ID: 60373653
Wastewater Surveillance, Infectious Diseases - Host Site Description
New Hampshire Department of Health and Human Services

Assignment Location: Concord, US-NH
New Hampshire Department of Health and Human Services
Division of Public Health Services

Primary Mentor: Liam O'Rourke, MPH, REHS
Wastewater Surveillance and Waterborne Disease Epidemiologist
New Hampshire Department of Health and Human Services

Secondary Mentor: Katrina Hansen, MPH
Chief, Infectious Disease Surveillance Section
New Hampshire Department of Health and Human Services

Work Environment
Hybrid

Assignment Description

- Implements waterborne disease surveillance projects and detailed epidemiological studies for wastewater, legionellosis, and harmful algal bloom surveillance activities. Monitors communicable disease data systems to detect outbreaks and other significant public health events. Analyzes and interprets complex data sets and plans the implementation of specialized surveillance systems as needed. Analyzes and interprets policies and procedures to improve the state's epidemiologic capacity for waterborne disease and wastewater surveillance.
- Develops and revises methods and procedures related to the design and implementation of data systems necessary to provide and link data for statistical analysis relevant to wastewater surveillance, legionellosis, harmful algal blooms, and other communicable disease illnesses as appropriate.
- Conducts complex surveillance projects following independent judgment regarding the public health necessity for such information. Collects, analyzes, interprets and manages disease reports, data from wastewater surveillance partners, and other data on a daily basis. Uses data for planning activities.
- Reviews epidemiological research and analysis reports and summaries prepared by others in order to insure accurate and consistent statistical information is disseminated. Prepares and presents educational materials to the public, health providers, Department staff, and others as necessary or requested
- Analyzes existing disease surveillance policies, procedures or systems in order to recommend effective changes to enhance the capacity for investigation, control, and reporting of outbreaks, trends of pathogens in wastewater, and harmful algal bloom events. Develops and implements new policies and protocols to maintain effective response activities.
- Attends conferences, meetings and trainings as requested by the supervisor. May also attend on-site outbreak investigations as needed.
- Ensures availability to support the Department as needed in the event of a public health emergency.

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

- NHERDSS/NHEDSS: New Hampshires electronic disease surveillance system.
- Granite Trace: saleforce product for patient records and outbreak investigation outlines.
- LIMS
- R
- Excel

ID: 60373653
Wastewater Surveillance, Infectious Diseases - Host Site Description
New Hampshire Department of Health and Human Services

- GIS

<div align="center">

Projects

</div>

Surveillance Activity Title: Wastewater Surveillance Data Analytics Dashboard

Surveillance Activity Description:
The Infectious Disease Surveillance Section has been collecting data for Wastewater Surveillance since 2022. We would like the fellow to analyze the data from our wastewater treatment facilities and include PMMOV(pepper mild mottle virus) and Flow data to determine what elements could be included on our public facing dashboard. The internal dashboard could be used to share metadata with specific partners or serve as a foundation for internal data analytics of wastewater surveillance. We will teach and coach the fellow in-person and virtually.

Surveillance Activity Objectives:
Project objectives will include meeting with the wastewater surveillance and waterborne disease epidemiologist and our data analytics team to develop skills and understanding in data analytics and visualization as well as statistical analysis. Fellow will meet with our public health lab to better understand the lab process for wastewater surveillance to better understand how to present data visually. Project should include meta data and data export options and include several methods of data analytics.

Surveillance Activity Impact:
Better understand how to analyze and interpret wastewater data internally and create potential suggestions for the public facing dashboard, and set up for potential use by specific external partners.

Surveillance System Evaluation Title: Legionella QA Evaluation

Surveillance System Evaluation Description:
Legionella Surveillance is currently a weekly manual process that is undergoing growth and development. A QA project is being created within R and the fellow would be tasked with evaluating the process.

Surveillance System Objectives:
The Fellow would work with the wastewater and waterborne disease epidemiologist to review, evaluate, and improve, the current legionella QA process, policies, and procedures.

Surveillance System Impact:
Ensure all legionellosis confirmed cases are reviewed and scanned against years of data from several sources to better identify legionella outbreaks.

Major Project Title: Legionella Cluster Detection

Major Project Description:
Create an internal GIS or R map to identify clusters for Legionella.

Major Project Objectives:
Create internal use GIS or R map to identify clusters within the state. Include water tower mapping.

Major Project Impact:
Creating a method to detect legionella clusters within the state of New Hampshire.

ID: 60373653
Wastewater Surveillance, Infectious Diseases - Host Site Description
New Hampshire Department of Health and Human Services

Additional Project #1 Title: Wastewater Surveillance Sewer shed Mapping
Project #1 Type: Surveillance Activity

Project #1 Description:
The project will focus on mapping sewer shed boundaries of wastewater treatment facilities that are collaborating with the NH's DPHS for Wastewater Surveillance.

Project #1 Objectives and Expected Deliverables:
Create a map of sewer shed boundaries using shapefiles through R and GIS.

Project #1 Impact:
Public Health will have specific information on communities served through wastewater surveillance and can use this information to build education outreach and to understand how to best service those who are reached through wastewater surveillance.

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

The fellow would respond to Legionella outbreaks during active investigations if they occur. The fellow will read and understand the standard operating procedures, sampling procedures, and policies related to legionella outbreak response. Within Wastewater we currently analyze data for covid-19 and will soon be including flu and rsv. Response efforts to Covid-19 will be in relationship to wastewater surveillance.

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

The fellows role in cluster and outbreak investigations will be aligned with legionella surveillance. A cluster investigation will be determined through the fellows mapping project outlined within the application. Outbreak investigation efforts will be specific to legionella outbreaks if and when they occur during the fellowship.

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

The fellows role in the covid-19 response would be specific to their role in wastewater surveillance. It is the epidemiologists role to collect data from LIMS and then prepare for weekly dashboard updates, as well as curate an excel document that is sent to the CDC weekly to include metadata. The fellow will work with the wastewater and waterborne disease epidemiologist to compile, analyze, and submit data weekly.

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

Wastewater Surveillance and Legionella Outbreak Response both have elements that align with health equity considerations. Wastewater Surveillance does not require access to healthcare and instead provides information at a community level. Within Legionella Outbreak Response there have been outbreaks that have required health equity considerations and were responded to with these considerations in mind.