Subject Area: Maternal and Child Health

Assignment Description

At Michigan Department of Community Health, the Fellow will be located in the Maternal and Child Health Epidemiology Unit, within the Surveillance and Program Evaluation Section (SPES), Lifecourse Epidemiology and Genomics Division (LEGD). LEGD, one of five Divisions in the Bureau of Epidemiology (BoE) provides statewide leadership and expertise essential for integrating both genomics and epidemiologic science into maternal, child health, chronic disease, and other related public health programs. BoE staff work on projects ranging from acute surveillance of and response to infectious and environmental exposures to the provision of public health services in Michigan. BoE's other divisions include Environmental Health; Immunization; Communicable Disease; and Health, Wellness, and Disease Control.

The Fellow will be working with mentors in SPES with an ability to focus on epidemiology across the lifespan. The MCH Unit employs the "data to action" construct by disseminating findings to program staff, other maternal and child health epidemiologists, local agencies and other partners. The Fellow would have access to numerous data systems of the Division as well as MDCH, including but not limited to vital records, cancer and birth defects registries, BRFSS, PRAMS and other survey data, inpatient hospitalizations, newborn screening data, and communicable disease reports. There are opportunities for conducting evaluation of surveillance systems and intervention activities. Staff would be excited to host a fellow with a focus and interests in Maternal and Child Health Epidemiology. There is a critical need to identify and develop new data sources; evaluate and improve data quality; and more effectively measure health outcomes. Equally important is the need to communicate findings in a participatory manner to MCH programs and partner organizations. A coordinated data-to-action approach will provide the foundation for a continued system and outcomes evaluation, provide a data-based justification to educate policy makers, and will support the goal, to improve the health and wellness of real people across the life course.

Day-to-Day Activities

The Fellow will have the opportunity (depending on goals and interests) to join the primary mentor on national, regional, state and local workgroups and to apply epidemiological methods to inform stakeholders and guide policy. On a daily basis, the Fellow will learn to use data sets of varying size and complexity, link data files, edit data and maintain quality control, and manage projects. He/she will participate in the design of studies, in data collection, in the analysis and interpretation of results, and in the dissemination of key findings.

The Fellow will have opportunities to participate in other BoE activities as time and interest permits, including communicable disease and environmental field investigations. Fellows will have the opportunity for site visits to the Quarantine Station in Detroit, MDCH Office of Public Health Preparedness, to the MDCH State Lab and the Office for Survey Research at MSU. He/she will be encouraged to develop professionally through seminars, professional meetings, and trainings as described in Section C, "Support Structure".

Potential Projects

Below is a list of potential projects that can be tailored to the interests of the Fellow. The mentors also encourage the development of projects by the Fellow once they have gained some experience with the resources and staff available at MDCH.

Analytic projects could include:

- Assist with the development, deployment, and analysis of a PRAMS follow up survey of mothers when their infants are 2-3 years old.
- Conduct a cross-sectional analysis of PRAMS survey data, a longitudinal analysis with linked PRAMS and birth records (e.g. analysis looking over the course of mothers' pregnancies), or a case control analysis from PRAMS and/or vital records (e.g. safe sleep practices on matched Sudden Unexplained Infant Deaths (SUIDs) and infant controls).
- Assist with PRAMS and Native American PRAMS Institutional Review Board (IRB) revisions and Hispanic PRAMS IRB application, as well as data analysis.
- Explore the relationship between second-hand smoke exposure and birth defects.
- Use Newborn Screening and other data systems to improve understanding of health outcomes among people with sickle cell disease in Michigan.

- Participate as a member of the Michigan data team to the Region V Collaborative of Innovation and Improvement Network (CoIIN) to reduce Infant Mortality. The MCH Epidemiology Unit is responsible for providing technical assistance and data analysis to support the strategies selected by Region V. The strategies: Reduce sleep-related infant mortality (or Safe Sleep); improve interconception/preconception care; reduce elective deliveries prior to 39 weeks gestation; and address the social determinants of health and reduce health disparities.

- Create reporting on the chronic disease and maternal/child health status of a racial/ethnic group not covered by routine surveillance sources (i.e., Arab American/Chaldean or Native American populations).

- Using Medicaid data to look at birth outcomes and birth spacing among women who received family planning services.

- Use the Michigan Inpatient Database (MIDB; hospitalization data) linked to the birth and fetal death files to analyze impact of chronic or gestational diabetes on length of stay and birth outcomes.

- Explore the relationship between Asthma, Gestational Diabetes or other chronic disease and poor birth outcomes.

- Conduct an analysis of disparities in treatment and classification of infants born with Neonatal Abstinence Syndrome

- Develop a maternal morbidity surveillance plan, including identification of mortality near misses.

- Assess the feasibility of suing the MI fetal death files to enhance surveillance of poor health outcomes.

- Conduct analysis of The Michigan Maternal Infant Health Program (MIHP) data. MIHP, a home visiting program serving Medicaid eligible pregnant women and their infants collects comprehensive data on social determinants of health and health conditions and behaviors of all women screened by the program. These files are linked to Medicaid claims and vital records data, which can provide information about birth outcomes.

Other Projects

- Develop a factsheet characterizing the health status of Michigan women and girls using data from PRAMS, BRFSS, Vital Records, and/or YRBS.

- Create reporting on the health status of Michigan infants, children, women, and men of reproductive age using the Association of Maternal & Child Health Programs (AMCHP) Life Course Indicators.

Surveillance Evaluation:

There are several opportunities for a CSTE Fellow to evaluate the usefulness of state or county-level data, including Michigan PRAMS, Michigan vital records files (such as the resident live births, fetal deaths, infant mortality, maternal mortality, etc., alone or linked to other data sources.) An evaluation of the MIDB and/or live birth files with respect to the surveillance of comorbid conditions, birth complications, and characteristics of labor and delivery is of particular interest to the division.

LEGD and the MCH Unit maintains historical medical records from the Michigan Maternal Mortality Review, which could be used for evaluation of the MIDB for those maternal deaths that are linked to the live birth or fetal death record (and in turn linked to MIDB).

In addition, MDCH is developing a 'near real time' infant mortality reporting system that will provide quarterly estimates to support the CoIIN. An evaluation of this new system is necessary as accurate and timely data are of critical importance. This will involve an assessment of the representativeness, completeness, and timeliness of the reporting of maternal pre-existing conditions, maternal and infant complications, and procedures and other metrics in the surveillance system(s), and will lead to the development of recommendations to improve the reporting of this information.

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, 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.

Assignment Location:	Michigan Department of Community Health Lansing, Michigan
Primary Mentor:	Patricia McKane, DVM, MPH Sr. MCH Epidemiologist
Secondary Mentor:	Robert Wahl, DVM, MPH Manager, Surveillance and Program Evaluation Section