

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 HAI/AR 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 HAI/AR 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 linelists, 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 the State HAI Coordinator and AR Coordinator 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, which offers an annual conference as well as quarterly conference calls 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 and Assessment Control and Response (ICAR) quarterly meetings, which is responsible for guiding assessments in infection control capacity throughout the state

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

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| Surveillance Activity | Surveillance for Antimicrobial Resistant Organisms |
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1. Research available data regarding state antibiograms that highlights resistance patterns throughout the state.
 2. Develop a NJ-specific electronic state antibiogram system for acute care hospitals or other types of healthcare facilities to submit to the NJDOH.
 3. Assess Electronic Laboratory Data reported to NJDOH for antibiotic susceptibility testing information and develop systems to produce automated state or regional antibiograms or analyze reported data in near-real-time.
 4. Analyze resistance data reported into CDC's NHSN system by healthcare facilities at the local/county level. This could include frequency analysis, determining variation of resistant organisms by region, or geospatial analysis.
 5. Develop and administer survey to long-term care facilities, outpatient facilities, or other type of healthcare facility to determine infection control practices, antimicrobial stewardship activities, or other surveillance, lab, disinfection/sterilization activities.
 6. Develop and administer survey to determine rates and infection control practices of currently non-reportable MDROs, such as MDR Acinetobacter, Carbapenem-Resistant Enterobacteriaceae (CRE), and *Pseudomonas aeruginosa*.
 7. Analyze epidemiologic and laboratory data from the surveillance testing performed by NJDOH as part of the CDC Antibiotic Resistance Laboratory Network (ARLN).
 8. Collect and analyze epidemiologic, laboratory, or healthcare-facility data collected throughout *Candida auris* outbreak investigations.
 9. Assess the Antibiotic Stewardship practices and programs instituted by NJ healthcare facilities following targeted infection control assessments or the institution of federal mandates for Antibiotic Stewardship programs.

Surveillance Evaluation of NHSN for HAI data**Evaluation**

Evaluate HAI data reported into CDC's NSHN system in acute care hospitals throughout New Jersey. These data may include MRSA, C. difficile, CLABSI, CAUTI events. Fellows could choose to perform data validation or geospatial analysis as part of the evaluation, as these data are self-reported by healthcare facilities. Examples of projects using data from NHSN data include:

1. Using NHSN data, assess the impact of staff influenza vaccination rates on influenza infections in healthcare workers of acute and long term care facilities.
2. Using NHSN data to assess the relationship of adherence to active surveillance testing requirements and infection rates of MRSA in acute care hospitals.
3. Combining NHSN data with state-level data on reporting healthcare facilities, assess possible intrinsic and extrinsic factors that may be associated with infection rates reported by the facility.

A previous CSTE HAI Fellow did a validation study of the MRSA LabID event NHSN data which provided key information to hospitals on their reporting as well as MRSA colonization rates. NJ has the need for further NHSN data validation to be performed.

NJDOH is also in the process of acquiring access to NHSN data reported by nursing homes in New Jersey. Validation of HAI data reported by nursing homes including C. diff and CAUTI data will then also be possible.

Major Project Infection Control Assessment and Response (ICAR) Projects

NJDOH was one of the states which applied for and received ELC Ebola Supplemental Funding from CDC that tasks the state with assessing infection control capacity throughout the state. The fellow will assist in analyzing and evaluating data from the infection control assessments being performed as part of the ELC Ebola/ICAR Supplement grant activities. The HAI/ICAR team is currently using CDC standardized interview tools and direct observation tools, to assess infection control capacity in acute care, long-term care, dialysis, and out patient settings. As infection control capacity is assessed at various facilities, the fellow will help identify areas that are gaps in infection control and assist in the mitigation of the gaps. Information from the data collected and analyzed will assist in the development of training for healthcare workers. The fellow can assist in the development and implementation of the training in increase infection control across the data.

Evaluation of NJ Communicable Disease Reporting and Surveillance System Project

Depending on the interest of the fellow, perform a surveillance evaluation on a reportable disease of the fellow's choosing in the state's Communicable Disease Reporting and Surveillance System (CDRSS). CDRSS captures both person-entered and electronic (ELR) disease reports.

Preparedness Role

1. Participate in state BioWatch and FBI meetings/trainings.
 2. Fellow will be assigned after hours emergency on call duty for the NJDOH twice a year.
 3. 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

1. Investigations of outbreaks - both healthcare and community associated. The Fellow will have numerous opportunities to lead and/or participate in outbreak investigations; CDS receives over 300 reports/year of communicable disease outbreaks of various etiology.
 2. 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).
 3. Participate in infection control assessment visits being performed by the state in various healthcare settings as part of the ELC Ebola/ICAR Supplement grant activities.

Mentors

Primary	Edward Lifshitz MD,FACP Medical Director
Secondary	Rebecca Greeley MPH Infectious Disease Team Lead