

Occupational Health/Chronic Disease Epidemiology

Assignment Description

The Division of Public Health Services in the NH Department of Health and Human Services is a leader among state health departments in the country. The Division is working toward public health accreditation, which includes intense work around strategic planning, developing quality improvement opportunities, and establishing a performance management system. As a small state, it is easy to cross program areas and work together on many important public health issues. This includes working with the Bureau of Laboratory Services, Bureau of Disease Control, the Bureau of Population Health and Community Services, the Bureau of Public Health Systems, Policy and Information Management, the Bureau of Public Health Protection and the Bureau of Public Health Statistics and Informatics. The focus of this assignment is chronic disease and occupational health, cutting across many programs in the aforementioned bureaus. Having information on a person's work status is a key determinant to that person's health behaviors and health outcomes.

The Fellow will act as the chief epidemiologist for the Occupational Health Surveillance Program (OHSP) in the Bureau of Public Health Statistics and Informatics, with a focus on integration with chronic disease (under the mentorship of Drs. Armenti and Anderson). Work will include performing analysis on CSTE/NIOSH occupational health indicators and submitting these data to NIOSH, writing reports and issue briefs on specific projects, preparing manuscripts for publication in peer reviewed journals, performing analysis for all research projects (described below), presenting data graphically using ArcGIS software, designing epidemiology studies, program strategic planning and program evaluation, working with program Advisory Committees, developing outreach with partners, creating new research projects using existing data sources, investigating and securing new data sources for injury surveillance, working with Division staff to prepare data for web-based query system, and managing the IRB process for new research studies.

NH DPHS has several program epidemiologists who will consult on projects as needed. The Fellow will participate in meetings and workgroup sessions on data analysis and methodology. He/she will have many opportunities for collaborative work in public health preparedness and communicable disease (protection of respondents is critical), injury surveillance, environmental health, heart and stroke prevention, oral health, women's health, tobacco prevention, asthma, and diabetes.

Day-to-Day Activities

The Fellow would be fully integrated in to NH DPHS activities, including quality improvement, performance management, and program evaluation. The Fellow's anticipated day-to-day activities would primarily involve data analysis, interpretation and dissemination.

- Data analysis utilizing various statistical analysis software (SAS, R, Excel)

- Become familiar with the chronic disease surveillance activities in the state, data sources that are utilized, and various reports that are prepared by chronic disease programs
- Analyze data from several sources, including hospital discharge records, death and birth records, workers' compensation reports, adult blood lead levels (laboratory records), complex sample surveys, billing data, and cancer registry data.
- Interpret findings stemming from these analyses.
- Develop methods for administering, analyzing and interpreting questionnaire data.
- Phone survey of workers on occasion (adult lead project).
- Prepare data briefs and reports (technical writing) intended for wide dissemination to those who use data for program planning, targeting prevention efforts, program implementation, and evaluation.
- Respond to data requests from the public, legislators, and stakeholders.
- Write research articles or manuscripts for publication.
- Prepare data (numerator and denominator) for development of chronic disease and occupational health dashboards in the DPHS Web-based Interactive System for Direction and Outcome Measures (WISDOM).
- Engage in Electronic Medical Record (EMR) and Meaningful Use planning process so EMRs become a useful source of data for chronic disease surveillance, prevention and control.
- Participate in trainings on emergency responder health and safety and disaster epidemiology.
- Participate in outbreak investigations having to do with chronic disease or workplace exposures.
- Work closely with the Northern New England Poison Center to assist with data analysis of occupational poisoning cases.
- Oral and poster presentations at nationally recognized meetings (CSTE and APHA).
- Participate in and present work in other DPHS activities, such as the Data Users Workgroup, quality improvement, and the "Publication Club."

Potential Projects

Include learning objectives, outcome measures, etc.

Current projects include:

- Data analysis, interpretation and dissemination (report) of 15-20 occupational health indicators utilizing a variety of state and national data sources:
 - Hospital Data (inpatient, discharge, ED, ambulatory)
 - New England Poison Control Center
 - Mortality Data
 - Cancer Registry Data
 - Workers' Compensation (Department of Labor)
 - ABLES (Adult Blood Lead Elevations)
 - Behavioral Risk Factor Surveillance System Survey
 - State Public Health Laboratories

- NH Labor/Economic Data
 - Emergency Management System (EMS) Data
 - Bureau of Labor Statistics
 - Census of Fatal Occupational Injuries (CFOI)
 - Census Current Population Survey and other national surveys
- Conduct research to better characterize lower adult blood lead levels, 10 to 25 mcg/dL. Involves calling providers to obtain information on occupation and employer, and surveying patients/workers to learn more about conditions at work that led to their exposure. The Fellow will have access to the Lead Program's adult lead database including blood lead levels for all adults in NH.
 - Further develop an occupational poisoning data linkage project. This will involve linking Poison Center data cases resulting in hospital care, to hospital ED data to better understand and document underreporting of occupational poisonings and to identify proxy variables for determining work related poisonings in the hospital discharge data. Preliminary results indicate that many known occupational exposures are not documented as work-related and not paid by workers' compensation in the hospital discharge data.
 - Perform analysis of the NH Emergency Medical Services data to better understand work related traumatic injuries (NH has a "work-related" field in its database). Explore new dataset of linked EMS and hospital discharge cases of traumatic work-related injury. Write report based on findings.
 - Work with the national NIOSH-State-CSTE workgroup on analyzing health behavior and health outcome (Behavioral Risk Factor Surveillance System) data by occupation and industry. Participate in 10-state analysis of 2012 data, focusing on a variety of indicators to highlight the importance of collecting and understanding the influence of work on a person's health. Papers will be published on this work.
 - Participate in state and national discussions around electronic medical records - work with Dartmouth Hitchcock Medical Center in building its EMR specifically to include work related fields and risk data.
 - Explore surveillance opportunities for infectious diseases in healthcare workers, working closely with the Bureau of Disease Control and the Immunization Program.
 - Help to build performance measures for programmatic and key indicators (chronic disease and occupational health) to be part of web-based query system called WISDOM.
 - Creation of "dashboards" to tell the story of occupational safety and health in NH.
 - Data analysis of workers' compensation data
 - Participate in OHSP Advisory Committee, guiding its work toward meeting our program objectives.
 - Assist in developing a teen worker surveillance system.

An additional project involves analysis of claims records for over 30,000 State of NH employees covered by the state health benefit program (Anthem Blue Cross and Blue Shield) to determine the prevalence of various chronic disease conditions by occupation, utilization of preventive clinical services, disease management and medication adherence. These analyses can be further extended into populations covered by other private insurers using all-payer claims database, as well as those covered by Medicaid, or Medicare.

The Fellow may also choose to work with the oral health program and prepare a comprehensive compilation of data on oral health outcomes (e.g., prevalence of caries experience and untreated tooth decay), access to care (e.g., annual dental visits, proportion of population receiving preventive dental services), or intervention strategies (e.g., water fluoridation, dental sealants application by school-based programs). This burden document will utilize data from NH cancer registry (oropharyngeal cancer incidence), vital statistics (oropharyngeal cancer mortality), complex sample surveys (Behavioral Risk Factor Surveillance System, New Hampshire Third Grade Survey), findings from school-based and community-based programs, and water fluoridation reports.

Mentors will work with the Fellow to choose projects that fit with the Fellow's interests, fulfill the competency areas, and provide solid cross-cutting experience in applied chronic disease and occupational health epidemiology. These projects will allow for involvement with staff across the Division, from other states, and from CDC and NIOSH. Topics for investigation or further surveillance are always possible, and the Fellow will be able to explore, develop and implement a new surveillance project as needed in the State. Again, being part of a small state allows for easier access to a variety of data sets for population based health.

Preparedness Role

The Fellow will be involved in state-wide implementation of the Public Health Emergency Preparedness Plan (PHEP) involving consultation with Bureau of Disease Control staff on the protection of State emergency responder personnel, healthcare personnel, and Division staff during a public health emergency. The Fellow will be mostly involved in specific occupational health capabilities (responder safety and health), including training and development of surveillance systems as needed. The Fellow may also have the opportunity to be involved in outbreak investigations of work-related events. One past event involved investigation of nitrogen dioxide gas exposure to staff and hockey players at a local ice rink. ([MMWR Morb Mortal Wkly Rep.](#) 2012 Mar 2;61(8):139-42).

Assignment Location: New Hampshire Division of Public Health Services
Concord, NH

Primary Mentor: Karla Armenti, ScD, MS
Principle Investigator- Program Manager

Secondary Mentor: Ludmilla Anderson, MD, MPH
Chronic Disease Epidemiologist