

Infectious Disease- Healthcare associated infections (HAI)

Assignment Description

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 the following five programs: Infectious Disease Epidemiology, Tuberculosis Control, Electronic Disease Surveillance and Reporting, Healthcare-Associated Infections, and Vector-Borne and Zoonotic Diseases. The approximately 30 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 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 Office of Infectious Disease Services under the supervision of the Medical Director/Bureau Chief and the Office Chief. The Fellow will be involved in all phases of investigations including: initial complaint investigations, questionnaire design, database development, data collection, line-list development, analysis, and report writing. Many outbreak investigations require the participation of multi-disciplinary teams. OIDS works closely with county community health nurses, county epidemiologists, immunizations staff, and environmental health staff, as well as federal agencies. There are approximately 3 to 10 infectious disease outbreaks investigated each month in the state of Arizona.

Some recent outbreaks include:

- Tuberculosis outbreak among Native Americans
- Transplant-associated cluster of Balamuthia
- Increase in West Nile Virus activity in Central Arizona
- Aspergillus outbreak in a local hospital
- Cluster of Clostridium difficile in a local hospital
- Increase in Rocky Mountain Spotted Fever cases in central Arizona tribes
- Salmonellosis outbreak at a local Mexican restaurant

Day-to- Day Activities

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); HIV/AIDS; emergency preparedness; vector-borne diseases (e.g. rabies, hantavirus, plague and West Nile fever); sexually-transmitted diseases; as well as other emerging infectious diseases.

Potential Projects

There are several existing surveillance systems used by the Arizona Department of Health Services, which can be used by the CSTE fellow to complete the surveillance system evaluation component.

Healthcare-Associated Infections:

While Arizona does not require public reporting of HAIs, beginning in January 2011, national regulations will go into effect requiring inpatient acute care facilities to report specified HAIs to the Centers for Medicare and Medicaid Services through NHSN in order to receive their full payment update. CDC has agreed to share data reported to NHSN as a part of this program with states once proper data protection policies are in place. The validation of these data will be necessary to establish a reliable statewide picture of HAI activity in Arizona. The fellow could validate the data to ensure that cases reported meet NHSN criteria for infection, that case information is complete, and that all reviewed cases meeting NHSN criteria for infection are actually reported. Validation of denominator data could also be incorporated into the evaluation, with the fellow assessing consistency in methods for collecting these data.

ASIIS:

Arizona has a robust, long-standing immunization registry, ASIIS, which requires healthcare providers to report all childhood immunization records. The registry is a valuable tool for determining the vaccine status of vaccine-preventable disease cases and has been used to evaluate community vaccination programs and uptake of new vaccines. However, a validation of ASIIS is essential to support the accuracy of data used in these vaccine evaluations. A validation would include a review of the timeliness of immunization reports, as well as a review of the representativeness of data by type of vaccine (DTaP, MMR, etc) and provider type (pediatrician, family practice, etc). In addition, the fellow could evaluate the impact of community factors such as socioeconomic status and access to care on vaccine receipt.

Tuberculosis:

Pharmacists or administrators of a pharmacy are required to report to ADHS when the pharmacy fills a prescription for two or more anti-TB medications. The Tuberculosis Program is working with the Arizona Pharmacy Board to collect one year of retrospective data from all pharmacies in the state in order to validate the reporting system. The validation project will include a review of the retrospective pharmacy data received. These data will be compared to data received through the routine surveillance system. The goal of this project will be to determine if additional TB cases are identified through pharmacies and evaluate the effectiveness of a pharmaceutical reporting system.

There are also several public health projects available for fellows including:

- Utilizing the Arizona Hospital Discharge Database to identify risk factors for hospitalization and co-morbidities associated with Salmonella infection.
- Monitoring HIV community viral load in order to better understand the dynamics of HIV transmission and treatment in geographical areas with the highest-risk of disease.

- Analyzing 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.
- Developing an HAI reporting system; working with OIDS staff, CDC, ADHS administrative counsel, and healthcare facilities to create data use agreements and policies governing ADHS access to healthcare facility HAI data reported through NHSN.
- Analyzing genotyping data for tuberculosis to identify geographical clusters of disease.
- Designing and conducting 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.

Preparedness Role

The fellow will be implemented into the state's incident command structure during public health emergencies, including widespread infectious disease outbreaks. During emergency responses, OIDS staff are typically an integral part of 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
Bureau Chief and Medical Director
Arizona Department of Health Services

Secondary Mentor: Shoana Anderson, MPH
Deputy Bureau Chief
Arizona Department of Health Services