Infectious Disease

The Office of Infectious Disease Services (OIDS) in the Arizona Department of Health Services is responsible for monitoring, preventing and controlling diseases caused by infectious agents. It contains four programs: Infectious Disease Surveillance and Preparedness, Infectious Disease Epidemiology and Investigations, Tuberculosis Control, and Vector-Borne and Zoonotic Diseases. The approximately 45 staff members with diverse backgrounds provide epidemiologic, medical, entomological and veterinary public health consultation both within the Bureau of Epidemiology and Disease Control Services and to other state and local agencies, health care providers and the general public. Each program also collects, maintains, and analyzes human and animal reportable disease data, as well as vector surveillance data to monitor trends, detect outbreaks, and evaluate the impact of infectious diseases of public health importance in Arizona.

The Fellow will be assigned to the Infectious Disease Epidemiology and Investigations (IDEI) Program under the supervision of the Medical Director. The Fellow will be involved in all phases of investigations including: initial complaint investigations, the design of questionnaires, data collection, line-list development, analysis, and report writing. Many outbreak investigations require the participation of multi-disciplinary teams. The IDEI Program works closely with county community health nurses, county epidemiologists, and environmental health staff, as well as federal agencies.

Anticipated day to day activities for the fellow will include:

- Monitoring disease reports to identify outbreaks and risk factors for infection;
- Assisting with outbreak investigations by participating in study design, data collection, data analysis, and intervention recommendations;
- Communicating and coordinating with counties, tribes, other states, CDC, IHS, FDA and USDA as well as with the Office of Border Health with cross border disease investigations;
- Responding to inquiries from the public and health care providers in Arizona;
- Coordinate with the local health departments, State Laboratory and CDC to track specimens, follow up with results, notify providers, and arrange for further testing of specimens/isolates; and
- Utilize the incident command structure during public health emergencies including widespread infectious disease outbreaks.

Additionally, the Fellow will also have the ability to cross-train in vaccine-preventable diseases (e.g. measles, rubella, pertussis and hepatitis B); diseases caused by fungi (coccidioidomycosis); vector-borne diseases (e.g. rabies, hantavirus, plague and West Nile fever); as well as other emerging infectious diseases.

Potential Projects:

- Utilize the Arizona Hospital Discharge Database to identify risk factors for hospitalization and co-morbidities associated with Salmonella infection.
- Analyze the ASIIS and Arizona Hospital Discharge Databases to determine if rotavirus associated hospitalizations in Arizona have decreased since the implementation of the vaccine, and if those hospitalized have been previously vaccinated.
- Assist with ongoing studies examining food consumption history and risk factors associated with campylobacteriosis being performed by University of Arizona.
- Conduct a survey to identify reasons patients visit health care providers for diarrheal illnesses and patient "practices" prior to seeking care.
- Design and conduct surveys to assess physician knowledge, attitudes, and practices for the following: testing, treatment and management of patients with diarrheal illness, and diagnosis and treatment of botulism.
- Examine lab reports of Clostridium difficile, newly reportable by laboratories in Arizona as of 2009, to determine the extent of community acquired C. difficile infections and make recommendations based on these results.
- Conduct a longitudinal cohort study examining individuals who were vaccinated against measles during the statewide measles outbreak to evaluate whether they received all recommended vaccines according to CDC guidelines.

Surveillance system evaluation:

There are several existing surveillance systems developed by the IDEI Program, which can be used by the CSTE fellow to complete the surveillance system evaluation component.

Foodborne surveillance system: analyzing trends in selected food and water-borne diseases in the state. The CSTE fellow would be responsible for analyzing information received from interviews conducted by local health departments and comparing it with existing laboratory results, to determine risk factors, symptoms and outcomes associated with specific serotypes. For example, examining Arizona's cases of S. Oranienberg to determine the geographic patterns and risk factors in order to generate hypotheses as to the increased prevalence in Arizona compared to the rest of the country, which is of particular importance to Arizona and the CDC.

Coccidioidomycosis enhanced surveillance: compare existing laboratory results with patient symptoms and outcomes surveillance data to determine if valley fever testing is correlated with clinical presentation. Coccidioidomycosis is a fungal disease endemic in Arizona and accounts for over 60% of the cases reported nationally. Arizona is the first state to interview cases and identify the burden and impact of this disease on its residents. Data from this surveillance project would be used to develop recommendations and target education for providers and the public.

Role of fellow in State Emergency Preparedness Plan:

The fellow will be implemented into the state's incident command structure during public health emergencies, including widespread infectious disease outbreaks. During emergency responses, the IDEI Program often serves as the lead for epidemiologic activities under the operations section. The fellow may also have the opportunity to assist with development of the public health response task force as part of the state's emergency response plan.

Assignment Location:	Phoenix, Arizona
Primary Mentor:	Cara Christ, MD, MS Medical Director Bureau of Epidemiology and Disease Control Arizona Department of Health Services
Advanced Degrees:	MD, University of Arizona (2005) MS, Arizona State University (2000)
Secondary Mentor:	Rebecca Sunenshine, MD Deputy State Epidemiologist for Infectious Diseases Arizona Department of Health Services
Advanced Degrees:	MD, Indiana University (1998)