



# PREVENTING SUDDEN CARDIAC ARREST IN YOUTH

## What is Sudden Cardiac Arrest?

Sudden Cardiac Arrest (SCA) is a life-threatening emergency that occurs when the heart suddenly stops beating. It strikes people of all ages who may seem to be healthy, even children and teens.

When SCA happens, the person collapses and doesn't respond or breathe normally. They may gasp or shake as if having a seizure.

SCA leads to death in minutes if the person does not get help right away. Survival depends on people nearby calling 911, starting CPR<sup>1</sup>, and using an AED<sup>2</sup> as soon as possible.

## CALL·PUSH·SHOCK



## What is an electrocardiogram?

- An ECG/EKG is a quick, painless, noninvasive test that measures and records the heart's electrical activity
- Can identify most conditions that can lead to SCA
- Generally covered by insurance under ICD10-CM Code Z03.89
- One screening using ECG does not clear the child for life
- Perform at regular intervals combined with cardiac risk assessment for new symptoms or relevant family history

## Why do heart conditions that put youth at risk go undetected?

- Often youth don't report or recognize symptoms
- Parents/Guardians just "check the box" on medical forms without asking their child about symptoms
- Youth experiencing symptoms regularly don't recognize these as potentially life-threatening—it's normal to them
- Standard history and physical evaluation misses up to 90% of youth at risk, in absence of robust cardiac risk assessment

## American Academy of Pediatrics Policy Statement on the Prevention of SCA & SCD (June 2021)

The policy provides primary care providers with a strategy for screening, evaluating and managing SCA in youth during physical or at least every three (3) years and especially upon entry to middle/junior high school:

- Awareness of warning signs and risk factors
- Thorough personal history, family history & physical examination
- ECG as first test when concern for SCA risk
- ECG interpreted by trained physician
- Genetic testing for family history of SCA or heart conditions

### Screening Questions:

- Have you ever fainted, passed out or had an unexplained seizure suddenly and without warning, especially during exercise or in response to sudden loud noises such as doorbells, alarm clocks and ringing telephones?
- Have you ever had exercise-related chest pain or shortness of breath?
- Has anyone in your immediate family (parents, grandparents, siblings, aunts, uncles, cousins) died of heart problems or had an unexpected sudden death before age 50? This would include unexpected drownings, unexplained car accidents in which the relative was driving or sudden infant death syndrome.
- Are you related to anyone with hypertrophic cardiomyopathy or hypertrophic obstructive cardiomyopathy, Marfan syndrome, arrhythmogenic right ventricular cardiomyopathy, long QT syndrome, short QT syndrome, Brugada syndrome or catecholaminergic polymorphic ventricular tachycardia, or anyone younger than 50 years with a pacemaker or implantable defibrillator?

<sup>1</sup> CPR: Cardiopulmonary resuscitation is when you push hard and fast on the center of chest to make the heart pump; compressions may be given with or without rescue breaths.

<sup>2</sup> AED: Automated external defibrillator is a device that analyzes the heart and if it detects a problem may deliver a shock to restart the heart's normal rhythm.



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## How common is Sudden Cardiac Arrest?

- SCA affects more than 356,000 people each year in the U.S., including 23,000 youth under age 18.
- SCA is the #1 killer of student athletes and the leading cause of death on school campuses.
- One in 300 youth has an undetected heart condition that puts them at risk.

## What are the warning signs and symptoms?

- Fainting or seizure, especially during or right after exercise
- Fainting repeatedly or with excitement or startle
- Chest pain or discomfort with exercise
- Racing heart, palpitations or irregular heartbeat
- Dizziness or lightheadedness
- Excessive, unexpected fatigue during or after exercise
- Excessive shortness of breath during exercise

## Why does family history matter?

It is important to gather your family history (parents, siblings, grandparents, aunts, uncles, cousins) and share it with your medical provider as some conditions are inherited:

- any family member with heart disease; even if the condition was treated and remedied
- unexplained fainting or seizures
- unexplained sudden death of a family member under the age of 50

## What are the risks of ignoring warning signs?

By ignoring symptoms and especially continuing physical activity without seeking medical attention you risk suffering sudden cardiac arrest, which without immediate action by people nearby could result in death or brain damage. Survival rates are under 10%.

## What if youth is diagnosed with a heart condition that puts him/her at risk for SCA?

- Your medical provider will inform you of the recommended treatment plan, which could include taking medication, making lifestyle modifications to reduce risk (which sometimes means refraining from competitive sports), surgery to correct the issue, or implantable devices that monitor or treat your heart rhythm.
- For student athletes you will need clearance from a licensed medical practitioner according to your High School Athletic Association (name may vary by state) bylaws or state laws.
- It's important to share the youth's treatment plan with school administration, athletic trainers, coaches or any other leaders. As youth caregivers, they must be aware so they can help monitor your child's condition.

## What are some of the causes of Sudden Cardiac Arrest?

- Congenital (you are born with) disease
- Hereditary (runs in family) disease
- Acquired disease (Kawasaki and others)
- Viral heart infection (myocarditis)
- COVID-19 diagnosis or asymptomatic infection
- Heart conditions that result from abnormal heart structure or function
- An abnormality in the electrical system of the heart
- An impact to the chest directly over the heart, also known as commotio cordis
- Drugs (recreational or prescribed) or stimulants that affect the electrical system of the heart, such as performance enhancing or high-caffeine energy drinks or supplements and diet pills



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