

Environmental Health

Assignment Description

The Fellow will primarily work in the Environmental Epidemiology Program (EEP) within the Bureau of Epidemiology on environmentally related diseases, injuries and concerns. The EEP has the Utah Environmental Public Health Tracking Network (UEPHTN) and a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) to conduct the National Toxic Substances Incidence Program (NTSIP). These two activities (UEPHTN and NTSIP) focus on surveillance. Both of these activities are integrated with the Department's public health informatics functions. Projects with these two activities will expose the Fellow to public health informatics.

The EEP program also has a cooperative agreement with ATSDR for site-specific health hazards assessment and a block-grant supported healthy homes activities. These two functions focus on assessment and intervention. The EEP works closely with the infectious and chronic disease and injury programs within the department. The EEP also works closely with other state agencies that have a role in environmental public health such as the Utah Department of Environmental Quality, the Utah Department of Agriculture and Food, the Utah Department of Natural Resources, the Utah Department of Transportation, and the Utah Department of Public Safety, as well as the federal agency counterparts (i.e., US EPA) and the local health departments.

The EEP also collaborates with several public health programs at the Universities located in Utah including the University of Utah, Brigham Young University, Utah State University and Westminster University. The Fellow will have opportunities to conduct projects in environmental epidemiology that collaborate and coordinate with many of the departments programs, and EEP's partner or stakeholder agencies. The Fellow will receive primary supervision from Dr. Herlihy and Mr. Sam LeFevre, the EEP program manager. The Fellow will have opportunity to work with program managers, epidemiologists, toxicologists, environmental scientists, informaticians, and GIS specialists in other programs within the department or partner agencies.

As part of the UEPHTN, the EEP warehouses data from the Utah Cancer Registry, the state vital births and vital deaths registries, the hospital discharge and emergency room encounter databases, and the Utah Birth Defects Network registry. The EEP also maintains the Utah Blood Lead Registry and the Utah Injury Registry, and has access to other department data such as the Behavioral Risk Factors Surveillance System (BRFSS) data. These data are supported by robust census- and state-based population demographics, economic and geographic data. The Fellow will have opportunity to work on surveillance and assessment projects involving multi-factorial data using advanced manipulation and statistical methodology. EEP expertise in geospatial analysis and visualization will provide the Fellow with an opportunity to develop skills with these analytic methods.

Day-to- Day Activities

The Fellow will work closely with Environmental Epidemiology Program (EEP) staff and managers to evaluate and improve surveillance and assessment activities to identify and define important environmentally related diseases, injuries and concerns. The Fellow will work closely with stakeholder agency staff members to coordinate EEP investigations.

Potential Projects

- 1) Certain environmentally related chronic diseases, such as cancer, heart disease, asthma and child developmental deficiencies, and the relationship of those diseases to environmental hazards continue to be of high concern to Utah residents. The Fellow would have an opportunity to explore the linkage of environmental hazards and public health outcomes, and to conduct exposure and risk assessments incorporating a number of potential data sources and analytical tools to develop an understanding of the spatial-temporal trends of disease, evaluate environmental risks, and develop science-based policy and intervention recommendations for those concerns.
- 2) The EEP plans for and responds to ongoing federally designated site clean-up activities, public health emergencies and emerging concerns. For example, EEP is currently responding to an exposure and risk investigation of a crude oil pipeline leak that involved several hundred residents. Other examples include conducting a health assessment of a NPL or CERCLIS site clean up effort, or responding to a perceived disease cluster. The Fellow would have opportunity to participate in several of these kinds of field investigations. These investigations typically include working with local health authorities, local government officials, and with community residents to characterize the event, develop an understanding and assessment of the potential risks and health concerns that may result because of the event, determine the community concerns and needs, conduct exposure assessments, develop a base-line statistical review of current health status, and develop recommendations for policy changes and empowerment of the community. This would be a valuable opportunity for a Fellow to gain experience interacting with the public and conducting effective risk communication related to environmental hazards.
- 3) The EEP is tasked by the Department's leadership to evaluate and make recommendations regarding Utah's interest in emerging state or national concerns. Past examples include such topics as health impacts of wildfire retardants distributed through water sheds, ozone messaging, coal-fired power plants, transportation and storage of nuclear waste in Utah and pharmaceutical and personal hygiene disposal issues. Currently, EEP is looking at how climate change is impacting Utah health, issues related to private drinking water, and biomonitoring. The Fellow would have opportunity to participate in or coordinate researching and evaluating these kinds of concerns and coordinating with stake holder agencies in developing a position statement for the department and possibly as part of a national effort.
- 4) The UEPHTN intends to expand in the number of data sets held in its data warehouse and in the production and publication of public health indicators developed from those data. The UEPHTN publishes indicators and makes data available using the department's Indicator-Based Information System for Public Health (IBIS-PH). The EEP, along with UEPHTN partners, will be reviewing and updating priority list developed several years ago. The UEPHTN will work with new data stewards to acquire and standardize data for inclusion in the UEPHTN data warehouse and will be working with the national tracking community to develop nationally consistent and recommended indicators and messaging that could be generated from those data. The Fellow would have an opportunity to participate in these efforts and could be tasked with developing and publishing indicators responsive to public health priorities and community concerns. The

Fellow would have opportunity to work with other state agencies and with other public health disciplines such as health education to develop the presentation of and the messaging around these indicators.

5) Children's health continues to be a major concern for Utah residents, the department and for EEP. The EEP is interested in developing a community-based understanding of children's health issues. The Fellow would have an opportunity to work with community and child health advocates to identify specific child health concerns and coordinate with behavioral and chronic disease epidemiology staff to develop comprehensive programs and policies related to those concerns.

Preparedness Role

The State Epidemiologist and Deputy State Epidemiologist are both heavily involved in Public Health Emergency Preparedness. In addition to hostile threats, such as bioterrorism, Utah is required to respond to a number of natural or accidental emergencies. A recent example was an oil spill into Red Butte Creek with flows through several neighborhoods in the center of Salt Lake City. EEP has been working with the Local Health Department in assessing risk to the exposed population and in risk communication to the affected community. All epidemiology programs within the department are required to support these kinds of activities.

The Fellow would have opportunity to cross-train with communicable disease, injury, occupational and chronic disease epidemiologists in response to emergency or high impact response events (e.g., pandemic influenza, earthquake, refugee management, etc.) The Fellow would also have the opportunity to evaluate and help improve current operating procedures for data collection and analysis and activating emergency response services. In addition, the Fellow would be an active participant in a FEMA sponsored full-scale catastrophic earthquake response activity scheduled to take place in Utah in the spring of 2012.

Assignment Location: Salt Lake City, Utah

Primary Mentor: Rachel Herlihy, MD, MPH
Deputy State Epidemiologist
Utah Department of Health

Secondary Mentor: Samuel, LeFevre, MS
Program Manager, Environmental Epidemiology Program
Utah Department of Health