

Infectious Diseases/ID- Food Safety

Assignment Description

Harris County Public Health and Environmental Services (HCPHES) is a local health department serving the third largest county in the United States. It spans over 1700 square miles, and its land area is larger than the state of Rhode Island. HCPHES' jurisdiction insofar as epidemiology is concerned includes approximately 2.1 million people within the unincorporated areas and over 30 small municipalities located in Harris County outside the City of Houston. Harris County has an international airport which is the 8th busiest airport in the United States and is 3rd for non-stop domestic and international service (<http://www.flightstats.com/go/Airport/airportDetails.do?airportCode=iah>); the Houston area has many international travelers and the largest medical center in the world. The Epidemiology Program provides epidemiology services including surveillance of notifiable conditions to this population. It is important to describe the population and the area because this will give the Fellow an idea of the breadth of experience he/she will gain by being part of a team which provides epidemiology services to such a large and complex urban population.

In recent years the HCPHES Epidemiology Program has been involved in the investigation of a human rabies case, a Japanese Encephalitis case, a large outbreak of hepatitis B associated with long term care facilities, many WNV cases in the largest national outbreak of WNV reported to date, a case of measles, numerous cases of pertussis and many interesting foodborne illness clusters identified by PulseNet. Epidemiologists in our program have experience investigating many types of cases of rare and exotic diseases by the nature of the population we serve.

The Fellow will be assigned to the Epidemiology Program as an Epidemiologist under the mentorship of the Program Manager and Surveillance Unit Supervisor. The Fellow will work independently under general guidance. HCPHES epidemiologists are considered generalists, investigating all notifiable conditions (excluding tuberculosis, HIV/AIDS, and STDs) that occur within their assigned "Epi Zone." By handling all reported conditions, as opposed to focusing within one disease group, the Fellow will gain a well-rounded knowledge of infectious diseases and associated public health interventions.

Day-to-Day Activities

The Fellow will apply principles of Epidemiology to disease control activities and respond to public health emergencies within the jurisdiction of HCPHES. Of particular importance is the prevention and control of notifiable conditions and communicable disease, including disease related to potential Bioterrorism agents, outbreak situations, and other public health emergencies or natural disasters.

On a daily basis the Fellow will:

1. Investigate reports of notifiable conditions in Harris County residents as assigned. This process involves review of medical records, interpretation of laboratory reports, patient interviews, implementation of control measures, and the completion of surveillance forms (with other steps as necessary based on situation or condition).

2. Provide information related to preparedness and other public health issues via telephone consultation, mail outs and presentations to individuals, schools, child care centers, nursing homes, hospitals, health care providers and other agencies to ensure readiness for responding to Bioterrorism, other outbreaks of infectious disease, and other public health threats and emergencies.
3. Participate in investigations and provide intervention for epidemic or unusual community health related episodes or outbreaks, including those related to potential Bioterrorism agents and other related public health issues which develop the public health preparedness capacities of the section.
4. Produce special reports and statistical analysis of epidemiological investigations to ensure readiness for responding to Bioterrorism, other outbreaks of infectious diseases, and other public health threats and emergencies.

Potential Projects

1. Food safety epidemiology – the Fellow will investigate all foodborne illness complaints that are reported to the Department (either directly or through Environmental Public Health [EPH]). In this capacity the Fellow will be able to experience field investigations of restaurant related complaints, accompanying the EPH Senior Investigator-Foodborne Illness, as appropriate. The Fellow will work alongside another epidemiologist in the event of a large foodborne illness outbreak resulting from the investigation of a single/multiple complaint(s).
2. Large outbreak investigation – actively participates in a large-scale outbreak investigation. The Fellow will conduct the following activities:
 - a. Design an interview questionnaire or other data collection tool.
 - b. Collect data from patient interviews, medical records and laboratory reports.
 - c. Create a database for an outbreak.
 - d. Use statistical software to analyze and characterize epidemiologic data.
 - e. Interpret findings from epidemiologic studies, including recognition of the limitations of the data and potential source of bias and/or confounding
 - f. Recommend control measures, prevention programs, or other public health interventions based on epidemiologic findings
3. Health disparities project – Learn to analyze morbidity data for health disparities using poverty level census tract socioeconomic data; this analysis technique will be utilized in the generation of an in-depth disease-specific report on pertussis (including age-appropriate vaccination coverage of cases).

Preparedness Role

Harris County is no stranger to emergencies and HCPHES has long experience responding to these situations. The Epidemiology Program plays an integral part in the HCPHES response to public health emergencies and natural disasters in Harris County. In September 2005, as part of the Incident Command Structure (ICS) set up to respond to large numbers of evacuees arriving in Harris County following Hurricane Katrina, HCPHES lead the Medical Branch Operation at the Astrodome/Reliant Complex. The Epidemiology Program had primary responsibility to implement a comprehensive epidemiological response in all shelter areas. HCPHES applied a health assessment in the clinic triage

areas for all evacuees seeking care in shelter clinics. Further investigation was conducted for all evacuees suspected of having infectious diseases cared for on-site or sent for hospital care. Routine preexisting surveillance systems were maintained and allowed for follow up of hospitalized evacuees. Additionally, epidemiologists rounded in all shelter areas every 12 hours to identify any infection control related issues that might arise. An example of this was the identification of large ice chests with drinks placed at various places in the shelters with access to all evacuees. Immediately risk of fecal-oral transmission of infectious pathogens was identified and the practice was corrected. Volunteers were placed at all ice chests to distribute drinks as needed. In collaboration with the University Of Texas School Of Public Health a daily cot-to-cot tally was implemented to assess the general health status of evacuees in the shelter areas. This effort was instrumental in quick identification of a Norovirus outbreak in the main shelter area at the Astrodome. HCPHES was also able to track immunizations given in the shelters, laboratory tests ordered, medical complaints, and pharmaceutical usage. In addition to these disease control efforts, environmental shelter assessments were conducted and appropriate health education messages for evacuees and response personnel were provided.

Epidemiology Program staff stayed at “shelters of last resort” (for residents with significant medical conditions who were unable to evacuate) during Hurricane Ike and participated in the post-hurricane response. Epidemiology-related activities implemented as part of the post-hurricane response included shelter assessments, disease surveillance in shelters, and other active surveillance activities.

The Epidemiology Program staff also participates in emergency response drills for suspected biological terrorist attacks and prophylaxis distribution (point of dispensing (POD) exercises). The Fellow will respond alongside the Epidemiology Program staff in all emergency response trainings and any responses that may occur.

Assignment Location: Harris County Public Health and Environmental Health (HCPHES)
Houston, TX

Primary Mentor: Diana Martinez, PhD, MPH
Epidemiology Program Manager/Senior Epidemiologist

Secondary Mentor: Sherry Jin, MD, MPH
Epidemiologist – Surveillance Unit Supervisor