

ID: 45673378

**Infectious Diseases - HAI, Infectious Diseases - Host Site Description
Nebraska Department of Health and Human Services**

Assignment Location: Lincoln, US-NE
Nebraska Department of Health and Human Services
Epidemiology Unit

Primary Mentor: Ishrat Kamal-Ahmed, PhD, MSc
HAI/AR Epidemiologist and Director of Operations
Nebraska Department of Health and Human Services

Secondary Mentor: Muhammad Salman Ashraf, MBBS
HAI AR Program Director
Nebraska Department of Health and Human Services

Work Environment

Hybrid

Assignment Description

The Nebraska Department of Health and Human Services (DHHS) is comprised of five Divisions: Children and Family Services, Behavioral Health, Medicaid and Long Term Care, Development Disabilities, and Public Health. DHHS is tasked by state statute to protect the health and safety of persons living and working in Nebraska. The mission of DHHS is "Helping people live better lives," which provides motivation to effectively and efficiently provide public health services and make a difference in the lives of Nebraska's 1.96 million constituents. The Division of Public Health (DPH) serves as the state public health department, and partners with local health departments and other public health partners to ensure statewide access to the ten essential public health services.

The CSTE fellow will be working within the DPH, with over 400 employees. The Division of Public Health is split into three sections: Community Health, Health Data, and Health Licensure. The Division Director and Chief Medical Officer serve the Governor and utilize three Deputy Directors who provide oversight to each respective Section. The Health Data Section includes two Units: Epidemiology and Vital Records. The Community Health Section includes three units: Rural Health Planning, Health Promotion, and Lifespan Health Services. The Health Licensure Section includes three units: Investigations, Licensure, and Environmental Health.

The DPH is responsible for a breadth of public health services including preventive and community health programs, the regulation, and licensure of professions, occupations, and facilities. The DPH also performs activities such as maintaining vital records, tobacco cessation, health promotion, disease screening and intervention, HIV counseling and testing, drinking water safety and investigating disease outbreaks.

The fellow will work with the Nebraska Department of Health and Human Services Office of Epidemiology to enhance Nebraska's Healthcare-Associated Infections and antimicrobial resistance (HAI/AR) Epidemiology Section which uses a wide range of surveillance and data systems to optimize our understanding of HAIs and AR in healthcare settings and in the community. We have a central role to play in HAI prevention and containment because we are responsible for the protection of patients across the healthcare spectrum and serve as a bridge between healthcare and the community.

The activities that a fellow will be involved in will include collection, analysis, and dissemination of HAI data; understanding how to assess surveillance systems; preparing epidemiology reports; presenting critical findings to local health jurisdictions and other key partners; understanding Nebraska's HAI surveillance and prevention infrastructure; assessing, updating existing and developing new protocols and standard operating procedures for HAI/AR program, interacting with our academic partners; and coordinating activities with relevant stakeholders in the state.

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Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

The first phase of orientation would include an introduction to the workplace (physical building to access some of the surveillance datamarts through secured log-in. The fellow is expected to join and actively participate in the meetings suggested by the team. The primary supervisor will check in with the fellow on a daily basis and provide guidance. The other team members will also assist whenever necessary.

Projects

Surveillance Activity Title: Candida auris surveillance

Surveillance Activity Description:

Currently, Nebraska does not have Candida auris as a reportable organism. Recently, highly resistant Candida auris has emerged in the United States as a pathogen of significant concern. Although it is not currently a reportable condition in the state of Nebraska, efforts are underway to evaluate this organism and add it to reportable disease regulations. The fellow would assist in efforts to make this pathogen reportable at the point at which they join the Nebraska Department of Health and Human Services. Additionally, the fellow will be responsible for developing a database (using the current structure for reportable resistant organisms that is in place in Nebraska) and a system to perform routine surveillance for resistant fungal infections. The fellow will be leading this activity under the supervision and guidance of the state HAI epidemiologist and HAI/AR Program Director

Surveillance Activity Objectives:

1. A functioning database that accepts and processes HL7 messages and presents them in a line list fashion for epidemiologic analysis
2. A summary report of these efforts with information for utilization that can be distributed to laboratory and public health partners

Surveillance Activity Impact:

Public health needs to establish a surveillance protocol to capture any threats of this highly resistant fungus in the community to implement immediate containment activities.

Surveillance System Evaluation Title: Evaluation of the nursing home database for surveillance of healthcare associated outbreaks

Surveillance System Evaluation Description:

The Nebraska Department of Health and Human Services has developed a database that tracks electronic laboratory reports according to the patients' addresses which can be mapped to known long-term care facilities (LTCF) in the state. The fellow would be responsible for reviewing and cleaning this database and assisting with the enhancement of this surveillance system that allows this dataset to be used for early detection of healthcare-associated infection outbreaks. The fellow will also be responsible to contact the LTC infection preventionist upon identification of a possible healthcare-associated infection outbreak to gather initial data (using a standard outbreak investigation form) which will inform a formal public health containment response.

Surveillance System Objectives:

1. Evaluate the database and work on data validation
2. Find gaps in the dataflow and work with the informatics team on troubleshooting
3. Develop a protocol outlining use of nursing home database for detection of healthcare associate outbreaks

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4. Report summarizing efforts and providing education for state and local partners

Surveillance System Impact:

In general, long-term care facilities do not have well-developed surveillance systems which can delay identification of healthcare-associated infection outbreaks. Since this is a congregate setting with vulnerable population, these outbreaks can be widespread and many lives are usually at risk. Early identification of healthcare associated infection clusters/outbreaks in long-term care facilities through a state-based surveillance system can lead to a faster containment response and potentially save lives.

Major Project Title: Assessment of outpatient antibiotic prescribing trends and its association with antimicrobial resistance

Major Project Description:

The emergence of resistant organisms has become a significant concern at the global, national, and state levels. The inappropriate use of antibiotics in both human and animal populations is believed to be an important contributor to this trend. On January 1, 2017, several organisms were added to the required reportable condition list in Nebraska including; carbapenem-resistant Enterobacteriaceae, Acinetobacter species, Citrobacter species, Enterobacter species, Enterococcus species, Escherichia coli, Klebsiella species, Pseudomonas aeruginosa, Staphylococcus aureus, and Streptococcus pneumoniae. The Nebraska HAI program was able to utilize these real-time reports for the development of a state-wide antibiogram that is the first of its kind to be informed by reports in this manner. HAI team has access to the antibiotic use data in NHSN (national healthcare safety network) and the fellow will utilize this data to identify antibiotic use trends in Nebraska by signature facilities. Additionally, as of January 1, 2018, all prescriptions written in the state of Nebraska are required to be reported to the state prescription drug monitoring program. This provides Nebraska a unique opportunity to evaluate antibiotic prescribing patterns in the state and correlate antibiotic use with antimicrobial resistance prevalence in various health jurisdictions. The associate will work with the HAI/AR Program Director to secure necessary approvals to access antibiotic use data from PDMP. The fellow will work together with the HAI/AR epidemiologist the HAI/AR program pharmacist in the development of a report analyzing key prescribing practices and comparing them to the state and regional antibiograms. The associate will be assisting with various analyses focused on developing targeted interventions to decrease antimicrobial resistance and sharing the findings with local health departments.

Major Project Objectives:

1. Report summarizing key antibiotic prescribing patterns across the state
2. Report comparing prescribing trends to antimicrobial resistance for each local health jurisdiction
3. Present the report to the local health departments at local health department meetings and point out opportunities for targeted intervention in their jurisdictions
4. Design and conduct a survey which evaluates the impact of increased licensure, accreditation, and facility inspection requirements for ambulatory and long term care facilities performing invasive procedures
5. Development of recommendations to use local data sources to guide updates/modifications of licensure, accreditation and inspection processes.
6. Written surveillance report that includes reports

Major Project Impact:

Antibiotic overuse and misuse is associated with the prevalence of multi-drug-resistant organisms. Nebraska is among the top 10 states with the highest outpatient antibiotic use. Assessment of outpatient antibiotic prescribing trends and their impact on local antimicrobial resistance is needed to develop targeted public health interventions.

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Additional Project #1 Title: Developing an outbreak management tool in REDCap

Project #1 Type: Surveillance Activity

Project #1 Description:

Nebraska DHHS HAI/AR program has grown rapidly over the past couple of years. Due to the program growth and addition of several new team members it has become increasingly important to standardize various HAI/AR operations for efficiency and consistency. The fellow will review all existing HAI/AR response protocols and develop a comprehensive outbreak management tool in REDcap that can be used for responding to various outbreaks related to healthcare-associated infections.

Project #1 Objectives and Expected Deliverables:

1. The new REDCap tool will follow our standard operative procedure for outbreak investigation and containment and a protocol for record-keeping for the HAI team that would guide activities in case of an outbreak
2. The outbreak management tool will outline general steps that HAI/AR team will need to take regardless of the outbreak type and location.
3. Development of separate sub-tools describing actions needed to be taken depending on the specific organism and facility type where the outbreak is identified

Project #1 Impact:

Many entities such as facilities, laboratories, state public health are involved in an outbreak related to HAI. A lack of standardized protocol hinders a coordinated effort to reach the common goal of prevention and containment.

Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

We are preparing our nursing homes with a Strike Team project where we provide fit-testing training to local health department employees who then in turn train the nursing home staff on N95 fit testing. The goal of this preventive effort is to ensure that most, if not all, nursing homes will have enough staff with adequate training that is able to provide care should there be an urgent need. The fellow can help the HAI surveillance coordinator in maintaining and record keeping of the project in addition to email correspondences with the facilities.

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

The fellow will assist the outbreak lead (primary supervisor) and the state infection preventionist with data gathering, case investigations, and epidemiological investigations. As a part of the learning experience, the fellow will be encouraged to write outbreak reports for internal and external partners under the supervision of mentors. Time allocation will depend on the frequency of outbreaks. Site visits with the team may be required with all safety precautions in place.

Please Describe the Fellow's Anticipated Role in the COVID-19 Response – Include Activities and Time Allocation

Currently, the HAI-ICAP team is involved in the nursing home COVID containment. The fellow will have the opportunity to shadow the ICAP team with their day-to-day activities. Site visits in the nursing homes are possible if the fellow is fit-tested for N95. With any rise of COVID cases or new variants, COVID activities may diversify with additional time.

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Please Describe Opportunities for Fellows to Work in Health Equity as well as Incorporating Diversity, Equity, and Inclusion into their Work

Equity is an imperative component weaved into HAI activities and grant deliverables. Most of our tasks involve working with healthcare facilities located in rural or under-served areas with limited resources, older demographics in nursing homes, and facilities located in inner-city areas. We collect race/ethnicity information through our surveillance which is later analyzed to examine any gaps in equity. One of our new plans involves collecting additional demographic data on the common HAIs (including CLABSI, CAUTI, and SSI) in acute care hospitals to analyze whether specific underserved groups are experiencing disproportionately higher rates of specific HAIs. This initial data collection and analysis will then inform us of existing health disparities. NE DHHS HAI/AR Program including our ICAP subject matter experts will then convene a group of relevant stakeholders to further explore the reasons for specific disparities. The fellow will coordinate this initiative and develop a report that will be used to plan and implement focused interventions addressing the identified disparities.