Infectious Diseases-Foodborne, Injury

Austin Public Health, Epidemiology and Public Health Preparedness Division

Austin, Texas

Assignment Description

The Fellowship at Austin Public Health will focus on foodborne diseases. The most frequently reported foodborne diseases in Austin are salmonellosis and camplyobacteriosis. The average annually number of cases reported for salmonellosis and camplyobacteriosis is 253 and 190, respectively. Cyclosporiasis and shiga-toxin Escherichia coli are also frequently reported. The Fellow will gain knowledge on infectious disease surveillance system and its importance in monitoring foodborne diseases.

At the end of the fellowship, the Fellow will have gained knowledge on the causes, symptoms, transmission routes, treatments, and prevention methods for many communicable diseases. They will gain experience in interviewing persons with an adverse health condition, typically an infectious disease, and will have gain experience on communication skills. The Fellow will improve their abilities on data analysis and data visualization tools and improve their proficiency in using Microsoft Word, Excel and PowerPoint. The Fellow will learn how to ask the right epidemiologic or scientific questions and make recommendations on the quality of data to address an issue and possible analytic solutions. The Fellow will learn to serve as the lead epidemiologists for foodborne outbreak investigations. Importantly, the Fellow will gain experience preparing reports to effectively communicate data.

Together, the primary and secondary mentors have over 50 years’ experience in public health and epidemiology. They have served as mentors for many undergraduate and graduate students during their careers.

Day-to-Day Activities

Anticipated day to day activities:

- Interview persons with salmonellosis or shigellosis to collected clinical and exposure information
- Enter demographic, clinical, and exposure data into the National Electronic Disease Surveillance System
- Prepare datasets for publication on the City of Austin Open Data Portal
- Routinely interact with staff to learn about vaccine-preventable diseases, sexually-transmitted disease, chronic diseases, and injuries
- Perform some data analysis and interpretation of data
- Respond to ad hoc requests for infectious disease data
- Respond to inquiries from health care professionals and members of the public regarding communicable diseases
Potential Projects

Surveillance Activity  Enteric Disease Surveillance

Foodborne disease surveillance and investigations are foundational activities of epidemiology at local health departments. Foodborne outbreak investigations provide epidemiologists valuable experience in tracking cases, interviewing patients, analyzing data, and collaborating with public health partners in healthcare and environmental health. The applied epidemiology Fellow will acquire valuable expertise in disease investigation procedures, interviewing persons with enteric diseases, and developing statistical analysis skills. They will also gain experience in writing summary reports on foodborne illness trends such as salmonellosis, Shiga toxin-producing Escherichia coli infections, campylobacteriosis, listeriosis, cyclosporiasis and even norovirus. On average, over 250 salmonellosis and over 190 campylobacteriosis cases are reported in Austin annually. Annually, about 25 cyclosporiasis cases and 17 Shiga toxin-producing Escherichia coli infections are expected. The incidence of these four foodborne diseases will provide sufficient opportunity for gaining patient interviewing experience. Extensive training and hands-on experience will be provided on conducting interviews, educating the public about prevention measures, coordinating with environmental health inspectors, creating statistical summaries, and providing written and oral presentations about foodborne disease investigations and trends in Austin-Travis County.

Surveillance Evaluation  Foodborne Illness Complaint System Evaluation

Approximately 200 foodborne illness complaints are received annually by Austin Public Health epidemiologists. These complaints are received by phone calls or email messages sent by residents or visitors, by notifications on a public domain website titled IWasPoisoned.com; and from email complaints received by the U.S. Food and Drug Administration and routed to local health departments based on location. For each complaint, the epidemiologist interviews the caller using a standardized interview form to collect details about the caller’s illness, exposures, and food history, and assess the urgency level of the complaint. A brief summary of the complaint is then emailed to the Austin Public Health Environmental Health Services staff for possible follow-up, including restaurant or food truck inspection if warranted. If an inspection is conducted, a copy of the inspection report is then sent back to the epidemiology program. The Fellow will conduct an analysis and review of the Foodborne illness complaint system. The Fellow will assess the utility of the information gathered, identify potential methods for improving the information gathered, or streamlining the process, and provide ideas on improving the communications process between environmental health and the epidemiology programs.

Major Project  Distribution and Determinants of Enteric Illnesses in Austin-Travis County, Texas: A 10-year-review

This project will be an in-depth review and analysis of enteric disease incidence rates and outbreaks in the Austin-Travis County area over a 10-year period. The applied epidemiology Fellow will use data available from case-patient interviews as well as data from the National Electronic Disease Surveillance System (NEDSS). Data from over 6,000 case-patients with salmonellosis, Shiga-toxin producing Escherichia coli infection, campylobacteriosis, cyclosporiasis, listeriosis, vibriosis, or shigellosis will be
analyzed. This analysis will compare disease incidence, exposure histories, and residence location over
the past decade as the local population has grown and shifted. According to the Texas Demographic
Center, the Austin metro area (a five-county area including Travis, Williamson, Hays, Bastrop and
Caldwell counties) has maintained its ranking as the nation’s fastest growing metro area for the past
eight years, with about 100 newcomers arriving daily. That growth translates to changing
demographics, housing, and economics, all of which could potentially impact disease rates and risk
factors among population groups. The results of the analysis will be used to create a “Story” in Socrata,
a data platform for sharing data with the general public and others.

Additional Project

Using Injury Indicators to Describe Injury-related Deaths and Hospitalizations at a County Level

Injury is a major public health problem in Austin (Travis County) leading to the deaths of over 600
residents and over 4,500 hospitalizations yearly. Injury is the leading cause of death for individuals
between the ages of 1 to 44 years. Injury surveillance is one of the most critical and basic components
of injury prevention and control. Surveillance data are also important in determining program and
prevention priorities.

Using injury surveillance/methods/toolkit available on the Council of State and Territorial
Epidemiologists (CSTE) website, the Fellow will analyze injury mortality and hospitalizations for Travis
County residents, prepare a report, and make a presentation on findings. Based on the Consensus
Recommendations for Injury Surveillance in State Health Departments and State Injury Indicators
Report: Instructions for Preparing 2014 Data, 11 injury indicators have been identified. The indicators
address injuries resulting in or occurring from the following include: 1) all injury, 2) drowning, 3) fall, 4)
hip fractures (in persons 65 years of age or greater), 5) residential fire, 6) firearm, 7) assault, 8) motor
vehicle traffic, 9) poisoning, 10) suicide attempt, and 11) traumatic brain injury. The Fellow will analyze
mortality and hospitalization data, calculate frequencies and rates of each injury indicator by age group
and gender and create relevant graphs (e.g., line, bar, pie). The results of the analysis may be used to
create a “Story” in Socrata, a data platform for sharing data with the general public and others.

Preparedness Role

The applied epidemiology Fellow will be headquartered in the Epidemiology and Public Health
Preparedness Division. This Division includes the Epidemiology and Disease Surveillance Unit, Office of
Vital Records, and the Public Health Emergency Preparedness Program. Similar to all Division staff, the
Fellow will receive training in the Incident Command System (ICS). The Incident Command System is the
standardized command structure that facilitates a cooperative response by multiple agencies or entities
while organizing, coordinating, and conducting disaster response activities.

The Fellow will be able to participate in many training activities conducted by the Public Health
Emergency Preparedness Program. Some of the trainings or exercises tentatively planned for July 2020
through June 2022 include: 1) two BioWatch table tops, 2) a Point of Dispensing (POD) exercise, 3) a Tire
Take Back event, and 4) a regional exercise.
The BioWatch tabletops or functional exercises test staff readiness for a BioWatch Actionable Result necessitating the receipt and public distribution of refrigerated vaccines, antibiotics, or other countermeasures. This exercise also tests several Standard Operating Procedures (SOPs). The Point of Dispensing (POD) exercise tests the Department’s ability to dispense medical countermeasures to the general public, emergency medical services staff, fire department staff, or others. To reduce the populations of breeding mosquitos, Austin Public Health coordinates a Tire Take Back event to collect used tires from the general public. Coordinating and conducting this event provides training on the Incident Command System, aspects of setting-up a POD, and coordination with other agencies. The regional exercise tests communication and coordination activities with many multijurisdictional agencies that would respond to a disaster.

During the fellowship, the Fellow may participate in shelter surveillance, a Community Assessment for Public Health Emergency Response (CASPER), and/or staff the agency’s Emergency Operations Center during a response to public health-related event.

**Additional Activities**

An applied epidemiology Fellow at Austin Public Health would have a variety of opportunities and activities available to enhance their knowledge on epidemiology, infectious diseases, and chronic diseases. These opportunities include:

- Writing chapters for Austin Public Health’s 2021 Critical Health Indicator’s Report
- Attending the annual Diseases in Nature Transmissible to Man Conference held in Texas
- Attending the annual Epidemiology and Laboratory Capacity Conference sponsored by the state health department
- Participating in CSTE disaster epidemiology committee calls
- Participating in Southeast and Southwest Injury Prevention Network webinars
- Attending local injury prevention coalition meetings
- Attending monthly Association for Professionals in Infection Control and Epidemiology (APIC) chapter meetings
- Participating in quarterly BioWatch meetings
- Attending grand rounds held twice a month hosted by the Office of Academic Affairs, Texas Department of State Health Services
- Interviewing persons with a vaccine-preventable disease
- Participating in influenza vaccination clinics for community members
- Participating in inspections of retail food establishments
- Preparing written and oral reports and presentations using Micro Soft Word, Excel, and PowerPoint
- Developing materials for posting on the Department’s website and the City’s Open Data Portal
- Responding to inquiries from the public concerning infectious disease occurrence, risk factors, and prevention measures
- Creating databases using Excel or Epi Info
- Supporting Austin Public Health’s role in disaster response
• Comparing deaths where tobacco use is a contributing cause with deaths where tobacco use is not a contributing cause
• Developing a spatial analysis of the distribution of women with recent birth to medical clinic locations (OB/GYN)
• Investigating a norovirus outbreak in a long-term care facility
• Presenting to the University of Texas at Austin Texas Public Health student organization on why you chose a career in epidemiology
• Attending the 2021 Texas Demographic Conference typically held in June
• Attending the 2021 and 2022 Summer Statistics Institute, The University of Texas at Austin, typically held in May

**Mentors**

**Primary**

Jeff Taylor MPH
Manager, Epidemiology and Disease Surveillance Unit

**Secondary**

Vivienne Heines MPH, CPH
Senior Epidemiologist