Assignment Description

The Fellow will be working with mentors in both Chronic Disease Epidemiology and Maternal & Child Health Epidemiology Sections, with an ability to focus on epidemiology across the lifespan and tailor an experience that matches the Fellow’s interests and strengths. Both Sections have a commitment to addressing health inequities and employ the “data to action” construct by disseminating findings to program staff, other chronic disease and maternal and child health epidemiologists, local agencies and other partners.

Day-to-Day Activities

The Fellow’s will have opportunities to:

- Conduct literature reviews, develop, maintain and use data sets of varying size and complexity, link data files, edit data and maintain quality control and manage projects,
- Participate in the design of studies, data collection, analysis and interpretation of results and dissemination of key findings,
- Apply epidemiological methods and use analysis results to inform stakeholders and guide policy,
- Develop IRB applications and data use agreements and keep both up-to-date,
- Review and edit reports and manuscripts and prepare and deliver presentations,
- Participate in site visits to the Quarantine Station in Detroit, MDCH Office of Public Health Preparedness, the MDCH State Lab and the Office for Survey Research at MSU,
- Participate in other BoE activities as time and interest permits, including communicable disease outbreaks and environmental field investigations,
- Plan and run meetings and communicate with mentors and key partners regarding project status,
- Develop professionally through seminars, professional meetings, webinars and trainings at the Department or local universities and by assisting with mentoring student interns,
- Join the primary mentor on national, regional, state and local workgroups and
- Participate in strategic planning and other planning activities in the CD and MCH Sections.
Potential Projects

Surveillance Evaluation

Considerable statewide efforts are needed to assist Michigan in achieving the standards set forth by Healthy People 2020. Children and adults in Michigan should not suffer from pain, loss of employment or school hours, have difficulty chewing food or speaking, or face social decline due to a preventable disease. The Oral Health Program is conducting evaluation of their multicomponent surveillance system to assess how the program collects and disseminates oral health data from across the state by using the CDC’s framework ‘Guidelines for Evaluating Public Health Surveillance Systems’. The “Count Your Smiles Basic Screening Survey-3rd Grade” is a standardized set of surveys designed to collect information on the observed oral health of third grade public school students. Michigan first administered the survey in 2005 and conducts the survey every five years. Topics include cavitated lesions, caries experience, untreated decay, sealants, treatment urgency, fluorosis, history of toothache, time since last dental visit, reason for last dental visit, problems in obtaining dental care, and dental insurance. Michigan elementary schools are randomly selected and students are sampled within each school. Parents of the selected student complete a paper-based survey and a dental hygienist performs an oral screening of the selected student. The “Basic Screening Survey-Elderly” is a similar set of surveys conducted at Area Agencies of Aging (AAA) congregate meal sites and senior centers. Evaluation of either of these systems is needed to understand representativeness and utility of the surveillance system.

Surveillance Evaluation

The reduction of early elective or non-medically indicated deliveries (NMID) is one of eight strategies in the Michigan Infant Mortality Reduction Plan and one of four strategies identified by the HRSA Region V Collaborative of Innovation and Improvement Network (ColIN) to reduce infant mortality. The Region V ColIN utilizes quality improvement methods to promote rapid cycle change and improvement in four strategies (NMID, Social Determinants of Health, Preconception/Interconception care and Safe Sleep) aimed at decreasing infant mortality and eliminating disparities. Measuring progress towards these goals has been challenging for the NMID strategy. Although a metric has been established by the Joint Commission and approved by the National Quality Forum, the specifications are written for hospital discharge data and rates vary depending on the data source. The fellow would lead an analysis of the three different data sources currently used in Michigan to monitor this metric: Michigan Live Birth File, Michigan Inpatient Database (hospital discharge) and Medicaid. Sampling of hospital records would be ideal, but the feasibility is yet to be determined.
Surveillance Activity

Maternal morbidity and mortality surveillance

The death of a woman during pregnancy, during labor/delivery or after delivery is a tragedy for her family, community and society as a whole. Pregnancy-associated mortality is a primary indicator of the overall health status of women, the effectiveness of obstetrical care and the health care system. After many decades of declining mortality, pregnancy-associated mortality is increasing across the United States and Michigan has one of the highest rates in the nation. Racial/ethnic and socio-economic disparities remain unacceptable. MDCH recognizes that the health of the mother is integral to the health of infants and families and eliminating disparities and reducing maternal morbidity and mortality are related to the Department’s strategic priorities.

As these are sentinel events, case review is essential to identify policy, system, provider, community and patient factors that may have affected the outcome. The goal of these reviews is to learn more about the conditions that lead to such deaths, identify modifiable risk factors and to share recommendations with policy makers, maternal health stakeholders and health care providers in the hope that the information will be used to prevent future deaths. Systematic surveillance of pregnancy-associated mortality began in Michigan in 1950 as collaboration between the Michigan Department of Community Health [MDCH], the Committee on Maternal and Perinatal Health of the Michigan State Medical Society (MSMS) and the Chairs of the Departments of Obstetrics and Gynecology of the medical schools in Michigan. The recently restored Michigan Maternal Mortality Database (MMMD) includes information from vital records along with medical records, Medical Examiner’s report, police reports and other sources used by the Medical and Injury Death Review committees. The fellow would have the opportunity to analyze data from the MMMD, attend review committee meetings and share findings from analysis to inform policy decisions related to maternal mortality and morbidity.

The fellow could conduct surveillance project documenting the prevalence and impact of obesity and chronic diseases in the maternal period, through use of Medicaid claims data for pregnant women and the pregnancy-related deaths. The fellow could also focus on the impact of alcohol/substance abuse, mental health, and violence in pregnancy associated deaths, comparing with claims data and prescription monitoring data.

In addition to mentors, the fellow would have the support of chronic disease, maternal health and alcohol epidemiologists and could involve committee members from academia and clinical practice in development of project.

Major Project Case Control Study of Asthma Mortality in Children and Young Adults

Asthma mortality rates in Michigan are slightly higher than the United States rate for children and young adults (under 35 years). Although the number of asthma deaths is not large in Michigan; however, the circumstances surrounding these preventable deaths are dramatic and provide important information about failures in social and health care systems. Overall asthma mortality rates in Michigan have not change significantly since 1990; however, the mortality rate for asthma in African-Americans is over four times that of Caucasians. The majority of asthma deaths occur among people had enrollment in Michigan Medicaid programs. Death certificates, case files from the Michigan Asthma Mortality Review, and Medicaid claims can be used to identify asthma decedents and matched controls. Analysis would explore reasons for poor asthma control and identify risk factors for asthma mortality.
Additional Autism Registry Project

The prevalence of Autism Spectrum Disorder (ASD) has increased markedly over the past two decades, rising from 2 per 10,000 in 1990 to between 1 in 50 and 1 in 88 according to the latest report from CDC. ASD is diagnosed about three times more frequently in boys than in girls. Intellectual disability was once thought to be a condition that typically accompanied ASD; however, current estimates are that 35% of individuals with ASD score above the IQ cutoff (i.e., around 70 depending on the test) for intellectual disability. Michigan does not currently have a population-based surveillance system for ASD, although the 2012 Michigan Autism Spectrum Disorders State Plan called for development of a centralized data system for identifying the number and needs of individuals with ASD in the state. This data system would assist state agencies in developing policies and planning for services across the lifespan. LEGD staff are partnering with Division of Vital Records and Health Statistics, Division of Children’s Special Health Care Needs, and the Michigan Autism Program of the Behavioral Health and Developmental Disabilities Administration to develop an Autism Registry System that is able to be linked with public health and Medicaid data systems. Relevant areas of data collection might include: early childhood placements and outcomes, educational placements and outcomes, and adult outcomes in the areas of employment, post-secondary education, housing, social/leisure/recreation, and medical/physical health. The Fellow would aid in planning of this data system.

Preparedness Role

The Fellow will participate in trainings and exercises, through the BoE and the MDCH Office of Public Health Preparedness. This may involve communicable disease, chemical, natural disaster and radiological events. If a real emergency event takes place in communicable disease or environmental health, the Fellow will be assigned an epidemiology function within the Incident Command Structure. For example, one of the previous Fellows spent three weeks in a Command Center under EPA direction following a large oil spill in Michigan. The Fellow assisted with development of a survey instrument to determine perceived and real health effects from oil exposure, participated in the implementation of the survey at three affected communities and one unaffected community and conducted analysis if the survey results. In addition, the Fellow will receive opportunities to participate in significant and urgent (non-emergency) communicable disease and chemical contamination events. All of MDCH’s EIS and CSTE Fellows and other CDC assignees participated in Michigan’s first implementation of a Community Assessment for Public Health Emergency Response (CASPER) during September 2012, which involved door-to-door surveys using CASPER methodology.
Additional Activities

Flexibility is built into the program, and the Fellow will pursue specific projects of interest and work with Primary and Secondary Mentors to create a tailor-made program.

The following are additional chronic disease projects:

- Analysis of the BRFS Asthma Call-Back Survey,
- Use of Medicaid claims to conduct surveillance of chronic disease among women of reproductive age and to study the impact of chronic disease on deliveries,
- Analyze Medicaid claims related to stroke episodes of care to look at health care and pharmacy utilization claims to assess follow up after stroke discharge,
- Analyze Medicaid claims to assess hypertension treatment prevalence by demographics, space, and time to aid in a needs assessment of hypertension care,
- Develop mapping materials to show surveillance data, including social determinants of health, to aid chronic disease partners in needs assessments and program targeting; this would include display of American Community Survey data, BRFS data, hospitalization data, Medicaid claims data, land use maps, and primary care and specialty care locations,
- Surveillance of birth defects and/or childhood cancer, and
- Surveillance of adults sickle cell disease cases

Mentors

Primary
Robert Wahl, DVM, MS
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Secondary
Patricia McKane, DVM, MPH
Manager, Maternal & Child Health Epidemiology Section and Maternal & Child Health Epidemiologist