

Environmental Health/ Occupational Health

Assignment Description

The Fellow will spend their time working in environmental health surveillance and response related activities. It is also anticipated that the Fellow be exposed to and become familiar with the broad range of functions that occur in the Bureau of Epidemiology at the Florida Department of Health (FDOH), which includes sections related to surveillance systems, chronic disease, toxicology, acute disease surveillance and response, capacity and quality control, operations and training, and environmental epidemiology.

- The Fellow will be part of the Environmental Epidemiology Surveillance and Response Section which includes the Chemical Disease Surveillance Program (CDSP), Lead Poisoning Prevention Program (LPPP), Environmental Public Health Tracking (EPHT) program, Building Resilience Against Climate Effects (BRACE) program, Occupational Health and Safety Program (OHSP), and the Florida Birth Defects Registry (FBDR).
- The Fellow will become familiar with how disease surveillance (for acute infectious, chronic and environmental disease) is performed, how chemical disease surveillance is handled (syndromic surveillance, poison center data, state alerting systems on chemical incidents), and how exposures which lead to disease are investigated including the relevant guidelines and protocols for surveillance and response.
- The Fellow will also become familiar with the data systems related to acute and chronic diseases of possible environmental origin (Merlin-the reportable disease system, ESSENCE-the syndromic surveillance system, FPICN-Florida poison center data, ABLES -adult blood lead data, FBDR-Florida Birth Defects Registry, and EPHT-environmental exposures and health outcomes).
- In addition, the numerous population based surveys such as the Behavioral Risk Factor Surveillance System (BRFSS), Pregnancy Risk Assessment Monitoring System (PRAMS), and other related surveys which are located within this bureau will be discussed with the Fellow and used in projects of interest.
- The Fellow will receive experience in disease investigation and response, disease outbreak detection, critical review of a surveillance system, data analysis, and general operations in a large and diverse health department.
- The Fellow will be involved with university based collaborations and projects. Dr. Watkins' role as the CSTE executive board lead on Occupational/Environmental Health/Injury issues will provide the Fellow with numerous opportunities to participate in projects as part of a national forum.

Day-to-Day Activities

While the Fellow will have their own projects related to environmental health which they will be working on to complete the Fellowship competencies, they will also be integrated into our daily general bureau operations to ensure they have a robust applied public health experience.

- On a daily basis the Fellow will interact with the Environmental Epidemiology Surveillance and Response Section, working closely with various staff within the different programs.
- They will also interact with the Surveillance Systems Section staff, working with the staff within this section related to environmental diseases which are currently reported through Merlin (i.e., carbon monoxide, pesticides, mercury, arsenic, lead).
- Review of our syndromic surveillance data system for detection of clusters is a daily function.
- Other daily work includes individual time to develop work products and assignments, attending meetings of small teams working on projects, telephone consultations with county health department epidemiology staff or clinicians, attendance at required or skill-enhancement trainings, and time for reading, data analysis and writing of reports and summaries.
- The Fellow will partner with other bureaus for access to data, clarification and exploration of other surveillance issues, and general projects. Projects led by the Fellow will require them to have some autonomy as they work, but will also require them to convene work groups of state and county level epidemiologists.

The Fellow will be invited to attend and eventually contribute to the biweekly meetings of the Bureau of Epidemiology, biweekly meetings of the Environmental Epidemiology Surveillance and Response Section, and various workgroup meetings as their interests develop. There are weekly meetings associated with the FDOH electronic laboratory reporting team, reportable disease system development team, surveillance meetings discussing outbreaks or cases of interest, and regular meetings of the various program areas. As a result, the Fellow will be exposed to a diverse set of public health issues faced by state health departments. These processes will give the Fellow an opportunity to experience how a public health agency functions, how environmental health functions within a large state health department, and provide the Fellow opportunities to take on leadership roles and to see how investigations are handled from start to finish.

Potential Projects

There is flexibility built into the program such that the Fellow will have the option of pursuing specific projects of interest. Typical potential projects include:

Project 1: Surveillance System Evaluation - The FDOH is interested in determining if the current syndromic surveillance system (ESSENCE) could be used to detect occupational related illness and injury. This would primarily be related to chemical exposures but may include other types of injury and illness. Usefulness of both chief complaint data coming from Hospital Emergency Departments and Florida Poison Information Center (FPIC) data will be evaluated. The Fellow would need to be trained on the data inputs, functions and use of ESSENCE as well as the overall strengths and weaknesses of this system. Training is handled within the FDOH, although direct access to FPIC data requires training at the Jacksonville FPIC. Current surveillance efforts review ESSENCE for detection of disease related to chemical exposure in near real time, but are not focused on occupational issues; surveillance for occupational illness and injury is conducted through analysis of administrative data sets with a two year delay. This surveillance system evaluation would provide the Fellow with training and background in both syndromic surveillance and occupational health to explore the benefits (and limitations) of a more

timely detection approach. It is expected that this project would result in presentation of results at national meetings, recommendations that would be used within the programs, and the possibility of publication. Analysis of data will also occur.

Project 2: Surveillance System Evaluation - Carbon Monoxide (CO) poisoning became a reportable disease in Florida within the last 5 years and, over time, additional data has been collected/requested on the case reporting form that is available in the state disease reporting system (Merlin). Evaluation of the surveillance system with respect to CO poisoning would be a much needed and timely project. The Fellow would review the number of cases reported, completeness of data captured, ability of Merlin to capture data from the case report form, usefulness of current variables requested for understanding the situations leading to poisoning, and an estimate of the proportion of cases that may be missed through state surveillance. For this project, the Fellow would need to become familiar with the state disease reporting system, disease reporting and investigations guidelines related to CO, operations and staff within county health departments, and national efforts (e.g., participation on CSTE workgroup calls related to CO poisoning). It is expected that completion of this project would result in a presentation at a national meeting, internal recommendations to the related programs, and key participation in CSTE workgroups. Analysis of data will also occur.

Project 3: Field Experience/Large Outbreak Investigation - The Fellow will participate in a large outbreak investigation that includes data collection and data analysis. The outbreak will be environmental or occupationally-related. Past examples have included a large cluster of eye injuries after a foam party, radioactive strontium levels in patients who received a cardiac PET scan, illness and injury associated with the Gulf Oil Spill, and clusters of large poisonings (pesticide and CO). Each of these prior projects resulted in publications and presentations at national meetings (including field work). Other opportunities for field work experience have included participation in arbovirus or infectious disease outbreaks (dengue, salmonella, TB, etc). Data analysis, field experience, interview experience, and leadership experience are all anticipated in this project.

Project 4: Data Analysis - Florida has access to Hospital Emergency Department Data and Hospital Inpatient Data that could be used to explore occupationally related illness and injury. The Fellow could choose a category of illness and injury (burn related, amputations, chemically-related, falls, etc) and explore the burden, the trends over time, as well as explore disparities with respect to age, gender, race and/or ethnicity. The mentors can facilitate access to this data source and provide direction on the scope and methodology to be used. Analysis of death certificate data may also supplement this project. It is expected that this project would result in the presentation and possible publication of results.

Project 5: Survey Data Analysis - The Environmental Epidemiology Surveillance and Response Section has worked with the Behavioral Risk Factor Surveillance System (BRFSS) in Florida on environmental and occupational health issues. County level data, resulting in a larger sample size, is now being collected and would be available for analysis during the Fellows time at the FDOH. Using BRFSS data, a number of potential projects are available to the Fellow depending on their interests. For example, there are BRFSS questions about air conditioner usage that could help us to better understand the risks to vulnerable populations during heat waves. These questions were funded by our climate effects

program, with the goal of designing public health interventions to reduce illness and death during extreme heat events. Our section also funded a question about CO alarms, which could be used as part of a trend analysis. This question has been asked in previous years, so it would be interesting to see how awareness of CO dangers has changed over time, and then analyze that data in relation to our outreach efforts. Also, variables related to industry and occupational injury and illness were funded by our section and will be ready for analysis. It is anticipated that these projects would result in a presentation and publication.

Project 6: Geographic Information Systems (GIS) Data Analysis - The FDOH has recently spearheaded an initiative called “Healthiest Weight Florida” with the goal of becoming the healthiest State in the Nation. This is a public-private collaboration bringing together state agencies, not for profit organizations, businesses and entire communities to help Florida’s children and adults make consistent, informed choices about healthy eating and active living. As a result, the FDOH is planning to work on projects looking at how the built environment (e.g., sidewalk availability) impacts healthy weight management and physical activity. The Environmental Epidemiology Surveillance and Response Section uses Geographic Information Systems (GIS) to evaluate features from the environment that can impact public health. In the coming year, the Section would like to map sidewalks in Florida communities, both to highlight areas with adequate walking facilities and to show areas that are in need of improvement. GIS is an excellent tool to map such features, and to relate them to other data on Body Mass Index (BMI) and Socio-economic status (SES). The Fellow will learn how to use GIS to perform such analyses, and assist with report generation based on the results. It is anticipated that this would lead to a presentation and publication.

Other Projects - The mentors anticipate that the Fellow will have additional interests and ideas for projects. Standardization of the chemical disease surveillance process (improved tracking of exposures, review of guidelines and protocols, review of follow-up processes, review of reporting and documentation) could be a secondary project. Development of a small chemical incident exposure exercise (epidemiologic aspects) for use as a training exercise would be welcomed (includes collaboration with the laboratory, county health departments, preparedness, and responders). The Fellow would have a wide range of projects to choose from dependent on their interests. The Fellow would have the ability to work with university based researchers on some collaborations, and to work on national workgroups in occupational or environmental health to facilitate their interests.

Preparedness Role

As part of natural disaster surveillance and response or a community-wide emergency (i.e. food borne outbreak, hurricane, tornado, chemical incident, bioterrorism alert) the Fellow will have the opportunity to participate in Bureau of Epidemiology field response, deployment, and medical preparedness activities (Emergency Support Function (ESF)-8). The Fellow may be activated or deployed for emergency response along with other central office epidemiology staff members, have the opportunity to work on surveillance and disease control activities following natural disasters, assist with population-based post-hurricane surveys, and investigate acute health problems arising following a natural disaster. Florida hurricane season extends from June 1 through November 30 and there is no shortage of field

epidemiology experience that can be gained related to preparedness and response. The Fellow will have the opportunity to work closely with county health departments, State Public Health Laboratories, and the CDC on matters regarding public health priority diseases. Coordination with legal counsel, law enforcement, ethicists, logistics, central IT and other partners may also be necessary in the case of some public health emergencies. Other previous response efforts by fellows and other epidemiology staff have involved investigation of adverse effects related to steroid injections in 2013, disease surveillance during the 2012 fungal meningitis outbreak, post-Haiti earthquake response efforts, and novel influenza A H1N1. Florida has no shortage of issues to provide field experience for acute outbreaks, disasters or long term outbreak situations.

Assignment Location:	Florida Department of Health Tallahassee, Florida
Primary Mentor:	Sharon Watkins, PhD, MA Chief, Bureau of Epidemiology
Secondary Mentor:	Philip Cavicchia, PhD, MSPH Sr. Environmental Epidemiologist