ID: 87808584
Infectious Diseases - Host Site Description
Arizona Department of Health Services

Assignment Location: Phoenix, US-AZ
Arizona Department of Health Services
Division of Preparedness / Bureau of Infectious Disease & Services

Primary Mentor: Joli Weiss, PhD, MS
Office Chief, Office of Infectious Disease Services
Arizona Department of Health Services

Secondary Mentor: Brenna Garrett, BS
Office Chief, Infectious Disease Surveillance Epidemiology
Arizona Department of Health Services

Work Environment
Hybrid

Assignment Description

The Applied Epidemiology Fellow will be located in the Division of Preparedness; Bureau of Infectious Disease Services (BIDS); Office of Infectious Disease Control (OIDC), under the Tuberculosis Program. This Program is responsible for the surveillance and control of tuberculosis, and provides epidemiological and technical assistance to county and tribal tuberculosis programs.

The fellow will primarily assist with the creation of tools for the cleaning and quality control of tuberculosis surveillance data, but the fellow's day-to-day activities will also include active participation as a team member within the Tuberculosis Program. The fellow will benefit from support from Office and Program mentors and staff, as well as staff from the Office of Infectious Disease Surveillance Epidemiology, with whom the Tuberculosis Program partners closely.

With the recent implementation of new databases and a new disease surveillance system throughout the Department, the Tuberculosis Program is taking this opportunity to improve workflows and develop tools and methods to make oversight, cleaning, and updating of tuberculosis data more efficient. Primary responsibilities of the fellow will depend on the tool and process improvements needed as these new systems are built, and on tuberculosis disease surveillance needs within the state. The fellow will participate in weekly team huddles, BIDS staff meetings, biweekly meetings with the state public health laboratory, monthly calls with local health departments, and periodic statewide tuberculosis partner meetings. The fellow will have an opportunity to help plan and participate in these statewide meetings which may include trainings and presentations.

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

ADHS has an IT department that would be available to assist the fellow with computer and database issues. In addition to MS Office and Google Suites, the fellow would have access to SAS and Snowflake for statistical analysis. Epidemiologists within the TB Program routinely use the statewide electronic disease surveillance system (MEDSIS) and the state public health laboratory's LIMS system. The fellow would also be given access to CDC systems such as the Tuberculosis Genotyping Information Management System, the National Tuberculosis Indicators Project, and Electronic Disease Notifications. In addition, the fellow can request access to several other databases such as vital records datasets. There are several epidemiologists in the Office who are proficient in statistical analyses using SAS. Informal SAS training is provided periodically to epidemiology staff in the Bureau. The agency also has a Bioinformatics Division that

provides training and resources on a variety of topics including surveillance systems, whole genome sequencing, data analysis, etc.

Projects

Surveillance Activity Title: TB Source Case Investigations

Surveillance Activity Description:
Particularly when a child under five years of age is diagnosed with TB disease or latent TB infection, it is necessary to conduct a source case investigation to identify the individual to whom the patient was exposed. The ADHS TB Program is frequently asked to provide guidance to local partners conducting such investigations, both to advise them on the process, and how to document the investigation and its outcomes in our surveillance system. The fellow will assist in advising local partners regarding source case investigations, and develop guidance materials to be shared with local partners that outline the process in Arizona and how to document the investigation within our surveillance system.

Surveillance Activity Objectives:
Improve the completeness and documentation of source case investigations in Arizona; Development of resources to be distributed to local partners to assist them in their investigations

Surveillance Activity Impact:
Reduce ongoing transmission of tuberculosis by improving the quality of source case investigations carried out by local partners, and increasing their speed and efficiency.

Surveillance System Evaluation Title: TB Pharmacy Reporting Evaluation

Surveillance System Evaluation Description:
Tuberculosis surveillance in Arizona includes a unique component: pharmacies are required to report filled anti-tuberculosis medication prescriptions. These reports are currently received through multiple routes and are either archived and manually entered into a tracking spreadsheet or entered directly into the TB surveillance system, resulting in variation in workflow, data completeness, and timeliness.

This project would involve a formal evaluation of the TB pharmacy reporting surveillance process using CDC surveillance system evaluation guidelines. The fellow would map the current reporting workflow, assess system attributes such as simplicity, timeliness, data quality, and acceptability, and evaluate how pharmacy reports contribute to case detection, treatment monitoring, and program decision-making. The project would identify gaps, redundancies, and opportunities for automation or system integration, and culminate in recommendations to improve the efficiency, completeness, and utility of pharmacy reporting within the TB surveillance system.

Surveillance System Objectives:
Workflow and process improvements; Determination of whether TB pharmacy reporting is worth the amount of effort despite process improvements

Surveillance System Impact:
If it is determined that pharmacy reporting does not add sufficient value to TB surveillance, ADHS can consider eliminating it which saves both reporters and ADHS time, allowing for more resources and attention to be allocated to other TB activities. If it is determined that pharmacy reporting is still a valuable tool, process improvements to increase efficiency will allow for timely case identification and allow for more resources and attention to be allocated elsewhere.

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Major Project Title: Internal TB Dashboard

Major Project Description:
One of the top priorities for the ADHS TB Program is ongoing data quality, given that TB cases can remain open for several months and up to two years. In fact, program evaluation related to data quality and completeness is an intrinsic requirement of the federal TB grant. With the recent implementation of a new surveillance system that came with a dynamically-updating SQL database, it is a major interest of the ADHS TB Program to develop an internal data dashboard. This will allow for continuous monitoring of TB data elements, both for internal purposes and to allow us to compare our data with CDC's dashboards which display the data ADHS has transmitted.

Major Project Objectives:
Develop an internal dashboard for TB surveillance data; facilitate trend analysis

Major Project Impact:
This project aims to enhance TB data quality and completeness. This positively impacts federal TB funding, thereby improving resources available to Arizona for TB surveillance and care. This will also allow the ADHS TB Program to have improved oversight of data being submitted by local partners, allowing for improved technical assistance provided to local partners.

Additional Project #1 Title: Class B Entry and Workflow Improvements
Project #1 Type: Surveillance Activity

Project #1 Description:
Newcomers to the United States are screened for tuberculosis prior to entry into the country. Those with positive tests are reported through a CDC system and need to be entered into our surveillance system and reported to the relevant local health department for follow-up. The fellow would oversee this process on an ongoing basis and make improvements to the workflow.

Project #1 Objectives and Expected Deliverables:
Ongoing oversight of TB Class B entries; Improvements and enhancements to the workflow

Project #1 Impact:
Timely entry of Class Bs ensures that local health departments have the information they need to provide services to newcomers to the United States quickly. As this population often moves relatively quickly within the United States, more oversight and efficiency means that more of these individuals can begin treatment, thereby reducing TB cases in Arizona and across the country.

Additional Project #2 Title: TB Webpage Updates
Project #2 Type: Other

Project #2 Description:
The web pages for the ADHS TB Program need to be regularly updated to provide current and accurate information and resources to the public and to local public health partners. With guidance from the ADHS TB team, the fellow will work with the web team to update and improve the TB web pages. This includes reference and resource materials as well as externally-facing TB surveillance data.

Project #2 Objectives and Expected Deliverables:
Modernize and improve the organization of information and resources on the ADHS TB Program's web pages

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Project #2 Impact:
While the ADHS TB Program regularly works directly with local public health departments, many providers within Arizona seek more general information and resources to better treat their patients. Improvements to the TB web pages will improve the access to resources and information by private providers throughout the state and will indirectly improve patient care.

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

The fellow will have opportunities to participate in preparedness activities. The fellow will be included in the state's incident command structure during public health emergencies, including widespread infectious disease outbreaks or during disaster drills such as the annual exercise in response to a release of radiation at the Palo Verde Nuclear Power Generating Station. During emergency responses, office staff are typically an integral part of the Operations Section. The fellow will have an opportunity to participate in emergency preparedness tabletop exercises and will also have the opportunity to conduct after hours drills with the local health departments that include a high impact infectious disease scenario.

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

Every case of tuberculosis is genotyped, and the fellow will assist in the collection of this data to monitor for TB clusters and outbreaks. Upon the detection of a cluster or outbreak, the fellow will compile the relevant data with the assistance of the ADHS TB Program for presentation to local health departments to assist in their contact investigation activities. Genotyping data is collected and entered on an ongoing basis. Additionally, the fellow will assist in the oversight of contact investigations carried out by local partners and ensuring accurate entry of the data into the surveillance system.

The fellow will likely spend about 20% of their time assisting with TB genotyping, cluster monitoring, and contact investigations and preparedness activities.