

Environmental Health

Assignment Description

The Fellow will be assigned to the Bureau of Environmental Public Health Medicine (EPHM), in the Division of Environmental Health, Florida Department of Health (DOH). EPHM houses nearly a dozen programs related to diseases of environmental origin. Programs include the Adult and Childhood Blood Lead Surveillance Program, the Food and Waterborne Disease Program, The Zoonotic and Vectorborne Disease Program, the Aquatic Toxins Program, Asthma Surveillance Program, Environmental Public Health Tracking, Toxicology, Risk Assessment, Analytical Environmental Epidemiology, Birth Defects Registry, and Chemical and Pesticide Surveillance Program. The majority of resources related to epidemiologic and investigative activities for diseases of environmental origin reside in this bureau. Over 30 reportable diseases or syndromes related to chemical, toxin, zoonotic, vectorborne or other environmental factors are collected and analyzed from the bureau. Staff members in various programs also design case investigation tools, participate in investigations and analysis, develop recommendations for disease prevention and control and develop educational materials for medical providers, county health department staff and the public. Staff expertise include epidemiology, toxicology, biostatistics, policy and risk communication. Programs work closely with chronic disease epidemiologists in the Bureau of Epidemiology, maternal and child health epidemiologists in the Division of Family Health, the Florida Cancer Registry and others.

The Fellow will be involved in many aspects of activities within the bureau but will be primarily concerned with non-infectious, non-zoonotic or non-vectorborne disease surveillance and analysis.

Day-to- Day Activities

Day to day duties will include: CDC case report form reviews, answering calls from the public, working with partners on case investigations and outbreaks of environmentally related diseases, serve as a consultant for county health departments on questions regarding prevention and control of these diseases, data analysis, report and manuscript writing, web site development and web postings. The Fellow will also have opportunities to develop and present training programs and participate in the process of developing guidelines, preparedness response protocols, policies and legislation on environmental disease surveillance and control related issues.

Potential Projects

A Fellow working with EPHM will have the opportunity to work on a variety of projects depending on his or her interests including:

Disease outbreak investigations:

A. The EPHM receives a number of calls annually related to suspect cancer clusters in communities and is developing a protocol for response. Activities which are typically involved include review of cancer registry data for the community, application of standardized incidence ratios to assess cancer excess, application of mapping tools, and assessment of contaminants involved to determine most likely health outcomes. Coordination with the state cancer registry, GIS staff, other epidemiologists, county health department staff, risk communicators, toxicologists and risk assessors within DOH are likely. External

communication with partner agencies such as Florida Department of Environmental Protection or Florida Department of Agriculture and Consumer Services is also common. Consultation with federal partners such as CDC, ATSDR and EPA are also possible.

B. EPHM also has received calls related to suspected clusters of birth defects related to potential pesticide exposure. Activities which may be involved include review of the birth defects registry data for the effected population, questionnaire development, review of environmental data where available, and application of mapping tools. Coordination with the birth defects registry and its partners, GIS staff, other epidemiologists, migrant labor programs, county health department staff, risk communicators, toxicologists and risk assessors within DOH are likely. External communication with partner agencies such as Florida Department of Environmental Protection or Florida Department of Agriculture and Consumer Services is also common as well as consultation with CDC and other federal agencies.

C. EPHM investigates clusters and complaints related to aquatic toxin exposures, lead poisoning and other chemical events as these become apparent. The fellow would be involved with all aspects of the investigation including review of the initial complaint, questionnaire development, and on-site investigation where appropriate, data collection, analysis and report writing.

Epidemiological studies:

EPHM has access to large databases including: blood lead surveillance, birth defects data, Florida's Reportable Disease Database (Merlin), , the Florida Poison Information Center data, and large amounts of state-wide environmental monitoring data through the Environmental Public Health Tracking Program . The EPHM also has access to statewide hospital discharge data, vital statistics data and the cancer registry.

Potential projects include:

A. A study of chlorine gas exposures in the state using primarily the Florida Poison Information Center data and hospital emergency department data. Misuse of commercial cleaning supplies and misuse and mishandling of pool chemicals accounts for hundreds of potential exposures in Florida. Gaining a better understanding of the number of incidents and cases, associated risk factors, age groups and other issues involved in these cases would enable Florida, with the Fellows assistance, to develop targeted interventions such as training videos, brochures, warning labels and other educational materials.

B. Florida, like many states, struggles with small area analysis related to investigation of suspected cancer clusters. A comparison of various methodologies that may be used in these situations would be an important project for an environmental health Fellow within EPHM. Comparative methodologies that could be considered include computation of the SIRs for the geographic area versus cluster tools such as ClusterSEER or use of other GIS based cluster tools such as RIFT.

C. The Florida Birth Defects Registry has 10 years of data available for review and analysis and the state has well over 200,000 births per year.. Projects could explore differences in birth defect rates considering and exploring aspects of the large Hispanic population, the very diverse nature of maternal natality within Florida, and regional disparities. With ten years of data available, trends over time could also be explored.

D. The Florida Environmental Public Health Tracking program has been in existence for approximately 5 years in Florida and has created a rich data library that allows for ecological linking of specific health

outcomes such as myocardial infarctions to environmental sampling data such as specific air quality data. These data links have only just begun to be analyzed and the Fellow would be able to choose a disease or environmental issue of their interest for the project.

E. Florida has an interest in the relationship between consumption of fish, particularly native fish, and body burdens of mercury. Recent work has been done collecting information about knowledge of risks and fish consumption patterns among women of child bearing age and individual mercury levels via hair sampling. The Fellow could participate in additional analysis of this data and follow-up surveys.

Surveillance System Evaluation:

A. The Fellow may evaluate the Department's newly established Carbon Monoxide (CO) surveillance activities and system. CO became a reportable disease in 2008 in Florida. Case reports come into the county health departments and to the state from a variety of sources but it is suspected that a number of incidents are not reported. Review of emergency room data, hospital admittance data, poison information center call data and other sources could be reviewed to determine the detectable disease burden in Florida. These data can then be compared to number and types of cases being reported through the reportable disease system, MERLIN.

B. Depending upon the Fellows interests, surveillance system evaluation projects are also possible for childhood blood lead surveillance and for aspects of the birth defects registry.

Other Environmental Health Opportunities: EPHM is involved in all aspects of preparedness response including development of protocols, surveillance, syndromic surveillance including use of novel data bases, analysis, reporting and when available in-the-field response. Florida routinely offers training and mock exercises related to preparedness efforts and the Fellow would be able to participate in these trainings and exercises. Florida also has a State Public Health Ethicist located in their Statewide Research Office. This office provides seminars on public health policy versus research and issues related to Institutional Review Board (IRB) efforts. The Fellow would have the opportunity to review these seminars and participate in an IRB renewal application in order to better understand issues related to human subjects research and public health practice.

Preparedness Role

The Bureau is closely involved in emergency response activities and had a lead role in the epidemiology response to the recent Gulf oil spill event. The fellow would work closely with the Bureau's two chemical surveillance coordinators to become familiar with poison information and other data used to monitor disease during emergency events.

Assignment Location:

Tallahassee, Florida

Primary Mentor:

Sharon Watkins, PhD
Senior Environmental Epidemiologist
Florida Department of Health

Secondary Mentor:

Carina Blackmore, DVM, PhD

State Public Health Veterinarian, State Env. Epidemiologist
Florida Department of Health