**Maternal and Child Health, Chronic Diseases**

**Maine Center for Disease Control and Prevention, Division of Disease Prevention**

Augusta, Maine

**Assignment Description**

Maine’s CSTE fellowship provides a unique opportunity for fellows to gain experience in both maternal and child health and chronic disease epidemiology. The Division of Disease Prevention in the Maine Center for Disease Control and Prevention is committed to providing an exceptional, well-rounded experience for a CSTE/CDC Applied Epidemiology Fellow. The Division is a national leader in maternal and child health and chronic disease prevention.

Programmatic areas within the Division include Maternal and Child Health; Children with Special Health Needs; Women’s Health; WIC; Physical Activity; Nutrition; Obesity; Tobacco; Substance Abuse Prevention; Injury and Suicide Prevention; Adolescent and School Health; Community-based Prevention; Asthma; Diabetes, Heart Disease, and Stroke; Comprehensive Cancer and the Maine Cancer Registry. This assignment will allow a Fellow to develop applied epidemiology competencies under the guidance of two experienced mentors (both have mentored past Applied Epidemiology Fellows and one is an EIS alumna) by engaging in both narrowly-focused and cross-cutting projects in maternal and child health and chronic disease epidemiology, with opportunities to gain experience in public health preparedness and communicable disease, injury prevention, and environmental health, depending upon the Fellow’s interests. Both mentors have many years of experience in applied epidemiology, have enjoyed mentoring many graduate students and fellows, and are committed to ensuring an exceptional experience for an Applied Epidemiology Fellow. The Maine CDC includes many innovative public health programs and an excellent staff of epidemiologists, providing the Fellow with many opportunities to learn and contribute.

**Day-to-Day Activities**

The fellow’s day-to-day activities will depend upon the particular projects being worked on at a given time, but will include creating data analysis plans; analyzing surveillance data (mortality, births, birth defects, survey data, hospital discharge, emergency department, cancer registry, etc.); interpreting data and creating tables, charts, and narrative for program staff use; preparing recommendations for maternal and child health and/or chronic disease programs based on the data; handling requests for data and technical assistance from Maine CDC staff, partners, local public health staff, and the public; preparing and delivering presentations to Maine CDC staff and local, state, and national meetings; being involved in MCH and chronic disease program planning; meeting with Maine CDC staff to better understand the organization and its public health programs; participating in regular MCH and chronic disease epidemiology team meetings, programmatic staff meetings as appropriate, and division-wide staff meetings; designing and implementing an evaluation of a surveillance system; working with Division of Disease Prevention program staff to help them understand, interpret, and use relevant data; preparing brief fact sheets for program use; preparing manuscripts for publication; attending webinars, conference calls, and conferences to increase skills and knowledge; reading and doing internet and library research to keep up to date and increase public health knowledge.
Potential Projects

**Surveillance Activity**  
**Assessment of Substance-Exposed Infant Surveillance System**

Maine has the second-highest rate of neonatal abstinence syndrome (NAS) in the United States. Maine is currently in the process of developing a surveillance system to better understand the incidence of substance-exposed infants (SEI) in the state. The fellow would work on better understanding our current data and determining whether a new NAS system should be put into place. For this activity, the fellow will analyze data from substance-exposed infant reports provided to Maine’s Office of Child and Family Services, as well as birth certificate data to determine the accuracy of these sources of data and how they can be improved. They would also work with hospital discharge data to examine the incidence NAS and associated newborn and maternal factors. The fellow would also conduct research on how other states monitor SEI and develop recommendations for Maine. The resulting product will be an SEI surveillance plan with defined indicators and definitions.

**Surveillance Evaluation**  
**Evaluation of Maternal Mortality Surveillance**

This project would involve evaluation of sources for maternal mortality (death certificate check box, linked death with birth and fetal death certificates, sentinel event reports, medical examiner records, Medicaid data, and medical records) to determine the most accurate methods for case ascertainment of maternal deaths to inform Maine’s Maternal Mortality Review Panel.

**Major Project**  
**Relationship of Chronic Disease to Maternal and Infant Health**

This project would involve examining birth certificate, hospital discharge data, and Pregnancy Risk Assessment Monitoring System (PRAMS) data to examine how maternal chronic disease is related to infant health and pregnancy complications.

These analyses would involve determining: the prevalence of chronic diseases (e.g., hypertension, diabetes, asthma) during pregnancy; how the prevalence of chronic conditions during pregnancy has changed over time; and how they are related to birth outcomes such as low birth weight, prematurity, cesarean sections, induced labor, and infant mortality. These conditions could also be examined in relation to risk factors for poor birth outcomes such as smoking during pregnancy and obesity. Between 2016-2018, the percent of births to Maine women who were overweight or obese was the third highest in the U.S. Maine also has the highest rate of smoking during pregnancy in New England. We would like to explore how these factors may be contributing to maternal and infant morbidity and mortality.

**Additional Project**  
**Impact of Rural Obstetric Closures on Birth Outcomes**

This project would involve an analysis of travel time to the nearest hospital for birth and how it has changed over time: Maine has been experiencing the closing of birthing units in rural hospitals in recent years. The fellow would undertake a spatial analysis, using ArcGIS, to examine travel time to birthing hospitals and how that has changed over time, to identify populations with low access.
Surveillance Activity  Mapping Social Determinants of Health

This project would involve developing an interactive GIS mapping product (map app or storymap) on social determinants of health in Maine: DDP Epidemiology staff have been leading the Maine CDC work on social determinants of health for the last several years and are in the final stages of a seminal report for Maine. The fellow would build on this work by developing either an ArcGIS map app or storymap for public dissemination that would bring together the most critical social determinants of health, provide spatial information at a small geographic level (lower than county level), and tell the geographic story of social determinants of health in Maine.

Preparedness Role

Fellows will participate in the Infectious Disease morning call on a regular basis, shadow an infectious disease district epidemiologist, and participate in at least one outbreak investigation with Division of Disease Control staff. He/she will participate in activities of the Public Health Emergency Preparedness Program. Some potential public health preparedness projects include examining preparedness of long-term care facilities, evaluating Maine’s use of the Health Alert Network and providing recommendations for improving messaging, and being involved in public health response to emergency events like blizzards and floods. Maine’s maternal and child health director and epidemiologist recently met with PHEP staff about ensuring that the needs of women of reproductive age are integrated into emergency preparedness plans. There is the opportunity for the fellow to work closely with PHEP staff to help with this integration. We will work with current staff, and with the State Epidemiologist, to ensure the fellow has opportunities to work in preparedness and on an outbreak.
**Additional Activities**

Since our staff work with a large diversity of programs, there are many potential opportunities for fellows. We work with fellows to ensure that their projects match their interests and advance their skills. Below is a list of other potential projects/activities:

- Evaluate the completeness and accuracy of fetal death records and compare to a sample of medical records to inform improvements in the clinical completion of the fetal death certificate. This project would benefit Maine's Maternal, Fetal and Infant Mortality Review Panel.
- Conduct in-depth analyses of infant mortality and risk factors for infant and fetal death including a Perinatal Period of Risk analysis.
- Identify key women's health indicators and create a brief report on women's health that can be updated annually.
- Analyze the new Maine Integrated Youth Health Survey (MIYHS) asthma data for 5th and 6th graders: Based on a surveillance evaluation conducted by a past CSTE Applied Epidemiology Fellow, major improvements were made to asthma questions on the 5th and 6th grade MIYHS survey for the 2019 administration. Those data will be available by December 2019 and an interested fellow would analyze these data and compare the data to past years to see if the changes improved data quality, as well as providing data for action for the Maine Asthma Program.
- Use data from the high school MIYHS to examine the relationship between sleep and risk and protective factors among youth.

**Mentors**

**Primary**  
Erika Lichter ScD, MS, MA  
Maternal and Child Health Epidemiologist

**Secondary**  
Sara Huston PhD  
Chronic Disease Epidemiologist