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; Oral Health; 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**  
**Analysis of neonatal abstinence syndrome and maternal opioid dependency**

Based on 2012 data, Maine had the second highest rate of neonatal abstinence syndrome in the U.S.. This project involves using linked mother-child records in Maine's hospital discharge dataset to conduct analyses of neonatal abstinence syndrome and maternal opioid dependency among infants born in Maine. This includes examining trends, associated factors such as hospital stay and treatment, as well as demographic and geographic factors associated with NAS births.

**Surveillance Evaluation**  
**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 and Pregnancy Risk Assessment Monitoring System (PRAMS) data to examine how maternal chronic disease is related to infant health and pregnancy complications. These analyses involve determining: the prevalence of chronic diseases (e.g., hypertension, diabetes) 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.

**Surveillance Activity**  
**MCH Needs Assessment**

As part of federal funding for home visiting and the Title V Maternal and Child Health Block Grant, each state is required to conduct a needs assessment to determine MCH State priorities and areas of highest need for home visiting services in the state. The fellow would work with the mentors to develop needs assessments for Maine using quantitative and qualitative data (Due in 2020). This work would include creating maps of key MCH and social determinants of health by county and census tract to identify high need areas.
**Birth outcomes of drug affected infants**

The Fellow will analyze linked hospital discharge-birth certificate-home visiting-and drug-affected infant report data to learn more about infants exposed to substances in utero. This includes trying to answer the following questions:

- Among infants diagnosed with neonatal abstinence syndrome (NAS), what percent had adequate prenatal care?
- What types of maternal pregnancy complications are associated with NAS birth?
- What percent of infants diagnosed with NAS are reported to Maine's child welfare agency?
- What percent of NAS infants are referred and enroll in Maine's home visiting program? Among those enrolled, what are other co-occurring risk factors in the home?

This is a rich source of information on an important topic for Maine's MCH population.

**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. 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.
- Analyze birth certificate data to examine trends in preterm birth and specifically changes in late preterm birth over time using Joinpoint statistical software.
- 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 Asthma Call-Back Survey for children to examine asthma control, healthcare utilization, asthma education, and tobacco smoke exposure and other environmental triggers, and assess any changes over time.
- Develop a surveillance brief or infographic focused on women's experiences with sexual assault, sexual harassment, and intimate partner violence using data from PRAMS, BRFSS, and the Maine Integrated Youth Health Survey.
- Use Medicaid data to examine the use of long-acting reversible contraceptives among Maine women insured by Medicaid.

**Mentors**

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

**Secondary**  
Sara Huston PhD  
Chronic Disease Epidemiologist