

ID: 59163254

Infectious Diseases, Chronic Disease - Host Site Description

Tennessee Department of Health

Assignment Location: Nashville, US-TN
Tennessee Department of Health
Communicable and Environmental Diseases and Emergency Preparedness

Primary Mentor: Rand Carpenter, Doctor of Veterinary Medicine; Bachelor of Arts, Molecular Biology
HIV/STI/Viral Hepatitis Program Director
Tennessee Department of Health

Secondary Mentor: Heather Wingate, Master of Public Health, Epidemiology
Viral Hepatitis Surveillance Director
Tennessee Department of Health

Work Environment

Hybrid

Assignment Description

The fellow will be housed within CEDEP's Viral Hepatitis Program which oversees HBV and HCV surveillance and outbreak detection, early detection, and rapid response. The Viral Hepatitis Program also strives to improve access to viral hepatitis prevention, testing, and treatment within Tennessee.

In addition to the two mentors, the fellow will be given the opportunity to collaborate with our four other epidemiologists each day. The fellow will participate in routine surveillance activities to gain an understanding of programmatic goals, processing laboratory data, matching datasets, creating new HBV and HCV investigations based on CDC/CSTE case definitions and transmitting data to CDC. Further, the fellow can work alongside our epidemiologist with a Certificate in Infection Prevention and Control to identify potential hospital-associated infections and/or drug diversion cases.

The fellow will become completely immersed in our program affording frequent collaboration with our programmatic nurse navigators, local and regional health department staff, and partnering agency members. Each of our epidemiologists are asked to submit at least one abstract to a national conference and to participate in relevant manuscript development; the fellow will be supported by our program to participate in these same opportunities.

The fellow's anticipated daily activities include:

- Attend regular programmatic meetings
- Attend weekly CEDEP surveillance meetings
- Attend all statewide epidemiology trainings
- Participate in program ArcGIS and lab surveillance meetings
- Conduct surveillance and quality assurance assessments related to HBV and HCV
- Provide statistical and analytical support for ongoing and upcoming surveillance and prevention projects developed by the Viral Hepatitis Program
- Perform quality assurance and quality improvement on HBV and HCV data within the National Electronic Disease Surveillance System (NEDSS) Base System (NBS)
- Participate in cluster or outbreak investigations and monitoring within the HIV/STI/Viral Hepatitis Section
- Collaborate with programmatic staff to develop abstracts, presentations, and/or manuscripts to share at state and national meetings or submit to peer-reviewed journals

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- Provide programmatic support for initiatives to identify possible instances of hospital associated infections and consult with appropriate leadership personnel on possible hospital acquired HBV or HCV infections and other unique cases
- Assist with REDCap survey designs, analyze collected survey data, and summarize findings
- Assist internal and external partners with technical assistance needs related to HBV and HCV data and visualizations

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

The fellow will be provided access to the following systems and software: SAS, SQL Server, R Studio, ArcGIS, Tableau, PowerBI, REDCap, the standard Microsoft Suite, National Electronic Disease Surveillance System (NEDSS) Base System (NBS). They will receive technical training from program mentors as well as classroom and online training.

Projects

Surveillance Activity Title: Viral Hepatitis Laboratory Survey and Analysis

Surveillance Activity Description:

Incomplete reporting of hepatitis B virus (HBV) and hepatitis C virus (HCV) laboratory results prevents classification of all identified acute and chronic cases. Ramifications of incomplete reporting impact accuracy of program surveillance and deployment of efficient community harm reduction services. This project will be a collaboration between the fellow and the Director of Viral Hepatitis Special Projects to develop a survey for laboratories that conduct HBV/HCV testing. The goal of the project is to assess what viral hepatitis testing is performed at each facility, identify areas for improvement in reporting, and provide education on reportable diseases and CDC recommended HBV and HCV testing. Special focus will be dedicated to the development of written recommendations highlighting the reporting expectations in accordance with current state legislation.

Surveillance Activity Objectives:

- Develop REDCap survey
- Develop educational materials geared toward laboratory staff
- Complete assessment and analysis of survey results
- Summarize survey findings and provide written recommendations for future action to improve reporting conducted by laboratories
- Share written recommendations with identified laboratories and monitor for improvement in reporting

Surveillance Activity Impact:

The lab survey will aid the program in identifying laboratories that are not reporting appropriately and provide education and assistance to improve transmission of reportable HBV/HCV labs. Appropriate identification of HBV and HCV cases will enable the program to improve routine surveillance and provide enhanced linkage to care services.

Surveillance System Evaluation Title: Evaluation of Unreported HBV/HCV Cases Utilizing Death Certificates and the Electronic Surveillance System for the Early Notification of Community Based Epidemics (ESSENCE)

Surveillance System Evaluation Description:

As described in the surveillance activity, unreported cases of HBV/HCV have significant impacts to viral hepatitis surveillance and ability to appropriately deploy linkage to care and harm reduction services. Multiple sources have been identified which track the incidence of HBV/HCV, but do not necessarily involve the formal reporting of cases. Two of

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these sources are death certificates and ESSENCE data. In death certificates, causes of death are listed by ICD-10 codes to include if HBV/HCV was a contributing factor. Likewise, ESSENCE tracks emergency room cases, which includes if HBV/HCV was one of the classified ICD-10 code conditions for a visit.

Surveillance System Objectives:

- Identify unreported cases of HBV/HCV using ICD-10 codes in death certificates
- Create enhanced algorithms in ESSENCE using ICD-10 codes to identify unreported cases of HBV/HCV
- Work with Viral Hepatitis Data Entry Team to request medical records for identified unreported cases
- Work with Viral Hepatitis Surveillance team and Surveillance Systems and Informatics Program to request unreported laboratory backlogs

Surveillance System Impact:

Incorporating death certificates and ESSENCE will improve identification of HBV/HCV cases that may otherwise go unreported. Proper identification will increase the accuracy and completeness of surveillance data and aid in the timely and efficient deployment of supportive harm reduction services and/or linkage to care.

Major Project Title: Mapping of Persons Living with HCV with a History of Incarceration

Major Project Description:

Studies estimate one in three people living with HCV (PLWHCV) will be incarcerated each year. People experiencing incarceration at a Tennessee state prison are tested for HCV upon intake and following a transfer to another prison facility. If a person has a positive HCV RNA test, then they are evaluated for HCV treatment with direct acting antivirals. The goal of this project is to develop visualizations that depict the movement of PLWHCV who been incarcerated within a Tennessee state prison. The extensive time series data available for this subpopulation would enable further analysis to determine where and when an individual acquires HCV and highlight opportunities for targeted harm reduction education and services.

Major Project Objectives:

- Enhance line list of inmate historical location utilizing prison sentences and Accurint
- Validate geocoded addresses in ArcGIS
- Produce ArcGIS line density maps visualizing movement over time, distance moved, HCV status at each move. Produce maps stratified by demographic subsets.

Major Project Impact:

The impact of this project will aid in describing the epidemiology of HCV spread among PLWHCV in Tennessee state prisons. The large number of PLWHCV who experience incarceration annually, provides a unique opportunity to enhance harm reduction services available to this vulnerable subpopulation. Data and visualizations from this project will strengthen collaboration with TDOC and help to better serve incarcerated individuals.

Additional Project #1 Title: Geospatial Analysis of Access and Barriers to HCV Treatment in TN

Project #1 Type: Surveillance Activity

Project #1 Description:

CDC estimates only one in three people living with HCV receive treatment, even though there are medications available that can cure 95% of cases. The goal of this project is to identify gaps in access to treatment by using spatial analysis to map known HCV treatment providers, people living with HCV, and other health equity barriers to treatment such as access to syringe service programs and transportation.

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Project #1 Objectives and Expected Deliverables:

- Geocode HCV treatment providers and known HCV cases in ArcGIS
- Identify areas throughout the state where there is a shortage of treatment providers in comparison to the number of cases
- Incorporate additional health equity variables to illuminate gaps in supportive infrastructure
- Compile findings and share with TDH HCV Project ECHO team and the Syndemic Coordination Program.

Project #1 Impact:

The impact of this project will help the Viral Hepatitis Program identify and monitor gaps in access to HCV treatment in Tennessee. The program can use this information to develop additional treatment capacity where gaps have been identified.

Additional Project #2 Title: Jail Roster Web Scraping & Determining HCV Positivity Rates

Project #2 Type: Surveillance Activity

Project #2 Description:

As described in the major project, one in three PLWHCV experience incarceration each year. Unlike state prison facilities, county jails may not have the resources to provide HCV testing to individuals being held. The goal of this project is to use R and/or Python to conduct web scraping of county jail rosters and match those line lists to the HCV NBS longitudinal registry.

Project #2 Objectives and Expected Deliverables:

- Develop code in R or Python to automate scraping of rosters for jails throughout the state
- Develop code in SAS to match rosters to HCV longitudinal registry in NBS
- Produce a percent positivity metric for PLWHCV experiencing incarceration in county jails
- Analyze and summarize data findings

Project #2 Impact:

The impact of this project will allow the Viral Hepatitis Program to produce positivity rates for county prisons throughout the state and understand the epidemiology of the subpopulation of PLWHCV who experience incarceration in a jail setting. Furthermore, results of the project findings could support the establishment of robust HCV testing and potentially treatment in county jails.

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

As part of the Viral Hepatitis team, the fellow will become familiar with the HIV/Viral Hepatitis Outbreak Response Plan, complete Incident Command System (ICS) training, and learn about the State Health Operations Center (SHOC). Familiarity with these plans and infrastructures will enable the fellow to participate any outbreak response efforts within the HIV/STI/Viral Hepatitis Section as well as serve in surge capacity in the event of an outbreak requiring CEDEP response.

High rates of hepatitis C virus (HCV) can be indicative of drug use transmission networks, and often precedes HIV and outbreaks. Regular HIV/STI/Viral Hepatitis Network meetings are hosted to view current trends and ensure rapid response to clusters/outbreaks. The fellow will be expected to actively participate in these meetings.

Anticipated Time Allocation: 5-15 hours per month

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

The fellow will participate in any cluster or outbreak investigations with the HIV/STI/Viral Hepatitis Section during their fellowship. In accordance with our HIV/Viral Hepatitis Outbreak Response plan the fellow will participate in regular calls, field work, and trainings overviewing HIV and viral hepatitis transmission, prevention, and rapid HIV and HCV testing. In the event of no HIV, STI, or viral hepatitis clusters/outbreaks during their tenure, the fellow will be asked to assist another CEDEP Program with their outbreak response efforts.

Anticipated Time Allocation: approximately 10-15 hours per week for 4-12 weeks HIV/STI/Viral Hepatitis outbreak; approximately 20 hours per week for 4 weeks assisting another CEDEP Program with acute outbreak response

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

From March 2020 through June 2023 as part of Surveillance for Emerging Threats to Mothers and Babies Network (SET-NET), routine surveillance was conducted on pregnant persons diagnosed with COVID-19 during pregnancy as well as infant and fetal outcomes. If of interest to the fellow and if time permits, then the fellow can assist with analyzing this data to assess adverse maternal and birth outcomes, vaccine uptake, and trends over-time. A specific team manages the majority of TDH's COVID-19 response activities; thus, the fellow is unlikely to be tasked with further COVID-19 response duties.

Anticipated Time Allocation: 5-15 hours per month.

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

The Cultural Awareness and Reducing Stigma (CAREs) Workgroup is housed within the HIV/STI/Viral Hepatitis Section. The purpose of this workgroup is to address public health impact of bias and discrimination on various populations, including people of color, LGBTQIA+, people of different ages, and people who use substances. All staff working within the section, including the fellow, are expected to participate regular section-wide CAREs activities aimed at addressing issues of cultural awareness, humility, microaggressions, implicit biases, and stigma. If interested, the fellow will also be given the opportunity to join the CAREs Workgroup and participate in one of four subcommittees.

Additionally, the fellow can work alongside field staff to serve for clients from diverse backgrounds and stages of life, including those experiencing unstable housing, limited financial resources, substance use, and/or recent release from incarceration. Collaborating with harm reduction experts in the field will provide the fellow with a unique opportunity to assist with in-person data collection and various prevention activities.