



# Maternal and Child Health Epidemiology

## STUDYING THE HEALTH OF MICHIGAN'S WOMEN AND CHILDREN

Epidemiology is defined as the study of how diseases, risks, and health-related conditions are distributed throughout the population. Epidemiologic studies play a vital role in public health decision-making. That's why we are here. We bring the full spectrum of scientific inquiry to bear on the health challenges facing Michigan's women, infants, children and adolescents. Through research study design, implementation, data management and analysis, and interpretation our epidemiologists provide the best available data to our internal and external partners - equipping them to create effective, targeted interventions that improve health outcomes and increase health equity in our state. The following directory and position-specific work summaries have been developed in an effort to increase visibility and facilitate programmatic collaboration. Our staff welcomes any inquiries regarding their work.

### MISSION STATEMENT

***The Maternal and Child Health Epidemiology Section provides scientific support and guidance to Maternal and Child Health programs to facilitate the data-driven, informed decision-making needed to protect, promote, and preserve the health of Michigan's children and families.***

### VISION STATEMENT

***The Maternal and Child Health Epidemiology Section will provide responsive and timely data collection , analysis, and translation to public health practitioners, while maintaining a contextual understanding of how epidemiologic methods can contribute to innovative and preventative solutions to future MCH challenges.***

**Updated: January 2018**



### CONTENTS

Directories.....	2
Birth Defects/Family Planning.....	6
Preventable Mortality.....	7
Home Visiting .....	8
Child, Adolescent & School Health....	9
Newborn Screening .....	10
Pediatric Genomics.....	10
Infant Health.....	11
PRAMS .....	12

### INCLUDED

- Project Summaries
- Relevant data sources
- Research specialties
- Internal & external partners



# MCH Epidemiology Section Directory

Maternal Child Health Epidemiology Section  
Lifecourse Epidemiology and Genomics Division  
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Staff Member	Position	Email	Page
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McKane, Patricia	Lifecourse Epidemiology and Genomics Division Director	mckanep@michigan.gov	
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Withrow, Evan	Pediatric Genomics and EHDI Epidemiologist	withrowe@michigan.gov	10



## Professional Services Directory

For help with:	Please contact:	Email
Analytic solutions for missing data	Sarah Rockhill	rockhills@michigan.gov
Community-engaged research methods	Jill Hardy	hardyj3@michigan.gov
Community food and agriculture systems	Jill Hardy	hardyj3@michigan.gov
Continuous quality improvement analysis	Cristin Larder Chelsea Abshire	larder@michigan.gov abshirec@michigan.gov
Database design/management	Sarah Rockhill	rockhills@michigan.gov
Emergency response community assessment	Pete Haak	haakp@michigan.gov
Factor analysis	Yan Tian	tiany@michigan.gov
Focus group moderation	Jill Hardy	hardyj3@michigan.gov
Gene expression analysis	Pete Haak	haakp@michigan.gov
Geocoding	Sarah Rockhill	rockhills@michigan.gov
Georeferencing	Sarah Rockhill	rockhills@michigan.gov
Geospatial analysis	Sarah Rockhill	rockhills@michigan.gov
Latent class analysis	Yan Tian	tiany@michigan.gov
Linear regression	Yan Tian Pete Haak	tiany@michigan.gov haakp@michigan.gov
Logistic regression	Yan Tian Pete Haak	tiany@michigan.gov haakp@michigan.gov
Longitudinal analysis	Yan Tian	tiany@michigan.gov
Multilevel/hierarchical regression	Cristin Larder	larder@michigan.gov
Multimode data collection	Pete Haak Jill Hardy	haakp@michigan.gov hardyj3@michigan.gov
Needs assessments	Cristin Larder	larder@michigan.gov
Non-parametric statistical analysis	Kayla Vanden Esschert	vandenesschertk@michigan.gov
Power/sample size analysis	Pete Haak	haakp@michigan.gov
Probability and hypothesis testing	Pete Haak	haakp@michigan.gov
Program evaluation	Sarah Rockhill	rockhills@michigan.gov quarshiee@michigan.gov
Program mapping	Sarah Rockhill	rockhills@michigan.gov
Python scripting	Sarah Rockhill	rockhills@michigan.gov
Qualitative research methods	Jill Hardy	hardyj3@michigan.gov
Qualtrics	Jill Hardy	hardyj3@michigan.gov



## Professional Services Directory (Continued)

For help with:	Please contact:	Email
Research study design	Pete Haak Isabel Hurden	haakp@michigan.gov hurdeni@michigan.gov
SAS-capable SUDAAN software (for complex survey data analysis)	Pete Haak	haakp@michigan.gov
STELLA system dynamics modeling	Jill Hardy	hardyj3@michigan.gov
Structure equation modeling	Yan Tian	tiany@michigan.gov
Survey instrument design	Jill Hardy Pete Haak	hardyj3@michigan.gov haakp@michigan.gov
Survey sampling	Jill Hardy Kayla Vanden Esschert	hardyj3@michigan.gov vandenesschertk@michigan.gov
Survival analysis	Yan Tian Pete Haak	tiany@michigan.gov haakp@michigan.gov
Systematic literature review methods	Pete Haak	haakp@michigan.gov
SAS programming	Yan Tian	tiany@michigan.gov

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## CHELSEA ABSHIRE



Chelsea holds an MPH in Epidemiology from the University of Michigan.

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## BIRTH DEFECTS/FAMILY PLANNING EPIDEMIOLOGIST

The Birth Defects/Family Planning Epidemiologist provides epidemiological support to the Birth Defects and Title X Family Planning programs. Chelsea monitors trends and risk factors for congenital conditions, providing support to the Birth Defects Prevention Program for congenital birth defects, associated risk factors, and the public health impact and population needs. She also performs statistical analysis related to family planning, resource utilization and health policy, to assess the potential public health impact of family planning and reproductive health.

### RECENT WORK

- *Analysis of Birth Defects in Ann Arbor, Michigan, 1992-2013*
- *Access to Long Acting Reversible Contraceptives in Michigan Title X Family Planning Clinics*
- *Utilization of Title X Family Planning Services by Male Clients*



### DATA SOURCES

- Birth Defects Registry
- Michigan Resident Birth and Death Linked File
- Family Planning Program Data

### PROGRAMS SERVED

- Title X Family Planning Program
- Birth Defects Prevention Program

### RESEARCH INTERESTS

- Longitudinal analyses observing the effects that sociodemographic factors can have on adverse health outcomes over time

### FUTURE RESEARCH IDEAS

- Chelsea would like to explore more in-depth factors impacting access to care within Michigan Title X Family Planning clinics.

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*“I like that my job gives me the opportunity to use data to improve health outcomes for babies and their families both before and after birth.”*

*-Chelsea Abshire, MPH*

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## PREVENTABLE MORTALITY EPIDEMIOLOGIST

The Preventable Mortality Epidemiologist provides support in the areas of maternal mortality, youth suicide prevention, and sleep-related infant mortality. She collects data from statewide databases to analyze and identify factors involved in the preventable deaths of women who die during pregnancy, or within one year of pregnancy; infants who suffer sleep related mortality; and youth between 10-24 years old who commit suicide. She disseminates data results to key stakeholders for state program and policy planning, and provides scientific consultation to local health departments and organizations that use relevant program data.

### DATA SOURCES

- Michigan Resident Birth and Death Linked File
- Sudden Unexpected Infant Death Registry
- Medicaid
- Michigan Inpatient Database
- PRAMS
- Michigan Maternal Mortality Database

### PROGRAMS SERVED

- Infant Safe Sleep
- Maternal Mortality Surveillance
- Youth Suicide

### KAYLA VANDEN ESSCHERT



Kayla graduated from the University of Michigan with an MPH in Epidemiology.

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**517-373-3846**

*“I like using data to inform policymakers and the public about causes of deaths that are often overlooked, underfunded, and most importantly, preventable.”*

*-Kayla Vanden Esschert, MPH*

## MATERNAL MORTALITY PROJECT COORDINATOR

The Michigan Maternal Mortality Project Coordinator provides program records and data management for Maternal Mortality Surveillance program. She obtains and organizes records from community reporting agencies such as hospital records departments, local law enforcement, medical examiner offices, and physician offices. She uses the information collected to abstract data for all maternal death cases within

one year of pregnancy. The de-identified information collected is reviewed by the MMMS committees.

### DATA SOURCES

- Michigan Maternal Mortality Database

### PROGRAMS SERVED

- Maternal Mortality Surveillance

### MELISSA LIMON-FLEGLER



Melissa graduated from Michigan State University with a BSW.

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**517-284-4230**

*“I’m driven to look at all factors that may have contributed to a woman’s death, including lack of transport or money to pay for care.”*

*-Melissa Limon-Flegler, BSW*

## CRISTIN LARDER



Cristin has completed her MS in Epidemiology at Michigan State University, and coursework toward her PhD at the University of South Carolina.

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## HOME VISITING EPIDEMIOLOGIST

**The Home Visiting Epidemiologist is responsible for conducting and improving epidemiological surveillance to support Michigan's home visiting services and the Great Start early childhood system. This requires that she design, conduct, and manage advanced descriptive and comprehensive epidemiologic analysis related to the multiple target populations served by home visiting services, and provide technical assistance to local public health and other local early childhood partners in their use of local data for programmatic support.**

### DATA SOURCES

- Michigan Resident Birth and Death Linked File
- Medicaid
- American Community Survey
- Center for Educational Performance and Information
- Michigan Incident Crime Reporting
- National Survey of Children's Health
- National Survey of Drug Use and Health

### PARTNERS

- Michigan Public Health Institute
- Michigan Department of Education
- Early Childhood Investment Corporation
- MSU Institute for Health Policy
- Optum
- Inter-tribal Council of Michigan
- Michigan League for Public Policy
- Local health departments
- Intermediate school districts
- Local non-profit organizations

### RESEARCH INTERESTS

- Multilevel analyses examining social determinants of health
- Healthcare access
- Health equity

### FUTURE RESEARCH IDEAS

Cristin would welcome the chance to establish a longitudinal early childhood data system and a standardized home visiting surveillance system.



*“I love the fact that the Michigan Home Visiting Initiative encompasses many intervention programs ... I see so much potential for long term impacts across the lifespan—ones that can reach beyond the traditional focus of public health to the ... broader issue of social injustice.”*

*-Cristin Larder, MS*

## RECENT WORK

- Home Visiting Legislative Report, 2015
- Home Visiting Needs Assessment, 2015
- MIHOPE/Strong Start Institutional Review Board (IRB) and data use agreement coordination
- MCH Epidemiology Section strategic planning
- County-level Home Visiting Outreach Guidance Series, 2015
- Elevated Blood Lead Levels Among Children <16 years old: City of Flint, May 2011-April 2015



## CHILD, ADOLESCENT & SCHOOL HEALTH EPIDEMIOLOGIST

The Child, Adolescent, & School Health Epidemiologist is the recognized resource on all epidemiologic matters concerning Child, Adolescent & School Health, including teen pregnancy prevention, school-based health centers, school nursing, comprehensive health education, coordinated school health programs, and related activities through the Title V Block Grant. She conducts investigations used in the prevention and control of health conditions and behaviors among adolescents and school-aged children.

### RECENT WORK

- Hearing and Vision Screening Funding Formula Revision

### DATA SOURCES

- Youth Risk Behavior Survey
- School Health Profiles
- Michigan Vital Records
- Michigan Inpatient Database
- Michigan Department of Education Data

### PROGRAMS SERVED

- Child & Adolescent Health Center Program
- Michigan Model for Health
- Teen Pregnancy Initiative
- Michigan Hearing and Vision Screening Program
- Coordinated School Health

### RESEARCH INTERESTS

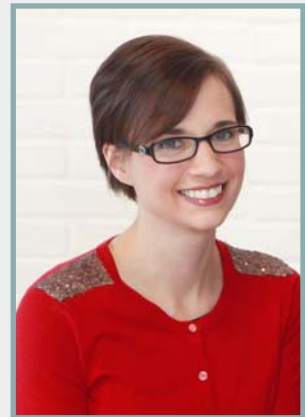
- Geospatial epidemiology
- Social determinants of health
- Healthcare utilization
- Data collection system design

### FUTURE RESEARCH IDEAS

Sarah would like to explore potential data linkages that would enable a more robust analysis of hard-to-reach, vulnerable populations, including adolescent parents and youth in out-of-home care.



### SARAH ROCKHILL



Sarah holds an MPH in Epidemiology from the University of Michigan.

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**517-373-4245**

*“The CASH Section’s drive, dedication, and willingness to embrace innovative ideas make this a really exciting place to work. It’s evident that they value the role of data, in both informing their practice and supporting their mission.”*

*-Sarah Rockhill, MPH*

## ISABEL HURDEN



Isabel holds an MPH in Epidemiology from Grand Valley State University.

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## NEWBORN SCREENING EPIDEMIOLOGIST

The Newborn Screening Epidemiologist is responsible for the ongoing data management and analysis for the Newborn Screening Program (NBS). Through data analysis, Isabel's work identifies areas of improvement in the NBS process. Including hearing and critical congenital heart disease, the program screens for 56 conditions. About 270 Michigan babies a year, or 1 in 450 births, are found to have a disorder through newborn screening. Isabel's work focuses on quality improvement and evaluation of the program, and she reports her findings quarterly, including birthing hospital-specific data.

### ONGOING MONITORING

- Newborn Screening Operations in Michigan

### PRIMARY DATA SOURCES

- Newborn Screening Program Data

### PARTNERS

- Michigan Birthing Hospitals
- Newborn Screening Advisory Committees

### RESEARCH INTERESTS

- Data-driven identification and promotion of best practices
- Linkage Data Projects

*"I live that our data analysis efforts have a direct impact on Michigan newborns and families. The newborn screening program staff are very passionate about the work they do and are always open to data analysis projects that will improve the program."*

*-Isabel Hurden, MPH*

## EVAN WITHROW



Evan holds an MSc in Epidemiology from Michigan State University.

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## PEDIATRIC GENOMICS AND EHDI EPIDEMIOLOGIST

Like the Newborn Screening Epidemiologist, the Pediatric Genomics Epidemiologist works with newborn screening data. He is also responsible for the surveillance of some of the more common, specific, congenital conditions identified in infancy - primarily critical congenital heart defects (CCHD). He reports critical congenital heart disease data weekly to program staff for follow up, and has created a critical congenital heart disease quarterly report for hospitals. Through data analysis, he evaluates CCHD pulse oximetry screening within Michigan for hospital compliance, midwife compliance, and screening effectiveness. Evan also works with the Early Hearing

Detection and Intervention (EHDI) program. Recent work includes looking at loss to follow up, creating survey databases, and compiling data for external analysis projects.

### ONGOING SURVEILLANCE

- Critical Congenital Heart Disease
- Early Hearing Detection and Intervention

### PRIMARY DATA SOURCES

- Newborn Screening Program Data

### PARTNERS

- Michigan Birthing Hospitals
- Newborn Screening Advisory Board

## INFANT HEALTH EPIDEMIOLOGIST

**The Infant Health Epidemiologist conducts surveillance to support infant health across the state, including epidemiological analysis on all matters concerning perinatal and infant health and mortality and morbidity prevention to the Lifecourse Epidemiology and Genomics Division. She is the expert on metrics of fetoinfant mortality, and trends in Michigan. Maintaining this surveillance requires that Yan design, conduct, and manage advanced descriptive and comprehensive epidemiologic analysis of infant morbidity and mortality, focusing on cause-specific mortality and infant mortality disparity.**

### RECENT WORK

- Michigan Infant Mortality Reduction Plan, 2016-2019
- Evaluation of fetoinfant mortality rates using a Perinatal Periods of Risk (PPOR) approach

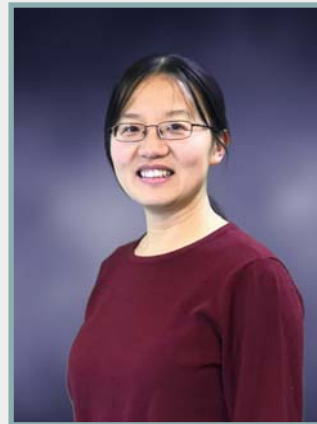
- Monitoring of infant mortality rates, preterm birth rates, and rates of low birthweight, focusing on maternal characteristics
- Evaluation of perinatal metrics for urban centers

### PRIMARY DATA

#### SOURCES

- Michigan Resident Birth and Death Linked File, MDHHS Vital Records and Health Statistics
- Michigan Maternity Practices in Infant Nutrition and Care

## YAN TIAN



Yan holds an MS in Statistics and a PhD in Epidemiology from Michigan State University.

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# PREGNANCY RISK ASSESSMENT MONITORING SYSTEM



## PETE HAAK



### PROJECT COORDINATOR

Pete is pursuing a MS and PhD in Epidemiology from Michigan State University. He has also completed a National Institutes for Health fellowship in perinatal epidemiology and brings that knowledge base to PRAMS. His graduate research focuses on the causes of cerebral palsy in twins and multiple births. He serves on the Scientific Advisory Committee for the Michigan BioTrust for Health.

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The Michigan PRAMS Study was among the first CDC PRAMS projects—created in response to persistent racial disparities in infant mortality. The project has been actively studying the health of mothers and infants since 1987, and continues to provide the best population-based data on diverse health, behavior, and psychosocial indicators for mothers and babies in Michigan. The survey study is provided to women using a mixed-mode design which includes web, mail, and phone interviewing.

PRAMS data are used to inform public health programs, policies, and the public to promote, preserve, and protect the health of mothers and children in Michigan. In 2014, PRAMS data was used to help craft the state's Breastfeeding Anti-Discrimination Act.

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*"I love being a new mother. Thank you for choosing me to help you in this survey. I hope my answers help you with your research!"*

*-Michigan PRAMS Participant*

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Michigan PRAMS is currently being used in a national evaluation project for the HRSA-funded Healthy Start program. The project will add a supplement this year to measure family history of cancer in maternal populations. Previous stand-alone survey projects have included the Native American PRAMS and oversamples of certain geographic areas in the state. The Michigan PRAMS team has over a decade of experience with mixed-mode, population-based survey research, with expertise in study design methodology, sampling, data collection and management, community engagement and data analysis.

## ANNA RAYKOV



### OPERATIONS ASSISTANT

Anna holds a BS in Psychology from Wayne State University.

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517-335-9509

## JILL HARDY



### OUTREACH AND MAIL OPERATIONS COORDINATOR

Jill has worked in academic survey research for over a decade, and is currently pursuing her MS in Community Sustainability from Michigan State University. She is a resident expert in survey research methodology.

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State maternal child health programs can benefit from PRAMS data, as the survey comprehensively examines the maternal experience across demographics and domains.

### SELECTED TOPICS:

- Safe sleep
- Smoking
- Substance abuse
- Breastfeeding
- Oral health
- Preexisting health conditions
- Family planning and pregnancy intendedness
- Family health history
- Domestic partner violence
- Maternal stress

For a complete topic map, visit the Michigan PRAMS website,

[www.michigan.gov/prams](http://www.michigan.gov/prams)

or for summaries of past responses, visit:

[www.cdc.gov/prams/prasmstat/](http://www.cdc.gov/prams/prasmstat/).



## HANNAH SAUTER



### OPERATIONS ASSISTANT

BS Candidate,  
Michigan State University

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*“I believe you cannot have a meaningful conversation about the health of a baby without also the mental, emotional, and physical health and environment of the mother. We could do a lot for the health of mothers and babies with support through a connected and extended network of professional and personal relationships.”*

*-Michigan PRAMS Participant*