Assignment Description

The Fellow will be assigned to the CDPH Environmental Health program, which encompasses four separate divisions: Lead Poisoning Prevention and Healthy Homes, Vector Control, Food Protection, and Environmental Permitting and Inspection. Together, the program is responsible for the surveillance and investigation of children with elevated blood lead levels; mosquito surveillance, testing, and control to prevent West Nile virus; restaurant inspections to prevent food-borne disease outbreaks; and environmental inspections in response to air pollution complaints.

While the Fellow will have the option of working on projects within each of the program areas, the majority of their time will be spent within the Lead Poisoning Prevention and Healthy Homes program. This program is responsible for the investigation of any child with elevated blood lead levels within the city of Chicago. The Lead program contains a case management team of nurses and Public Health Aides and a team of inspectors which identifies lead hazards in patients' homes. Additionally, the Lead program performs surveillance of children with elevated blood lead levels using the CDC's electronic surveillance system, Healthy Homes and Lead Poisoning Surveillance System, as well as their own electronic Lead Inspection Application. The Lead program also uses a predictive model to identify homes at risk of lead hazards and performs proactive inspections with the help of community partners.

Day-to-Day Activities

The Fellow will attend programmatic meetings, including biweekly lead case management and inspection meetings, monthly Food Protection all-staff meetings, and bimonthly meetings with Environmental Justice organizations. The Fellow will also have the opportunity to perform field work and observe lead, restaurant, and environmental inspections, as well as to participate in mosquito collection and testing. However, the Fellow's time will largely be dedicated to the office to focus on surveillance and system improvement projects.

Potential Projects

Surveillance Activity  Development of a Surveillance Plan for Ixodes Scapularis

CDPH currently has a highly respected mosquito surveillance system incorporating mosquito collection and testing to determine prevention and control activities. Under the guidance of the primary supervisor, the Fellow will develop a similar plan for tick surveillance. Using CDC recommendations as a guide, the Fellow will develop methods of tick collection, estimate density of infected ticks, and with the assistance of the primary supervisor, establish partnerships with the IDPH laboratory to test ticks for pathogens.
**Surveillance Evaluation**  
**Evaluation of the HHLPSS Surveillance System**

In late 2017, the CDPH Lead program switched their surveillance system from STELLAR to HHLPSS. By comparing data obtained since this switch to historical data, the Fellow will evaluate the effectiveness of the new surveillance system. This will be a classic surveillance system evaluation designed to look at the surveillance system's attributes such as data quality, acceptability, timeliness, and positive predictive value. Based on the results of the analysis, recommendations to improve the system will be made.

**Major Project**  
**Analysis of Predictors of Air Pollution Violations**

With the guidance of the primary supervisor, the Fellow will use environmental inspection records associated with air pollution to identify predictors of pollution violations. The Fellow will have access to environmental investigation findings, weather data, and EPA data on air pollution. The Fellow will create a hypothesis, identify and test variables of interest, and analyze the findings. They will then compile and present findings to appropriate stakeholders.

**Additional Project**  
**Evaluation of the lead predictive model to predict home lead hazards**

In December 2019, CDPH will begin partnering with 4 local Federally Qualified Healthcare Clinics (FQHCs) and the City Department of Innovation and Technology to integrate an address-based risk assessment of children being seen for potential home lead hazards. The FQHCs will have the option to assess the risk of home-based lead hazards using CDPH's predictive model through the use of an API integrated into the clinics' electronic health record system. The Fellow will evaluate how the model is being used as well as its accuracy in predicting lead hazards among those families with identified high risk who opt to have a proactive home lead inspection performed by CDPH.

**Preparedness Role**

The Fellow's secondary supervisor is a member of the CDPH Public Health Emergency Preparedness leadership team. The Fellow will accompany him to monthly meeting and quarterly training sessions. The Fellow will also participate in schedule exercises as well as After Action Reports.

**Additional Activities**

The Fellow will contribute to the development and updating of protocols as they pertain to environmental health. Additionally, they may be involved in developing a CDPH plan for climate change and its effect on health. Finally, the Fellow may participate in large foodborne outbreak investigations if they occur.
**Mentors**

**Primary**  
Janna Kerins VMD, MPH  
Medical Director

**Secondary**  
Peter Ruestow PhD, MPH  
Supervising Epidemiologist