Infectious Diseases, Substance Use/Mental Health

Florida Department of Health, Division of Disease Control and Health Protection

Tallahassee, Florida

Assignment Description

The Fellow will work closely with the Zoonotic and Vectorborne Disease Program (ZVDP), the Acute Disease Investigations Unit, the Food and Waterborne Disease Program (FWDP), the Healthcare-Associated Infections Program (HAIP) personnel, the Surveillance Section, the Bureau of Public Health Laboratories, and the Division’s GIS Program.

Recent investigations or surveillance projects the team has been involved with include: local Zika outbreaks, Multi-drug resistant campylobacteriosis linked to puppies, VIM producing Pseudomonas aeruginosa in a long term care facility, human rabies, Balamuthia mandrillaris infection, environmental mycobacterial contamination in tattoo ink and injectable medication outbreaks, mumps in professional wrestlers, carbon monoxide poisoning post-hurricane, Hepatitis A outbreaks, transplant-acquired Strongyloides, measles, Hansen’s disease in people and armadillos, zoonotic hookworm infections, Legionella outbreaks, laboratory exposures to Brucella, vibriosis investigations, animal bite analysis post Hurricane Irma.

The programs have access to large databases including: Florida’s Reportable Disease Database, Merlin and the Environmental Health Database that contains FWDP outbreak and complaint data and animal arboviral sentinel surveillance data. Programs also have access to statewide syndromic surveillance data, hospital and emergency room discharge data, vital statistics data, and Agency for Health Care Administration data.

The Fellow will be involved in all phases of investigations including: the initial complaint investigations, the design of questionnaire, data collection, analysis, and report writing. Many outbreak investigations require the participation of multi-disciplinary teams. The ZVD, FWD, HAI and Acute Disease Investigation programs work closely with county nurse epidemiologists and environmental health staff. Additionally, the FWD, HAI and ZVPD programs work closely with state agencies such as: The Department of Business and Professional Regulation, the Department of Agriculture and Consumer Services and the Fish and Wildlife Conservation Commission, as well as federal agencies like FDA, CDC, CMS and USDA.

Day-to-Day Activities

The Fellow will be involved in all aspects of the ZVDP, the Acute Disease Investigations Unit, FWDP and HAIP activities. Day to day duties will include: CDC case report form reviews, answering calls from the public, working with partners on case investigations and outbreaks of zoonotic, healthcare acquired, food and waterborne, and acute diseases, serve as a consultant for county health departments on questions regarding prevention and control of these diseases, data analysis, report and manuscript writing, web site development and web postings. The Fellow will also have opportunities to participate in field investigations, develop and present training programs, and participate in the process of developing guidelines, preparedness response protocols, policies and legislation on zoonotic, health care acquired and food and waterborne disease surveillance and control related issues.
Potential Projects

Surveillance Activity: Invasive Fungal Disease Surveillance

Florida is initiating a pilot program to evaluate impacts of non-reportable fungal and invasive mold illnesses. Vital statistics death data and the Agency for Health Care Administration (AHCA) data will be analyzed to determine the burden of these illnesses in Florida for the past 5 years. Patient demographics will also be assessed. The analysis will be used to assess whether any of these illnesses should be recommended to be made reportable conditions in Florida.

Surveillance Evaluation: Cryptosporidiosis Surveillance System Evaluation

Approximately 500 cases of cryptosporidiosis are reported in Florida annually. Although CDC reports cryptosporidiosis as the leading cause of diarrhea linked to water and the third most common cause of diarrhea associated with animal contact in the U.S., only a small proportion of Florida cases (<25%) are typically linked to other cases or a single point source. In addition, although fecal shedding persists for an extended period, only about half of Florida cases are confirmed. Obtaining molecular characterization of more samples has led to identification of outbreaks and zoonotic sources in other states. An assessment of exposure risk factor data quality may also identify ways to improve cryptosporidiosis data collection and outbreak identification.

Major Project: School Vaccine-Preventable Outbreak Risk Assessment

The fellow will design, collect, analyze and communicate school specific information on student immunization rates, religious exemption to vaccination rates, epidemiologic data on circulating vaccine-preventable diseases, and community characteristics. Through these analyses, the fellow will identify schools at higher risk of vaccine-preventable outbreaks, and support county health departments in creating data-driven materials that will aid in the prevention of outbreaks (through school-located vaccination clinics for example), early identification of outbreaks and reporting tools.

Additional Project: Outbreak Surveillance and Response Evaluation

The Bureau has recently began documenting outbreak investigations that occur across Florida’s 67 counties. The system used was developed in-house and provides customization to meet the needs of the agency. A detailed evaluation of the available outbreak investigation information is needed to understand the characteristics of outbreaks that are currently documented to improve the system and utility of the data for counties and the Bureau of Epidemiology. Additionally, The Bureau would like to develop and pilot syndrome/agent specific questionnaires about the interventions conducted by the County staff. The fellow will analyze outbreak reporting data, make recommendations to improve the system, and develop and pilot outbreak specific intervention documentation.
**Additional Project**

**Geospatial Analysis of Arbovirus Data**

During the 2016 Zika virus outbreak in South Florida, it was determined that most cases were found by querying laboratory results that were automatically fed into Merlin. As laboratory reporting depends on completion of testing, it tends to be slower than physician reporting; this hinders timely initiation of mosquito control activities. This project will compare Florida reportable disease, electronic laboratory results, syndromic surveillance (ESSENCE-FL), and hospital billing data (ICD-10 codes from the Agency for Health Care Administration) to conduct geospatial analyses examining the distribution of testing as compared to the distribution of dengue, chikungunya, and Zika cases. In addition, appropriate commercial test ordering by providers will also be evaluated. Zika virus commercial testing data is available for two of Florida’s largest commercial laboratories and the availability of additional commercial testing data for other arboviruses will also be explored. The goal of this project would be to identify facilities requiring further training on arboviral disease reporting and testing, particularly in Miami-Dade County.

**Preparedness Role**

The FWDP, ZVDP and Acute Disease Investigations Unit work closely with the Department’s disaster and bioterrorism preparedness team. Program staff has been involved in the epidemiological and environmental health response to multiple hurricanes and tropical storms that have struck Florida including Hurricane Irma in 2017 and Hurricane Michael in 2018, and the planning of surveillance efforts associated with the 2005 and 2009 Superbowl and the 2012 Republican National Convention. Significant infectious disease outbreaks such as the fungal meningitis outbreak in 2012-2013, the Martin County local dengue response in 2013, Zika response in 2016-2017, and the Hepatitis A response in 2018-2019 were also managed using the Incident Command System (ICS) with emergency management experts. The programs are represented on teams that are standardizing the department’s syndromic surveillance efforts, developing protocols for collaborative investigations with the FBI and other law enforcement entities, developing our BIOWATCH response plan, the epidemiology and biological incident response sections of the state’s Comprehensive Emergency Management Plan, and the zoonotic portions of the state's biologic plan. The Fellow will have several opportunities to participate in the development and review of preparedness response plans and policy.

As part of the preparedness effort, the department, led by the Bureau of Epidemiology, convened a workgroup to develop an initial set of measures of epidemiologic effectiveness. This broad-based work group identified 14 indicators. In addition, DOH is obligated to collect data and report on about 10 performance metrics related to the epidemiologic components of public health emergency response. The Fellow would work with the PHP Program Manager and epidemiologists in the Division of Disease Control and Health Protection to develop and field test operational protocols for measures related to timeliness and completeness of reporting, notification, response, and intervention in urgent infectious and other acute disease emergencies, including those that are food-, water- or vector-borne.
**Additional Activities**

The Fellow may participate in a variety of inter-agency exercises and policy meetings relevant to their areas of interest. They may also elect to spend time in a short-term county health department assignment to experience day-to-day activities conducted by county health department staff. Projects involving data visualization, training, data analysis, and field investigations with all programs in the Bureau of Epidemiology including the Food and Waterborne Disease Program and the HAI Program are also available.

**Mentors**

**Primary**

Danielle Stanek DVM  
State Public Health Veterinarian

**Secondary**

Scott Pritchard MPH  
Acute Disease Investigations Unit Manager and Interim Director of Infectious Disease Prevention and