Assignment Description

The fellow would be assigned both to the Division of Environmental Health EH and to UIC. The Division of EH is part of the Illinois Department of Public Health (IDPH) Office of Health Protection and is comprised of nearly 80 staff in Springfield and six regional offices (Rockford, Peoria, Edwardsville, Marion, Champaign and W. Chicago).

The UIC School of Public Health is located 2 miles to the West of IDPH and will be placed on the 10th Floor in the Division of Environmental and Occupational Health Sciences.

Day-to-Day Activities

The fellow will work with the mentors and other Environmental Health staff on assigned projects and surveillance activities. The fellow will participate in meetings, training conferences, emergency response exercises, and outbreak investigations. If possible, the fellow will accompany environmental health specialists and engineers and provide epidemiological support during onsite investigations. The fellow will also receive training in environmental risk assessment, investigating outbreaks or clusters of non-infectious diseases, surveillance reporting and evaluation, public health outreach and education, scientific literature review, and scientific writing. The fellow will potentially have opportunities to work with staff in each of the Division of Environmental Health’s programs and regional offices, and a variety of partners, including Division of Infectious Disease Communicable Disease Control Section staff, local health departments, and the IEPA.

The Fellow will carve out time to participate in activities at the UIC School of Public Health, including attending meetings and special lectures. S/he will have access to UIC resources including library and online resources.

Potential Projects

Surveillance Activity Chemical Poisoning and non-Infectious Disease Surveillance

Currently, chemical poisonings and other non-infectious health conditions that can be caused by exposure to environmental hazards are not reportable in Illinois (carbon monoxide, mercury, arsenic, and pesticide poisonings, for example), but there are several data sets available that could be used to establish an environmental surveillance system: Vital Records â€“ Death Certificates, Hospital Discharge Data, Emergency Department Data (may be included with outpatient hospital discharge data), Essence Syndromic Surveillance Data and Illinois Poison Control Center Exposure Call Data. The fellow will establish partnerships with programs that collect and maintain these data, and develop sustainable methods and procedures for querying, analyzing and reporting surveillance data. The fellow would be
expected to complete a major project based on this activity, including an annual surveillance report, and present at a workshop or conference for local environmental health officials.

**Surveillance Evaluation**  
**Mosquito Surveillance System Evaluation**

The Division of Environmental Health has two major surveillance systems: The West Nile Virus (WNV) Mosquito Surveillance System and the Illinois Lead Program’s childhood lead poisoning surveillance system. The former has been in use since West Nile virus first emerged in Illinois in 2001 and is used by local health departments for dead bird and mosquito identification reports. In 2016, to enhance the Department’s preparedness for Zika virus disease and better characterize the distribution of Aedes mosquitoes in Illinois, the Division updated this surveillance system to accommodate Aedes mosquito identification reports. The system has not been formally evaluated.

The fellow will undertake an evaluation of the WNV Mosquito Surveillance System to determine:

- What, if any, are the stated goals of the system and are they being met?
- Who are the stakeholders for this surveillance data and are they sending or receiving surveillance reports in a timely fashion?
- Are the weekly WNV Environmental Surveillance Summaries useful and informative?
- Are there opportunities for improvement?

**Major Project**  
**Carbon Monoxide Poisoning Surveillance**

Develop a Carbon Monoxide (CO) Annual Surveillance Report and monthly burden briefs (from October to March) that summarize the incidence, risk factors and costs associated with unintentional, non-fire-related CO poisoning in Illinois by obtaining and analyzing all available data sets: Vital Records â€“ Death Certificates, Hospital Discharge Data, Emergency Department Data (may be included with outpatient hospital discharge data), Essence Syndromic Surveillance Data and Illinois Poison Control Center Exposure Call Data.

**Additional Project**  
**Miscellaneous Projects, Per Interest and Time**

**Illinois Lead Program**

Complete an analysis of data that Illinois Lead Program nursing case managers collect on home visit forms during elevated blood lead level investigations. In addition to data relevant to lead, nursing case managers also ask about asthma diagnoses, the presence of various asthma triggers, carbon monoxide detector usage, and other environmental safety factors. A 3-year pilot evaluation of these data from 81 homes visited by IDPH Nursing Case Managers from 2011 to 2013 has been performed, but ongoing, routine analysis of statewide home visit data does not occur. The fellow could build a data collection tool to analyze these data, collect data from delegate agencies, evaluate and revise the home visit forms, and prepare a summary report.
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delegate agencies, evaluate and revise the home visit forms, and prepare a summary report.

- Collaborate with the Communicable Disease Control Section and IEPA with respect to harmful
  algal blooms in recreational waters, including assisting with human illness reports and case
  follow up, environmental monitoring of cyanobacterial toxins and development of public health
  messages and advisories.
- Develop and implement follow up surveys of community members that live near hazardous
  waste sites to determine whether site-related recommendations have adopted and evaluate
  their awareness of the health hazards posed by the sites.

Major Project  Environmental Quality Index

Under the supervision of Dr. Jyotsna Jagai, the Fellow will select and work on one of the following two
projects:

- Develop an environmental quality index for the state of IL at the census tract level. This would
  utilize data specific to IL in all domains of environmental quality (air, water, land, built
  environment, and sociodemographic environment).
- Assess associations between combined sewer overflow events and gastrointestinal illness. This
  would utilize data on GI illness from the IL hospitalization and dates for CSO events (I have an
  old dataset but maybe we can get some updated data).

Preparedness Role

The fellow will be expected to participate during waterborne and other infectious disease outbreak
investigations by assisting environmental health specialists and engineers with onsite investigations,
conducting epidemiological studies to help identify exposure sources and risks, liaising with
communicable disease epidemiologists in other IDPH programs to improve intra-agency communication.
Also, IDPH has made an investment in disaster epidemiology training for State and local health
department staff. Ideally, the fellow would have training in disaster epidemiology in order to assist with
completion of a Community Assessment for Public Health Emergency Response (CASPER) following a
State declared disaster or localized emergency.

Mentors

Primary  Jennifer Layden MD, PhD
          State Epidemiologist/Chief Medical Officer

Secondary  Jyotsna Jagai PhD, MPH
          Research Assistant Professor