman and Members of the Senate Health Committee --

I am writing today on behalf of clinicians, staff, patients and families who are part of the Akron Children's Hospital family to express our support for House Bill 47, sponsored by State Reps. Adam Bird and Richard Brown. This legislation would help to protect Ohio children who experience sudden cardiac arrest (SCA) by ensuring Automatic External Defibrillators (AEDs) are available at youth sporting events and schools.

Currently, school buildings, athletic facilities, and sports fields can have AEDs on site. Further, the General Assembly previously passed legislation to raise awareness for SCA and specify a timeline for when athletes showing signs of SCA can return to competition. HB 47 represents the final piece to fully protect children from SCA by closing any gaps that may exist in access at Ohio schools. In addition to requiring all public schools, charter schools, and municipal sports parks to place AEDs on site, the bill also requires these entities to offer training to athletes on the signs and symptoms of SCA before the start of each season.

To understand the value of AEDs in survival of cardiac arrest, as well as the importance of HB 47, it is important to understand some of the statistics on cardiac arrest in the United States. When a person suffers cardiac arrest outside of the hospital, and must depend on 911 and EMS response time, the odds are significantly against the victim's survival. Nationwide, the probability of survival of cardiac arrest outside the hospital is only 5% when EMS is the primary responder. The likelihood of survival drops off by 10% for every minute that the victim remains unconscious. The likelihood of a good neurologic outcome drops off even quicker. The average response time, nationwide, from collapse to first shock by EMS is 8 1/2 minutes. While this response time is excellent, it does help explain why out-of-hospital cardiac arrest carries such a high mortality.

In the late 1990s, a study was done in Las Vegas that looked at the impact of AEDs on the outcome of cardiac arrest. . All entertainment industry personnel were trained in CPR and the use of AEDs. In addition, AEDs were positioned everywhere within the study area, so that no individual was ever more than a couple of minutes away from access to an AED. Over the course of two years, they followed the outcomes of cardiac arrest patients within the study population. What they found was that individuals in which an AED was used within three minutes of an arrest had a 74% chance of survival. ("Outcomes of Rapid Defibrillation by Security Officers after Cardiac Arrest in Casinos." New England Journal of Medicine, 2000; 343:1206-09) This is in stark contrast to the 5% survival seen nationwide when an AED is not utilized.

It is important to note that this was a study of adult patients. The population had all the usual expected comorbidities, including obesity, alcohol use, tobacco use, hypertension, coronary artery disease, diabetes, and sedentary lifestyle. Despite all these conditions, nearly 3/4 of the victims survived when an AED was used within three minutes. Young athletes who suffer cardiac arrest have very few comorbid conditions. In addition,

they tend to be in the peak of health so it is expected that when a young, healthy athlete suffers a cardiac arrest, the survival should be even better than that seen in the adult population.

We expect a greater than 75% survivability when an AED is used within three minutes. In 25 years as a pediatric electrophysiologist caring for children with life threatening heart rhythm abnormalities, I have not yet had a child die from cardiac arrest when an AED was used within three minutes. Not only have they survived, but they all have survived neurologically intact. In my experience, of those children and young adults who've suffered arrest without the use of an AED, 65% have not survived, and of those that did survive, 50% of them had severe neurologic complications. In the past five years in my own school district, we have had two athletes successfully resuscitated by AED use.

Some might argue that, rather than investing in AED and educational programs, we should invest in better screening of athletes before participation. But I would point out that the best of screening programs can only determine a fraction of the young athletes who are at risk for sudden death. Beyond the standard pre-participation screening, newer paid screening services have emerged. These screening services typically offer an EKG and a limited echocardiogram for a fee. These paid-for screening services are, on the surface, inexpensive but when you dig deeper, they are very expensive for the community. In addition, they can uncover no more than 50% of all the potential problems that can lead to cardiac arrest in an athlete. They will discover most hypertrophic cardiomyopathy patients and most Long QT patients but they cannot discover every patient with these two diseases. They also cannot discover patients with myocarditis, commotio cordis, Brugada syndrome, catecholaminergic polymorphic ventricular tachycardia, or arrhythmogenic right ventricular dysplasia.

An AED program, however, can protect against all these conditions. The two major components provided by HB 47 are access and education. Two examples can help bring clarity to both issues. A young teenage athlete collapsed while participating in sports. Bystanders had the background knowledge and training to recognize the need for an AED. The school had an AED, but unfortunately the baseball team had the AED at an away game, and the victim had to wait for EMS to arrive before her first shock. She did not survive. Mandating AED availability can eliminate this tragic situation. Access to an AED is critical, but so is education about AED use. As an example, another young patient arrested at school. The school had an AED, and it was readily available for use on the student. However, no one at the event recognized the value of an AED in this situation, and the AED was not used. When EMS arrived, the patient was resuscitated by EMS shock. Unfortunately, she was later pronounced brain dead and taken off life support.

Education about CPR and AED use is vital and it also happens to be very simple. In fact, a study published in 2002 looked at cardiac arrest victims in Chicago airports. Over several years, there were 11 patients successfully resuscitated by bystander AED use. Of those patients, six of them were attended to by bystanders who had no experience or training in AED use. (Public Use of Automated External Defibrillators. New England Journal of Medicine. 2002, Oct 17; 347(16) 1242-7.)

My final point in support of HB 47 is to note that, if passed, it would not only protect athletes on the field, but also protect their coaches and all the spectators. I do not believe there is a more important step we can take in protecting our children and young adults from sudden death. SCA will continue to happen, but sudden cardiac death can be prevented, and this would be a major step toward that goal.

If you would like more information, our Director of Sports Medicine, Dr. Joe Congeni, recently recorded a video about the importance AEDs and SCA; you can view it here:
https://www.akronchildrens.org/audio_video/Sudden-cardiac-events-can-strike-athletes-of-all-ages.html

Thank you for your time and attention to this important issue. HB 47 is a potentially life-saving bill, and we would greatly appreciate your support.