Maternal & Child Health, Chronic Diseases  
Maine Center for Disease Control & Prevention, Bureau/Division  
Augusta, ME  

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 Population Health 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; Physical Activity; Nutrition; Obesity; Tobacco; Injury 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, hospital discharge, emergency department, cancer registry, risk factor survey data, etc.); interpreting that 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 Population Health 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    MIYHS Surveillance Evaluation
Evaluation

Conduct a surveillance evaluation of the Maine Integrated Youth Health Survey, a biennial health status, behavior, and attitude survey of more than 80,000 Maine children in Kindergarten, 3rd grade, 5th & 6th grades, 7th & 8th grades, and high school. This is one of three possible surveillance evaluation projects (another listed as Project 2, and another listed in "Additional Activities"); choice of project will depend upon the Fellow's interests.

Surveillance    Electronic Birth Certificate System Evaluation
Evaluation

Conduct a surveillance evaluation of Maine’s new birth certificate system. In 2013, Maine implemented the 2003 revised birth certificate and adopted a new electronic birth certificate system. The evaluation would involve comparison of medical records to birth certificate data. This is one of three possible surveillance evaluation projects (another listed as Project 1, and another listed in "Additional Activities"); choice of project will depend upon the Fellow's interests.

Major Project    Lifecourse Analysis

Conceptualize and conduct an analysis reflecting the life course perspective --the link between early life experience and later health outcomes -- using nationally developed indicators.

Major Project    Multi-level Analysis of School Climate and Bullying

Conduct a multi-level analysis using the Maine Integrated Youth Health Survey examining the relationship of school climate and bullying. Multi-level analyses of other topics are possible using the MIYHS data.

Additional Project    GIS Analysis of Rural Disparities in Maine

Using GIS tools to identify and illustrate very rural and high poverty areas in Maine and examining disparities in health care access, risk factors, birth outcomes, and chronic diseases in these areas compared with the rest of Maine.

Preparedness Role

Fellows will do a 1-2 week rotation with both the Infectious Disease Epidemiology group and the Office of Public Health Emergency Preparedness, will participate in at least one outbreak investigation with the Division of Infectious Disease staff, and will participate in activities of the Office of Public Health Emergency Preparedness. 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 State Epidemiologist position is currently vacant, but we will work with current staff, and with the State Epidemiologist once hired, to ensure the fellow has opportunities to work in preparedness and on an outbreak.
**Additional Activities**

Additional Surveillance Evaluation Project (in addition to two listed above): Conducting a surveillance evaluation of either the Adult or Child Asthma Call-Back Survey, which are very detailed surveys of asthma control, treatment, and triggers and are call-back surveys to the Behavioral Risk Factor Surveillance System. Choice of surveillance system will depend upon the Fellow’s interests.

Other potential projects are listed below (these are not in any particular order). Mentors will work with the Fellow to choose projects that fit with the Fellow's interests, fulfill the competency areas, and provide solid broad-based experience in applied maternal and child health and/or chronic disease epidemiology.

**Trend Analyses:**

- Analyzing PRAMS data to examine trends and variables associated with c-sections and induced labor.
- Analyzing birth certificate data to examine trends in pre-term birth and specifically changes in late-preterm birth over time using joinpoint statistical software.
- Comparing rates of smoking during pregnancy on PRAMS to Maine’s birth certificate and examining trends in the concurrence of these data systems over time.
- Examining trends in chronic disease rates (mortality, hospital discharge, incidence) using joinpoint regression methods to identify significant changes in trends.
- Using Maine Cancer Registry data to conduct survival analysis for specific cancers, and examine differences in survival over time and by demographic and geographic factors.

**General Surveillance Reports:**

- Conducting analyses of key injury priorities using hospitalization, ED and death data to inform program planning.
- Developing a suicide surveillance report using BRFSS, death certificate, hospitalization, emergency department and youth health survey data.
- Creating a surveillance brief focused on intimate partner violence and sexual assault data from PRAMS, BRFSS, and the Maine Integrated Youth Health Survey. This would include analyzing data from a new sexual harassment question added to the 2013 BRFSS survey.
- Identifying key women’s health indicators and creating a brief report on women’s health that can be updated annually.
- Conducting detailed analyses of BRFSS data. Potential projects include examining county or district-level trends in chronic disease-related indicators; trends in racial and socioeconomic disparities in chronic disease-related indicators; analysis of potential interrelationships between alcohol use, mental health indicators, oral health, and chronic disease; examining trends in chronic diseases and risk factors among women of reproductive age.
- Writing a State Burden Report on a chronic disease or risk factor topic. A burden document on obesity is one possibility, as are profiles on the burden of chronic disease and their risk factors in rural, poor Maine and on chronic diseases in Maine’s older population in rural compared to urban areas.
- Developing a surveillance report on health outcomes and risks in among infant and young children in Maine.
- Update various oral health status and workforce data and make data tables and summaries available on the Oral Health Program website. Map appropriate oral health indicators for inclusion in the Maine Chronic Disease Atlas.
Evaluation Activities:

- Participation in the evaluation of Maine’s Home Visiting Program by assisting with survey development, data collection and analysis.
- Develop, test and implement a database or other appropriate tool to allow calculation of averted dental caries attributable to school-based sealant programs, associated costs (per sealant, per child, etc.) and other factors, using a limited data set.

Special Topic Analyses:

- Analyzing a linked MaineCare-birth certificate dataset to determine differences in birth outcomes between Maine’s Medicaid and non-Medicaid population.
- Analyzing county or public health district-level chronic disease and MCH outcome prevalence, risk factors, and complications data to develop county or district-level chronic disease and maternal and child health “indexes”.
- Conducting analyses of physical activity, nutrition, tobacco, oral health, and obesity data from the Maine Integrated Youth Health Survey (and its precursor surveys) and the School Health Profiles (school-level data on school environment, policies, practices), including trend and multivariate analyses.
- Developing new fact sheets on physical activity, nutrition, and obesity in Maine; including information on behaviors among adults and children as well as policy and environmental information.
- Using available surveillance data to describe young children’s oral health, and create a format and methodology for using state and public health district level data to create a context for local oral health initiatives for dental disease prevention, incorporating relevant socioeconomic variables.

Systems development:

- Developing data systems to track MCH activities for Maine’s Maternal and Child Health Block Structural and Process Measures.
- Constructing and updating a MCH “data dashboard” to provide real-time data on birth outcomes using birth certificate and linked infant birth/death datasets.

GIS mapping and spatial analysis:

- Using GIS tools to identify and illustrate the small areas of racial diversity in Maine.
- Using GIS tools to identify high risk asthma areas using GIS and climate data.
- Examining drive time to stroke or heart attack capable hospitals compared with areas of high stroke or heart attack burden.
- Working with the team creating a Maine Chronic Disease and Maternal and Child Health Atlas.
- Mapping areas of concentrated disadvantage among children and demonstrating the relationship between concentrated disadvantage and infant, child and adult health outcomes and risk behaviors.
- Update and build upon the series of “Oral Health Maps” on the Maine CDC Oral health program webpage.

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These projects will involve the Fellow with staff across the Division, the Maine CDC, and from other states and CDC. Projects provide opportunities to present at national conferences and submit manuscripts to peer-reviewed journals. The Fellow will present work to state advisory boards and will be mentored in handling data and technical assistance requests (e.g., from public, legislators, and media). Projects on other topics not mentioned above can easily be arranged.

**Mentors**

**Primary**
- Erika Lichter, ScD, MS, MA
  - Lead Maternal & Child Health Epidemiologist

**Secondary**
- Sara Huston, PhD
  - Lead Chronic Disease Epidemiologist