

## **Infectious Diseases-HAI, Infectious Diseases**

**Georgia Department of Public Health, Health Protection/Epidemiology/Acute Disease Epidemiology**  
Atlanta, Georgia

### **Assignment Description**

The CSTE Fellow will be housed in the Acute Disease Epidemiology Section (ADES) in the Epidemiology Program, which is directed by the Georgia State Epidemiologist, Dr. Cherie Drenzek. ADES is one of 6 Sections in the Epidemiology Program; the others include the Chronic Disease, Healthy Behaviors, and Injury Epidemiology Section, the HIV/AIDS Epidemiology Section, the STD Epidemiology Section, the TB Epidemiology Section, and the MCH Epidemiology Section. The mission of the Acute Disease Epidemiology Section (ADES) is to optimize the health of Georgians by preventing and mitigating certain communicable and/or notifiable infectious diseases. The ADES is dedicated to fulfill its mission by using epidemiologic methods to:

- Conduct surveillance of infectious diseases (opportunity to work in many other subject areas as well)
- Identify and respond to emerging infectious disease threats and public health crises such as the opioid epidemic
- Provide support to local and district public health and private partners in identifying training and resource needs, developing guidelines for and investigating outbreaks or increases in endemic rates of disease, developing educational and training materials, and collecting and disseminating data.
- Publish and disseminate public health information: statistical reports (e.g. Georgia Epidemiology Report), outbreak investigation reports, annual data summaries, and educational materials.
- Participate in emergency preparedness planning, response and recovery efforts.

The Acute Disease Epidemiology Section is comprised of several infectious disease-specific Surveillance Teams, including the Foodborne Disease Epidemiology and Outbreak Investigation Team, the Vaccine-Preventable Diseases Epidemiology Team, the Healthcare-Associated Infections Team, the Vectorborne and Zoonotic Disease Epidemiology Team, and the Drug Overdose Surveillance Team. The CSTE Fellow will have a range of project opportunities in each of these areas.

### **Day-to-Day Activities**

1) Participate in numerous field outbreak investigations (in 2017, ADES supported District Epidemiologists in the investigation of >120 outbreaks ); 2) As one of only 10 Emerging Infections Program (EIP) sites in the United States, the Fellow would have the opportunity to conduct Georgia-specific epidemiologic analyses for Emerging Infections Program (EIP) datasets; 3) The Fellow may participate in a two to three-week rotation through a District Health Office and work closely with the District Epidemiologist on disease surveillance, individual case follow up, or data analysis activities; 4) If interested, may participate in chronic disease, stroke registry, or other epidemiologic studies under the coordination of experienced CSTE Fellow mentors such as Rana Bayakly, MPH, and Pascale Wortley, MD, MPH.

## **Potential Projects**

### **Surveillance Activity      Carbapenem-resistant Enterobacteriaceae (CRE) Surveillance**

DPH recently initiated statewide surveillance for Carbapenem-resistant Enterobacteriaceae (CRE). DPH is receiving reports from case report forms through SendSS, electronic laboratory reports (ELR), and isolate submissions. DPH needs to develop a method to merge and complete these data, conduct laboratory audits to determine the accuracy and completeness of the reports, and analyze surveillance data to determine trends and hot spots. THE CSTE fellow could be involved with developing methods to conduct this surveillance, analyze collected data, develop educational guidance for healthcare providers to improve reporting and response, refine local health department CRE and Multi-Drug Resistant Organism (MDRO) outbreak response protocols, and describe trends in CRE infection based on the findings.

### **Surveillance Evaluation      Neonatal Abstinence Syndrome (NAS) Surveillance System Evaluation**

NAS is a drug withdrawal syndrome that results from the abrupt discontinuation of chronic fetal exposure to substances that were used or abused by the mother during pregnancy. The opioid epidemic has led to increases in NAS cases in Georgia and across the U.S. NAS became a Notifiable Condition in Georgia as of January 1, 2016. Cases are reported through SendSS, and the report form was updated January 1, 2018 to streamline data collection. In addition, NAS will soon be added to the birth defects registry, which will add an additional passive surveillance component with case follow-up. An evaluation of this surveillance system would enable Georgia to understand the sensitivity and specificity of report, barrier to reporting, and understand the validity of the data being collected. The CSTE fellow would conduct this evaluation by working with SPH stakeholders and the healthcare community, would analyze the data and make recommendations for improving NAS surveillance, which may include healthcare provider and birthing center education.

Other possible evaluation projects include evaluation of one of the following surveillance systems: 1) Evaluate the newly developed opioid overdose-related morbidity and mortality surveillance system; 2) evaluate pertussis case reporting and completeness of records including vaccine history and exemptions; 3) Influenza-like illness syndromic surveillance reported by emergency departments; 4) Surveillance for the severe outcomes of Group A Streptococcal including necrotizing fasciitis and toxic-shock syndrome. 5) Evaluate syphilis surveillance system in order to streamline the data entry process and prioritize key variables for analysis and program planning

## **Major Project    Major and Additional Projects**

There are opportunities in many areas of Epidemiology depending on the Fellow's interests. Examples of possible projects include: 1) Conduct Georgia-specific epidemiologic analyses for Emerging Infections Program (EIP) datasets, analyze/interpret FoodNet performance measures; 2) Assist with development and analysis of opioid overdose-related morbidity and mortality surveillance, examine risk factors for opioid-involved over deaths, work with diverse community stakeholders on opioid-overdose prevention; 3) Analyze HIV data to examine longitudinal care patterns; conduct a geospatial analysis of new HIV diagnoses and the HIV care continuum by neighborhood poverty level; link longitudinal data from HIV core surveillance to cross-sectional data from the Medical Monitoring Project to examine impact of specific conditions (such as depression); 4) Analyze data from the Health Information Exchange out of care watch list to determine predictors of re-engagement in care and sustained viral suppression; 5) Analyze data from The Georgia National HIV Behavioral Survey on risk behaviors in high risk populations over several survey cycles; 6) Determine predictors for congenital syphilis by matching congenital syphilis data to vital records and/or Prams data; 7) Conduct geospatial analysis of Georgia antimicrobial resistance data to identify changes over time and key areas of the state requiring response; 8) Develop methods to map patient transfer patterns between healthcare facilities to optimize HAI prevention and response activities; 9) Build database to support data collection for HAI program healthcare facility assessments, analyze/interpret results with corresponding HAI data, 10) participate in review of medical records from selected healthcare facilities in Georgia to evaluate accuracy of NHSN HAI event reporting; 11) Evaluate the impact of culture independent diagnostics on EIP (ABCs and FoodNet) , by describing the clinical and epidemiologic characteristics of persons diagnosed with tests such as PCR and EIA for reportable enteric and invasive bacterial infections and evaluating the impact of these types of tests on reportable disease surveillance; 12) Collaborate with the Zoonotic and Vectorborne Disease team to develop guidance for emerging zoonotic and vectorborne diseases in the state of Georgia (for example, the previous CSTE Fellow assisted in developing guidance for the 2014 response to Chikungunya); this may also include writing justifications for the addition of diseases to the notifiable disease list in Georgia.

## **Additional        Foodborne Disease Projects Project**

There are many opportunities for projects in the area of foodborne disease, a few examples include: 1) Create electronic Salmonella and/or Campylobacter surveys to be e-mailed to case-patients rather than conducting telephone interviews. Compare data completeness and timeliness in electronic survey vs phone interviews; 2) Salmonella in Georgia: comparative study of serotypes commonly associated with foodborne infections (Enteritidis, Heidelberg) to those commonly associated with environmental exposures (Javiana, Newport); 3) Comparing syndromic surveillance GI illness data to notifiable disease and enteric disease outbreak data.

### **Preparedness Role**

There are many opportunities for involvement with epidemiologic emergency preparedness including: participating in emergency responses; developing a plan to implement the ICS command structure for disease outbreak investigations; developing a plan for DPH first responder pre-deployment and just-in-time training, using a newly developed responder tracking system, as well as deployment and post-deployment health and safety monitoring; and developing standard operating procedures for responding to zoonotic disease outbreaks that affect the human and veterinary community.

### **Additional Activities**

Our goal is to give the CSTE Fellow the richest experience possible. They will have the opportunity to participate in a wide-range of acute disease outbreak investigations. In addition, DPH works across a wide variety of subject areas, both in surveillance and programs. The CSTE Fellow will have an opportunity to learn about and get involved in the many things going on at DPH, tailoring the experience based on their interests. We also try to ensure that our fellows have ample opportunities to publish and present their work in a variety of settings.

### **Mentors**

<b>Primary</b>	Cherie Drenzek DVM, MS State Epidemiologist
<b>Secondary</b>	Laura Edison DVM, MPH CDC Career Epidemiology Field Officer