Michigan Department of Community Health
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Family History and Your Health

Sudden Cardiac Death in the Young

Sudden Cardiac Death (SCD) in young people (ages 1-39) is a devastating event. It occurs as a result of unexpected cardiac arrest, usually without warning in someone who appears to be a healthy individual. Often there is no known family history of heart disease. When SCD occurs, the heart stops suddenly and blood can not be pumped to the rest of the body. SCD is different than a heart attack - when blood flow is stopped to an area of the heart resulting in the death of those heart cells. SCD is reported most often in the media when a young, apparently healthy, athlete collapses and dies. Because SCD is often misdiagnosed there is no clear estimate of the number of cases. Most studies put the number at 3 out of 100,000 individuals. Sadly, four out of ten apparently healthy children die with their first event.

SCD and Family History: When a young person dies from SCD it is important that the information be used to assess the risk in other family members. As many as 40% of families with a young victim of SCD have been identified as having an inherited condition.[1] With some conditions , there is a 1 in 2 chance that a parent, child or sibling may carry a gene that could increase their risk. A child's risk of SCD is increased if his/her parent has experienced SCD, suggesting a genetic factor in many cases.

Genetics and SCD

Some genetic conditions that can cause SCD have been identified.

- ♥ **Long QT Syndrome** (LQTS) is the most well known. The American Heart Association defines LQTS as an infrequent, hereditary disorder of the heart's electrical rhythm that can occur in otherwise healthy people. In one type of Long QT the affected person is also deaf.

However, there are over 20 different conditions that may lead to SCD in the young. Each of these conditions tends to run in families. The most common of these conditions are:

- ♥ **Hypertrophic Cardiomyopathy** – An excessive thickening of the heart muscle.
- ♥ **Arrhythmias** or abnormal heart rhythm.
- ♥ **Congenital* coronary artery defects**.

Genetic testing for hereditary conditions that may cause SCD is difficult. There are many different genes, each with many mutations that can predispose a person to SCD. If testing of this kind became available, the benefits could be great.

*Congenital means a condition that is present at birth.

For more information on genomics and health, please contact the Public Health Genomics Program by e-mail: genetics@michigan.gov or call toll-free: 1-866-852-1247

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What Can You Do?

Cases of SCD are very difficult to ignore when they occur in young people.

There are certain questions that may help identify those at high risk prior to a tragic SCD event.

- ♥ **Has your child or any family member had unexplained fainting (also called syncope)?**
- ♥ **Does your child experience excessive shortness of breath or persistent chest pain with exercise?**
- ♥ **Does your child experience excessive fatigue with exercise?**
- ♥ **Do you have a family member that died of a sudden unexplained death before age 50? (including SIDS, car accidents or drowning)**
- ♥ **Do you have a family history of unexplained muscle weakness or deafness?**
- ♥ **Do you have a family member that has been diagnosed with a condition associated with SCD?**

These questions are merely guidelines suggested by cardiac specialists and have not been researched. But, if you answered yes to any of these questions, it is important to discuss them with your child's pediatrician or your own health care provider. Give them a detailed family health history. There may be other physical exams and screenings that can be done to determine if your child and other family members are at risk for SCD. If you know the risks and signs, it may be possible to prevent this tragedy.

Where Does Michigan Stand?

There are currently no statistics readily available that tell us how often SCD affects young people in our state. The Michigan Department of Community Health is in the process of investigating this question.

On the Web...

Sudden Arrhythmia Death Syndromes Foundation (SADS)
www.sads.org/

American Heart Association
Sudden Cardiac Death page
www.americanheart.org/presenter.jhtml?identifier=4741

Michigan Department of Community Health
Cardiovascular Health
www.michigan.gov/cvh

Michigan's Genetic Resource Center
www.MIGeneticsConnection.org

Newsletter for health care providers: Taking the Pedigree to Heart
www.nchpeg.org/newsletter/inpracticesum04.pdf

One faces the future with one's past.
-Pearl S. Buck

Did you Know?

February is **American Heart Month**!

Heart Disease kills one in three people across the country. Those with a family history of heart disease are more likely to develop it themselves. It's very important to know your family health history. You can't control your family health history but if you know you have a family history of heart disease, you CAN be proactive and take steps to control other risk factors. These risk factors include poor nutrition, lack of exercise, smoking, high blood pressure and high cholesterol. For more information on heart disease and family health history go to:

www.AmericanHeart.org

1. Tan HL, Hofman N, vanLangen IM, van der Val AC, Wilde AAM. Sudden Unexplained Death:Heritability and Diagnostic Yield of Cardiological and Genetic Examination in Surviving Relatives. Circulation. 2005;112:207-213.