

Environmental Health, Occupational Health

North Carolina Department of Health and Human Services, Division of Public Health

Raleigh, North Carolina

Assignment Description

The Fellow will be placed in the Occupational and Environmental Epidemiology Branch, which identifies and assesses the impact of environmental and occupational conditions and hazards that may pose a risk to human health. Our Branch conducts surveillance for exposures to environmental and occupational contaminants; conducts health risk assessments and risk communication; provides medical evaluation and surveillance for adverse health effects; and provides health-based guidance on levels of exposure to such contaminants. The Fellow will have the opportunity to complete projects focusing on environmental and occupational health, climate and health, toxic substance surveillance, pesticide incident surveillance, well water surveillance, and public health preparedness and response. We have several potential projects in each of these areas that can be customized to the Fellow's interests.

Day-to-Day Activities

The Fellow will be involved in our Adult Blood Lead Epidemiology and Surveillance (ABLES) and pesticide incident surveillance programs, which involve managing and analyzing data on these exposures and related health outcomes, creating reports, communicating findings to stakeholders, and developing educational materials and interventions. When environmental or occupational public health emergencies occur (such as chemical releases), the Fellow will play an active role in the investigation, which may include developing a line list of exposed persons, gathering information from first responders, coordinating response activities with other agencies, and writing situation reports. The Fellow will have opportunities to collaborate with other Branches and Divisions if interested; for example, the Fellow will work with the Communicable Disease Branch on an outbreak investigation and assist with response and prevention activities for environmentally-related diseases such as legionellosis. The Fellow will participate in professional development activities, including monthly Epidemiology Section Lunch and Learn presentations, monthly Epidemiology and Evaluation Team meetings, and biweekly OEEB epidemiology team mentoring meetings with a CDC Career Epidemiology Field Officer.

Potential Projects

Surveillance Surveillance of Heat-Related Illness in North Carolina Activity

Using data from the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) and the State Climate Office of North Carolina, the Fellow will generate weekly heat surveillance reports during the North Carolina heat season (May–September), as well as end-of-season summary reports, and disseminate them to stakeholders. Surveillance reports will include daily maximum heat index, number of emergency department visits for heat-related illness, and demographic information about cases. The Fellow will also assist in evaluating new data sources for surveillance of heat-related illness, analyze data to answer relevant questions, and participate in the annual Heat Meeting, which brings together numerous agencies and stakeholders to collaborate on preventing heat-related illness.

Surveillance Evaluation of North Carolina's Toxic Substance Incidents Surveillance System Evaluation

North Carolina has participated in ATSDR's National Toxic Substance Incidents Program since 2010. Staff collect data on 250-300 toxic substance releases each year, enter the information into an online database, analyze the data, and create reports for stakeholders. The online database is no longer available and North Carolina is considering making a custom database to continue surveillance activities. For this project, the Fellow would evaluate the current surveillance system to determine what works well and what needs improving. The results of the evaluation would be used to design a new database and shape the future direction of the surveillance system.

Major Project Characterization of Childhood Pesticide Poisonings in North Carolina

Since 2007, North Carolina has conducted pesticide illness and injury surveillance to track and respond to approximately 1,100 acute pesticide-related exposures each year. Surveillance findings are used to encourage safe use of pesticides to avoid illness and injury. It has been noted since inception of the program that childhood cases (those under 18 years) typically account for a little more than one out of every four non-occupational poisoning cases. Since 2007, one child died from a pesticide ingestion and cases under 18 years accounted for 17% of all non-occupational, high severity cases. The Fellow will analyze surveillance data to describe reported childhood pesticide exposures during 2007-2016. The goal of this analysis will be to describe reported pesticide poisonings by patient demographics, clinical severity, pesticide product involved, route of exposure, circumstances of exposure, and medical care received. The Fellow will present findings to key stakeholder groups and work with our branch to outline an exposure control outreach plan.

Additional Project Private Domestic Well Water Surveillance and Outreach

More than a third of North Carolinians (over 3 million people) rely on private wells for their drinking water. The NC Well Water and Health program is working to minimize consumption of contaminated water from these federally unregulated systems. The Fellow will be involved in several projects related to the NC Well Water and Health program, which focuses on four areas: 1) outreach to and engagement with vulnerable populations (e.g., tribal communities, migrant/seasonal farmworkers), 2) development of a well water contaminant surveillance system, 3) development of tools to assist counties in interpreting well water testing results; and, 4) development of effective communication techniques for well owners. The Fellow would have the opportunity to work within the scope of the Well Water and Health Program to develop a project of their own. For example, the Fellow could develop an interactive well water map program for well users, or assess factors that lead to well owner testing and remediation.

Additional Project Environmental exposures and legionellosis in North Carolina

Since 2010, the incidence of legionellosis has increased more than 200% nationally and in North Carolina. This increase is not well explained; it may be a result of increased diagnosis and reporting of infections and a true increase in the burden of disease. In North Carolina, the Communicable Disease Branch conducts surveillance for legionellosis; the Occupational and Environmental Epidemiology Branch provides subject matter expertise on water systems and support in outbreak investigations and prevention efforts. The Fellow will collaborate with the Communicable Disease Branch to analyze surveillance data to describe potential sources of exposure among sporadic cases and based on findings, identify areas for further analysis, investigation, and prevention efforts.

Preparedness Role

The Fellow will participate in biweekly preparedness meetings with staff from the Occupational and Environmental Epidemiology Branch and a liaison from the Public Health Preparedness and Response Branch to discuss recent chemical incidents in the state and learn about preparedness and response issues. The Fellow will also participate in drills at our state Emergency Operations Center and table top exercises that are planned periodically, and assist with activities aimed at building preparedness capacity at local health departments.

Additional Activities

The Fellow will have the opportunity to assist the Communicable Disease Branch with infectious disease outbreak investigations, which may include maintaining a line list of cases, interviewing cases and controls, creating a database, analyzing data, and participating in site visits.

Mentors

Primary

Jess Rinsky PhD, MPH

Chief Epidemiologist

Secondary

Mina Shehee PhD, D

Environmental Program Manager and Branch Head