Assignment Description

The CSTE Fellow will have opportunities to experience and contribute to applied epidemiology in an emerging topic, substance abuse, which cuts across multiple areas of public health. He/she will be based in DEH, which provides epidemiology support to injury, poisoning and substance abuse activities throughout MDCH. Besides Dr. Cameron, DEH currently has four staff with advanced degrees and training in epidemiology. Two other DEH staff have PhDs in Toxicology, and most other DEH staff have graduate-level degrees. Besides the Mentors, an incoming Fellow will have support from DEH’s Injury Epidemiologist Specialist, Tom Largo, MPH, who will provide technical support to the Fellow in accessing and manipulating data and in understanding case definition and coding issues; and Abby Schwartz, MPH, who is the epidemiologist in DEH for the Michigan Violent Deaths Reporting System (MIVDRS). There is also a CDC-funded alcohol epidemiologist position in BDCPE. Su Min Oh, PhD, the substance abuse epidemiologist in BHDDA, will meet regularly with the Fellow and help him/her develop collaborative projects. All these individuals can provide technical support to the Fellow in accessing and manipulating data and in understanding case definition and coding issues. Kim Hekman, our former CSTE Applied Epidemiology Fellow in Substance Abuse had developed a number of resources for her successor to draw upon. Because of the collaborative structure of the Bureau, the Fellow can also get access and assistance in using data systems managed by other sections such as Chronic Disease and HIV/AIDS. Please visit our website at www.michigan.gov/epi

Day-to-Day Activities

The BDCPE is building its capacity for substance abuse epidemiology and surveillance to support the Governors’ Policy Academy activities in addressing pharmaceutical drug abuse. 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 their dissemination.

The BDCPE works with the Behavioral Health and Developmental Disabilities Administration (BHDDA) to develop ongoing public health surveillance of key substance abuse measures. BHDDA has federal funding to build prevention capacity through the use of state and local data for prioritizing substance abuse problems and assessing the impact of interventions. To implement the program, BDHHA organized a State Epidemiology Outcomes Workgroup (SEOW) formerly chaired by Dr. Corinne Miller, assisted by Dr. Lorri Cameron. The SEOW has compiled a wealth of data resources that are being used to develop state and community plans for prevention. The Fellow would participate in the SEOW and work with BHDDA epidemiologist Dr. Su Min Oh to develop in-depth analyses of data sources of interest. The Fellow would act as point of contact for questions about drug overdose and substance abuse epidemiology and would assist in the investigation of ‘outbreaks’ of new substance abuse problems as detected by the State’s Poison Control Center or reported from local health departments, law enforcement or providers. Collaborations are being developed with the University of Michigan Injury Center through the Injury and Violence Prevention Program; the Fellow will join this research team and help develop studies of drug overdose impacts on mortality and morbidity.
Potential Projects

**Surveillance Evaluation**
Evaluation of the Michigan Violent Death Reporting System (MIVDRS) for surveillance of suicides, especially those related to drug abuse or overdose

The MIVDRS collects cases of all intentional deaths (homicides and suicides) as well as some of indeterminate intent that may actually be suicides. By the fall of 2014, there will be complete data for at least one calendar year, including death certificates for each case as well as associated medical examiner, toxicology and police reports. The Fellow could work with the MIVDRS PI and Epidemiologist to assess the sensitivity, specificity, and completeness of the surveillance system for tracking adult suicides in Michigan. Of particular interest is the availability and completeness of case records that document case exposure to substances of abuse, including variation in completeness by locale or sociodemographic group; as well as use of antidepressants and antipsychotics. Additional analyses could be developed to examine the impact of drug abuse on violent deaths, especially in the Detroit area.

**Surveillance Activity**
Use of Michigan’s prescription monitoring system for surveillance of prescription drug abuse

Michigan’s Automated Pharmacy Surveillance System (MAPS) has collected controlled substances prescription data for several years but only recently have epidemiologists been allowed to examine its records. The Fellow can build on recent analyses that linked overdose deaths to MAPS records, in order to examine characteristics of the decedents whose prescriptions are in MAPS, including factors associated with more intense exposure (as indicated by the number and potency of prescriptions of different types of controlled substances). Another surveillance project could be use of the Michigan Office of Highway Safety Planning traffic crash database to examine the effect of drugged driving including Medical Marihuana and prescription drugs; traffic fatality records could be linked to MAPS or the Michigan Medical Marihuana Registry.

**Major Project**
Examination of coding of drug type in overdose deaths in Michigan

When examining death certificate records for overdose deaths in Michigan residents, an unusually high proportion do not specify the causative drug, as compared to national averages. The Fellow could design a project to examine intentional and unintentional overdose deaths, comparing cases with and without causative drug coding to identify which determinants are correlated with a high proportion of missing detail. Non-specified cases could be followed up to determine if medical examiner, toxicology, or other records contain information that did not get added to the death certificate, or if there are any temporal or spatial differences in coding completeness. Additional analyses could examine the co-morbidity of drug and alcohol abuse and injury or chronic diseases using multiple cause fields, or could develop cost estimates for the overdose ‘burden of disease’ on the medical system.
Additional Project: Responding to ‘Outbreaks’ of drug abuse in Michigan

For a number of years, MDCH has partnered with the Children’s Hospital of Michigan Regional Poison Control Center (PCC) to respond to new clusters of drug-related morbidity and mortality, whether due to abuse of prescription or street ‘designer’ drugs. The Fellow would be expected to work with the PCC and our local public health and substance abuse prevention partners to provide epidemiology support during any such incidents occurring in Michigan during their Fellowship. A prior CSTE Substance Abuse Fellow worked on a ‘bath salts’ outbreak which led to an MMWR and a synthetic marijuana incident which was used to support legislation to change to the state public health code.

Additional Project: Exploration of Other Data Sources

There are other data sources available to the Fellow for additional exploration of substance abuse and injury issues, including hospital discharge data, state and local traffic crash death and injury data, and Medical Examiner and Death Review data for selected topics or areas; also behavioral data such as the Behavioral Risk Factor Survey (BRFS) Youth Risk Behaviors Surveillance System (YRBS), Michigan Profile of Healthy Youth (MiPHY), Michigan Youth Tobacco Survey (YTS), the National Survey of Drug Use and Health (NSDUH) and other special surveys of alcohol and drug use behaviors in Michigan. New surveillance data sources expected to come online in the next two years. The Fellow may be able to help design a proposed statewide Emergency Department surveillance system and prepare an analysis and evaluation plan for the system with a focus on substance abuse and injury; or explore the Michigan EMS Information System for ambulance and emergency response runs related to a drug overdose or injury event.

Preparedness Role

The Fellow is encouraged to participate in trainings and exercises through the DEH’s Environmental Health Preparedness Section, and if interested could participate in an EH preparedness project or emergency response action. The Fellow will participate in trainings and exercises, through the DEH’s Environmental Health Preparedness Section and MDCH Office of Public Health Preparedness, for chemical, natural disaster/extreme weather, infectious and radiological emergency events. If a real emergency event takes place in environmental or communicable disease, the Fellow will be assigned an epidemiology function within the Incident Command Structure.

Additional Activities

The Fellow will be invited to join the CSTE Drug Overdose Workgroup (formerly chaired by Dr. Cameron) and will participate in the development of tools, standard case definitions and data to be used to promote surveillance of drug overdose fatalities on a national level.

There is the opportunity for the Fellow to work with a local health department or substance abuse treatment coordinating agency on a local or regional project of interest. He/she is also welcome to participate in other Bureau activities as time permits, including communicable disease or environmental field investigations.
<table>
<thead>
<tr>
<th>Mentors</th>
<th>Lorraine Cameron, PhD, MPH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Senior Environmental Epidemiologist</td>
</tr>
<tr>
<td>Primary</td>
<td>Corrine Miller, DDS, PhD</td>
</tr>
<tr>
<td>Secondary</td>
<td>State Epidemiologist and Director, Bureau of Disease Control, Prevention and Epidemiology</td>
</tr>
</tbody>
</table>