Occupational Health, Environmental Health

Nebraska Department of Health and Human Services, Division of Public Health, Office of Epidemiology
Lincoln, NE

Assignment Description

The Office of Epidemiology provides an ideal training opportunity to an Occupational Health Fellow (OHF). The Office is housed under the NDHHS Division of Public Health, Epidemiology and Informatics Unit. The role of the Office of Epidemiology is to protect the health of Nebraskans by conducting surveillance and investigation of a wide variety of diseases, poisonings, and injuries. The Office staffs 10 full-time epidemiologists and surveillance specialists. The OHF will be assigned within the Nebraska Occupational Safety and Health Surveillance Program (NOSHP), which is housed in the Office of Epidemiology. NOSHP is funded to conduct occupational health surveillance through a cooperative agreement with the CDC National Institute of Occupational Safety and Health (NIOSH). NOSHP consists of one full-time program manager and the State Epidemiologist, who serves as Principal Investigator. NOSHP also receives programmatic support from epidemiologists from the unit.

NOSHP’s goal is to conduct public health surveillance in order to create safer workplaces and reduce the incidence of work-related injuries, illnesses, and exposures. The program collects and analyzes surveillance data on the 20 occupational safety and health indicators that were identified by the National Institute for Occupational Safety and Health (NIOSH)-States Occupational Surveillance Work Group and the Council of State and Territorial Epidemiologists (CSTE). In addition to calculating and examining health indicators, the program studies occupational health data gathered from multiple sources in order to learn more about how, where, and why work-related injuries and illnesses occur. NOSHP uses occupational health data to help develop priorities and to help shape education and outreach efforts.

Day-to-Day Activities

The OHF will be involved with several day-to-day activities, including:

1) Develop an understanding of and familiarity with occupational safety and health surveillance datasets
2) Refine data processing and data analysis skills
3) Learn and understand how to assess surveillance systems
4) Analyze and interpret data
5) Prepare epidemiology reports. The training goals for the Fellow will be defined by Centers for Disease Control and Prevention (CDC)/Council of State and Territorial Epidemiologists (CSTE) Applied Epidemiology Competencies (AECs).

At the completion of the fellowship, the Fellow will function as a well-qualified Tier 2, mid-level epidemiologist and will be highly employable in a wide range of public health settings.
Potential Projects

Surveillance Evaluation

Evaluating Nebraska's occupational health indicators.

A core component of Nebraska’s occupational health surveillance system involves generating and tracking occupational health indicators, which are standardized measures developed by CSTE and NIOSH to assess the health and risk status of workers in Nebraska. NOSHP calculates indicators annually and disseminates the data through annual reports. However, there is a continual need to identify gaps in the surveillance system and to determine if objectives are being met and are still relevant. A potential project for an OHF would conduct a formal evaluation of the occupational health indicators used to conduct occupational health surveillance in Nebraska. The OHF would gain skills in conducting public health evaluations through developing an evaluation framework and implementing the evaluation. An evaluation report and recommendations would be major outputs of this project, and a major outcome would be an improvement in the surveillance system. The project would also include calculating some indicators, contributing to annual indicator reports, and developing new state-specific indicators.

Surveillance Activity

Conducting workers' compensation surveillance to assess the magnitude and trends occupational injuries and illnesses in high-risk industries.

Workers’ compensation (WC) claims provide a robust source of occupational injury and illness data. Aside from using WC claims data to calculate certain occupational health indicators, this data source in Nebraska is currently an under-utilized, which presents multiple opportunities to study the epidemiology of work-related injuries and illnesses to develop priorities for prevention. Nebraska currently receives all claims data from the Nebraska Workers’ Compensation Court. The project would provide the opportunity to use Nebraska WC data to gain epidemiology skills through conducting surveillance, including 1) the collection, analysis, interpretation, use, and dissemination of findings on the incidence of occupational injuries, illnesses, deaths and exposures to hazards; 2) identification of trends, emerging issues, high-risk occupations, industries, and worker populations; and 3) development of recommendations for workplace interventions.

Surveillance Activity

Surveillance and investigation of occupational-related poisonings and outbreaks, with an emphasis of lead and pesticide poisonings.

Poisonings or illnesses due to lead, pesticides, carbon monoxide, and other substances are reportable events in Nebraska. Over the past five years, NOSHP built and enhanced Nebraska’s capacity to collect surveillance data occupational poisonings, including lead and pesticide poisonings. The program also secured access to poisoning cases reported by the Nebraska Regional Poison Center. However, due to under-reporting and lack of exposure information included in case reports, more detailed epidemiologic case investigations of poisonings is needed to assess the impact of these events. This project would expose the OHF to public health investigations of lead and pesticide poisoning cases, as well as data analysis and interpretations in order to develop prevention recommendations. The project also allows for flexibility to expand into other types of work-related diseases, including carbon monoxide poisoning or occupational-associated infectious diseases. The OHF would also be involved with data dissemination, such as developing an annual report of occupational poisoning cases in Nebraska. In addition, the OHF would assist in developing and improving case investigation protocols to be implemented at the state and local public health department level.
**Major Project**  Assessing the impact of work on chronic diseases and their risk factors in Nebraska.

Work is one of the most important determinants in a person’s health. As chronic diseases such as obesity, diabetes, and heart disease continue to impact Nebraska’s health, there is a recognized need to assess the role work has on these conditions and their associated risk factors. The Nebraska Behavioral Risk Factor Surveillance System (BRFSS), which is an annual health survey in Nebraska, has included industry and occupation questions since 2012. A potential project for an OHF would be to study how the prevalence of chronic conditions and risk factors varies between different industries and occupations. For example, this project could answer questions such as, “Do construction workers have high or low rates of smoking in Nebraska?” or “workers in which industry in Nebraska has the highest of physical inactivity?” Answers to these questions will provide public health programs with information to develop new prevention strategies aimed at high risk workers. The end result of this project would be creation of reports, infographics, and other materials to help summarize the data and to apply health communication strategies to disseminate this data to stakeholders.

**Additional Project**  Using Mapping as a Tool for Occupational Health in Nebraska

Using maps to presenting health data through geographic information systems (GIS) is a powerful tool for public health practice. Maps can be more effective at communicating data for non-public health professionals. Additionally, they can be used to identify regional and local-level variations of health outcomes and risk factors, which help focus public health intervention efforts. Despite their potential, few state-level or national occupational public health programs take full advantage of using mapping to communicate occupational injury and illness data. An OHF project would involve using the GIS software ArcMap to generate maps that present occupational injury and illness data at the sub-Nebraska geographic level (i.e. county or region). Several data sources and surveillance systems exist for this type of analysis, including many which are Occupational Health Indicators. The project would also include creating national data maps which will help compare Nebraska to other states, when the data source allows for state comparisons.

**Preparedness Role**

Role of the Fellow in Emergency Preparedness (required competency of fellowship): The OHF will be expected to respond to acute and emergent problems related to Occupational Health Epidemiology, including emergency response activities related to naturally occurring and intentional events which have actual or potential impact on workers’ and responders’ morbidity/mortality. Nebraska’s Bioterrorism Preparedness Program offers training and exercises to ensure Nebraska’s preparedness in the event of an incident or attack involving biological, chemical, radiological or other agents of bioterrorism. The OHF can access this training and participate in such exercises.

**Additional Activities**

Education and outreach to stakeholders, assisting in the epidemiology response to outbreaks and public health emergencies, attending trainings and workshops to develop skills, networking with occupational health stakeholders at the local, state, and national-level.
Mentors

Primary
Bryan Buss, DVM, MPH
CDC Career Epidemiology Field Officer (CEFO)/Veterinary Epidemiologist

Secondary
Derry Stover, MPH
Epidemiology Surveillance Coordinator