Infectious Diseases

Alabama Department of Public Health, Infectious Diseases & Outbreaks

Montgomery, Alabama

Assignment Description

The Bureau of Communicable Disease is comprised of four Divisions: Immunizations, Infectious Diseases & Outbreaks (ID&O), Sexually Transmitted Diseases (STD), and Tuberculosis (TB). The fellow would be assigned to ID&O, which is responsible for conducting passive surveillance for 91 disease and conditions, syndromic surveillance for 10 syndromes, and outbreak investigations for a wide range of infectious, non-infectious, and environmental conditions of public health concern. The fellow will be provided a well-rounded experience and be given the opportunity to conduct and lead these types of investigations at the local, state, and federal levels.

ID&O would like the fellow’s assignment to have a One Health focus. Since Alabama’s One Health Program is young, this will provide the fellow with the opportunity to contribute to the development of a surveillance program from the ground up. They will work with colleagues to identify ways to harmonize ID&O’s current condition-specific activities with the aim to improve overall efficiency.

Day-to-Day Activities

No day is ever the same in ID&O. However, it can be guaranteed that the fellow would be working at their PC conducting surveillance activities; conducting or leading outbreak investigations; analyzing data; preparing reports, presentations, fact sheets, or meeting agendas; developing just-in-time trainings; and collaborating with stakeholders. There will be opportunities to write and submit abstracts to national conferences, as well as deploy in the field for investigations.

Potential Projects

Surveillance Activity  Arboviral Disease Surveillance in Alabama

All test results for human arboviral diseases, including Chikungunya, Dengue, and Zika viruses, are reportable to ADPH. Physicians, nurses, and laboratory directors are required to report all results (positive, negative, inconclusive, and equivocal) to ID&O within 5 days. Unfortunately, we can only characterize what is reported to ID&O. The goal of this project is to conduct arboviral disease surveillance, as well as analyze laboratory data submitted to ID&O to identify laboratories and providers who are sending positive results to ID&O but may not be reporting all of their non-positive results. Once these laboratories and providers are identified, targeted education will be developed to encourage these entities to report all results.
Surveillance Evaluation  Evaluation of Alabama’s Shiga toxin-producing E. coli (STEC) and Hemolytic Uremic Syndrome (HUS) Surveillance System

In 2018, there were 129 cases of STEC reported to ADPH. Although it is estimated that 5-15% of all STEC infections also have a HUS diagnosis, only one HUS case was reported. Without a statewide hospital discharge data system, ADPH is unable to identify potentially unreported cases. The goal of this project is to design and implement an evaluation plan that will identify all stakeholders ADPH needs to engage to improve reporting and identify ways to strengthen the surveillance system.

Major Project  A Case-Case Comparison of Risk Factors Associated with Culture-Confirmed and Culture-Independent STEC Infection Among Residents of Alabama

In 2014, a case definition change was made to STEC, which recommended that all states and territories collect select disease-specific data elements for all STEC cases. District investigators were asked to submit completed case report forms for each case to Central Office. The goal of this project is to develop a REDCap project to enter these select disease-specific data elements into. Once entered, a case-case comparison will be conducted to describe the differences in risk factors reported among culture-confirmed STEC cases and their culture-independent counterparts.

Additional Project  Develop a Water-Related Emergency Response Plan for ID&O

Many agencies are involved in water-related activities and emergency response throughout Alabama. The goal of this project is to conduct a gap analysis to determine which agencies already have a water-related emergency response plan and what they encompass (e.g., floods, weather-related emergencies, harmful algal blooms, contamination events, etc.), as well as identify areas where ID&O can bridge gaps in response efforts. Once the analysis is complete, the fellow will work with their supervisor, the Interim State Epidemiologist, State Public Health Veterinarian, State Toxicologist, and other ADPH stakeholders (e.g., Emergency Preparedness, Environmental Services, etc.) to develop and implement a more comprehensive water-related emergency response plan for ID&O.

Preparedness Role

ADPH’s Center for Emergency Preparedness (CEP) coordinates Alabama’s health, medical, and social services in the event of public health threats and emergencies. CEP conducts a Community Assessment for Public Health Emergency Response (CASPER) each year, which is an epidemiologic technique designed to provide quickly and at low-cost household-based information about a community. The fellow will have the opportunity to not only develop and analyze data collected during a CASPER, but potentially lead one as well. Additionally, the fellow will have the opportunity to participate in a functional and/or tabletop exercise.
**Additional Activities**

These activities will be tailored to the fellow’s specific interests, but could include the following:

- Alabama NEDSS Base System (ALNBS) Data Quality Improvement
- Geospatial Analysis of Human Arboviral Disease and Vector Surveillance Data
- Spatial, Temporal, and Space-Time Analysis of Disease Clusters
- Whole Genome Sequencing for Enteric Diseases
- Local and Multistate Outbreak Investigations
- Healthcare-Associated Infections and Antibiotic Stewardship
- Harmful Algal Bloom Surveillance
- Develop disease fact sheets, just-in-time trainings, and update ID&O webpages

**Mentors**

**Primary**  
Amanda Ingram, MPH  
Epidemiologist Supervisor

**Secondary**  
Sherri Davidson, PhD, MPH  
Interim State Epidemiologist