

Sudden Cardiac Arrest and Heart Safe Schools

Austin M. Kane, MD



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Suburban Philly HS Athlete Dies Of 'Sudden Cardiac Incident,' Report Says

15-Year-Old Boy with 'No Health Issues' Collapses and Dies During Basketball Tryouts: 'He Never Woke Up'

17-Year-Old Alabama Basketball Star Collapses, Dies During Practice

Fifth-grader in Maryland dies after sudden medical emergency in classroom



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

What is cardiac arrest?

- Sudden loss of heart function leading to no blood flow
- Symptoms:
 - Collapse
 - Unresponsiveness
 - Irregular, shallow or agonal breathing
 - Pulseless or weak pulse
 - Abnormal movement or seizure activity



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

What is cardiac arrest?

- Sudden loss of heart function leading to no blood flow
- Symptoms:
 - Collapse
 - Unresponsiveness
 - Irregular, shallow or agonal breathing
 - Pulseless or weak pulse
 - **Abnormal movement or seizure activity**



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

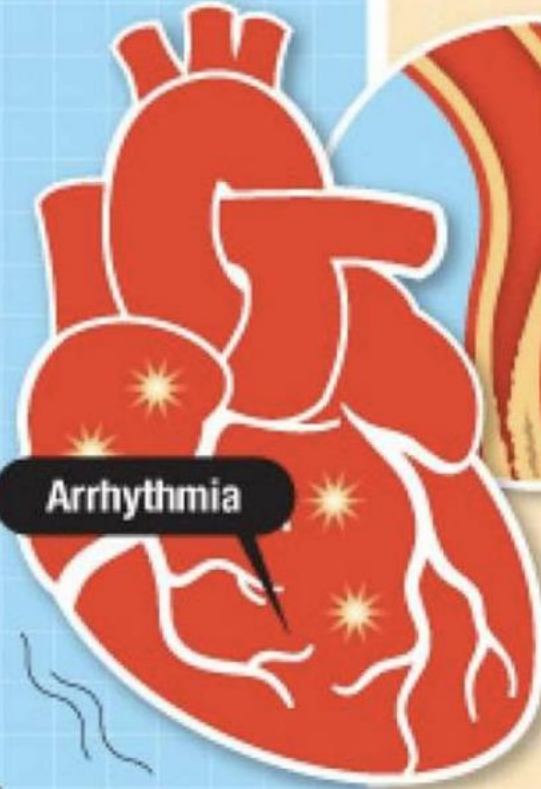
Pr*ject ADAM*®
SAVES LIVES

CARDIAC ARREST VS. HEART ATTACK

**Cardiac Arrest
is NOT a
Heart Attack**



Cardiac arrest is an
“**ELECTRICAL**” problem.



A heart attack is a
“**CIRCULATION**” problem.



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Sudden Cardiac Arrest



Electrical malfunction in the heart

Heart stops beating unexpectedly

Victim suddenly unresponsive

Abnormal or no breathing, may have seizure activity

9-1-1
Start CPR
Use nearest AED

VS

Heart Attack



Occurs when blood flow is blocked to the heart

Section of the heart not getting oxygen rich blood

Victims remain conscious but symptomatic

Chest, arm and jaw pain, shortness of breath

9-1-1, support victim until EMS arrives

Project ADAM[®]
SAVES LIVES

Alabama
LifeSt**ort**

An Affiliate of Project ADAM[®]
From Children's of Alabama

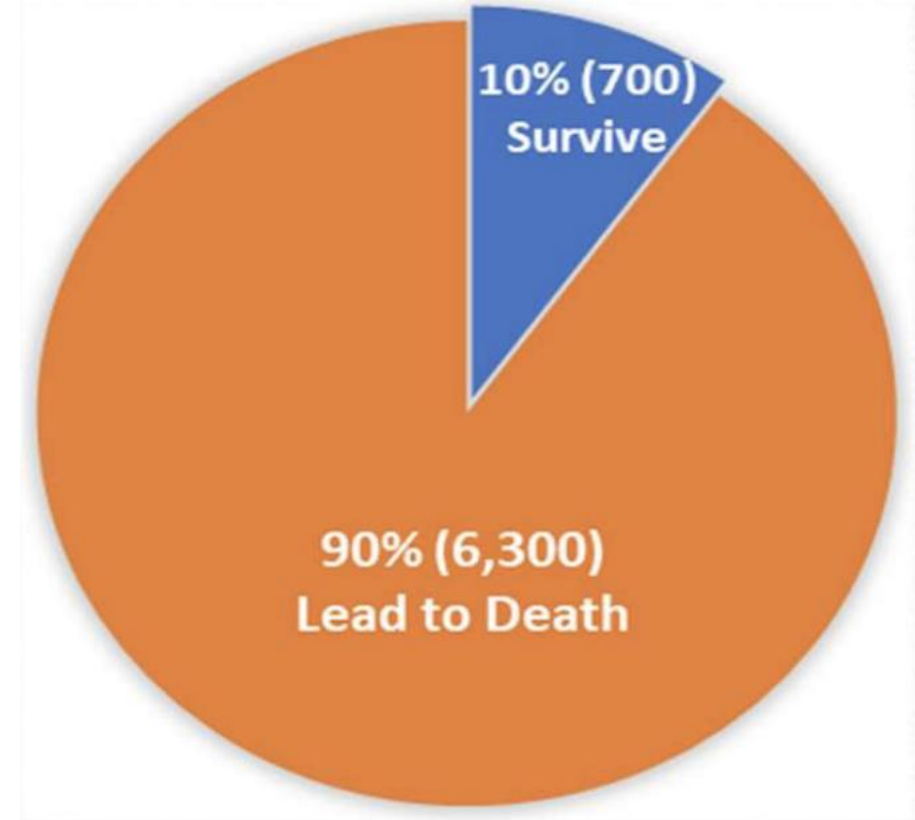
Project ADAM[®]
SAVES LIVES



Children's
of Alabama[®]

Scope of the Problem

- Out-of-Hospital Cardiac Arrest (OHCA)
- 300,000-350,000 per year
- Thousands of children and young adults
- 11% survive to hospital discharge



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Causes of cardiac arrest and sudden death in young people

- Hypertrophic cardiomyopathy
- Coronary artery anomalies
- Arrhythmogenic cardiomyopathy
- Dilated cardiomyopathy
- Aortopathy (Marfan syndrome)
- Repaired or palliated congenital heart disease

- Long QT syndrome
- Wolff-Parkinson-White syndrome
- CPVT
- Brugada syndrome

- Myocarditis*
- Substance abuse
- Commotio cordis



Children's
of Alabama®

Alabama
LifeStart

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

What about screening?

- Screening is imperfect (even with history, exam, ECG, and echocardiogram)
- A cause is not identified in all cases
- Sudden cardiac arrest is often the presenting symptom
- A normal heart is capable of sudden cardiac arrest



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Chain of Survival



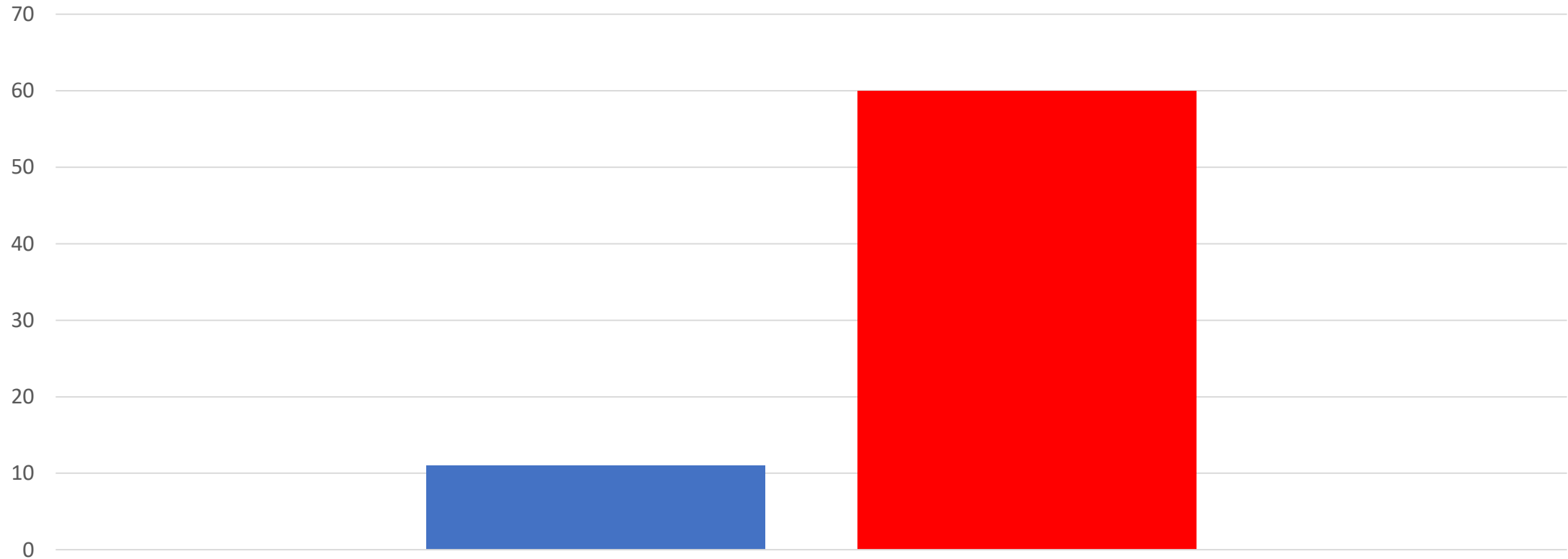
Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

SCA Survival with Early CPR & AED



Children's
of Alabama®

Alabama
LifeStart

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Automated External Defibrillator (AED)



Children's
of Alabama®

Alabama
LifeStart

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES



From Children's of Alabama

Why target schools?

28%

School-aged children spend 28% of the day and 14% of total annual hours in school.*

20%

20% of community is in its schools on any given day.

68%

of school nurses had to manage a life-threatening emergency requiring EMS activation.*



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Project ADAM



- Adam Lemel was a high school athlete in Wisconsin who died suddenly during a basketball game
- Autopsy identified arrhythmogenic cardiomyopathy
- Automated Defibrillators in Adam's Memory
- Initially targeted high schools in Milwaukee
- Now includes 25 states



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Pr**ject ADAM**®
SAVES LIVES

Project ADAM

Mission:

Save lives by
empowering schools
and communities to be
prepared for sudden
cardiac arrest

Vision:

Eradicate sudden
cardiac death through
school and community
prevention

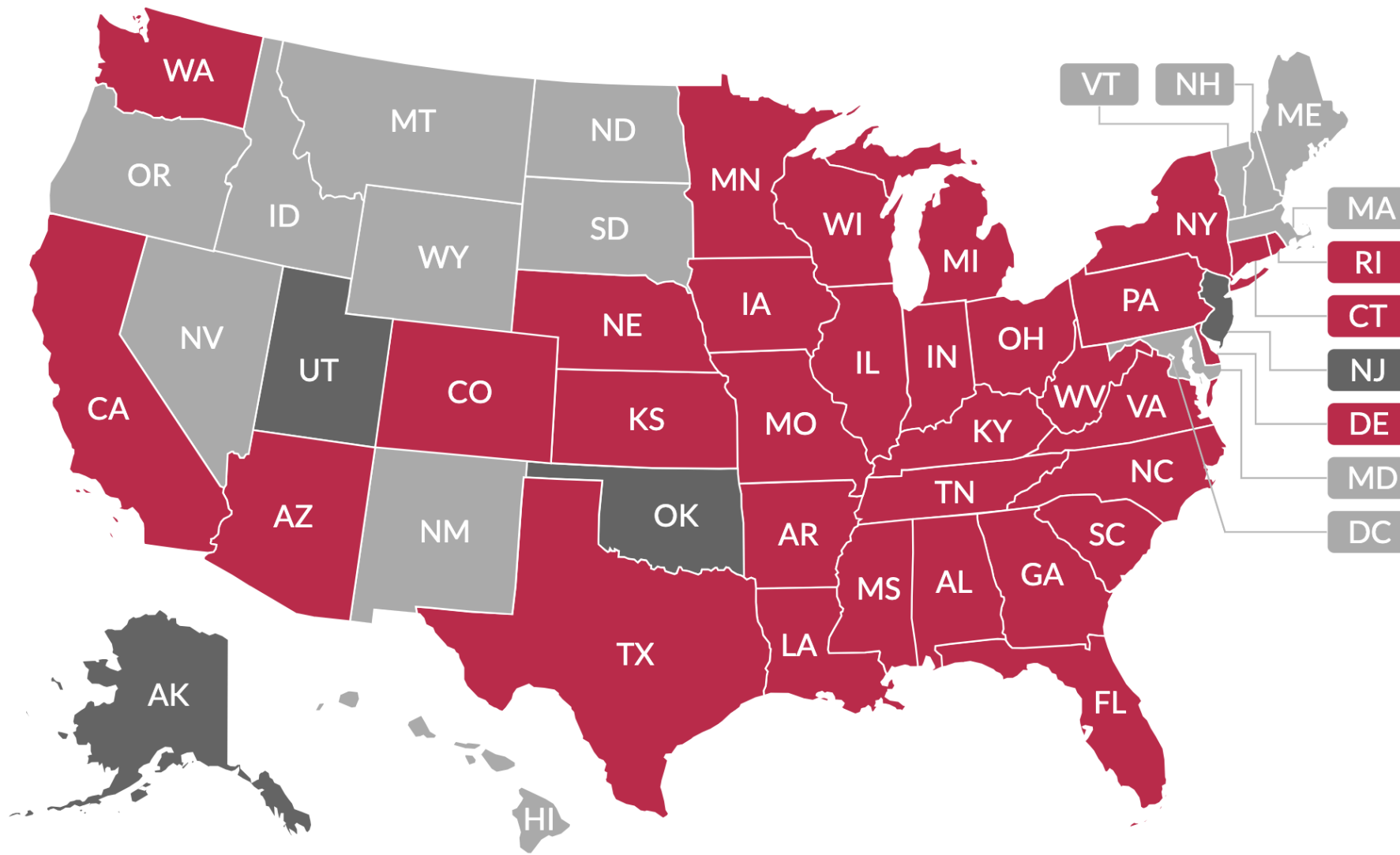


Children's
of Alabama®



An Affiliate of Project ADAM®
From Children's of Alabama





Children's
of Alabama®

Alabama
LifeSt^{art}

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Alabama LifeStart



Cris Brown
Program Director
2009-2020



Yung Lau, MD
Medical Director
2009-2020



John Stone
Program Director
2021-2023



Children's
of Alabama®



An Affiliate of Project ADAM®
From Children's of Alabama



Alabama LifeStart



Julie Farmer
Program Director



Austin Kane, MD
Co-Medical Director



Khalisa Syeda, DO
Co-Medical Director



Children's
of Alabama®



An Affiliate of Project ADAM®
From Children's of Alabama



How can we help?

- Education and awareness about sudden cardiac arrest
- Cardiac Emergency Response Plan development
- CPR training resources
- AED purchase assistance and AED education
- Heart Safe School designation



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Pr***ject ADAM***[®]
SAVES LIVES

Heart Safe School Checklist

- Appropriate number and placement of AEDs, which receive routine maintenance
- Form a cardiac emergency response team
- Develop a written cardiac emergency response plan that is shared with relevant parties
- CPR-AED training for the team, cardiac arrest awareness and AED familiarity for all faculty and staff
- Practice a cardiac arrest drill annually



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

AED(s)

- AEDs are placed strategically to be available from any part of campus within 3 minutes
- AEDs have clear signage
- Monthly checks of the AED with documentation
- First responder kit near AED with CPR barrier device, scissors, gloves, razor, and towel



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Cardiac Emergency Response Team

- A CPR-AED site coordinator is identified
- Designated cardiac emergency response team – 10% of staff or 5-10 people



Children's
of Alabama®

Alabama
LifeStart

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Cardiac Emergency Response Plan

- Written cardiac emergency response plan, reviewed annually
- Means to communicate emergency code in building and to staff outside
- Notify local emergency medical services
- Plan is shared with extracurricular activities, community groups, and summer programs using campus



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Training

- CPR-AED training updated every 1-2 years
- All faculty and staff know where AEDS are located and how to access them
- Annual training for all faculty and staff on awareness of cardiac arrest and school's cardiac emergency response plan



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

AED Drill

- Conduct at least one annual cardiac emergency response (AED) drill to test cardiac emergency response plan and communication
- Ideally, involve your local EMS/fire department and invite them to be present for the drill

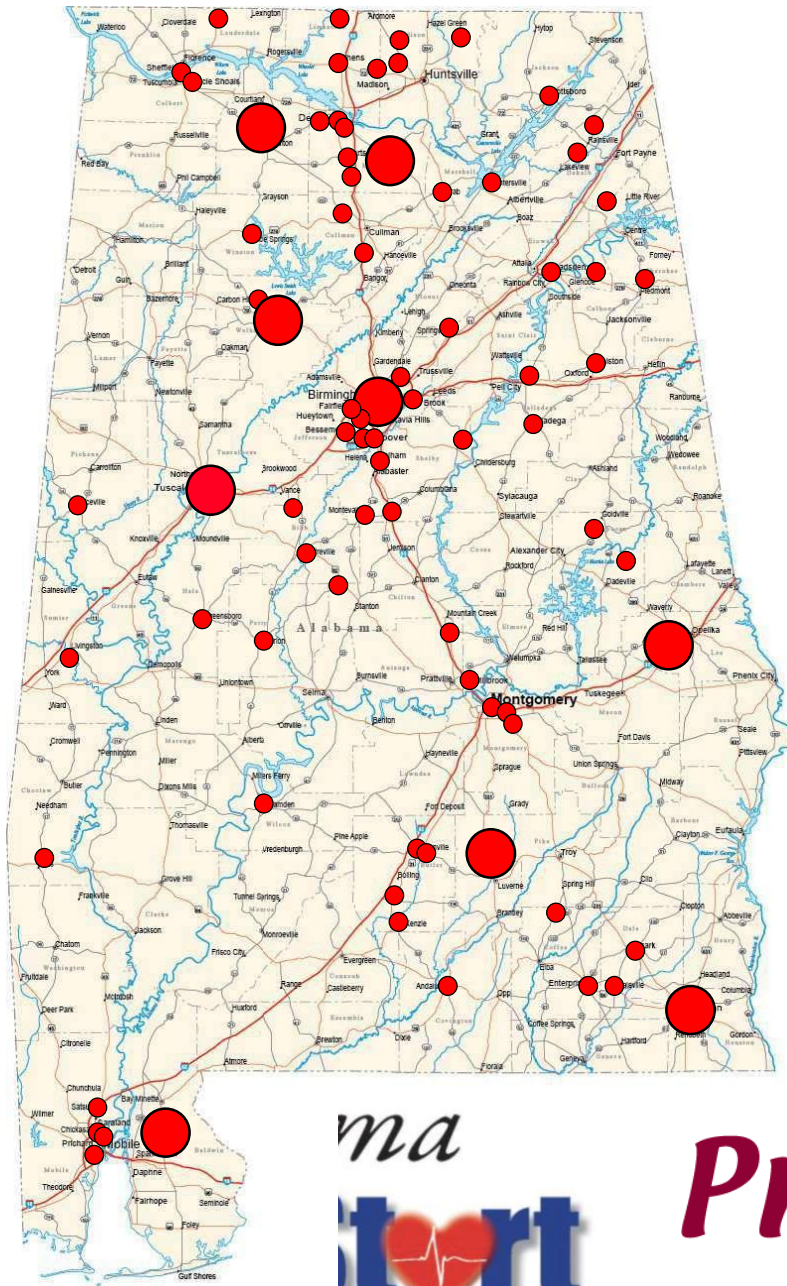


Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Pr*ject ADAM*®
SAVES LIVES



Children's
of Alabama®



An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Alabama Legislation

- Good Samaritan law protects individuals providing emergency aid to a victim. Section (e) specifically details protection when providing care to a victim of cardiac arrest, including the use of an AED, from civil litigation. Also protects individuals who helped place the AED, those who provided training in CPR and AED use, and the people maintaining the AED. Does not protect AED designers, manufacturers, or sellers. (Alabama Code 6-5-332)
- Details training of AED users and AED maintenance. (Alabama Code 6-5-332.3)



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Alabama Legislation

- AED placement and training of at least 1 person in each public K-12 school (Alabama Code 16-1-45)
- Coaches must undergo SCA, CPR, and AED training every two years. Student athletes and parents are informed of signs of cardiac arrest and must sign a form prior to participation. Requires clearance by a physician prior to return to play if symptoms could be warning signs of SCA (HB 45, also known as Sudden cardiac arrest prevention act, 2023)



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Alabama Legislation

- All students in 10th grade health class should be taught CPR. (Alabama Code 16-40-8) updated to all schools with students in 9-12th grade will receive instruction in CPR including hands-on practice of CPR as well as AED instruction by an individual who is a certified CPR instructor. (SB 59, also known as the Senator Tim Melson Act, 2024)



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Alabama Legislation

- Starting in 2025-2026 school year, every preK-12 public and non-public school must develop and implement a cardiac emergency response plan including emergency response teams, staff training in CPR and AED use, AED placement, coordination with EMS, and practice of emergency response (AED drills). (HB 290, also known as John Wesley Foster Act, 2024)



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

AEDs Save Lives



Children's
of Alabama®

<  **Russell McCrory**
2d · 🌐

I witnessed God's resurrection power and provision tonight! A ninth grade boy from Benjamin Russell High collapsed at the Montgomery Academy track meet. He had no pulse and was not breathing. But within just a few yards from him was Dr. Sellers, a vascular surgeon watching his child run as well as Dr. Vermillion, an ER Trauma Surgeon. They performed CPR for several minutes until a trainer was able to bring over an AED, portable defibrillator, and they were able to get his heart going. EMTs arrived shortly after, and he was alert and stabilizing. So thankful that just the right people and just the right equipment were there at just the right time to save this young man's life. Hundreds of people watching and praying cheered as he was wheeled to the ambulance. 🙏



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Which describes your school?

- No interest or unable to undertake at this time
- Interested but don't have AEDs
- Have AEDs and interested in Heart Safe School designation
- Already achieved Heart Safe School designation, working on maintaining or expanding



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES

Contact Us!

alabamalifestart@childrensal.org

or

Julie.Farmer@childrensal.org



Children's
of Alabama®

Alabama
LifeSt**ort**

An Affiliate of Project ADAM®
From Children's of Alabama

Project ADAM®
SAVES LIVES