**Infectious Diseases-HAI, Infectious Diseases**

**New Jersey Department of Health, Communicable Disease Service/Infectious and Zoonotic Disease Program**

Trenton, New Jersey

**Assignment Description**

NJDOH provides public health services to over nearly nine million New Jersey residents. The fellow will work with the NJDOH Communicable Disease Service (CDS), which is comprised of three area-specific programs (Infectious and Zoonotic Diseases, Regional Epidemiology Program, and Vaccine-Preventable Diseases). The fellow will be part of the Infection Control, Healthcare & Environmental Epidemiology team within the Infectious and Zoonotic Disease Program. CDS provides guidance to local health departments and health care facilities statewide regarding routine investigations of reportable communicable diseases and outbreaks as well as public health emergencies, including emerging infections and events related to bioterrorism.

CDS has approximately 90 staff members who represent a range of expertise, including physicians, nurses, epidemiologists, health educators, and veterinarians who are available to the fellow for consultation and/or collaboration. The fellow will have the opportunity to work with the State HAI Coordinator and partner with staff in the Division of Healthcare Quality Assessment responsible for quality metrics of HAI reporting and HAI prevention practices.

**Day-to-Day Activities**

The Fellow would be an integral part of the Infection Control, Healthcare, & Environmental Epidemiology Team. The fellow’s anticipated day-to-day activities would include work on long-term analytic projects that they selected or designed as well as active participation in acute outbreak investigations or other skill-enhancing activities. Examples include:

- Long-term analytic project components, such as epidemiological data collections, analysis, and report writing
- Acute outbreak investigations, which would potentially involve field investigations (site visits), developing and/or administering questionnaires, developing databases and line lists, analyzing data, and participating in conference calls with local, federal, and other state public health agencies
- Investigation of reported infection control breaches in healthcare facilities, including diversion of injectable medications
- Investigation of HAI related reports, including viral hepatitis or other pathogens
- Respond to inquiries from LHD or the public regarding infection control or outbreak control measures
- Capacity building (education, technical assistance) and engagement of Tier II and III health care facilities on infection control and best practices
- The Fellow will meet at least weekly with one or both mentors. The Fellow also has the option to meet with the state AR Coordinator and CDS Infection Preventionist on a regular basis
The Fellow will also have the option to participate in longstanding meetings and existing programs with HAI and AR-focused initiatives; the Fellow may choose to develop analytical projects stemming from these existing programs. Examples include:

- Participation in bi-weekly meetings with CDS epidemiologists regarding current investigations/outbreaks
- Participation in regular meetings with regional (i.e., based at local health departments) epidemiologists regarding current investigations/outbreaks and lectures on topics in public health
- Participation in the NJDOH Drug Diversion collaboration, to discuss the needs at healthcare facilities regarding drug diversion prevention, detection and response
- Participation in internal and external Antibiotic Stewardship Collaborative meetings.
- Participation in the HAI Subcommittee for Infection Control and Antimicrobial Resistance quarterly meetings, which is responsible for guiding HAI/AR activities throughout the state
- Participation in monthly infection prevention meetings with regulatory partners

In addition to day-to-day activities, the Fellow will also be encouraged to identify other activities that can help them develop or improve their skill sets and or promote professional development, including:

- Oral and poster presentations to the public and health professionals at local/regional or national conferences or training sessions
- Access to statewide in-person and online public health trainings. Examples include:
  - SAS refresher course
  - Public Health Media Training
  - Communicable Disease Investigator Training
  - Introduction to Logic Models
  - APIC Infection Control Course

Potential Projects

**Surveillance Activity  Dental Infection Control Breaches Surveillance**

Outpatient dental clinics are not regulated by NJDOH and therefore inspections of these offices are not conducted on any regular basis. NJDOH has investigated multiple breaches of infection prevention throughout the years, some leading to patient notification for bloodborne pathogen testing for thousands of patients. Dental practices have previously indicated that such practices were standard of care, however, NJDOH does not know the prevalence of these activities among the larger community. As part of this activity the fellow will:

- Research common procedures performed at dental clinics and proper infection prevention practices including sterilization/disinfection of instruments, hand hygiene, personal protective equipment (PPE), and environmental cleaning.
- In conjunction with CDS and local health department staff, select a subset of clinics and providers to survey by region and procedure types
- Develop a survey to assess infection prevention across these clinics
- With assistance from the CDS data management team, clean and analyze survey results
- Work with NJDOH infection prevention staff and partners to develop and distribute materials to address identified common identified breaches

**Surveillance Evaluation**

**Surveillance Evaluation of Communicable Disease Reporting and Surveillance System for Candida auris**

NJDOH is in the process of updating reporting regulations to include the multi-drug resistant Candida auris. New Jersey is one of the few states where C. auris is endemic in certain areas so containing the organism will rely on good surveillance. Currently, the patient-centric and web-based Communicable Disease Reporting and Surveillance System is the only surveillance system used in NJ to track reportable conditions. In years past CDRSS has been the target of both legionellosis and hepatitis surveillance evaluations from CSTE Applied Epidemiology Fellows. Candida auris presents different challenges when conducting surveillance and would be the only reportable condition in New Jersey for which colonization would represent a reportable case. Furthermore, no one has evaluated CDRSS for an organism which is not yet reportable and therefore can fundamentally impact how NJDOH conducts C. auris surveillance. For this surveillance evaluation the fellow will:

- Gain access to and perform required training on CDRSS
- Research risk factors for Candida auris infections and gain understanding of dispersion across New Jersey
- Evaluate CDRSS by analyzing the simplicity, flexibility, acceptability, sensitivity, predictive value positive, representativeness, and timeliness for potential for surveillance as it pertains to C. auris
- If necessary, request field changes in CDRSS based on the results from the evaluation before go-live date

**Major Project**

**HAI Waterborne Infection Prevention Assessments**

The rise of antimicrobial resistant organisms in acute care settings has led CDC to focus on the environment as a major source of transmission of these hardy organisms. Previously infection control assessments looked at the high touch areas and environment adjacent to the patient bed such as light switches, end tables, chairs, and doorknobs. However, there has been less guidance and focus for the sinks and plumbing going into each patient room. NJDOH has investigated a number of large carbapenem-resistant Acinetobacter baumannii (CRAB) outbreaks in acute care settings. CRAB has recently been given the designation of an "urgent threat" from CDC and are typically found in the environment, including water. CDC has created a water infection control risk assessment (WICRA) tool as part of this effort to contain antimicrobial resistant organisms such as CRAB. The fellow will:

- Research healthcare-associated waterborne organisms and common resistance mechanisms including Antimicrobial Laboratory Network alert organisms
- Select and partner with 20 acute care facilities based on region and bed-size
- In conjunction with CDS staff, perform site visits at each facility, using the CDC developed tool to assess waterborne HAI prevention ("Water Infection Control Risk Assessment for Healthcare Facilities)
- Clean and analyze data collected on-site
• Create a report for each facility to distribute facility-specific results
• Compile aggregate results for national and local presentation

Additional Project  Long-term Care Knowledge Assessment for C. auris

Candida auris has been a focus for prevention, containment and response of the Infection Control, Healthcare, and Environmental Epidemiology Team at CDS for two years. Most cases are identified at long-term acute care or acute care facilities where patients are severely immunocompromised and are therefore vulnerable to this emerging pathogen. If patients recover from infections or were identified to be colonized, they still represent a concern for transmission even if they leave an acute care setting. Long-term care facilities have far less infection prevention resources than a hospital, and also provide unique challenges such as maintaining proper infection control while being one’s home. It has been the experience of CDS that the long-term care community has a different understanding of Candida auris despite being a key component to containing the organism. For this project, the fellow will:

• Research the regulations guiding infection prevention in long-term care settings including state (NJ) and federal (CMS) regulations
• Obtain updated contacts for long-term care facilities from NJDOH Division of Health Facility Survey and Field Operations
• Create knowledge assessment on Candida auris and infection prevention of multi-drug resistant MDROs
• Clean and analyze results of assessment
• In conjunction with health educators and epidemiologists from CDS, create education to fill knowledge gaps

Additional Project  Transmission Based Precautions Toolkit

Containment of novel multidrug resistant organisms has put an emphasis on knowing when to put a patient on transmission-based precautions and at what level to use. CDC has developed the guideline for isolation-based precautions but CDS still receives a number of questions on transmission-based precautions. Further complicating matters is that CDC recently released Enhanced Barrier Precautions, a form of transmission-based precautions specifically designed for long-term care facilities dealing with infected or colonized targeted MDROs. A toolkit highlighting CDC guidance with examples and sample resources would be very valuable to healthcare facilities combating MDROs. For this toolkit, the fellow will:

• Research current transmission-based precaution guidance from CDC, APIC, SHEA, AORN
• Review already available education from the New Jersey Hospital Association and Association for Professionals in Infection Prevention and Control
• Learn the indications of when to use and differences between airborne, droplet, contact, enhanced barrier, and standard precautions
• Combine links to previously existing resources with NJ specific guidance and examples to create toolkit
• Work with health educators and CDS epidemiologists to post the toolkit on the NJDOH webpage and distribute through email blasts
Preparedness Role

- Participate in state BioWatch and FBI meetings/trainings.
- Fellow will be assigned after hours emergency on call duty for the NJDOH twice a year.
- In the event of a public health emergency, the fellow would be part of the CDS response team (which includes sub-teams in the areas of business continuity, Emergency Call Center, communications, epidemiology/surveillance, and data management). In the past, this has included Influenza H1N1, Ebola, and Lassa fever response.

Additional Activities

- Investigations of outbreaks - both healthcare and community associated. The Fellow will have numerous opportunities to participate and/or lead outbreak investigations; CDS receives over 400 reports/year of communicable disease outbreaks of various etiology.
- Investigation into cases of novel resistance identified by state and regional testing within the CDC Antibiotic Resistance Laboratory Network (e.g., plasmid-mediated colistin resistance).
- Participate in infection control assessment visits being performed by the state in various healthcare settings as part of the ELC grant activities.
- Participate in HAI/AR prevention initiatives such as the Infection Control and Antimicrobial Resistance Subcommittee meetings and NJ Drug Diversion Coalition

Mentors

Primary
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Secondary
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