

ID: 45293907

Infectious Diseases - HAI, Infectious Diseases - Host Site Description

Virginia Department of Health

Assignment Location: Richmond, US-VA
Virginia Department of Health
Office of Epidemiology/Division of Clinical Epidemiology

Primary Mentor: Shaina Bernard, PharmD
Antimicrobial Resistance Coordinator
Virginia Department of Health

Secondary Mentor: Marshall Vogt, MPH, CIC
TB Program Manager
Virginia Department of Health

Work Environment

Hybrid

Assignment Description

The Virginia Department of Health, Office of Epidemiology is responsible for a broad range of disease surveillance and control activities in Virginia. The fellow would work mainly within the Office's Division of Clinical Epidemiology (DCE), which is made up of the HAI/AR Program, the Tuberculosis Program, and the Newcomer (Refugee) Health Program. Responsibilities of DCE include investigating or providing consultation on communicable disease outbreaks; developing and implementing disease database and surveillance systems; developing guidelines for communicable disease management; and supporting statewide epidemiologic infrastructure and capacity by maintaining grants, regulations, and policies and by providing training. The fellow will become a member of the DCE team of epidemiologists. Some of the projects will be focused on surveillance, others will involve conducting investigations, and some projects will illustrate the complementary nature of surveillance and investigation activities. Nearly half of the outbreaks reported in the state occur in healthcare facilities including hospitals, long-term care facilities, and increasingly in outpatient settings, so there will be ample opportunity to support these investigations. Opportunities also exist to work on foodborne or vaccine preventable illnesses, and to participate in emergency preparedness exercises and activities.

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

The Office of Epidemiology has a wide array of statistical and data support available. Personnel within the office have experience with a range of statistical software, including MS Excel, MS Access, SAS, R, ArcGIS, REDCap, and Tableau. DCE staff have particular expertise that will be shared with the fellow in database design, database maintenance, statistical analysis, and data visualization and presentation best practices. Communicable disease data are managed in the Virginia Electronic Disease Surveillance System (VEDSS) with input from program-specific epidemiologists. Virginia uses the Electronic Surveillance System for the Early Notification of Community based Epidemics (ESSENCE) for the management of syndromic surveillance from hospital emergency departments and urgent care centers. The Virginia Outbreak Surveillance System (VOSS) contains statewide data on outbreak investigations and colonization screenings. The fellow would receive training on VEDSS, VOSS, and ESSENCE and will be able to pick from a variety of surveillance projects using data from applicable systems. The Healthcare-Associated Infections and Antimicrobial Resistance (HAI/AR) Program uses the National Healthcare Safety Network (NHSN) to collect and analyze mandated and voluntarily reported infection data submitted by participating facilities. The fellow will receive NHSN training and generate reports using the software. The agency is increasingly using Tableau to allow users to interact with and better visualize data for both internal and external audiences, and the fellow would be encouraged to use Tableau as part of their surveillance projects.

ID: 45293907

Infectious Diseases - HAI, Infectious Diseases - Host Site Description

Virginia Department of Health

Projects

Surveillance Activity Title: Quality Assurance and Analysis of NHSN Healthcare-associated Infections Data from Inpatient Rehabilitation Facilities

Surveillance Activity Description:

The fellow will work with the HAI Epidemiology team to learn how to pull and analyze data from the National Healthcare Safety Network (NHSN). The HAI Epidemiology team manages NHSN for Virginia, which includes quality assuring the data submitted by facilities across the state. The fellow will focus on healthcare-associated infection (HAI) data submitted by inpatient rehabilitation facilities (IRFs). IRFs submit data quarterly into NHSN to satisfy reporting requirements from the Centers for Medicare and Medicaid Services (CMS). Data quality checks are performed in SAS and individualized reports are sent to facilities so that they can correct data errors ahead of CMS data submission deadlines. The fellow will also review facility licensing lists for IRFs and develop a database of contact information for each IRF. Further collaboration opportunities will be explored, including having the fellow present data to relevant stakeholders.

Surveillance Activity Objectives:

- Complete training on NHSN, including shadowing HAI epidemiology staff on use of NHSN
- Review VDH data cleaning reports for NHSN HAI data reported by acute care and long-term acute care hospitals
- Review SAS code used to create individualized VDH data cleaning reports sent to each facility
- Develop a draft data cleaning report for NHSN HAI data reported by inpatient rehabilitation facilities (IRFs)
- Write SAS code to create individualized VDH data cleaning reports for each IRF
- Determine stakeholders for IRFs and develop contact lists
- Create and send data cleaning reports to each IRF quarterly

Engage IRFs in statewide discussions and explore additional opportunities for collaboration

Surveillance Activity Impact:

Conducting quality assurance activities ensures data are accurate before submission to both CMS and CDC for inclusion in national datasets. Quality assurance gives VDH a complete and accurate picture of HAIs in Virginia IRFs. Data can then be analyzed and shared with stakeholders to determine prevention priorities. This service that VDH provides ultimately helps strengthen the relationship between public health and healthcare facilities.

Surveillance System Evaluation Title: Evaluation of Latent Tuberculosis Infection (LTBI) Surveillance

Surveillance System Evaluation Description:

Virginia has been conducting case-based LTBI surveillance since 2018, but has faced challenges with provider reporting, data quality, and the ability to conduct the necessary case follow-up to ensure proper case classification. The LTBI Surveillance Coordinator is working to enhance provider education through the development and distribution of provider education toolkits and the onboarding of additional staff to help collect data for certain key surveillance variables.

ID: 45293907

Infectious Diseases - HAI, Infectious Diseases - Host Site Description

Virginia Department of Health

The surveillance system evaluation will provide an opportunity to examine the impact of establishing statewide case-based surveillance for LTBI and the impact of recent changes that have been implemented to enhance LTBI surveillance.

Surveillance System Objectives:

- Review the CDC Updated Guidelines for Evaluating Public Health Surveillance Systems and become familiar with best practices for conducting surveillance system evaluations
- Develop project plan for surveillance system evaluation process
- Determine stakeholders for both surveillance systems and engage all relevant stakeholders in surveillance system evaluation
- Conduct surveillance system evaluation, analyze findings, and present conclusions and recommendations to stakeholders
- Present results of surveillance system evaluation to peers at the national CSTE Annual Conference

Surveillance System Impact:

A thorough evaluation of the LTBI surveillance will contribute to the overall assessment of TB surveillance in Virginia. Comprehensive knowledge of the usefulness of these systems in the context of case-based surveillance will help improve the overall surveillance methodology for active and latent TB in Virginia and will provide critical feedback to surveillance system owners/stakeholders to be used in future improvement and development of TB surveillance.

Major Project Title: Prevention and Containment of Targeted Multi-drug Resistant Organisms (MDROs)

Major Project Description:

The VDH HAI/AR program has designated itself as an Enhanced MDRO Prevention Program. The program activities consist of two arms, containment and prevention. The fellow will partner with multiple members of the HAI/AR program to conduct surveillance, onsite infection prevention assessments, case or outbreak investigations, statewide education, and ultimately prevent MDRO infections.

Containment Activities

The fellow will aid in case investigations of targeted MDROs by working with regional public health staff, local health department staff, health care facilities, and clinical and public health laboratories following the CDC Guidance for a Public Health Response to Contain Novel or Targeted MDROs. The fellow will be exposed to investigations in various healthcare settings and will help navigate the different challenges and barriers. The Virginia state public health lab has recently increased their whole genome sequencing capacity for targeted MDROs. The fellow will work with the VDH AR program, CDC, and public health staff in creating guidance on how to use these results in case investigations.

Prevention Activities

The fellow will work with the local health departments and pre-identified healthcare facilities that have been designated as influential facilities in the state. These are facilities such as ventilator skilled nursing homes and long-term acute care hospitals which care for high-acuity patients with long lengths of stay often resulting in the spread of targeted MDROs in these facility types. The fellow will be working alongside members of the HAI/AR program to educate the facilities on MDROs and work with the facilities on proactive screening recommendations and onsite infection prevention and control assessments. Visits are being conducted proactively in facilities statewide to identify infection control gaps, and

ID: 45293907

Infectious Diseases - HAI, Infectious Diseases - Host Site Description

Virginia Department of Health

to provide both immediate and comprehensive feedback. The fellow will also analyze data to better understand transfer networks of these facilities to identify additional facilities for follow-up.

The fellow will have the opportunity to develop educational materials for their setting of choice based on needs identified through their project. A conference or training will be identified for the fellow to present their work to healthcare facilities, as well as to local health departments. This entire body of work will strengthen collaborative relationships with healthcare facilities across Virginia, and will provide the fellow with in-depth epidemiologic and infection prevention experience.

Major Project Objectives:

- Educate local health departments and healthcare facilities on prevention of targeted MDROs
- Track targeted MDRO cases and create internal and external reports and analyses to aid in investigation response
- Update guidelines in the state Disease Control Manual to educate local health departments about the most current practices and ensure that they have adequate tools to work with healthcare facilities during targeted MDRO case and outbreak investigations

Major Project Impact:

The fellow will work on activities that will help achieve the goals outlined in the 2020 U.S. National Strategy for Combating Antibiotic-Resistant Bacteria. Specifically, the fellow will be supporting the following objectives in Goal 1:

- Slow the Emergence of Resistant Bacteria and Prevent the Spread of Resistant Infections:
- Objective 1.3 Support responses to identify, prevent, and contain antibiotic-resistant pathogens
- Objective 1.4 Conduct consultations or assessments related to antibiotic-resistant cases, outbreaks, and transmission in healthcare and the community for prevention and containment.

Additional Project #1 Title: Development of Training Materials for New Alternative TB Treatment Regimen and Planning/Implementation for Usage of New Treatment Regimen in Virginia

Project #1 Type: Surveillance Activity

Project #1 Description:

CDC has recently released guidelines on a new TB treatment regimen for drug-susceptible TB cases in those 12 and older that significantly shortens the length of treatment. The shortened treatment regimen is expected to increase treatment compliance and remove many of the barriers to TB treatment that come as a result of the length of treatment time.

Virginia will need to examine the guidelines for the new treatment regimen and decide how to best implement the new regimen throughout the Commonwealth. In addition, it will be important to develop new patient and provider education materials for the new treatment regimen.

Project #1 Objectives and Expected Deliverables:

- Review new treatment regimen guidelines and determine differences between new treatment regimen and existing TB treatment regimens

ID: 45293907

Infectious Diseases - HAI, Infectious Diseases - Host Site Description

Virginia Department of Health

- Work with public health physician and nursing consultants to develop policies for application of the new treatment regimen in Virginia, with a close examination of cost, and logistics of medication ordering, delivery, and administration
- Partner with local health departments to implement the new treatment regimen when/where appropriate and provide education to health department staff about the treatment regimen
- Develop educational materials for providers and patients
- Track utilization of the new treatment regimen relative to other treatment regimens

Project #1 Impact:

The desired impact of this project is the successful implementation of a new TB treatment option across Virginia as well as improved patient experience/outcomes as a result of undergoing the new TB treatment regimen. Ultimately, an improved treatment option should lead to increased patient compliance and an increase in successful TB treatment with progression toward TB elimination goals.

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

The Office of Epidemiology plays a prominent role in emergency preparedness and response activities. Staff work closely with the VDH Office of Emergency Preparedness and healthcare associations in Virginia to conduct a wide range of activities, which the fellow will have an opportunity to participate in, including serving as part of the 24-hour on-call rotation for the Office of Epidemiology, emergency preparedness exercises and drills, and responding to public health emergencies. The fellow will complete National Incident Management/Incident Command System trainings, including the opportunity to complete the NIMS/ICS 300 training in-person. Recent past fellows have helped conduct enhanced surveillance related to a Vice Presidential debate hosted on a Virginia college campus, and following a major hurricane that affected Virginia. There will likely be more surveillance opportunities surrounding mass gatherings or natural disasters in the future. Following the COVID-19 pandemic, there is an increased focus on preparing long-term care facilities and other healthcare settings for infectious disease responses. The fellow may also choose to join a local chapter of the Medical Reserve Corps, which will provide for additional exposure to emergency preparedness trainings and exercises.

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

While most outbreaks/clusters are investigated at a local/regional level, the fellow will have the opportunity to assist health departments with large or complex outbreak/cluster investigations. In addition, the fellow may also serve to fill personnel gaps in local health departments during outbreaks and so would have the opportunity to serve in a lead role for outbreak investigations. Further, central office staff often coordinate outbreaks happening at a statewide level and in these instances, the fellow would have the ability to assist or lead coordination of outbreak/cluster investigation activities. Types of outbreaks/clusters that would be investigated include, but are not limited to: healthcare-associated infections, foodborne illnesses, respiratory illnesses (including COVID-19), vaccine preventable diseases, and possibly zoonotic infections. It is anticipated that over the two year duration of the fellowship, the selected fellow will devote at least 15% of their time toward outbreak investigations.

The fellow will have the opportunity to participate in site visits to support facilities with infection prevention and control efforts. Some visits are reactive as part of outbreak investigations, and some are proactive to implement practices

ID: 45293907

Infectious Diseases - HAI, Infectious Diseases - Host Site Description

Virginia Department of Health

meant to prevent outbreaks. The fellow would accompany VDH regional infection preventionists to gain onsite experience conducting these assessments.

Outbreak investigations involve collecting information and designing and implementing an analytic approach to identify the source of the outbreak and developing recommendations to prevent further spread of disease. The fellow will participate in weekly staff meetings, where current outbreaks, investigations, and special projects are discussed, as well as monthly statewide epidemiology conference calls and semi-annual communicable disease training events.

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

The Division of Clinical Epidemiology has been assisting the COVID-19 response efforts and collaborating with other divisions at VDH. The HAI/AR program led response efforts for long-term care facilities in Virginia, and continues to work with other agencies and stakeholders to bolster readiness in those settings. COVID-19 response will be integrated in the fellow's training, specifically the infection prevention and control guidance for health care settings. It is not expected the fellow will have specific objectives related to COVID-19 response efforts. If the fellow has an additional interest, there are routine surveillance activities the fellow can be involved in up to a maximum of 5 hours per week.

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

The fellow will be analyzing targeted MDRO case data as part of their major project. The HAI/AR program has identified a gap in reporting on health equity measures. The fellow will work with the HAI/AR program on updated reports to address these gaps utilizing data from multiple sources, including NHSN.

Additionally, VDH has an Equity and Inclusion Action Council (EIAC) which has recently released the Strategic Plan for Equitable and Inclusive Excellence. Depending on interest and availability, the fellow could become a member of the EIAC.