

Public Health Genomics Applications: *25th Anniversary Celebration!*

February 9, 2023



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Thank you to Public Health Genomics Pioneers & Greats!

In Honor of All of You who made 25 Years of Public Health Genomics Possible

Every Cause Needs a Champion: Jean Chabut as a Public Health Genomics Pioneer

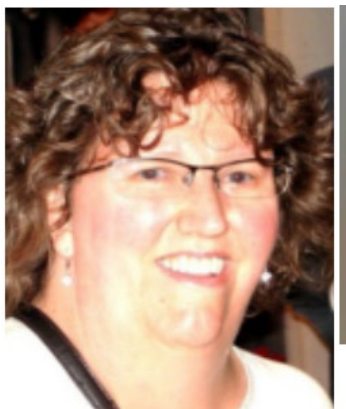
November 13, 2014 by Muin J Khoury and Scott Bowen, Office of Public Health Genomics, Centers for Disease Control and Prevention
Champion noun \ˈcham-pē-ən/: someone who fights or speaks publicly in support of a person, belief, cause, etc.



Jean Ellen Chabut 1942-2014

Michigan Department of Community Health

“Think Genomics,
Act Local”



Kristin Peterson Oehlke, MS, CGC
1959-2018

Minnesota Department of Health

A Public Health Genomics Pioneer

March 18, 2020 by Scott Bowen, Muin J Khoury, Office of Genomics and Precision Public Health, Centers for Disease Control and Prevention with Sharon Kardia and Stephen Modell, University of Michigan



Toby Citrin, JD

University of Michigan, Deceased 2020,

Center for Public Health & Community Genomics

Public Health Genomics Applications: Lessons Learned

✓ Engage Multiple Sectors & Partners

- Consider Taplin et al, Multilevel Interventions in Cancer Control

✓ Strategic Planning to Create Shared Goals & Objectives

- Healthy People
- State Plans (e.g. Comprehensive Cancer Control Plans)
- Community Engagement

✓ Utilize Core Public Health Functions

- Data to Action!

✓ Focus on Improving Health Inequities

- Disparities to genomics services exist among racial and ethnic minority groups, rural communities, uninsured or underinsured people, and those with lower education and income



➤ Sustainability & Expansion of Networks, Members & Activities

➤ Flexibility & Innovate with Changing Genomics Landscape

➤ Leverage Public Awareness and Provider Education Opportunities

➤ Implementation from Local/State Level to National/International Level

➤ Achieve Public Health Genomics Goals & Objectives

Today's Examples:

- Lynch Syndrome Screening Network
- Cancer Registries
- Prevention of Sudden Cardiac Death of the Young

Public Health Genomics Priorities: Healthy People (HP) 2020 and 2030 Cancer Genomics Objectives

U.S. Department of Health and Human Services | OASH | Office of Cancer Prevention and Health Promotion

Healthy People 2030

Objectives and Data | Tools for Action | Priority Areas | About | Custom List (0)

Home > Objectives and Data > Browse Objectives > Cancer > Increase the proportion of females at increased risk who get genetic counseling for breast and/or ovarian cancer — C-D01

Increase the proportion of females at increased risk who get genetic counseling for breast and/or ovarian cancer — C-D01

Objective Overview | Status: Developmental ⓘ | Learn more about our data release schedule

Evidence-Based Resources

Increase the proportion of females with a family history of cancer who receive genetic counseling for hereditary breast and/or ovarian cancer based on the most recent guidelines

U.S. Department of Health and Human Services | OASH | Office of Cancer Prevention and Health Promotion

Healthy People 2030

Objectives and Data | Tools for Action | Priority Areas | About | Custom List (0)

Home > Objectives and Data > Browse Objectives > Cancer > Increase the proportion of people with colorectal cancer who get tested for Lynch syndrome — C-R03

Increase the proportion of people with colorectal cancer who get tested for Lynch syndrome — C-R03

Objective Overview | Status: Research ⓘ | Learn more about our data release schedule

Add to Custom List

Increase the proportion of persons with newly diagnosed colorectal cancer who receive genetic testing to identify Lynch syndrome (or familial colorectal cancer syndromes)

<https://health.gov/healthypeople/objectives-and-data/browse-objectives/cancer/increase-proportion-females-increased-risk-who-get-genetic-counseling-breast-and-or-ovarian-cancer-c-d01>

<https://health.gov/healthypeople/objectives-and-data/browse-objectives/cancer/increase-proportion-people-colorectal-cancer-who-get-tested-lynch-syndrome-c-r03>

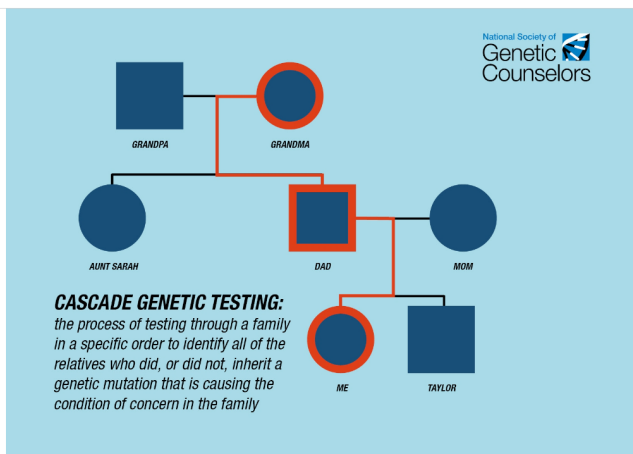
- HP 2020 marks first time for genomics objectives; likely to be included in HP2030
 - Must have **strong evidence-base** for population health impact
 - Must be **measurable** (national data source) and **attainable**
- Increase the proportion of females at increased risk who get genetic counseling for breast and/or ovarian cancer
- Increase the proportion of people with colorectal cancer who get tested for Lynch syndrome
- Estimated that up to **2 million** in US have one of these conditions and vast majority are undiagnosed!

Importance of Access to Genetic Counseling & Effective Cascade Genetic Testing to Public Health Genomics

NSGC.org > Find a Genetic Counselor > Resources to Help You >



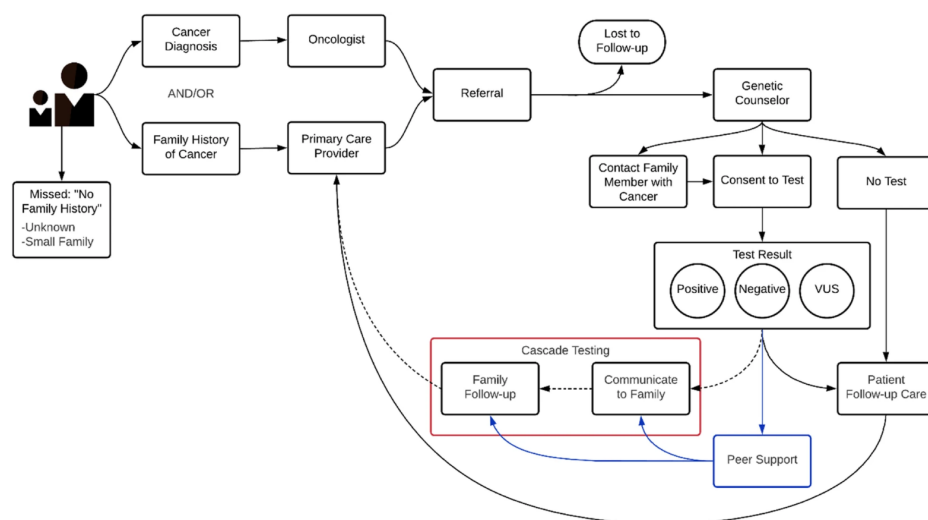
WHO ARE GENETIC COUNSELORS? REASONS TO SEE A GENETIC COUNSELOR PREPARE FOR AN APPOINTMENT BECOME A GENETIC COUNSELOR RESOURCES TO HELP YOU



Amy Sturm, MS, CGC, LGC, is a cardiovascular genetics expert and a Past-President for the National Society of Genetic Counselors and a Professor and the Director of Cardiovascular Genomic Counseling at the Geisinger Health System Genomic Medicine Institute.

Fig. 1

From: [Improving our model of cascade testing for hereditary cancer risk by leveraging patient peer support: a concept report](#)



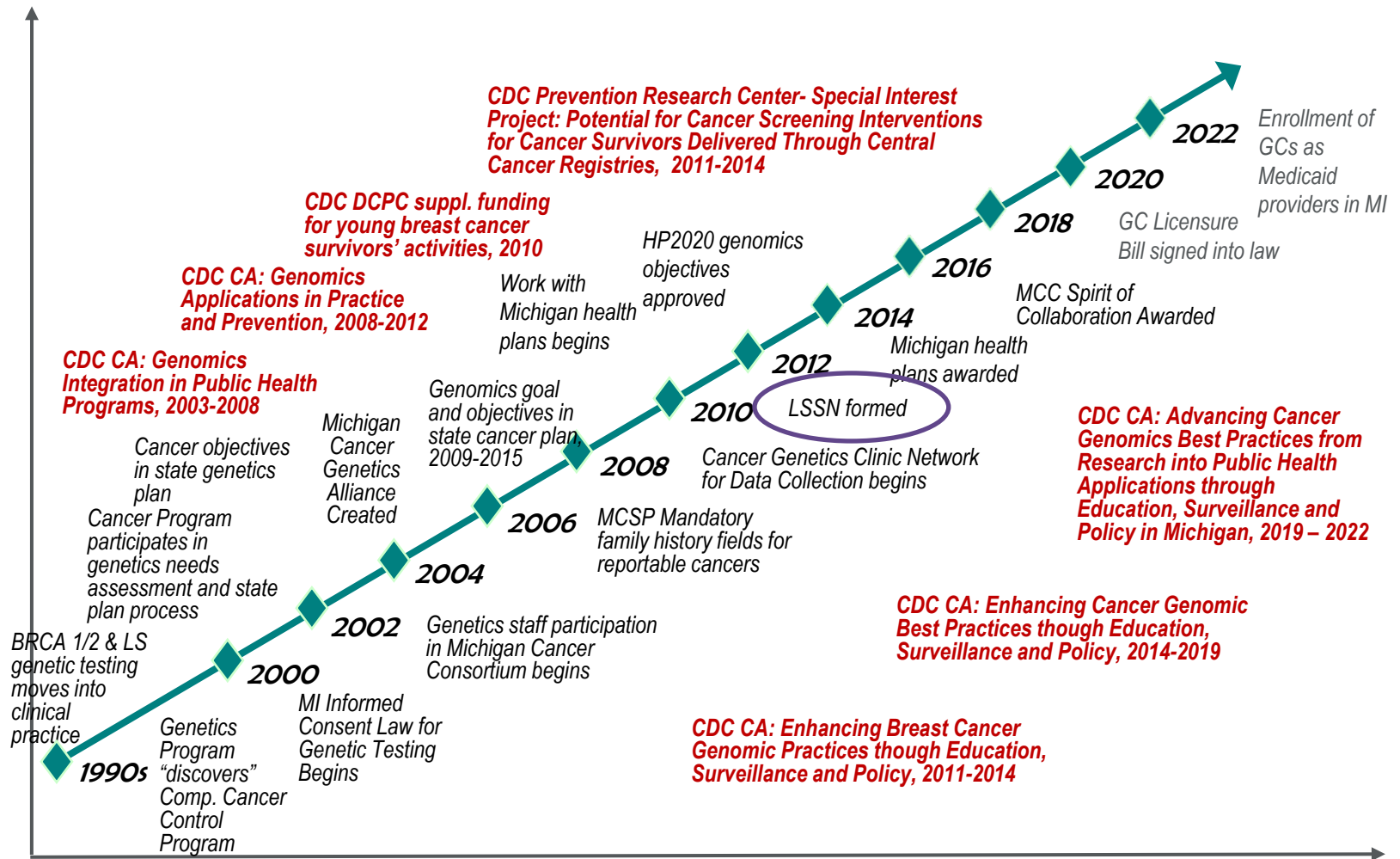
Adapted from Helzlsouer (2018). The red box highlights the process of cascade testing, dashed lines indicate breakdowns in cascade testing. The proposed role of peer support is indicated in blue. VUS = variant of uncertain significance

Process of genetic counseling and testing.

<https://www.aboutgeneticcounselors.org/Resources-to-Help-You/Post/the-power-of-cascade-testing-and-how-genetic-counselors-can-help>

<https://hccjournal.biomedcentral.com/articles/10.1186/s13053-021-00198-7/figures/1>

Key Milestones: Michigan Department of Health & Human Services (MDHHS) Cancer Genomics Program, 1998-2023



Collaborating on HP2020/2030 Lynch Syndrome Objective: Lynch Syndrome Screening Network (LSSN), 2011-2023



Commentary

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Implementing universal cancer screening programs can help sustain genomic medicine programs

Alanna Kulchak Rahm^{a,1}, Cecelia Bellcross², Deborah Cragun³, Debra Duquette⁴, Heather Hampel⁵ & Brandie Heald⁶

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“we discuss how implementing evidence-based universal cancer screening programs, such as universal Lynch syndrome (LS) screening and other programs, can sustain current genomic medicine programs and pave the way for future genomic screening programs, and that they must remain an integral and necessary part of the evolving landscape of genomic medicine.”

LSSN Vision:

- To reduce the cancer burden associated with Lynch Syndrome for patients and their families

LSSN Mission:

- To promote universal tumor screening (UTS) of all individuals with newly diagnosed colorectal and endometrial cancers
- To facilitate the ability of institutions to implement appropriate screening by sharing resources, protocols and data through network collaboration
- To investigate universal screening for other Lynch Syndrome related malignancies

- Promote **institutional implementation** of universal screening for Lynch syndrome since 2011
- Funding from multiple agencies for specific activities- **THANK YOU!**
 - Created with funding from CDC
 - Conference support from NCI and CGA
 - Pilot database from CGA
 - IMPULSS (implementation toolkit) from Cancer Moonshot
 - SPRINTS (strategic planning) from PCORI
 - In-kind support from MDHHS, Northwestern GPGC, LSSN Board of Directors & Members

LSSN Membership, Network Benefits & Impact of Data

- Membership by institution
 - Up to 95 leading cancer institutions, public health agencies, & others
 - **No cost to join**
- Resources to support, track and promote Lynch syndrome screening
 - Website with multiple resources to assist institutions to implement Lynch syndrome screening
 - IMPULSS Toolkit coming soon!
 - **Join us for a webinar on March 22nd**
 - Active listserv
 - Research and networking opportunities
- LSSN members provide relevant institutional data on Membership Application and Renewal
 - 85% of LSSN institutional members screen all colorectal cancers; 53% screen endometrial cancers
 - **Number of tumors screened for Lynch syndrome increased significantly**
 - IHC most common initial screen across LSSN institutions in 2020

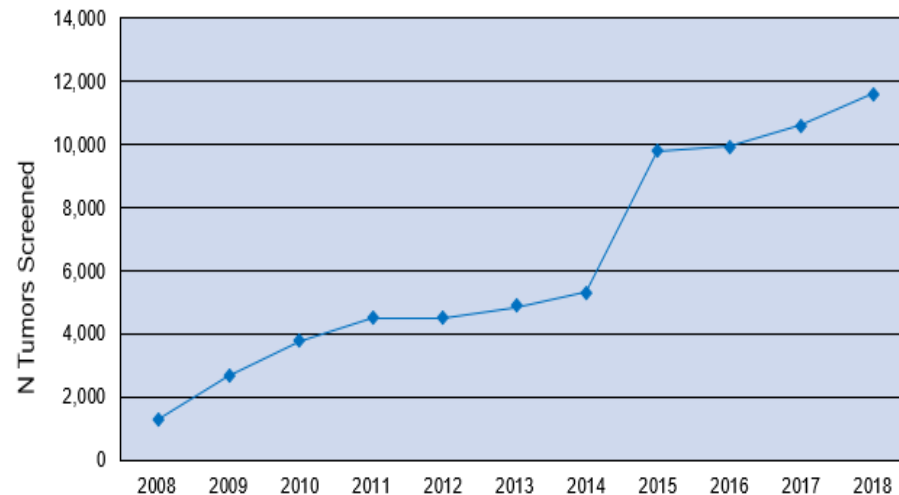


Figure 2: Number of LS Cancers Screened

<http://www.lynchscreening.net/>



SPRINTS Project - Stakeholders Working Together for Strategic Planning Retreats in Tumor Screening



PCOR = Patient Centered Outcomes Research
CER = Comparative Effectiveness Research



Thank you to Alanna Kulchak Rahm, PhD, MS

Resulting Strategic Priorities

Please join us on March 22nd to learn more



Facilitate identification
of all individuals with LS



Facilitate cascade
testing of at-risk
individuals



Encourage and facilitate
use of registries to
improve medical care
and patient outcomes

Additional Cross-Cutting Needs for Patients

Education,
understanding, and
facilitation of insurance
coverage for screening
colonoscopy

Comparative
effectiveness research
on screening intervals
and start/stop based
on age or genotype

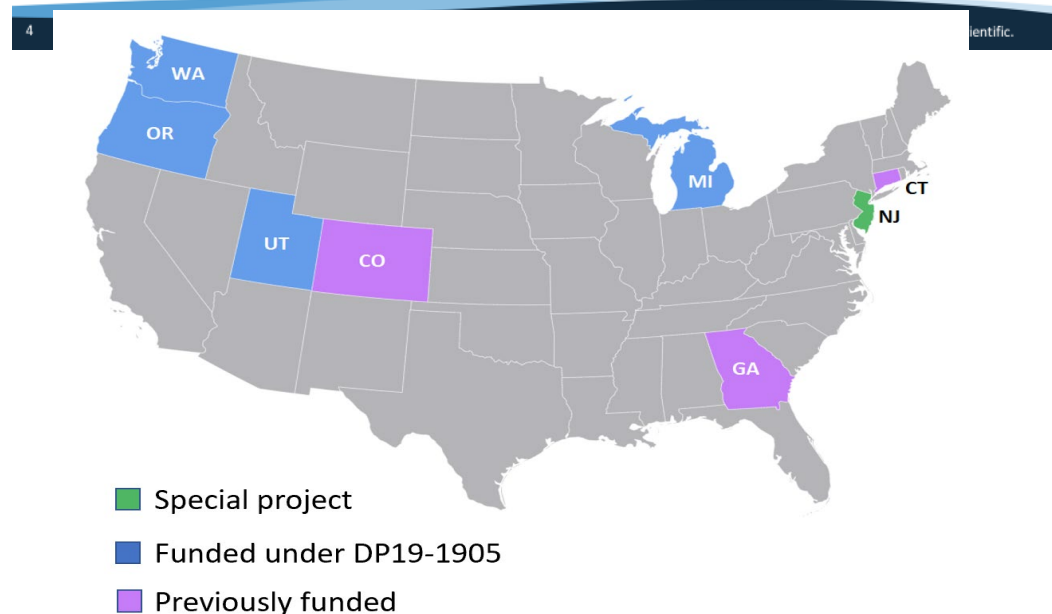
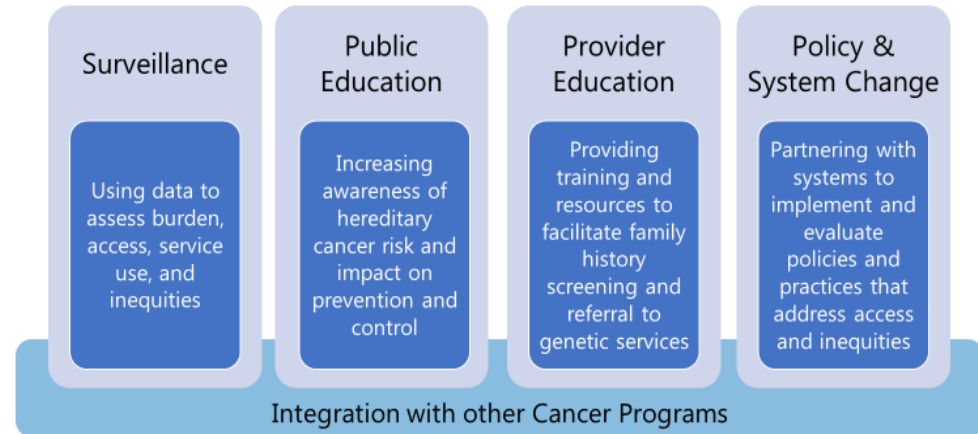
Research in LS patients
on alternate screening
tests, effective
treatments, and cancer
vaccines

Thank you to Alanna Kulchak Rahm, PhD, MS

Existing Public Health Genomics Data: Cancer Registries & CDC Cancer Genomics State Grantees

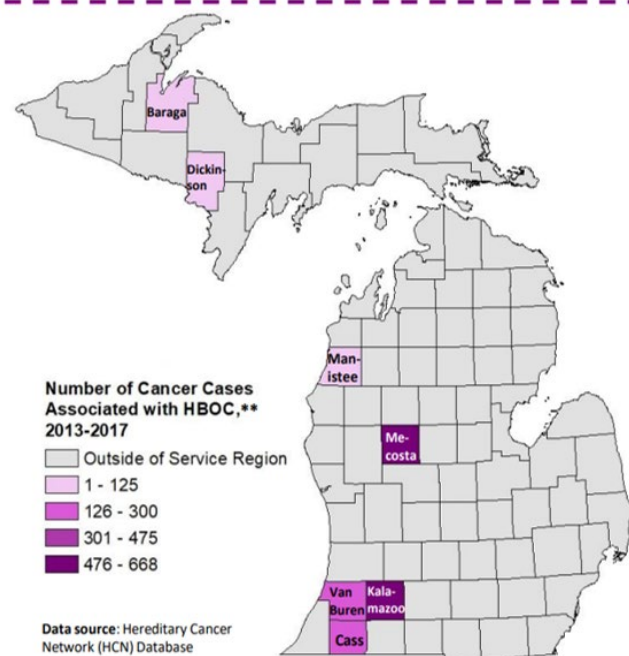
- **Surveillance Goal:**
 - **Improve data on hereditary cancer burden and utilization of cancer genetic services**
- **Surveillance requirements:**
 - **Analyze cancer registry data**
 - Add questions to the state BRFSS
 - Use, expand or develop other data sources
 - Develop data reports and disseminate
- **Surveillance accomplishments:**
 - ✓ Identified geographic differences in cancer incidence, availability of cancer genetic services, and use of genetic counseling and testing
 - ✓ Identified racial/ethnic disparities in cancer incidence and use of genetic counseling and testing
 - ✓ Engaged with communities with inequities and created targeted educational materials and other activities with community partners

Program Strategies



Thank you to Marie Kumerow, MPH

Michigan Example: Utilize Cancer Registry to Identify & Address Cancer Genomics Inequities



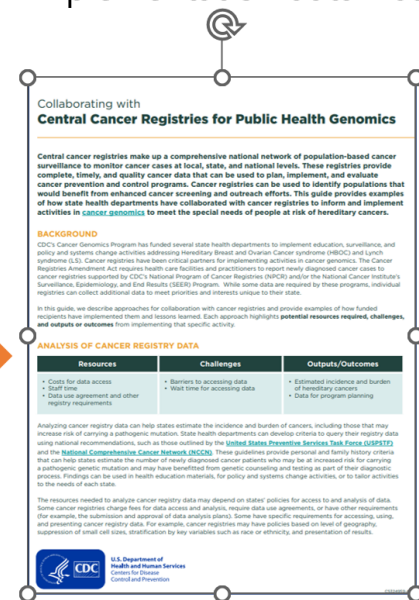
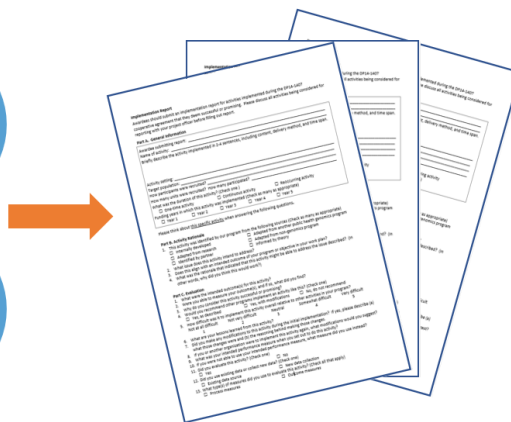
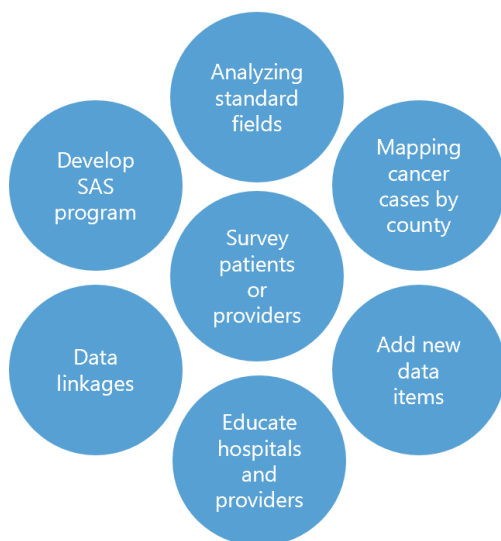
- Utilized cancer registry data from 2013-2017 to identify cancers associated with HBOC to:
 - Identify **7 rural counties** with high incidence of cancers associated with HBOC and low usage of cancer genetic services.
 - Create targeted radio ads and provider trainings to those counties.
 - Develop partnerships with provider organizations to create opportunities for more sustainable change

* High incidence and low utilization regions are counties where the incidence rate of select cancers is 136.2 per 100,000 individuals and less than 60% of individuals per county receiving genetic testing according to the HCN database. **Seen at an MPCC clinic. ***Seen at a cancer genetic counseling clinic.

March 2021

New CDC Resource: Best Practice Guide for Utilizing Central Cancer Registries for Public Health Genomics

The cancer registry has been used in a multitude of ways, from which implementation data was collected and summarized to develop a best practice guide



<https://www.cdc.gov/cancer/genomics/collaborating-with-registries/index.htm>

Cancer Plan for Michigan, 2021-2030: Cancer Registry, Disparities & Public Health Genomics



Michigan
CANCER PLAN
2021-2030



EARLY DETECTION: TRIPLE NEGATIVE BREAST CANCER

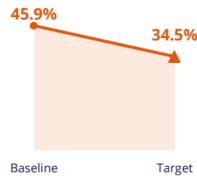
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OBJECTIVE TWO

By 2030, reduce the percent of **Triple Negative breast cancer** diagnosed at a late stage in African Americans.

Data Target

Reduce late stage diagnoses from 45.9% to 34.5%.



Strategies

- Increase the number of Triple Negative breast cancers that are sent for genetic counseling and testing.
- Increase cascade screening.
- Improve patient education on how to inform family members of their diagnosis and need for genetic counseling and testing as appropriate.

Disparity Spotlight, Breast Cancer Diagnosed at Late Stage

☒ NO SIGNIFICANT DISPARITY
 ☒ SIGNIFICANT DISPARITY
 ☐ DATA SUPPRESSED OR NOT AVAILABLE

RACE & ETHNICITY	
Comparison: White	
African American	<input checked="" type="checkbox"/>
Native American	<input checked="" type="checkbox"/>
Asian/Pacific Islander	
Hispanic	
Arab	
SEXUAL ORIENTATION/ GENDER IDENTITY	
Comparison: Straight	
Gay/Lesbian	
Trans	
EDUCATION	
Comparison: Some College or More	
High School Diploma or Less	

INSURANCE	
Comparison: Privately Insured	
Uninsured	<input type="checkbox"/>
Medicaid	<input type="checkbox"/>
INCOME	
Comparison: More than \$50k	
Less than \$50k	<input type="checkbox"/>
POPULATION DENSITY	
Comparison: Suburb	
Rural	<input type="checkbox"/>
Urban	<input type="checkbox"/>



DIAGNOSIS & TREATMENT: TUMOR TESTING

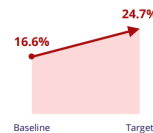
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OBJECTIVE TWO

Increase the proportion of those diagnosed with colorectal cancer who **receive MSI tumor testing**.

Data Target

Increase proportion receiving MSI tumor testing from 16.6% to 24.7%.



Strategies

- Educate providers on the benefits of screening colorectal cancers and endometrial cancers for Lynch Syndrome using MSI and Immunohistochemistry (IHC) screening.
- Increase organizational readiness for implementation of universal Lynch Syndrome screening among health systems.
- Develop the criteria for identifying and promote the use of champions for MSI tumor testing within health systems.

Disparity Spotlight

☒ NO SIGNIFICANT DISPARITY
 ☒ SIGNIFICANT DISPARITY
 ☐ DATA SUPPRESSED OR NOT AVAILABLE

RACE & ETHNICITY	
Comparison: White	
African American	
Native American	<input checked="" type="checkbox"/>
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Arab	
SEXUAL ORIENTATION/ GENDER IDENTITY	
Comparison: Straight	
Gay/Lesbian	
Trans	
EDUCATION	
Comparison: Some College or More	
High School Diploma or Less	

INSURANCE	
Comparison: Privately Insured	
Uninsured	
Medicaid	
INCOME	
Comparison: More than \$50k	
Less than \$50k	
POPULATION DENSITY	
Comparison: Suburb	
Rural	
Urban	



DIAGNOSIS & TREATMENT: FAMILY HISTORY

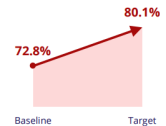
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OBJECTIVE ONE

Increase the percent of cases in the cancer registry that have **family history recorded**.

Data Target

Increase percentage of cases from 72.8% to 80.1%.



Strategies

- Promote the use of family history questionnaires as a method of collecting a complete family history.
- Educate providers on the importance of: a 3-generation family history which includes maternal and paternal family members, cancer type and age of diagnosis, family members with and without cancer, and how the family is related to the patient; ethnicity, particularly Ashkenazi Jewish ancestry, and; family history of rare cancers or cancers with a higher chance of being hereditary.

Disparity Spotlight

☒ NO SIGNIFICANT DISPARITY
 ☒ SIGNIFICANT DISPARITY
 ☐ DATA SUPPRESSED OR NOT AVAILABLE

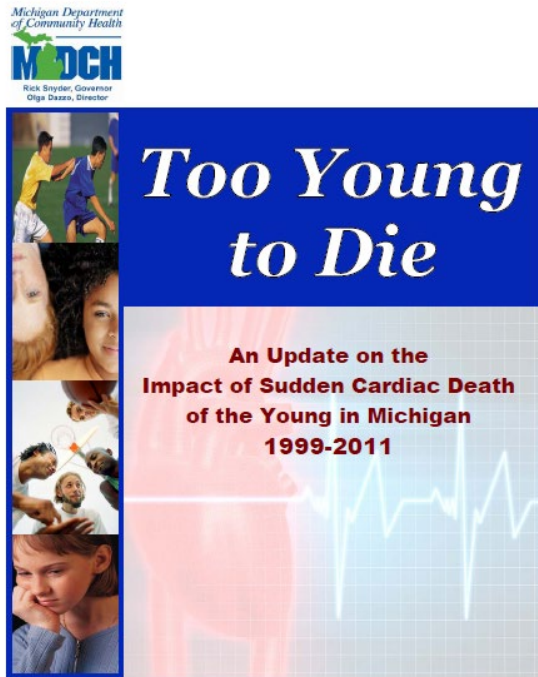
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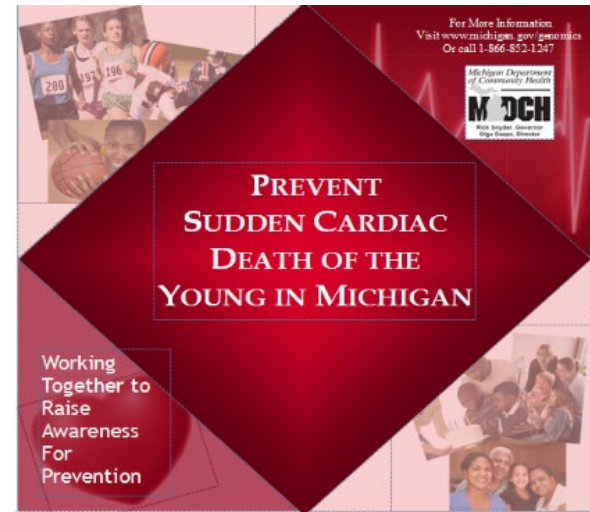
<https://www.michigan.gov/mdhhs/->

[/media/Project/Websites/mdhhs/Folder4/Folder33/Folder3/Folder133/Folder2/Folder233/Folder1/Folder333/CancerPlanFinal.pdf?rev=fdfeb5afef0a4bc8b5735176e9e14a46&hash=00838ED3D3B44A4611974DFFC3A3DEA2](https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Folder4/Folder33/Folder3/Folder133/Folder2/Folder233/Folder1/Folder333/CancerPlanFinal.pdf?rev=fdfeb5afef0a4bc8b5735176e9e14a46&hash=00838ED3D3B44A4611974DFFC3A3DEA2)

Michigan Sudden Cardiac Death of the Young (SCDY) Surveillance and Prevention, 2004-2023



www.michigan.gov/scdy



Aim: Prevention of SCDY (1-39 years of age) in Michigan through early detection of individuals at risk, treatment of those with predisposing conditions, & intervention for victims experiencing sudden cardiac arrest

Created with initial funds from CDC cooperative agreement, 2003-2008; since 2008, in-kind support from MDHHS and multiple partners; support for MI HeartSafe Schools from MHSAA, Kimberly Anne Gillary Foundation, Wes Leonard Heart Foundation, Thomas Smith Memorial Foundation and others

Importance of Data to Identify Priorities: MDHHS SCDY Mortality Records Review

Table 1 Sudden cardiac deaths (SCDs)* of Michigan residents aged 1 - 39 years, 1999 - 2009		
	Number	Percent
Total	3,134	
Sex		
Male	2,179	69.5
Female	955	30.5
Race		
White	1,961	62.6
Black	1,089	34.7
Other	84	2.7
Age		
1-4 years	91	2.9
5-9 years	45	1.4
10-14 years	64	2.0
15-19 years	137	4.4
20-24 years	213	6.8
25-29 years	380	12.1
30-34 years	716	22.8
35-39 years	1,488	47.5
Place of death		
Home	1,339	42.7
Nursing home, extended care	28	0.9
Hospital: emergency room / outpatient	1,462	46.6
Ambulance	34	1.1
Other / unknown	271	8.6
Autopsy		
Yes	2,474	78.9
No	658	21.0
Unknown	2	0.1

* Includes decedents who died out of the hospital, or in an emergency department, or were dead on arrival to an emergency department, and had one of the identified ICD-10 codes reported as the underlying cause of death on the death certificate

Case Definition:

- Aged 1-39
- Death occurred out of the hospital or in the emergency room
- Michigan resident
- Death occurred in Michigan
- Underlying cause of death cardiac-related, congenital cardiac malformations, or ill-defined/unexplained

Age-Adjusted Mortality Rates:

Statewide: 5.5 per 100,000

White Males: 6.1 per 100,000

Black Males: 16.5 per 100,000

White Females: 2.4 per 100,000

Black Females: 8.3 per 100,000

Michigan SCDY Expert Mortality Review Panel

- Confirm the cause of death or suggest an alternative cause
- Describe the factors that may have contributed to the death
- Identify possible risk to family members
- Suggest recommendations for prevention of future deaths

J Community Health
DOI 10.1007/s10900-010-9273-2

ORIGINAL PAPER

Sudden Cardiac Death of the Young in Michigan: Development and Implementation of a Novel Mortality Review System

Siddharth Mukerji · Beth Hanna · Debra Duquette ·
Janice Bach · Kenneth Rosenman

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Abstract Advances in screening, detection and treatment make Sudden Cardiac Death of the Young (SCDY) a potentially preventable condition. Since hereditary causes account for many deaths, identification of an affected individual has implications for immediate relatives; who should receive targeted screening with the aim of preventing SCDY. To develop a mortality review process for SCDY and to identify potential unmet needs for family-based, medical system and public health interventions, The Michigan Department of Community Health and Michigan State University developed a system for investigating SCDY. Review of medical records and next-of-kin (NOK) interviews were conducted. A de-identified summary of each case was presented to an expert panel. The panel identified factors that contributed to the death and possible actions to prevent future deaths. If the case was deemed to have a likely heritable cause, NOK were notified of a possible increased risk and need for evaluation of immediate family members. Twenty-three deaths aged 1–39 years between 2006 and 2008, were selected for review. Sixteen NOK were interviewed. Several primary and secondary prevention measures were identified, including enhanced pre-participation sports

screening; provider education; public awareness of risk factors, symptoms, emergency response training for coaches and the general public; and creation and dissemination of emergency response and medical examiner protocols. Seventeen NOK were notified of the potential heritable cause. Investigation of these deaths has led to identification of individual, family, public and provider needs and motivated policy makers to initiate changes to prevent future SCDY.

Keywords Arrhythmia · Cardiomyopathy · Genetics · Sport's physical · Sudden cardiac death · Surveillance

Introduction

Sudden cardiac death (SCD) is a catastrophic event that affects all age groups. Commonly recognized definitions include an "unexpected natural death from a cardiac cause within a short time period, generally <1 h from the onset of symptoms in a person without any apparent prior fatal condition;" [1] or "an unexpected sudden death due to cardiac cause and occurring out of hospital or in the emergency department [2]". For epidemiological studies, the latter definition is typically preferred. It is estimated that between 400,000 and 460,000 individuals die from SCD each year in the United States [2]. The number and rate of SCD markedly increase with age, and are higher among men and among individuals of lower socioeconomic status [2]. Sudden cardiac death is a devastating event especially when it occurs in the young. SCD of the young (SCDY), variably defined as SCD in those less than 30, 35 or 40, occurs less frequently but has an enormous impact on the family and community, often generating attention from the media and the public [2, 3].

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Michigan Department of Community Health, Lansing, MI, USA

Published online: 27 April 2010

 Springer

Journal of Community Health. April 27, 2010.

Michigan Case Study

Clinical and Family History

- African American teenage male
- Student, basketball player
- Symptoms 4 months – “skipped beats and fluttering” especially while playing basketball; dizzy when rising from chair; tired all the time; legs hurt all the time; he thought these symptoms meant he was out of shape so he would practice harder
- Private health insurance coverage
- Family History - mother had “stroke” as teen; maternal uncle had heart attack at 40 years old
- Sports physical 4.5 months prior
- Never referred to cardiologist or specialist
- Weight 82nd percentile

Day of Death

- Playing basketball, collapsed
- No CPR prior to EMS, police were needed to allow EMS access
- Locked AED at site, coach had no training on AED
- No pulse/not breathing

Autopsy

- Hypertrophic cardiomyopathy
- Toxicology – negative for alcohol, illicit drugs
- Family members not made aware of genetic implications

Expert Panel Case Findings & Recommendations



Patient-related factors

- Education when to seek medical care
- Family history and screening

Physician-related factors

- Quality of primary care

- Awareness of cardiology referral

- Education on

System-related

- CPR training

- If AED present

- Update Michigan sports screening 2004/2010 n

- Mechanism for family contact, including assuring autopsy report reaches primary care provider

- Storage of biologic specimen/DNA

Case Findings → Action Steps
→ Implementation of Actions by
Partners/Champions:

**Led to accomplishment of each of
these recommendations**

genetics or

schools

icipation
een and

Michigan SCDY and Mortality Review Leads to Policy & Institutional Changes: MHSAA Pre-Participation Sports Screening & Michigan MI HEARTSafe Schools



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Search _____



MEDICAL HISTORY: Completed by Parent or Guardian or 18-Year-Old

Student Name: _____ Date of Birth: _____

Doctor: _____ Doctor's Phone: _____ Date of Exam: _____

GENERAL QUESTIONS		MEDICAL QUESTIONS	
Y	N	Y	N
Do you have any ongoing medical conditions? If so, please identify them:			
<input type="checkbox"/> Asthma <input type="checkbox"/> Allergies <input type="checkbox"/> Diabetes <input type="checkbox"/> Infections <input type="checkbox"/> Other: _____			
Have you ever spent the night in the hospital or have you ever had surgery?			
HEART HEALTH QUESTIONS ABOUT YOU			
Have you ever passed out or nearly passed out DURING or AFTER exercise?			
Have you ever had discomfort, pain, lightheadedness, or pressure in your chest during exercise?			
Does your heart ever race or skip beats (irregular beats) during exercise?			
Has a doctor ever told you that you have any heart problems? Check all that apply:			
<input type="checkbox"/> High blood pressure <input type="checkbox"/> Heart murmur <input type="checkbox"/> Heart infection <input type="checkbox"/> High cholesterol <input type="checkbox"/> Kawasaki disease <input type="checkbox"/> Other: _____			
Has a doctor ordered a test for your heart? (example: ECG/EKG, echocardiogram)			
Do you get lightheaded or feel more short of breath than expected during exercise?			
Do you have a history of seizure disorder or had an unexplained seizure?			
Do you get more tired or short of breath more quickly than your friends during exercise?			
HEART HEALTH QUESTIONS ABOUT YOUR FAMILY			
Has anyone in your family had unexplained fainting, unexplained seizures or near drowning?			
Does anyone in your family have a heart problem, pacemaker or implanted defibrillator?			
Has any family member or relative died of heart problems or had an unexpected or unexplained sudden death before age 50 (including drowning, unexplained car accident or sudden infant death syndrome)?			
Does anyone in your family have hypertrophic cardiomyopathy, Marfan syndrome, arrhythmogenic right ventricular cardiomyopathy, long QT syndrome, short QT syndrome, Brugada syndrome or catecholaminergic polymorphic ventricular tachycardia?			
BONE AND JOINT QUESTIONS			
Have you ever had an injury to a bone, muscle, ligament or tendon that caused you to stop a practice or a game?			
Have you ever had a broken or fractured bone, dislocated joint, or arthritis fracture?			
Have you ever had an injury that required X-rays, surgery, or injections, therapy, a brace, a cast or crutches?			
Do you regularly use a brace, orthotics or other assistive device?			
Do you have a bone, muscle or joint injury that bothers you?			
Do any of your joints become painful, swollen, feel warm or look red?			
Do you have any history of juvenile arthritis or connective tissue disease?			
Have you ever had an x-ray for neck instability or atlantoaxial instability (Down syndrome or dwarfism)?			
CURRENT-YEAR PHYSICAL = GIVEN ON OR AFTER APRIL 15 OF THE PREVIOUS SCHOOL YEAR			

PHYSICAL EXAMINATION & MEDICAL CLEARANCE: Completed by MD, DO, PA or NP - RETURN DIRECTLY TO PATIENT

EXAMINATION: Height: _____ Weight: _____ ☐ Male ☐ Female BP: _____ / _____ Pulse: _____ Vision: R 20/ _____ L 20/ _____ Corrected: ☐ Y ☐ N

MEDICAL	NORMAL	ABNORMAL	MUSCULOSKELETAL	NORMAL	ABNORMAL
Appearance: Marfan stigmata (hyperostosis, high-arched palate, pectus excavatum, arachnodactyly, arm span > height, hyperlaxity, myopia, MVP, aortic insufficiency)			Neck		
Eyes/Ears/Nose/Throat: Pupil Equal Hearing			Back		
Lymph nodes			Shoulder/Arm		
Heart: Murmurs (auscultation standing, supine, +/- Valsalva) Location of point of maximal impulse (PMI)			Elbow/Forearm		
Pulses: Simultaneous femoral and radial pulses			Wrist/Hand/Fingers		
Lungs			Hip/Thigh		
Abdomen			Knee		
Genitourinary (males only)			Leg/Ankle		
Skin: HSV Lesions suggestive of MRSA, tinea corporis			Foot/Toe		
Neurologic			Functional Duck Walk		

RECOMMENDATIONS:

I certify that I have examined the above student and recommend him/her as being able to compete in supervised athletic activities NOT crossed out below.

BASEBALL - BASKETBALL - BOWLING - COMPETITIVE CHEER - CROSS COUNTRY - FOOTBALL - GOLF - GYMNASTICS - ICE HOCKEY
LACROSSE - SKIING - SOCCER - SOFTBALL - SWIMMING/DIVING - TENNIS - TRACK & FIELD - VOLLEYBALL - WRESTLING

Name of Examiner (print/type): _____ Date: _____
Signature of Examiner: _____ (Check One): ☐ MD ☐ DO ☐ PA ☐ NP

(DETACH HERE IF NEEDED TO ACCOMPANY STUDENT-ATHLETE)

Patients & Families Providers Teachers & Students Public Health Directories Resources New!

MI HEARTSafe

[Home](#) → [Patients & Families](#) → MI HEARTSafe Schools

MI HEARTSafe

Sudden Cardiac Death
Sudden Cardiac Arrest
MI HEARTSafe School Program
Emergency Response Plan and Drills
Schools in the Spotlight
CPR and AED training
MHSAA Sports Screening
Other Resources

Preventing Sudden Cardiac Death of the Young

Sudden cardiac death of the young (SCDY), or sudden unexplained death, occurs when a young, apparently healthy person dies suddenly from a cardiac arrest or an unknown cause. (SCDY does **not** include deaths related to drugs, trauma, suicide, homicide, or long illness.) SCDY claims the lives of more than 300 Michigan children and young adults between the ages of 1-39 years annually. For the number of SCDY cases by county in Michigan, please see Appendix D in, "[Too Young to Die: An Update on the Impact of Sudden Cardiac Death of the Young in Michigan 1999-2011](#)".



Congratulations to Over 700+ Michigan Schools Awarded as MI HeartSafe!

100+ Applications Received in January 2023!

2022-2023 MI HEARTSafe School Application

** Application must be received by May 15, 2023 for consideration for the 2022-2023 school year.

Schools must submit applications online using the following link:

<https://www.research.net/r/NGQZ96J>

The Michigan Department of Health and Human Services (MDHHS), Michigan Department of Education (MDE), Michigan High School Athletic Association (MHSAA) and American Heart Association (AHA) in conjunction with the Michigan Alliance for Prevention of Sudden Cardiac Death of the Young (MAP-SCDY) have developed an initiative to award Michigan schools with a MI HEARTSafe School designation. The MI HEARTSafe School program encourages schools to prepare and protect students, staff, and visitors in the event of a cardiac emergency. Most of the criteria are required by state law ([HJR4713](#)). If approved, the MI HEARTSafe School designation is for 3 years. There is no cost for schools to apply to receive this designation.

The MI HEARTSafe School designation is awarded when a school has completed all of the following criteria:

- A written cardiac emergency response plan reviewed at least annually with staff for during the school day AND for organized after-school activities and sports. [More information on developing a plan](#).
- A cardiac emergency response team with current completion of a CPR/AED certification class*, sufficient to respond to an emergency during school hours. [More information available on forming a team](#).
- At least 10% of full-time equivalent staff, 50% of coaches including 100% of head coaches, and 100% of P.E. staff with current completion of a CPR/AED certification class*. Please note that MI State Law requires schools to include CPR/AED instruction in 7th-12th grade curriculum.
- A sufficient number** of accessible, properly maintained (i.e. current pads and batteries) and routinely inspected AEDs ready to use; with signs identifying AED locations and documentation of routine AED inspections by designated staff.
- The performance of at least one cardiac emergency response drill per school year*. This drill simulates a response to a potential sudden cardiac arrest using the American Heart Association's Chain of Survival: early recognition, early 9-1-1 call, early CPR, early AED use, early advance life support. Local EMS participation is encouraged but not required.
- All athletic pre-participation screening completed with the [most updated Michigan High School Athletic Association \(MHSAA\) form](#).

*Qualifying CPR/AED courses are listed on the MI HEARTSafe School website; training must be completed within the last two years.

Goal of an AED arriving to the scene of any person identified as needing emergency care **optimally within 3 minutes.

*For this application, first drill must be performed before May 15, 2022 with drills performed each consecutive school year to maintain MI HEARTSafe designation.

For further information on how to become a MI HEARTSafe School, please visit www.migr.org/miheartsafe.

<https://www.mhsaa.com/about/looking-general-resources/health-safety/physical-exammedical-history-forms>

<https://migr.org/patients-families/mi-heartsafe-schools/>

Public Awareness: MI HEART Safe Schools & Michigan Alliance for Prevention of SCDY (MAP-SCDY)

January 2023!



SCORES SCHEDULES SCHOOLS LIVE OFFICIALS ABOUT I AM... LOGIN

SPORTS BASKETBALL BOWLING COMPETITIVE CHEER GYMNASTICS ICE HOCKEY SKIING SWIM & DIVE WRESTLING

HOME / ABOUT / LOOKING FOR GENERAL RESOURCES / HEALTH & SAFETY

Health & Safety



Michigan Internet Crimes Against Children Task Force
Keeping children safe today, so they can be ready for tomorrow.

www.MichiganICAC.com



EXPLORE ABOUT

MHSAA's 4-H Focus: Health History, Heads, Heat, Hearts

Scroll down this page for resources pertaining to the MHSAA's major health and safety initiatives and more. Refer to this site frequently for the most recent information.



Health: Physical
Exam/Medical History Forms



Head: Concussion & Mental
Health Resources



Heat & Hydration Resources

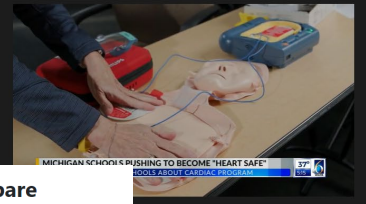


Hearts: Cardiovascular
Resources

<https://www.mhsaa.com/about/looking-general-resources/health-safety>

MICHIGAN

Michigan school program advocates for emergency prep



'MI HEARTSafe' program seeks to prepare
educators for medical emergencies

MI HEARTSAFE SCHOOL PROGRAM

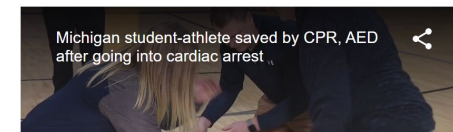
- MEDICAL EMERGENCY
PREPARATION
- VIRTUAL WORKSHOP:
TUESDAY JAN 24TH
- Migrc.org/miheartsafe

By 16 News Now
Published: Jan. 10, 2023 at 3:25 PM CST

LANSING, Mich. (WNUJ) - Officials are prepping
The "MI HEARTSafe" school program advocates
a sudden cardiac arrest and responding quickly
students, staff, and their communities.

Cheer coach uses CPR, AED to save student-athlete who went into sudden cardiac arrest

By Jessica Dupnick and Amber Ainsworth | Published January 11, 2023 | Health | FOX 2 Detroit |



Michigan student-athlete saved by CPR, AED
after going into cardiac arrest

Top videos

Mother of former Marine
found shot to death on
freeway opens up about her
son

It's nothing but 'excuse-gate'
for bad fence builder

Local/Regional News

MI HEARTSafe school program aimed at rural schools

WCMU | By Tina Sawyer

Published January 24, 2023 at 6:25 PM EST

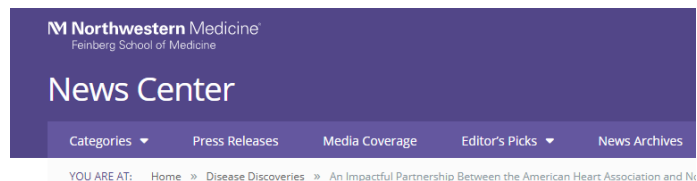


<https://radio.wcmu.org/local-regional-news/2023-01-24/mi-heartsafe-school-program-aimed-at-rural-schools>

[https://www.fox2detroit.com/news/cheer-coach-uses-cpr-aed-to-save-student-athlete-who-went-into-sudden-cardiac-arrest;](https://www.fox2detroit.com/news/cheer-coach-uses-cpr-aed-to-save-student-athlete-who-went-into-sudden-cardiac-arrest)

<https://www.wlns.com/news/michigan/michigan-school-program-advocates-for-emergency-prep/>

National Initiatives to Prevent Sudden Cardiac Death: Cardiac Genetics Provider Education, 2020-2023



An Impactful Partnership Between the
American Heart Association and Northwestern

Journal of the American Heart Association

ORIGINAL RESEARCH

Practitioners' Confidence and Desires for Education in Cardiovascular and Sudden Cardiac Death Genetics

Laura Lopez Santibanez Jacome , MS; Lisa M. Dellefave-Castillo , MS; Catherine A. Wicklund, MS; Courtney L. Scherr , MA, PhD; Debra Duquette, MS; Gregory Webster , MD, MPH; Maureen E. Smith, MS; Kerstin Kalke , MA; Adam S. Gordon , PhD; Kristen De Berg, MS; Elizabeth M. McNally , MD, PhD; Laura J. Rasmussen-Torvik , PhD, MPH

BACKGROUND: Educating cardiologists and health care professionals about cardiovascular genetics and genetic testing is essential to improving diagnosis and management of patients with inherited cardiomyopathies and arrhythmias and those at higher risk for sudden cardiac death. The aim of this study was to understand cardiologists and electrophysiology practitioners' current practices, confidence, and knowledge surrounding genetic testing in cardiology and desired topics for an educational program.

METHODS AND RESULTS: A one-time survey was administered through purposive email solicitation to 131 cardiologists in the United States. Of these, 107 self-identified as nongenetic practitioners. Over three quarters of nongenetic practitioners reported that they refer patients to genetic providers to discuss cardiovascular genetic tests (n=82; 76.6%). More than half of nongenetic practitioners reported that they were not confident about the types of cardiovascular genetic testing available (n=60; 56%) and/or in ordering appropriate cardiovascular genetic tests (n=66; 62%). In addition, 45% (n=22) of nongenetic practitioners did not feel confident making cardiology treatment recommendations based on genetic test results. Among all providers, the most desired topics for an educational program were risk assessment (94%) and management of inherited cardiac conditions based on guidelines (91%).

CONCLUSIONS: This study emphasizes the importance of access to genetics services in the cardiology field and the need for addressing the identified deficit in confidence and knowledge about cardiogenetics and genetic testing among nongenetic providers. Additional research is needed, including more practitioners from underserved areas.

Key Words: cardiogenomics ■ cardiology ■ continuing medical education ■ genetic testing

THE JACKSON LABORATORY

IDENTIFYING RED FLAGS & PATTERNS FOR HEREDITARY CARDIOVASCULAR DISEASE

Identify patients appropriate
for genetic evaluation

This on-demand, interactive course is designed to help cardiology clinicians assess the risk for a genetic condition using patients' personal and family history. The course takes 15 – 30 minutes, is case-based and helps build clinical skills and impact patient care. Earn free continuing medical education (CME) and continuing nursing education (CNE) credit. This course is perfect for practicing cardiology clinicians as well as students and residents.

You will learn how to:

- Identify red flags and patterns that increase genetic cardiac risk
- Identify patients appropriate for genetic evaluation

For more information visit
education.clinical.jax.org



The following activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Northwestern University and The Jackson Laboratory. Northwestern University is accredited by the ACCME to provide continuing medical education for physicians. Northwestern University designates the enduring material for a maximum of 5 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity. This nursing continuing professional development activity was approved by the Northeast Multistate Division Education Unit, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.



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Provided in partnership with

Northwestern Medicine[®]
Feinberg School of Medicine

https://education.clinical.jax.org/page/cardiovascular-genetics-education?utm_source=outreach&utm_medium=email&utm_campaign=identifying_red_flags

“I thought we were forgotten....

I thought no one cared...”

- Mother of 18 year old Michigan SCDY victim, upon being asked for a next-of-kin interview

Thank you! Happy 25th Anniversary to Public Health Genomics!

CDC

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MDHHS Cancer Genomics Program

Michigan Association of Health Plans
Michigan Medicaid
Office of Public Health Genomics and Precision Public Health, CDC
Michigan Cancer Surveillance Program & Vital Records
MDHHS Cancer Prevention and Control Section/Michigan Cancer Consortium
FORCE (Facing Our Risk of Cancer Empowered)
Wayne State University
University of Michigan Cancer Genetics Clinic
University of Michigan Medicine Breast Oncology Clinic/Rogel Cancer Center
Bay County Health Department
Michigan Health Improvement Alliance
Michigan Cancer Genetics Alliance
Inter-Tribal Council of Michigan
The Jackson Laboratory
Karmanos Cancer Institute
Thumb Rural Health Network
The Western Regional Area Health Education Center
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Alice Christenson-Advocate
Beaumont Cancer Genetics Program
Beaumont Hospital
Henry Ford Health System
Mercy Health Saint Mary's
Providence Hospital Medical Genetics
Sparrow Cancer Center
Spectrum Health Cancer Genetics
St. Joseph Mercy Hospital
St. Mary Mercy Hospital
MidMichigan Health (Midland)
West Michigan Cancer Center
Hurley Medical Center

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