Infectious Diseases

Assignment Description:
A Fellow working with the ZVDP and FWDP will have the opportunity to work on a variety of projects depending on his or her interests including:

Disease outbreak investigations: The FWDP investigates approximately 200 disease clusters and 2,500 complaints per year. The ZVDP coordinates the DOH response to recurring arboviral outbreaks (West Nile virus and Eastern equine encephalitis virus) as well as introduced diseases such as dengue (seven introductions in 2011). As part of arbovirus surveillance, an enhanced dengue surveillance project is planned in south Florida the second half of 2013 which will include assessing patients with fever of unknown origin for dengue, WNV illness, influenza, acute HIV and other common causes of fever. Other recent zoonotic disease outbreaks and emerging disease issues include: transfusion and transplant acquired infections, brucellosis in feral swine hunters and in marine mammals, multi-state small turtle associated salmonellosis, Hansen's disease in people and armadillos, methicillin-resistant Staphylococcus aureus (MRSA) in marine mammals, Florida acquired Cryptococcus gattii infection, zoonotic hookworm infections, spotted fever rickettsiosis, lymphocytic choriomeningitis virus in pet stores, laboratory exposures to Brucella and Burkholderia pseudomallei and other Select Agents, and Shiga toxin producing E. coli and cryptosporidiosis associated in calf owners. 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 FWDP and ZVDP work closely with county nurse epidemiologists and environmental health staff. Additionally, the FWDP and ZVPD 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 and USDA.

Epidemiological studies: Both 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. Both programs also have access to statewide syndromic surveillance data, hospital discharge data and vital statistics data.

Day-to- Day Activities:
The Fellow will be involved in all aspects of the ZVDP and FWDP 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 and food and waterborne 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 develop and present training programs, participate in field investigations and participate in the process of developing guidelines, preparedness response protocols, policies and legislation on zoonotic and food and waterborne disease surveillance and control related issues.

Potential Projects:

- A study of diagnostic and research laboratorian knowledge, attitude and practices (KAP) toward CDC and USDA Select Agent handling and reporting in Florida. The Laboratory Reporting Network (LRN) requires immediate reporting of suspect select agents such as Brucella and Bacillus anthracis, as well as institution of enhanced precautions to prevent exposure of laboratorians to these agents. However, every year 30 or more Florida laboratorians are

potentially exposed to these pathogens and require antibiotic prophylaxis and serologic monitoring, and there are sometimes delays in reporting or submitting specimens for confirmatory testing. Results of the survey will be used to develop tools to help reduce future laboratory exposures and to decrease reporting time.

- An analysis of the trends of selected food and waterborne diseases in the state. The FWDP has more than 10 years worth of data on food and waterborne outbreaks. Diseases of particular interest in Florida include: Vibrio vulnificus, Vibrio parahaemolyticus, Campylobacter, Cryptosporidium, Cyclospora, Ciguatera, and Salmonella, among others. A significant number of Salmonella cases type out with serovars commonly associated with reptiles or amphibians. Analysis of reptile and other animal-associated Salmonella infections is of particular interest.

- Cryptococcus gattii case identification. Sporadic C. gattii meningitis in immunocompetant people and animals are now being recognized outside the Pacific Northwest. A human case was recently identified in Florida. Project would involve using vital statistics death data to identify fatal Cryptococcus infections in immunocompetant individuals. A query will also be sent to large commercial human and veterinary laboratories to determine whether C. gattii specific testing is routinely being conducted on Florida samples.

- Analysis of syndromic surveillance admission and discharge data for WNV illness (and or imported dengue) cases in 2012. In 2012, Florida experienced its second highest number of WNV illnesses on record, and the number of imported dengue cases were also elevated. Assessment would be conducted with the Arbovirus Surveillance Coordinator and local county health departments. Data would be used to try to develop useful queries to more rapidly identify WNV illness and/or dengue cases in order to provide faster reporting and response.

- Surveillance System Evaluation: The Fellow will evaluate the Department's surveillance system for Salmonella. Florida Department of Health reports more than 6,000 cases of salmonellosis each year and Florida is one of the states with the highest case counts and incident rates of salmonellosis in the country. Only about 20% of all isolates are currently serotyped and tested by pulse-field gel electrophoresis (PFGE), two tests used to detect common source sporadic outbreaks. The Department has recently allocated additional resources towards laboratory testing and is in the process of developing molecular serotyping capability. The fellow will evaluate whether PFGE testing and molecular subtyping of a larger number of isolates will improve the timeliness and sensitivity of outbreak detection.

Preparedness Role:

Both the FWDP and ZVDP work closely with the department's disaster and bioterrorism preparedness team. Program staff has been involved in the epidemiological and environmental health response to the more than 7 hurricanes and tropical storms that have struck Florida since August 2004 including two in 2012, and the planning of surveillance efforts associated with the 2005 and 2009 Superbowl and the 2012 Republican National Convention. The programs are represented on teams that are standardizing the department's syndromic surveillance efforts, 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

Assignment Location:	Tallahassee, Florida
Primary Mentor:	Carina Blackmore, PhD, MS State Public Health Veterinarian, Acting State Epidemiologist Florida Department of Health
Secondary Mentor:	Danielle Stanek, DVM Medical Epidemiologist Florida Department of Health