

ID: 45530475

Maternal and Child Health - Host Site Description

Massachusetts Department of Public Health

Assignment Location: Boston, US-MA
Massachusetts Department of Public Health
Division of Maternal and Child Health Research and Analysis

Primary Mentor: Hafsatou Diop, MD, MPH
Director, Division of Maternal and Child Health Research and Analysis (DMCHRA)
Massachusetts Department of Public Health

Secondary Mentor: Sarah Stone, Phd, MPH
Director, Office of Data Translation, Division of Maternal and Child Health Research and Analysis
Massachusetts Department of Public Health

Work Environment

Hybrid

Assignment Description

The Fellow will join the Division of Maternal and Child Health Research and Analysis (DMCHRA) team, within the Bureau of Family Health and Nutrition at MDPH. DMCHRA's role is to provide Maternal and Child Health statistical information for needs assessment, performance management, quality improvement, and decision support in BFHN using data analytics, survey work, and evaluation studies. Since fall 2020, the Office of Data Translation (ODT), the organizational unit where the epidemiologists are located, has been housed in DMCHRA. The fellow will work alongside 10 FTEs in the Division who are responsible for collecting, managing, and analyzing MCH data used for MCH policy implementation, specific Title V priorities, grants management, responding to legislative mandates, overseeing data analysis and dissemination (e.g., using PRAMS data to monitor the implementation of the Paid Family and Medical Leave mandate among working parents), and supporting implementation of the Public Health Data Warehouse (PHD) in collaboration with the Office of Population Health, which is housed in the Commissioner's Office. PHD is a longitudinal dataset that is a partnership with other state agencies including Medicaid, Department of Mental Health, Department of Corrections, Department of Transitional Assistance, MA Cancer Registry and the Prescription Monitoring Program, and various programmatic data systems including data from the Women, Infants, and Children (WIC) Nutrition program, and the Early Intervention program. While most of the epidemiologists hold an MPH, there are also three doctoral level epidemiologists and two MDs.

The Fellow will have access to analytic and evaluation expertise of other DMCHRA staff. DMCHRA offers a variety of opportunities for fellows to conduct data collection, analyses, program evaluation, and surveillance. DMCHRA directly oversees several large data projects: The Pregnancy to Early Life Longitudinal (PELL) Data System and the Pregnancy Risk Assessment Monitoring System (PRAMS) project. The PELL Data System is one of the few longitudinal MCH data systems in the country, created to utilize a broad range of public health data sources to examine the impact of the prenatal environment and experiences on postnatal child and maternal health. PRAMS is a surveillance system that collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. DMCHRA also has staff epidemiologists providing direct analytic support to the WIC program, the Early Intervention program, and the Universal Newborn Hearing Screening program. Other data sources available within MDPH include vital statistics data (birth certificates and fetal, infant and maternal death certificates), and the Public Health Data Warehouse (PHD) described above.

The fellow will work on a range of maternal and child health projects. Day-to-day activities include conducting literature reviews, writing linkage algorithms and performing data linkages, conducting data cleaning and analysis, project and dataset management, planning and running meetings, attending meetings and webinars,

ID: 45530475

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Massachusetts Department of Public Health

communicating with mentors and key partners regarding projects' status, developing IRB applications as needed, reviewing and editing of reports and manuscripts, preparing and delivering presentations, assisting with mentoring student interns, and assisting with grant writing. DMCHRA also supports cost effectiveness/return on investment analyses to demonstrate program effectiveness and think critically about how to use data for primary prevention, and to conduct root cause analyses to quantify more completely the inequities seen in health outcomes across MCH programs.

Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

The Fellow will join the DMCHRA team and will have access to analytic and evaluation expertise of other DMCHRA staff. DMCHRA offers a variety of opportunities for fellows to conduct data collection, analyses, program evaluation, and surveillance. DMCHRA oversees two main data projects: the Pregnancy to Early Life Longitudinal (PELL) Data System and the Pregnancy Risk Assessment Monitoring System (PRAMS) project. The PELL Data System is one of the few longitudinal MCH data systems in the country, created to utilize a broad range of public health data sources to examine the impact of the prenatal environment and experiences on postnatal child and maternal health. PRAMS is a surveillance system that collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. Other data sources available to the fellow within MDPH include vital statistics data (birth certificates and fetal, infant and maternal death certificates), the Public Health Data Warehouse (PHD), which is a longitudinal dataset that is a partnership with other state agencies including Medicaid, Department of Mental Health, Department of Corrections, Department of Transitional Assistance, MA Cancer Registry and the Prescription Monitoring Program and uses All Payer Claims Data as the spine for linkage of the multiple datasets, and various programmatic data systems including data from the Women, Infants, and Children (WIC) Nutrition program, and the Early Intervention program. The Fellow will have access to all available software including SAS, SUDAAN, ArcGIS, and all Microsoft Office products. DMCHRA promotes SAS and SQL training through our web-based training program MassAchieves and MDPH has an active Epidemiology Community of Practice to share resources and skills among all MDPH epidemiologists and data scientists.

Projects

Surveillance Activity Title: Massachusetts Maternal Mortality Surveillance

Surveillance Activity Description:

Since 1997, MDPH has convened the Maternal Morbidity and Mortality Review Committee to review maternal deaths, study the incidence of pregnancy complications, and make recommendations to improve maternal outcomes and eliminate preventable maternal death. Understanding the causes of these deaths provides insight into the factors that contributed to both maternal morbidity and mortality, which can inform strategies to reduce the incidence of these tragic events. Due to staff capacity limitations, MA has not released a maternal mortality report since 2014, which used data from 2000 to 2007.

Surveillance Activity Objectives:

The Fellow can work with the members of the Maternal Mortality and Morbidity Review Committee (MMMRC) to create a maternal mortality report and infographics from pregnancy-associated death data, using a lens of racial equity and highlighting opportunities for preventive interventions.

Surveillance Activity Impact:

Understanding the causes of maternal deaths provides insight into the factors that contributed to both maternal morbidity and mortality, which can inform strategies to reduce the incidence of these tragic events.

ID: 45530475

Maternal and Child Health - Host Site Description

Massachusetts Department of Public Health

Surveillance System Evaluation Title: Evaluation of the Pregnancy Checkbox on Massachusetts Death Certificate

Surveillance System Evaluation Description:

The fellow will use the CDC's "Updated Guidelines for Evaluating Public Health Surveillance Systems" as a framework for evaluating MA's maternal mortality surveillance system. For this project, the records of all female residents aged 5 to 75 years old who died in 2019 and 2020 will be linked with birth and fetal death files from 2018-2020. The date of birth/fetal death will be compared with the maternal date of death to determine the accuracy of the pregnancy checkbox. Agreement between the calculated and documented pregnancy status will be compared by both decedent characteristics (age, race/ethnicity, education level, cause of death) and certifier/facility characteristics (availability of autopsy, certification method, and certifier designation). The fellow will follow up with hospitals, the Office of the Chief Medical Examiner, and public records to confirm the pregnancy status of decedents with a pregnancy identified by the checkbox but that do not link to the birth/fetal death file. Results will be analyzed to evaluate the potential effects of the pregnancy check box on the maternal mortality surveillance and will be shared with stakeholders at the Registry of Vital Records (RVRs) and the Massachusetts Maternal Mortality and Morbidity Review Committee (MMMRC).

Surveillance System Objectives:

The Fellow can work with the members of the Maternal Mortality and Morbidity Review Committee (MMMRC) to create a maternal mortality report and infographics from pregnancy-associated death data, using a lens of racial equity and highlighting opportunities for preventive interventions.

Surveillance System Impact:

Correctly identifying pregnancy-associated deaths is crucial for calculating maternal mortality ratios and identifying cases for maternal mortality review. The 2003 NCHS revision of the standard death certificate added a pregnancy status item (i.e. "the pregnancy checkbox") to help improve reporting of pregnancy-associated deaths. Adoption of the revised certificate has dramatically increased maternal mortality estimates in many states and raised concerns about the quality of the checkbox data. Massachusetts implemented the 2003 NCHS death certificate revision in September 2014 and conducted an initial evaluation of the accuracy of the pregnancy checkbox using 2015 deaths, finding a high percentage of false positives (46%) when death certificates with the pregnancy checkbox checked were linked with the MMMRC case database. Since the initial evaluation in 2017, quality improvement efforts have focused on engaging death certificate certifiers to improve the accuracy of the checkbox field. This evaluation will provide data to inform further improvement efforts.

Major Project Title: Inequities in Medicaid MCH Outcomes: The Power of Data Linkage

Major Project Description:

MDPH recently entered into a Data Use Agreement (DUA) with MassHealth, the state Medicaid program. This DUA allows for data sharing between MassHealth, the Registry of Vital Records and Statistics, and the Division of Maternal and Child Health Research and Analysis (DMCHRA) in BFHN. MassHealth will link their data to the Pregnancy and Early Life Longitudinal (PELL) data system and return linked claims data to DMCHRA for analysis. The information will point to factors that may contribute to adverse outcomes and signal to MassHealth ways in which the factors could be addressed through its policies and programs. Specifically, MassHealth seeks to connect with its providers and plans to understand any factors before, during, and after pregnancy that may have contributed to maternal mortality, severe maternal morbidity (SMM), or poor perinatal or child outcomes. BFHN intends to use the linked data to examine: (1) Conditions, diagnoses and treatments (including prescribed medications) identified in outpatient settings during pregnancy; (2) Infant post-birth hospitalizations and mortality; (3) Antenatal hospitalization among pregnant people; and (4) Disability diagnostics among parents and infants including physical, mental, developmental, and other types of disability.

ID: 45530475

Maternal and Child Health - Host Site Description

Massachusetts Department of Public Health

Through these linkages, BFHN will also validate the accuracy of MassHealth reporting on the birth certificate and hospital discharge data. Additionally, since PELL is longitudinally linked to non-birth hospital utilization, it will allow BFHN to measure overall hospital usage and associated costs.

Major Project Objectives:

The fellow can take the lead in developing the analytic plan to understand outcomes for pregnant members and their children, outside of what MassHealth claims data and encounter data can provide. The fellow will develop the statistical software code, run the analysis, interpret the results, present the findings, and develop a data brief and infographics.

Major Project Impact:

MassHealth and DPH have a strong mutual interest in better understanding the needs of the population of pregnant, postpartum, and infant MassHealth members as well as the underlying factors that lead to maternal mortality, SMM, and poor perinatal and infant health in an effort to improve outcomes. Preliminary data have shown that MassHealth members may be more likely to experience maternal mortality, SMM, and poor perinatal and infant health outcomes compared to those who have private/commercial insurance. This work will allow MassHealth to better understand the effectiveness of its maternal and child health programs and policies, including the population impact of MassHealth through answering such questions as the following: (1) What is the percentage of pregnant and postpartum people and infants covered by MassHealth? (2) What are delivery trends among MassHealth members, including elective delivery (inductions and Cesareans)? (3) What effect does elective delivery have on gestational age (preterm, late preterm, early term, and term) and neonatal admission within the first 28 days of life including NICU admission, hospital admissions (not including the birth) and transfers); (4) Are there disparities in types of delivery (e.g., inductions, elective inductions, early elective inductions, Cesarean, etc.) based on maternal demographics and characteristics of utilization?; (5) What is the difference in cost of care, for hospital admissions and for emergency department visits for MassHealth infants after birth through six months of life based on mode and timing of delivery?

Additional Project #1 Title: Implementation of Title V Dashboard

Project #1 Type: Major Project

Project #1 Description:

DMCHRA is collaborating with the Division of Pregnancy, Infancy and Early Intervention and the Division of Children and Youth with Special Health Needs to develop the Massachusetts Title V Dashboard, a user-friendly platform for data related to maternal and child health metrics including those reported for Title V, the HRSA Maternal and Child Health Block Grant. The Title V Dashboard will use the Population Health Information Tool (PHIT) as its data platform. PHIT is a web-based compendium of health data that is available to the public to inform community health needs assessment, program planning, and policy making. PHIT integrates data from myriad sources, including but not limited to Pregnancy Risk Assessment Monitoring System, Pregnancy to Early Life Longitudinal Data System, Behavioral Risk Factor Surveillance System, Vital Statistics, Injury Surveillance System, Birth Defects Monitoring Program, Substance Addiction Services, Universal Newborn Hearing Screening Program, WIC, and Early Intervention. Also included in PHIT are the Health Equity and Neonatal Abstinence Syndrome (NAS) Data Dashboards. The Race and Hispanic Ethnicity Health Equity Dashboard provides health outcome data from across MDPH in a centralized location. Key findings supplement charts to help viewers gain introductory level understanding of the impact of race on the health of Massachusetts residents. The NAS Dashboard includes data that address measures across three key time periods - pregnancy, birth, and infancy - for clinical providers, public health workers, and community agencies to monitor the care of families affected by perinatal substance use. The fellow could take a lead in implementation of the Title V Dashboard, helping to determine which metrics should be featured first and how they can be queried by the user.

ID: 45530475

Maternal and Child Health - Host Site Description

Massachusetts Department of Public Health

Project #1 Objectives and Expected Deliverables:

The fellow can take the lead on implementing the Title V Dashboard on PHIT, and to develop expansion plans for inclusion of future metrics.

Project #1 Impact:

The addition of Title V Dashboard to PHIT will allow inclusion of maternal and child health data to existing data organized around six social determinants of health - education, employment, violence, social environment, housing, and built environment - to support Massachusetts in better addressing factors beyond clinical care that influence population health. PHIT users can access data dashboards and community - specific health priority reports, as well as contextual information to interpret the data and identify health inequities.

Additional Project #2 Title: Fatherhood and Parenthood Experiences Survey Pilot

Project #2 Type: Surveillance Activity

Project #2 Description:

In 2020, as part of the five-year needs assessment, the Massachusetts (MA) Title V program selected “Engage families, fathers and youth with diverse life experiences through shared power and leadership to improve MCH services” as one of its priorities for 2020-2025. Focus groups conducted among fathers in partnership with the Nurturing Fathers’ Program, a program that brings together men from all family circumstances (custodial, non-custodial, stepfathers, new fathers) who need help with understanding how to be nurturing and supportive, while also maintaining their authority and providing consistent guidance and structure, highlighted the many needs of fathers in MA. From 2021-2022, MA developed the Fatherhood and Second Parenthood Experiences survey, to be implemented through a mixed-mode model similar to PRAMS, using REDCap for data collection. DMCHRA plans to launch the pilot in winter 2023 and will have preliminary data by summer 2023. The fellow will analyze preliminary data and revise the implementation of the survey.

Project #2 Objectives and Expected Deliverables:

The fellow will work with members of the PRAMS team and our phone vendor to conduct quality improvement and revise implementation of the Fatherhood and Parenthood Experiences Survey to maximize response rates and utility of the survey questions. Deliverables include summary reports of all phases of the survey implementation with suggestions for improvements.

Project #2 Impact:

There is a lack of surveillance systems for fathers and second parents nationally and in MA. Based on focus groups we conducted with fathers in 2020 as part of our Title V needs assessment, we selected “Engage families, fathers and youth with diverse life experiences through shared power and leadership to improve MCH services” as one of our 10 Title V priorities. One of the ways we are measuring progress toward this priority is through the implementation of surveillance system of fathers and second parents in MA to replicate the Pregnancy Risk Assessment Monitoring System (PRAMS) for new mothers. This project aligns with our state Title V priorities to understand the health impact including COVID-19 on populations that have been always overlooked. The data will be used to inform service provision for fathers and second parents including access to home visiting, WIC, Paid Family Medical Leave other state programs. It will also allow to better understand gaps in services in the peripartum period and systematically quantify and validate what we learned from the focus groups. Finally, the timing of this project is also perfect as it coincides with larger statewide initiatives to reframe the inclusion and support of fathers, which is led by the Department of Children and Families.

ID: 45530475

Maternal and Child Health - Host Site Description

Massachusetts Department of Public Health

Additional Project #3 Title:

Project #3 Type: Surveillance System Evaluation

Project #3 Description:

Evaluating the report of WIC participation in PRAMS. By linking WIC participant data to PRAMS data, the fellow can compare WIC vs. non-WIC but eligible for WIC women on a range of PRAMS and birth certificate reported health outcomes including: HIV testing; life stressors; home visiting; racism; receipt of 17P progesterone; screening for gestational diabetes (GDM), hypertension, and mental health screen; oral health; Tdap and Influenza vaccinations during pregnancy; intimate partner violence, hospital experience and breastfeeding; safe sleep practices; work leave; father's contribution and parenting support; Zika; pregnancy weight gain; pregnancy intention; contraception; and interpregnancy interval. Linkage of WIC data to PRAMS will also allow the Fellow to validate PRAMS self-report on WIC participation, breastfeeding duration and exclusivity, smoking, entry into PNC, and breastfeeding support.

Project #3 Objectives and Expected Deliverables:

The fellow will prepare a report/data brief and infographics on WIC participation and data validation, to be shared with the Division of Nutrition and DMCHRA.

Project #3 Impact:

Understanding the characteristics of women who participate in WIC vs. those eligible but not participating will inform WIC outreach activities. Understanding the health outcomes of women and infants who participate in WIC vs eligible non-participants will also inform outreach to eligible non-participants by providing details of the benefits of WIC participation to both prospective WIC participants, the clinicians who care for them, and those who provide additional services to pregnant and postpartum people and their infants.

Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

Emergency Preparedness and Response: Currently Massachusetts does not have the capacity to address the needs of women of reproductive age (WRA), especially pregnant and postpartum women, infants, and children with special health needs and their families during public health emergencies and disasters. "A public health emergency can include an infectious disease outbreak, natural disaster, human-caused disaster, or other event or incident that requires a jurisdictional response to protect the public's health or to recover from mass injury, loss of life, or widespread property damage". The Fellow will have the opportunity to work with the Title V Program and the Office of Preparedness and Emergency Management to develop a strategic plan with a focus on special population groups such as pregnant women and children with special health needs that may require additional assistance beyond what the general population needs in a public health emergency or disaster. In addition, the Fellow will have the opportunity to participate in emergency preparedness exercises or responses (e.g. assisting with the Boston Marathon, participating in MA Responds). Time allocation can range from several part-time days to a full week of training.

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

The Fellow will have the opportunity to collaborate with colleagues in the Bureau of Infectious Disease and Laboratory Sciences (BIDLS) to lead an outbreak investigation. Past Fellows have conducted investigations of food-borne illness, other gastrointestinal illness of unknown etiology, and an investigation of birth defects due to contaminated groundwater. The time allocation for the Cluster and Outbreak Investigation is approximately one to two weeks. Activities will be specific to the nature of the investigation but may include meeting with key BIDLS staff,

ID: 45530475

Maternal and Child Health - Host Site Description

Massachusetts Department of Public Health

other Bureau staff, conducting record reviews, interviewing patients, creating a database of the cluster/outbreak, data analysis, and presentation of findings.

Please Describe the Fellow’s Anticipated Role in the COVID-19 Response – Include Activities and Time Allocation

Like the rest of the country, MA is affected by the COVID-19 pandemic which places substantial burden on health care, state health and human service systems. MA has been particularly hard hit with minorities having higher prevalence of COVID-19 infection rates and mortality rates. While our state and country are busy responding to the immediate needs of the pandemic, the lives of pregnant and parenting mothers are impacted by the crisis. In order to learn how COVID-19 is affecting new mothers and babies, MA has added COVID related questions to the PRAMS survey from June 2020 through December 2021. These supplemental questions are part of our effort to collect population-based data on how the lives of Massachusetts’ mothers are affected by COVID-19 infection and the COVID-19 pandemic. The questions will allow MA to better understand housing instability, economic instability due to COVID-19, mistreatment during labor and delivery, and whether a mother was able to have a support person at her labor and delivery; and obtain information regarding COVID-19 testing rates, experiences with telemedicine or telehealth, violence at home, and barriers to receiving care during the COVID-19 pandemic. Taken in conjunction with the rich information that PRAMS already gathers on the lives of women around pregnancy, MA will be able to quantify the degree of disruption across many different life domains. Over the course of several weeks, the fellow will analyze the COVID-19 data with the opioid supplement data to examine maternal mental health during the COVID-19 pandemic and its effect on people with Substance Use Disorder. The fellow will compile a report and presentation materials to share with our sister Bureaus including Bureau of Substance Addiction Services and Bureau of Community Health and Prevention, as well as partners such as MassHealth and the Perinatal Neonatal Quality Improvement Network.

Please Describe Opportunities for Fellows to Work in Health Equity as well as Incorporating Diversity, Equity, and Inclusion into their Work

The Bureau of Family Health and Nutrition (BFHN), in which DMCHRA resides, aims to advance and sustain equity for staff and the communities and families we serve, leading explicitly but not exclusively with racism, by dismantling structural racism and co-creating healing centered policies, practices, and social norms. DMCHRA is dedicated to using data to improve health equity, and DMCHRA staff were fundamental in developing the Racial Equity Data Road Map, a tool that programs can use to take concrete steps to better identify, understand, and act to address racial inequities. Every aspect of the work that DMCHRA does is centered on health equity and the fellow’s work will be framed using an equity lens. DMCHRA is committed to supporting the collection of race/ethnicity and Social Determinants of Health data within the Bureau and across MDPH; using data to support program evaluation, QI initiatives, grant writing and research; and providing data to support policy development and funding, all with a health equity focus. The Fellow will have opportunities to participate in formal and informal opportunities (e.g., supervision, team meetings, trainings, book clubs, lunchtime table talks) with staff to explore, discuss, practice, and reflect on equity-related content and to engage in safe and authentic conversations and activities to explore attitudes, beliefs, and values related to health equity and how racism and other forms of oppression impact their work, their lives, and the lives of the families served.