

Environmental Health

Assignment Description

The Bureau of Environmental and Occupational Epidemiology (BEOE), New York State Department of Health (NYSDOH) will offer many exciting opportunities for an Applied Epidemiology Fellow. Our goal is to mentor a young professional to become a competent public health epidemiologist by providing broad, diverse, and high quality training. We will emphasize applied epidemiologic skills/experience, resource assessment methods (gaining access to datasets and consulting experts in different fields), and presentation skills (both written and oral).

The core tasks for the Fellow are described as follows:

1. Environmental health surveillance: The Fellow will learn how to design and establish environmental health surveillance by participating with the NYS Environmental Public Health Tracking program (EPHT). Currently led by the Principle Investigator Dr. Hwang, the NYSDOH EPHT is one of the largest programs in the nation funded by the CDC. The goal of this program is to link environmental hazard and health outcome databases to enhance our ability to conduct surveillance. The Fellow will work closely with two mentors and other project staff to assist in developing new EPHT indicators related to school environment and children's health such as ambient air pollution, proximity to traffic, industrial facilities, hazardous waste sites/ landfills, potential pesticide exposures from schools and residences, school-based indoor indicators (the presence of mold, moisture, vermin, ventilation problems and indoor air quality), asthma admissions and student performance. The Fellow will also learn how to monitor and evaluate these school indicators, track EPH indicators over time and by geographic area, and enhance the existing NYS EPHT surveillance system.
2. Research techniques and skills: We will try to promote the Fellow's technical and professional development by asking the Fellow to participate in several ongoing epidemiologic studies with different study designs. A recently awarded project by the CDC entitled "Climate variability/ change and the risks for under-studied adverse health outcomes" (PI: Dr. Lin) will provide an excellent opportunity to the Fellow to observe and participate in some research with classical designs (case-control studies for climate factors on birth defects/other birth outcomes) and some studies employing newer methodologies (case-crossover, time-series, and two-stage Bayesian Hierarchical Model for respiratory/ cardiovascular/renal diseases, tick-borne, food and water-borne diseases). By working on these projects from beginning to end, the Fellow will gain experience in every stage of an epidemiologic study (study design, data collection and management, statistical analysis, report preparation, and presenting results), learn how to select appropriate study designs and methods, and learn how to link environmental data with health outcome data to examine their associations. By working on the school environmental health projects, the Fellow will learn how to conduct an ecological study which is often used in public health practice, and how to carefully interpret the findings. The mentors will also show the Fellow the common biases and potential challenges in public health research with different study designs and strategies to estimate or minimize these problems.
3. Prevention and education: Both school environmental health components from the EPHT program and climate-health grant described above provide excellent opportunities for the Fellow to learn how to translate research findings to public health practice. Currently, none of the states in the nation has a school environmental health tracking program and there is no heat or cold warning system in NYS. Drs.

Lin and Hwang are currently trying to integrate the research findings in NYS into the EPHT system through the EPHT database and public website. By working with colleagues from NYS regulatory agencies, Drs. Lin and Hwang are planning to develop public communication and community outreach/education strategies relating to climate change and health. The Fellow will assist in this component to increase public awareness, establish appropriate messaging to influence population behavior, target audiences, and select the most effective media for high risk communities.

Day-to- Day Activities

The Fellow will have the same administrative support and provisions that our other employees receive, and will perform similar day-to-day activities as other state employees. A plan and timeline to cover the core training components (surveillance, research, and prevention) will be developed jointly by the Fellow and the mentors during the first month. The mentors will meet with the Fellow every week to check progress, identify current challenges, and provide guidance.

To accomplish the training goals of broadening public health experience and networking skills, the Fellow will not only work mainly with two sections within the Bureau of Environmental and Occupational Epidemiology (BEOE), the Epidemiologic Studies and Evaluation section and the Environmental Health Surveillance section, but will also work with Dr. Druschel (Medical Director) of the Congenital Malformation Registry on a climate-birth defect study and will also rotate in the Community Exposure Research section within the BEOE.

To support his/her professional development, the Fellow will be encouraged to attend training sessions, seminars, conferences, and collaborative meetings at NYSDOH, courses offered by University at Albany School of Public Health, and the CSTE annual conference. The mentors will provide some opportunities for the Fellow to develop and give presentations to groups, including at monthly Section meetings and in our Bureau Seminar series. To enhance his/her writing and presentation skills, the Fellow will assist in writing a report of school environmental health surveillance, assist in preparing a report /plan to NYSDOH or other regulatory agency regarding establishing a climate warning system, develop an oral presentation for the CSTE meeting or a national conference, and write a scientific journal article for publication. The mentors will help the Fellow to broaden his/her network, to experience teamwork atmosphere, to improve interpersonal skills, and to establish long-term career goals.

Potential Projects

Potential Projects include:

1. Develop new environmental health indicators related to the school environment and evaluate the relationships of these indicators with asthma and student performances through the NYSDOH EPHT surveillance system.
2. Analyzed if special weather events are associated with some under-studied adverse health outcomes, such as birth defects, respiratory diseases and cardiovascular diseases.
3. Assist in developing public communication and education by integrating local research findings of climate factors on health..

Preparedness Role

The Center has a public health emergency preparedness/ bioterrorism program and many staff has extensive experience in conducting field investigations which required a rapid response to address community environmental exposures. As such, the Fellow will have ample opportunities to observe and participate in community studies/emergency investigation and preparation. Drs. Lin and Hwang conducted research of respiratory health among the residents living Ground Zero after 9/11 disaster, which presents a good case study in both disaster epidemiology and the role of emergency preparedness in public health from which the Fellow can learn. Dr. Lin's staff has also participated in site investigations of health impacts from community environmental exposures, including a survey of a population exposed to carbon monoxide. The Fellow will be able to actively participate in such investigations during their fellowship, should they occur. Additionally, the Fellow will have the opportunity to help analyze reported H1N1 cases among school staff and assist in flu pandemic preparedness, as part of another project conducted by Dr. Lin.

Assignment Location: Troy, New York State

Primary Mentor: Shao Lin, PhD, MD
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Secondary Mentor: Syni-An Hwang, PhD
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