Assignment Description

The CSTE Applied Epidemiology Fellow will be assigned to the Epidemiology Program of the San Antonio Metropolitan Health District within the Communicable Disease Division (CDD). CDD is responsible for the prevention and control of communicable diseases in Bexar County, which includes San Antonio, TX. The Division is comprised of the following programs: Epidemiology, Immunization, Tuberculosis (TB), STD/HIV, and Laboratory. CDD provides surveillance and epidemiological follow-up of more than 80 reportable communicable diseases, vaccinations, STD testing and treatment, education, TB treatment, and laboratory testing.

The Epidemiology Program is responsible for conducting disease investigations of notifiable conditions with the exception of sexually transmitted infections and tuberculosis. The Program responsibilities include conducting epidemiologic investigations and responses to: foodborne, waterborne, vector-borne, zoonotic, respiratory, and vaccine-preventable, emerging and re-emerging diseases. The Program also provides infection control consultation to the health care provider community as part of the healthcare acquired infections prevention program and is home to the refugee health program.

The culture of the Epidemiology Program is professional, collaborative and friendly, emphasizing a willingness to share ideas and resources. Expertise within the Program, Division, and other areas of the Department include epidemiologists, public health nurses, laboratorians, disease investigation specialists, outreach and education specialists, and health informatics professionals, among others. The Program hosts weekly team meetings to share ideas, review cases, and provide educational learning opportunities.

Day-to-Day Activities

The Fellow will be assigned physical space with the Epidemiology Program and a majority of time will be spent in the office. Field work opportunities most commonly occur during outbreak situations. When appropriate, every effort will be made to facilitate the Fellow’s participation in on-site assessments or environmental sampling which are conducted as part of an investigation. Attendance at off-site meetings and conferences is encouraged.

Daily activities, particularly early in the Fellowship, will be related to the Fellow’s surveillance evaluation and major projects, and learning the basics of disease surveillance, public health investigations, and reporting rules and laws in Texas. The Fellow will be trained on the surveillance system and will complete the certification process. Once basic training has been completed, daily activities will involve reviewing surveillance system to identify potential cases for investigation; conducting disease investigations (which includes communicating with healthcare providers, abstracting information from medical charts, interpreting laboratory results, interviewing potential cases, and collecting specimens if needed). In addition, the Fellow will attend weekly team meeting and huddles. The Fellow will work with
the team members and the laboratory to develop procedures for incorporating environmental testing for Legionella and will work on a project to test local areas for Legionella to determine the prevalence of Legionella in the environment, such as along the Riverwalk. The Fellow will also conduct environmental assessments for Legionella when cluster of cases are identified. This will also include working with local infection preventionists at area hospitals to review their water management plans. The Fellow will also review the current procedures for foodborne investigations and determine whether modifications are needed to the process and investigation forms.

**Potential Projects**

**Surveillance Activity**   **Develop an Annual Communicable Disease Report**

Each year the Epidemiology Program conducts 3,500 disease investigations based on laboratory reports received electronically, as well as reports from physicians and other providers. Information obtained through medical record abstraction and interviews is entered into the statewide surveillance system, Texas National Electronic Disease Surveillance System base system (NBS). NBS was implemented statewide fully in 2005.

The Fellow will be trained on utilizing NBS and once familiar with the system, will be responsible for extracting the data from NBS and analyzing the data over a 5-year or 10-year period. Based on the results and in collaboration with mentors and program team members the Fellow will facilitate discussion on what information and formats should be included in an annual report. This information can help inform the community about what is occurring in our community and can also serve as a tool to monitor local trends of disease. The Fellow will identify which diseases should be included and analyze the data, including incorporating council district level data.

**Surveillance Evaluation**   **Evaluation of Foodborne Surveillance System**

The majority of reports received by the Program are for foodborne illnesses (salmonella, shigella, campylobacteriosis, amebiasis, etc.). Each year, approximately 2,000 cases are reported by laboratories and hospitals. Currently, each epidemiologist completes a weekly rotation and investigates all cases received that week, which equates to 500 cases per epidemiologist annually. The epidemiologists interview individuals diagnosed with foodborne illnesses regarding their exposures. This data is reported to the NBS, however, data on potential exposure sources is not captured in NBS.

The Fellow will work with epidemiologist to learn how to conduct investigations of foodborne illnesses using the current forms and processes. This will include conducting routine surveillance activities aimed at identifying clusters for further investigation and individual cases requiring additional follow-up or interventions.

Once the Fellow is familiar with the process, the Fellow will examine the current system and forms used for foodborne surveillance to determine whether any changes are needed to enhance the efficiency and effectiveness of the system. This includes determining the best mechanism for tracking possible common source exposures, such as schools and daycare facilities.
**Major Project  Develop an Environmental Sampling Plan for Legionella**

Legionnaires’ Disease is a nationally notifiable condition and can result in a potentially fatal pneumonia. Local hospitals and laboratories report potential cases of Legionella. Since 2015, the number of legionella cases in Bexar County have increased, 30 cases reported in 2018. The Epidemiology Program conducts public health investigations of individuals testing positive for Legionella, and will conduct investigations of locations named during investigations as possible sources, such as gyms and spas. In addition to investigating cases among individuals residing in Bexar County, the Program is notified when individuals from other parts of the country name a local hotel or other facility. The Program informs the facility of the possible exposure at their facilities and are provide with recommendations to assess and remediate the possible issue. When multiple individuals name a facility, then an epidemiologist and a sanitarian assess the facility. Currently, the Department does not offer environmental testing for legionella, however, the Laboratory Program is in the process of implementing this testing capability.

The Fellow will work with mentors and other program epidemiologists to learn how to conduct investigations of individuals that test positive for legionella, including assessment of facilities. This will include conducting routine surveillance activities aimed at identifying clusters for further investigation or individual cases requiring additional follow-up or interventions by local public health. The Fellow will have the opportunity to work with staff in the Food and Environmental Health Program at the Department to gain an understanding of the regulatory and environmental health components of water safety in the facilities.

The Fellow will then develop a scheme for incorporating environmental testing for Legionella into disease investigations that involve public spaces such as spas and gyms. In addition, the fellow will conduct a literature review to determine whether environmental testing of common water sources, such as Riverwalk fountains, misters at restaurants, etc., can be conducted and develop and pilot protocol for testing of such sources. A report will be written to summarize the findings and a protocol will be developed with assistance from mentors to incorporate laboratory testing into public health investigations of Legionella.

**Additional Project  Outbreak and Cluster Investigations:**

The Fellow’s placement within the Epidemiology Program assures they will have many opportunities to gain experience conducting effective outbreak investigations with experienced epidemiologists. One important responsibility of the section is to respond to clusters of disease and assist sanitarians with investigations of restaurants potentially associated with foodborne outbreaks at restaurants, childcare facilities and schools. It is important that all Fellows placed in Epidemiology have the opportunity to learn these important skills. The Program has investigated multiple outbreaks associated with childcare facilities and schools recently. The Program also provides guidance to nursing homes and investigates flu outbreaks at facilities. In addition, the Fellow will have the opportunity to assist with any outbreak that occurs with vaccine-preventable diseases.

The Fellow will analyze the data from an outbreak, write a summary report of the findings and present the findings at local, statewide, or national conferences and/or meetings.
**Additional Project: Utilizing Syndromic Surveillance System**

The Department has access to the Texas syndromic surveillance system (TXS2), the statewide syndromic surveillance system hosted by the Texas Department of State Health Services (DSHS) for use by Local Health Departments (LHDs), DSHS Public Health Regions (PHRs), DSHS central office, and data providers (hospitals, free standing emergency centers, and urgent care centers, for example) for enhanced surveillance of emerging public health conditions or threats. Syndromic surveillance utilizes trend analysis to establish a baseline and then uses algorithms to compare the current data to that baseline and issue alerts when aberrations are detected. The Program utilizes TXS2 for flu and heat surveillance.

Mentors and the epidemiologists responsible for flu and heat surveillance will train the Fellow on how to access and utilize TXS2. The Fellow will be encouraged to conduct a literature review on use of syndromic surveillance systems in LHDs across the country. The Fellow will then be given the opportunity to explore the system and determine whether TXS2 can be utilized to detect outbreaks of foodborne illnesses and other diseases. The Fellow will write a summary report of their findings and in addition to writing a summary report there will be opportunities to share these findings in multiple forums as appropriate. These opportunities may include presenting at a local or statewide public health conferences and/or meetings.

**Preparedness Role**

The Department’s Public Health Emergency Preparedness (PHEP) Program is located in the Environmental Health and Operations Division. This Epidemiology Program works closely with staff in PHEP and PHEP funds staff in the Epidemiology Program. The Epidemiology Program regularly collaborates with and participates in preparedness activities. Each year the Department conducts exercises on various agents with the regional DSHS office and other local health departments in Region 8.

The Fellow will meet with PHEP staff to learn more about the program and will be encouraged to complete ICS trainings and other trainings, as they are available. The Fellow will participate in Emergency Preparedness training, planning and exercises. The Fellow will play an active role in these activities. The Fellow will also participate in reviewing and revising response plans including but not limited to pandemic flu, emergency operations, and continuity of operations. The Fellow will also attend the San Antonio Office of Emergency Management monthly meetings. If actual events occur requiring activation of emergency preparedness plans, the Fellow would likely be an active participant in a response.

**Additional Activities**

The Fellow will be encouraged, as they become familiar with other topic areas within Epidemiology, and among our partners, to seek out projects that they are both interested in pursuing and for which there is a need. The Fellow will be incorporated into other activities within the Communicable Division such as the Tuberculosis, STD/HIV and Immunization Programs. These may include public health activities to educate the public about public health services and issues. The fellow may be included in TB contact investigations and STD responses. The Department also hosts numerous health fairs and provides training to various audiences on communicable diseases. The Fellow will also be included in community
and staff meetings. A city with a large military population, the Fellow will participate in quarterly Joint Base and Public Health meetings. The Fellow will participate in outbreak investigations, writing of abstracts for conferences, participating and presenting at local conferences and meetings.

**Mentors**

**Primary**

Anita Kurian, DrPH, MPH, MBBS

Assistant Director, Communicable Diseases

**Secondary**

Rita Espinoza, MPH

Chief of Epidemiology