

Infectious Diseases- Healthcare Associated Infections (HAI)

Assignment Description

The Fellow will be located within the Tennessee Department of Health, Healthcare Associated Infection Program and will interact closely with members of the HAI team. Tennessee is fortunate to have received significant funding for HAI activities under the emerging infections program and the epidemiology and laboratory capacity grant. They will have substantial input in determining the projects they pursue. The fellow's daily activities would comprise work on long-term analytic projects (listed below) and acute outbreak investigations. Other routine activities would include:

- Participation in weekly surveillance meetings with CEDEP staff where current outbreaks and investigations are discussed.
- Participation in weekly HAI team meetings.
- Participation in monthly epidemiology meetings with senior CEDEP epidemiologists, Dr. Bill Schaffner (Vanderbilt University) and EIS officer. These meetings generally consist of more academic discussions regarding epidemiology methodologies such as study design, analyses.
- The CSTE fellow will have the opportunity to present at local and statewide conferences of interest.
- Participation in regional epidemiology meetings which feature presentations from epidemiologists and other public health staff throughout Tennessee. Topics include recent investigations in infectious diseases and environmental health.
- Participation in periodic APIC (Association for Professionals in Infection Control) meetings. There are four APIC chapters in Tennessee and the Healthcare associated Infections Program has a very close working relationship with all of the APIC chapters and members.
- Participation in multi-disciplinary meetings/conferences organized through the Tennessee Center for Patient Safety (TCPS) in collaboration with the TDH.
- Participation in multi-disciplinary meetings/conferences organized jointly by the TDH and Q-Source (the Tennessee Quality Improvement Organization)
- Participation in educational activities e.g., webinars and conference calls from CDC, TCPS, Tennessee Initiative for Perinatal Quality Care (TIPQC), APIC and Q Source
- After hours on-call beeper (every 12 weeks). Back-up support (State epidemiologist or acting State epidemiologist) will be available.

Day-to-Day Activities

Day to day the fellow will be responsible for:

- Working on assigned projects (see examples below)
- Participating in HAI team meetings and multiple educational opportunities as they arise
- Working collaboratively with other HAI team members and stakeholders on various prevention collaboratives (prevention of catheter associated urinary tract infections, dialysis events, CDI, MRSA) especially across the healthcare spectrum (beyond just acute care hospitals). Other activities as described above.

- Meeting with primary, secondary and tertiary mentors

Potential Projects

Analysis of the data gathered through the National Healthcare Safety Network (NHSN), including data on:

- (1) central line associated blood stream infections (CLABSI),
 - (2) catheter associated urinary tract infections (CAUTI),
 - (3) surgical site infection (SSI) data following (a) coronary artery bypass graft surgery, (b) abdominal hysterectomy and (c) colon surgery;
 - (4) dialysis events from outpatient dialysis facilities;
 - (5) ventilator associated events;
 - (6) healthcare worker influenza vaccination rates
 - (7) Clostridium difficile infection (CDI)
 - (8) methicillin resistant Staphylococcus aureus (MRSA)
- Evaluation of NHSN as a surveillance system for collecting data on
 - (1) central line associated blood stream infections (CLABSI),
 - (2) catheter associated urinary tract infections (CAUTI),
 - (3) surgical site infection (SSI) data following (a) coronary artery bypass graft surgery, (b) abdominal hysterectomy and (c) colon surgery;
 - (4) dialysis events from outpatient dialysis facilities;
 - (5) ventilator associated events;
 - (6) healthcare worker influenza vaccination rates
 - (7) Clostridium difficile infection (CDI)
 - (8) methicillin resistant Staphylococcus aureus (MRSA)

In different types of healthcare facilities and patient locations within healthcare facilities

- Protocol development, conduct and analysis of validation of CLABSI, CAUTI, SSI and methicillin resistant Staphylococcus aureus (MRSA), CDI and, dialysis event data reported through NHSN
- Analyses of vancomycin-resistant enterococcus (VRE) infection reported through the NEDSS Base System (NBS).
- - MRSA patient residence cluster identification and examination of potential socio-demographic factors related to community onset, healthcare facility associated MRSA
- Capture-recapture analysis of CDI data between NHSN and emerging infections program EIP data
- Analysis of the risk factors for acute hepatitis B and hepatitis C using the NEDSS Base System (complex relational database)
- Evaluating whether there is a correlation between antibiotic and opioid prescribing practices across Tennessee

- Work with the public health hospital reporting project (PHHRP) team and WHONET staff to develop an early warning system for emerging drug resistant organisms and to develop regional antibiogram (e.g., Staphylococcus aureus isolated from skin and soft tissue and other pathogens)
- Use SATSCAN and WHONET to characterize and describe susceptibility data of organisms reported to NHSN and use these tools for outbreak detection in hospitals, LTACS, dialysis facilities and other healthcare facilities
- Examine use of SATSCAN to hospital locations, rather than latitude and longitude; potential collaboration with developer of SATSCAN to assist in outbreak or cluster detection. Examine the impact of different methods of creating antibiogram on ability to detect outbreaks across facilities.
- Standardization and analysis of antimicrobial susceptibility data reported to the state reportable disease surveillance system. This includes development of programmatic guidance for data entry of manual lab results for different microorganisms, as well as programmatic input into guidance for laboratory submission of electronic laboratory results reporting of susceptibility data.
- Use SATSCAN and WHONET to characterize and describe susceptibility data of organisms reported to NEDSS Base system (complex relational database)
- Analysis of the risk factors for acute hepatitis B and hepatitis C using the NEDSS Base System (complex relational database)
- Analysis of large statewide HIV and STD databases
- Analysis of Tennessee antimicrobial susceptibility testing data in NEDSS Base System
- Outbreak field investigation: There are a plethora of opportunities to investigate a wide variety of outbreaks (in the community or healthcare associated) as the lead epidemiologist, with close supervision and support.

Preparedness Role

In the event of a public health emergency, the fellow would be part of the CEDEP response team. The Fellow would serve in either the epidemiologic/surveillance or data-management sub-teams. The fellow also may participate in Community Assessments for Public Health Emergency Response (CASPER) or other exercises.

Assignment Location: Tennessee Department of Health
Nashville, TN

Primary Mentor: Marion Kainer, MD, MPH
Director, Healthcare Associated Infections and Antimicrobial Resistance Program

Secondary Mentor: Tim Jones, MD
State Epidemiologist