Youth Heart Screenings

Protecting Hearts, Saving Lives

April 22, 2020
Look Who’s Talking

Simon’s Heart was started following the sudden and unexplained death of Simon January 24, 2005. A pediatrician told the family to their hearts checked and mom discovered a heart condition, Long QT Syndrome. Research shows that LQTS is linked to SIDS and sudden death of student athletes.

SafeBeat was founded by Jayne Vining in memory of her son Marc who died suddenly from sudden cardiac arrest. Sheldon Hill, a 24 year veteran in the cardiovascular field, serves as a the Executive Director.
We don’t want other parents to lose their child to a detectable and treatable heart condition.
Sudden Cardiac Arrest

- It is when the heart stops beating, sudden and unexpectedly. Someone is upright one second, and collapses the next.

- It is the leading cause of death of adults in the United States.

- SCA is the #1 cause of death of student athletes. Thousands of children die every year.

- Heart conditions are the leading birth defect.
What Are the Odds?

Winning MegaMillions: 1:176 M
Becoming President: 1:10 M
Struck by Lightning: 1:1 M

Dying from sudden cardiac arrest:

NCAA Athlete: 1/44,000*
Division I Basketball: 1/3,100*

* [https://doi.org/10.1161/CIRCULATIONAHA.110.004622](https://doi.org/10.1161/CIRCULATIONAHA.110.004622) Circulation. 2011;123:1594–1600
Standards of Care

States require health screenings in schools.

Hearing  BMI  Sight
States require annual wellness exams and pre-participation sports physicals.
## Medical history

### Personal history
1. Chest pain/discomfort/tightness/pressure related to exercise
2. Unexplained syncope/near-syncope
3. Excessive and unexplained dyspnea/fatigue or palpitations
4. Prior recognition of a heart murmur
5. Elevated systemic blood pressure
6. Prior restriction from participation in sports
7. Prior testing for the heart, ordered by a physician

### Family history
8. Premature death (sudden and unexpected, or other)
9. Disability from heart disease in close relative <50 y of age
10. Hypertrophic or dilated cardiomyopathy, long-QT syndrome, or clinically significant arrhythmias; specific knowledge

### Physical examination
11. Heart murmur
12. Femoral pulses to exclude aortic coarctation
13. Physical stigmata of Marfan syndrome
14. Brachial artery blood pressure (sitting position)

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French physician **Rene Laennec** (1781-1826) invented the **stethoscope** when he felt it was inappropriate to place his ear on his female patient’s chests.

Source: [http://www.preventheartattack.in/heart_facts.php](http://www.preventheartattack.in/heart_facts.php)
What Do the Stories Tell Us?

Claire Crawford was a seemingly healthy 17 year old volleyball player. She had numerous annual wellness checks and sports physicals. She collapsed from sudden cardiac arrest. How many questions did she answer? How many people listened to her heart?
What Does the Research Tell Us?

A questionnaire and stethoscope are not the most effective methods to discover underlying heart conditions.

- Thirty-five NCAA institutions participated.
- 5,258 student athletes screened.
- All received an electrocardiogram (ECG), physical exam and asked about medical history.

Thirteen discovered heart conditions.
- One had abnormal physical exam.
- Two had abnormal medical history.
- All had abnormal ECG.

Am J Cardiol 2016;118:754 – 759
What’s Our Solution?

Free heart screenings for seemingly healthy students:

- Medical and family history
- Physical exam
- Electrocardiogram
- Limited Echocardiogram
What is ECG and Echo

The Components

<table>
<thead>
<tr>
<th>History</th>
<th>Physical Exam</th>
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<tbody>
<tr>
<td>• Has anyone in your family died suddenly or expectedly under the age of 50?</td>
<td>Blood pressure, height, weight and blood pressure.</td>
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<tr>
<td>• Have you ever passed out during or right after exercise?</td>
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<table>
<thead>
<tr>
<th>Electrocardiogram (ECG)</th>
<th>Echocardiogram (echo)</th>
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<tbody>
<tr>
<td>![ECG Image]</td>
<td>![Echocardiogram Image]</td>
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History

- Has anyone in your family died suddenly or expectedly under the age of 50?
- Have you ever passed out during or right after exercise?
Who Should Get Screened?

We think everyone.
We think students who are about to become adolescents.

There is not enough research to establish the ideal age, frequency or most effective method for a heart screening.

The majority of those conducting screenings, and those who believe that heart screenings should become a standard of care, evaluate students between the ages of 14 – 25.
The Screening Models
(unscientific graph)

What is the most effective?

- History
- Physical
- ECG
- Echo
- Echo + ECG

Cost vs. Reliable
Promoting Research

Data will change the standard of care. Heart screenings are the vehicle to gather the data and improve lives along the way.
Preparing Students

Heart screenings WILL NOT detect every condition and prevent every cardiac arrest. Our kids (and adults) need to know CPR and our venues need to be equipped with AEDs (see www.gotaed.org)
Sudden Cardiac Arrest Prevention Act

Parents read and sign a form about the warning signs of sudden cardiac arrest.

Coaches watch a training video about the same.

Players who pass out are removed and may not return until cleared by a licensed medical professional.
Thank you for helping us protect hearts and save lives.

simonsheart.org
safebeat.org
screenacrossamerica.org
parentheartwatch.org