Assignment Description

The CSTE fellow will be housed in the Office of Data Translation (ODT), Bureau of Family Health and Nutrition and will work on a range of maternal and child health projects. The proposed major project is a linkage of WIC participant data to the Pregnancy to Early Life Longitudinal (PELL) data system, which will provide valuable experience linking large administrative datasets to answer important maternal and child health questions. ODT provides statistical information for needs assessment, performance management, and decision support throughout the Bureau of Family Health and Nutrition and across the department using data analytics, survey work, and evaluation studies.

Working closely with Division Directors and Program Managers, ODT staff conduct data analysis, evaluation, needs assessment, and surveillance activities. ODT’s work advises federal grant applications, performance monitoring, clinical research, community mobilization to broaden public awareness, establishment of strategic initiatives to address concerning and emerging trends, as well as many daily functions of Bureau programs. In addition, we collaborate with other Bureaus in the department as well as other institutions such as the Centers for Disease Control and Prevention, March of Dimes, and local schools of public health, medical and dental schools.

Day-to-Day Activities

- Literature reviews
- Writing linkage algorithms
- Perform data linkage
- Data cleaning and analysis
- Project management
- Planning and running meetings
- Attending meetings and webinars
- Communicating with mentors and key partners regarding projects’ status
- Developing IRB applications as needed
- Reviewing and editing of reports and manuscripts
- Attend strategic planning meeting
- Datasets management
- Preparing and delivering presentations
- Assisting with mentoring student interns
- Conduct interviews for outbreak investigations
- Assist with grant writing
**Potential Projects**

**Surveillance Activity Assessing Opioid Use Among Women During Pregnancy and In the Postpartum**

The U.S. is currently experiencing an epidemic of opioid misuse, addiction, and overdose that places substantial burden on state health and human service systems. Opioid misuse among women of reproductive age, particularly during the perinatal period, has been an area of particular concern. Perinatal opioid misuse puts an immense strain on family functioning and can result in loss of custody. Beginning with 2019 births, PRAMS began collecting data on opioid use before, during, and shortly after pregnancy. The PRAMS opioid use supplement provides a more complete picture of opioid exposure in the perinatal period, particularly those who have not been diagnosed and treated for substance use disorder (not captured in the programmatic and administrative data). When combined with data from PELL, these data will also allow MDPH to evaluate how well perinatal opioid use is documented in hospital discharge data. In addition, MDPH also started an opioid call-back survey as a PRAMS follow-up study when the infant turns 9-month old, to better understand mothers’ interactions with health care providers related to prescribing patterns, counseling, gaps in services and access to treatment services before, during, and after pregnancy. We can also examine opioid use during pregnancy by disability status. The Fellow will be able to conduct analyses on the opioid use supplement survey and opioid call-back survey questions to support the ongoing response to the opioid epidemic. Estimate and compare the proportion of women who report any use of opioids during and after pregnancy overall and among subpopulations; estimate and compare the opioid source (prescribed vs. deferred/illicit), reason for use (e.g. pain management), and type of use (e.g. higher dose than prescribed) for Massachusetts overall and among subpopulations; examine and identify needs related to prescribing and counseling, and need for and access to treatment services.

**Surveillance Evaluation Evaluating Reports of Gestational Diabetes Mellitus, Hypertension During Pregnancy, Pre-Eclampsia or Eclampsia, And Depression on PRAMS Compared with the Pregnancy to Early Life Longitudinal (PELL) Data System**

Information about pregnancy-associated morbidities is available from hospital discharge (HD) records, birth certificates (BC), and PRAMS. Compared to HD, the BC is known to underestimate morbidities. However, less is known about PRAMS. To better understand PRAMS as a source of maternal morbidity data, we propose to assess the levels of agreement among PRAMS, HD, and BC. PRAMS collected self-reported (1) gestational diabetes mellitus, and (2) hypertension during pregnancy, pre-eclampsia or eclampsia among women who had a recent live birth. In addition, PRAMS collects postpartum depressive symptoms as well as depression before and during pregnancy. Depression information collected on both HD records and emergency department data could be used to evaluate PRAMS data on depression. The core PELL data system includes birth and fetal death certificates for Massachusetts resident births linked to hospital discharge data for the mother’s delivery hospitalization and the infant’s birth hospitalization. The BC, emergency department, HD data elements from PELL in the linked PRAMS-PELL dataset will be used to evaluate PRAMS as a surveillance system for these conditions.
Major Project  Understanding the Long-Term Impact of WIC on Health Outcomes of Infants and Children in Massachusetts

The Massachusetts annual Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Needs Assessment estimates the number of WIC-eligible residents statewide. Using births in 2018, the WIC Needs Assessment determined that 29,801 infants and 49,862 pregnant and postpartum women were eligible for WIC. During 2018, 24,701 infants and 24,708 eligible pregnant and postpartum women participated in WIC. These calculations, while useful in the broad setting of funding levels, are limited. Because the WIC Needs Assessment uses aggregate, unmatched numbers, the dataset cannot be used to develop a specific profile of the WIC-eligible but unenrolled residents. Using a dataset matched profile for example, drawing on birth certificate demographic information such as age, race, ethnicity, and parity would be of great utility in helping WIC community programs target outreach and enrollment strategies to specific subgroups of unenrolled eligible women and infants. This could be accomplished through a linkage of WIC with the Pregnancy to Early Life Longitudinal (PELL) data system. PELL annually links live birth certificates and fetal death reports, provided by the Registry of Vital Records and Statistics to their corresponding birth and delivery inpatient hospital discharge records. PELL linkage has been completed for 1998-2017 birth cohorts. The Fellow will be able to conduct a linkage between WIC participants and PELL records using the infant’s birth certificate. WIC is also interested in health outcomes of children who participated in WIC but have since aged out. WIC serves more than 40% of infants in MA annually, and children can participate until their 5th birthday. By linking WIC participant data to PELL, the Fellow can compare outcomes among those who participated in WIC with those who were WIC eligible but did not participate to examine the long-term benefits of WIC on child health and healthcare utilization. Outcomes of interest include gestational diabetes (GDM) and outcome of pregnancy; interconception care, contraception and inter-pregnancy interval (IPI); breastfeeding in infancy and subsequent otitis media and asthma in infancy and childhood; failure to thrive, poor growth, and childhood anemia; and other emergency department, observational stay and hospital utilization.

Additional Project  Assessing Awareness, Concern, Provider Counseling, and Travel Related to Zika Virus Among Women Delivering a Live Birth Using PRAMS

Pregnant women residing in the U.S. are at greatest risk for Zika virus infection if they or their sexual partner travel to an area affected by local transmission of the Zika virus. Zika virus infection during pregnancy is associated with adverse outcomes in the infant, such as microcephaly. During 2016 and 2017, MA PRAMS collected information for Zika surveillance via a Zika supplemental survey including knowledge and awareness of Zika, provider counseling, knowledge of travel advisory, and travel to potential risky area by women and their partners. For surveillance purposes, we would like to know the proportion of women vulnerable for Zika virus transmission and infection. The Fellow will be able to conduct data analyses using PRAMS to examine disparities in risk and exposure to Zika virus infection, provider counseling, travel related to Zika and breastfeeding rate among those at risk of Zika virus infection.
Additional Project: Assessing Maternal Experience Around the Time of Pregnancy and Delivery by Disability Status

According to data from the American Community Survey, an estimated 10.1 million women aged 18-64 years in the U.S. were living with at least one disability in 2012-2016. However, people with disabilities have often been overlooked in public health surveillance, particularly in the realm of reproductive health where women with disabilities often deal with stigma and misconceptions about their reproductive goals. MA PRAMS and its Advisory Committee have long had an interest in monitoring maternal and infant outcomes by maternal disability status. Since 2007 when MA implemented PRAMS, every phase of the MA PRAMS survey has included at least one question identifying disability status. Data from MA PRAMS 2012-2016 indicate that 7.1% of women reported limited activities because of physical, mental or emotional problems, i.e., a disability. Starting with the last quarter of 2018 births, PRAMS collected additional disability information via a disability supplemental survey including having difficulty seeing (sight), hearing, walking or climbing steps (mobility), remembering or concentrating (concentration), self-care such as washing all over or dressing (self-care), and communicating (communication). The Fellow will be able to conduct data analyses by sociodemographic characteristics in order to examine disparities by disability and whether receipt of adequate prenatal care varies by disability type. The Fellow will also be able to identify whether mothers with disabilities in certain minority groups are more likely to have prenatal health care issues and barriers in access to prenatal health care. These findings could help develop health care interventions to improve health outcomes for pregnant and postnatal women with disabilities and their children, especially among minority populations. The findings could also help address whether there is a need for training and education for clinicians regarding barriers to access to prenatal care among women with disabilities.

Preparedness Role

Currently Massachusetts does not have the capacity to address the needs of women of reproductive age (WRA), especially pregnant and postpartum women, and infants during public health emergencies. 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. In addition, the Fellow will have the opportunity to participate in emergency preparedness exercises or responses (e.g. assisting with the Boston Marathon).
Additional Activities

Surveillance System Evaluation: Evaluating the Report of WIC Participation in PRAMS

Description: The Pregnancy Risk Assessment Monitoring System (PRAMS) collect self-reported data on WIC participation. 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 Title: Improving Maternal and Infant Outcomes: The Role of Paid Maternity Leave

Description: MA PRAMS started to collect maternity leave information since 2012. Data from MA PRAMS 2012-2016 indicate that 40% of Massachusetts mothers reported taking unpaid maternity leave only, followed by 35% taking paid leave only, and 22% taking both paid and unpaid leave. In addition to leave types, PRAMS also collects the length of maternity leave taken and reasons affecting maternal decisions about taking leave from work. We are interested in examining breastfeeding duration and exclusivity, postpartum depressive symptoms, safe sleep practices, and postpartum visit attendance by type of maternity leave. Using the PRAMS-PELL linked dataset, it will also be interesting to examine infant’s health care utilization including emergency department use, hospitalization, and causes of hospitalization by the length of maternity leave and prematurity status.

Additional Activities:

Health Disparity/Equity: BFHN is working a Racial Equity Initiative with the following two goals:

1. Eliminate structural racism in all BFHN policies, programs, and practices to promote health equity and racial justice; and
2. Foster a healthy and equitable work environment in BFHN, where staff feel confident and supported to interact and communicate openly and respectfully.

The Fellow will have an opportunity to participate in this important endeavor and assist with data collection, analysis and interpretation. The Fellow would have other opportunities to participate in training offer by the department including training on quality improvement methods such as Lean Six Sigma and trainings offer by MCHB or AMCHP during the annual MCH Epi and PRAMS conferences.
Mentors

Primary  Hafsatou Diop MD, MPH
         Director, Office of Data Translation

Secondary  Sarah L. Stone PhD, MPH
           Epidemiologist