**ID: 60070025**
**Infectious Diseases - Host Site Description**
**New York City Department of Health and Mental Hygiene**

**Assignment Location**:   Long Island City, US-NY
New York City Department of Health and Mental Hygiene
Bureau of Tuberculosis Control / Division of Disease Control

**Primary Mentor:**   Lisa Trieu, MPH
Director, Surveillance and Epidemiology
NYC Department of Health and Mental Hygiene, Bureau of TB Control

**Secondary Mentor:**   Anthony Romano, MPH
Team Lead, Data and Informatics
NYC Department of Health and Mental Hygiene, Bureau of TB Control

**Work Environment**
Hybrid

**Assignment Description**

The fellow will be assigned to the Bureau of Tuberculosis Control (BTBC), which is housed within the Division of Disease Control of the NYC DOHMH. New York City has one of the highest rates of TB (6.1 per 100,000 in 2022) in the United States (US), and the BTBC is the largest TB control program in the US with approximately 150 staff. BTBC is composed of the following offices: Executive Office, Surveillance and Epidemiology, Disease Investigation and Case Management, Training and Outreach, Administration, Policy and Planning, and Medical Affairs.

The fellow will be assigned to the BTBC Surveillance and Epidemiology Office and will function as a full member of that group. Surveillance and Epidemiology staff perform a number of functions including review and processing of all reports received by DOHMH of suspected and confirmed TB disease, TB registry and case management system maintenance and support, TB contact investigations in congregate settings, TB outbreak and cluster investigations, laboratory coordination, data analysis, and research. The fellow will have the opportunity to work closely with each of the units and teams of the Office of Surveillance and Epidemiology. The BTBC is an interdisciplinary setting, and the fellow will also work in close collaboration with staff in other units, particularly the Field Services, Planning and Policy, Education and Training and Outreach, and Medical Affairs units. Working at BTBC will provide the fellow a unique opportunity to participate in many local public health agency functions in a diverse setting where there are high rates of infectious and chronic diseases.The fellow will participate in routine surveillance and epidemiology activities, including analysis of epidemiologic and surveillance data, participation in research from the protocol development stage through manuscript preparation, outbreak and cluster investigations (including interviewing patients), field-based contact investigation in congregate settings, management and analysis of laboratory data, and presentations at internal and external seminars. These activities will provide opportunities for the fellow to gain hands-on field epidemiology and project coordination experience (including creating and revising protocols), work with large datasets, and be involved in many aspects of the largest TB control program in the country.

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

The fellow will have access to the following software programs: Microsoft Office, SAS, R, Microsoft SQL Server, Tableau, SaTScan, geographic information software (ArcGIS), and Endnote. In addition, the fellow will have access to the NYC TB case management and surveillance system (Maven) and the Bureau of Public Health Clinics' Unified EMR. In addition, to support work that the fellow will be doing, they will also be granted access to external data systems such as Health Information Exchange data and the New York State lab reporting system (ECLRS).

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**Projects**

**Surveillance Activity Title: Evaluation of improved sexual orientation, gender identity, and ethnic group data**

*Surveillance Activity Description:*
During 2023, the Division of Disease Control at the NYC DOHMH developed new guidelines to improve and expand the collection of data pertaining to sexual orientation, gender identity, and race/ethnicity. As part of this initiative, the Bureau of TB Control has updated their surveillance system and data collection tools to adhere to these guidelines. As part of this project, the fellow would evaluate the completeness of data capture in these new fields and conduct analyses to identify TB among subpopulations that are newly being captured.

*Surveillance Activity Objectives:*
The objective of this activity is to ascertain the completeness of these new variables and conduct QA in order to enhance data quality and data capture. The fellow will quantify, in the form of a brief presentation, the level of completeness and accuracy of each of the variables. The fellow, with the help of their mentors, will also identify opportunities for improvement to be presented to bureau leadership.

*Surveillance Activity Impact:*
This activity will help us properly quantify TB disease rates and risk among previously uncategorized and vulnerable populations.

**Surveillance System Evaluation Title: Evaluation of impact of changes to TB pathology reporting**

*Surveillance System Evaluation Description:*
In New York City, reporting of pathology results are currently mandated by Health Code. However, given resource constraints, the effectiveness of this should be evaluated. The activity is thought to be a high-resource, low-yield one involving the receipt of a large volume of paper-based results that require manual data entry. These results then often result in staff follow up with an outcome of a potentially very small number TB cases that may not otherwise be caught through other reporting streams. This surveillance evaluation would assess the impact of changing the Health Code and removing this as a requirement. The fellow would utilize surveillance system data to quantify the number of cases that have been identified through pathology reporting only or which would have been delayed significantly if pathology reporting did not occur.

*Surveillance System Objectives:*
The objective of this project is to ensure that any programmatic changes regarding case management assignment of patients based on pathology reporting be data-driven and evidence-based. If the data supports the anecdotal evidence that pathology reporting is low-yield, a change to the NYC Health Code will be recommended. The findings of this analysis will be presented to the bureau's Assistant Commissioner and other members of bureau leadership. The findings, in the form of a presentation and written report, will be used to apply nuance to any updates to the Health Code.

*Surveillance System Impact:*
This evaluation will have direct impact on public health law in NYC. Depending on the findings of this project, we will either remove pathology reporting from the health code altogether or amend the law to reduce the required level of reporting. This will free up resources both within the DOHMH as well as for reporting facilities and providers.

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**Major Project Title: TB transmission dynamics during COVID-19 pandemic**

*Major Project Description:*
During the COVID-19 pandemic, New York City put in place several measures to curb disease transmission including mandatory masking in public places and stay-at-home orders. These measures, while aimed at the SARS-CoV-2 virus, may have had effects on TB transmission as well. We hypothesize a change in TB transmission dynamics during this period with potential increases in household transmission and declines in community-based transmission. However, given the long latency of TB, the evidence for this may only be recently available. We propose to evaluate contact investigation results and whole genome sequencing (WGS) results to detect changes in genotypic case clustering pre-pandemic and during the height of the pandemic.

*Major Project Objectives:*
The objective of this analysis to identify the impact of COVID-19 on TB transmission in NYC. While case rates declined during the pandemic period, it is hypothesized that this is due to underreporting, delays in care seeking, and less community-based transmission. However, we suspect that there may have been greater levels of transmission that may have been missed due to interruptions and declines in core TB activities such as household-based contact investigations caused by the pandemic. The findings of this analysis will be presented to the bureau as part of our Method's seminar and a manuscript will be expected to be drafted for publication.

*Major Project Impact:*
This study will allow us to understand how certain public health responses such as stay-at-home orders affect respiratory pathogens such as TB. It will also help us understand future patterns of TB disease development and patterns of clustering in the coming years. Should another situation like COVID-19 occur, the findings of this analysis may guide TB control practices in the future.

**Additional Project #1 Title:** Epidemiology of TB among recent migrants to the United States
**Project #1 Type: Major Project**

*Project #1 Description:*
NYC DOHMH has seen an increase in TB cases among patients who have recently entered the country, which parallels a general increase in new arrivals within the city. Rising migration to NYC can be attributed to recent instability in other parts of the world resulting in large numbers of people seeking asylum in the US. Additionally, there may be more individuals emigrating to the country post-pandemic. We propose to conduct an analysis looking at the epidemiology of TB among recent migrants to the US to characterize and better understand the demographic, clinical, and social risk factors that are associated with disease in this group.

*Project #1 Objectives and Expected Deliverables:*
This study seeks to evaluate the changing epidemiology of TB in NYC. Characterization of these new populations at high risk for TB will allow for better targeted outreach and more tailored approaches to TB prevention and response activities. The findings of this analysis will be presented to the bureau as part of our Method's seminar and a manuscript will be expected to be drafted for publication.

*Project #1 Impact:*
We propose to conduct an analysis looking at the epidemiology of TB among recent migrants to the US to characterize and better understand the demographic, clinical, and social risk factors that are associated with disease in this group.

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

The fellow will be part of NYC DOHMH's emergency response structure and be assigned to the Epidemiology/Surveillance sub-section of the NYC DOHMH Incident Command System. This section is responsible for 1) investigating the incident to characterize event by person, place, and time; 2) collecting data and developing databases; 3) implementing enhanced, active or passive syndromic surveillance to monitor impact and recommend preventive measures. The fellow will receive emergency response training and may have the opportunity to participate in emergency response exercises such as point of distribution (POD) exercises. In the past few years has been activated for a number of major city-wide emergencies including COVID-19, Hurricane Sandy, Ebola Virus Disease (EVD), Zika Virus, and measles. Time allocation will be dependent on the presence of a citywide emergency.

**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 and lead genotype cluster investigations. This involves collecting, reviewing and analyzing patient records, re-interviewing patients to identify sites of exposure and epidemiologic links between cases, compiling and presenting findings for internal and external audiences, and generating transmission assessments and related recommendations for public health intervention.

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

NYC DOHMH's Incident Command System is no longer activated for COVID-19 response. Therefore, there may not be many opportunities for the fellow to participate in emergency response surrounding this infectious agent. However, the fellow will, at minimum, participate in activities related to the recent asylum seeker response effort in NYC. Since Spring 2022, over 160,000 individuals have entered the US through the southern border and have entered NYC straining NYC's capacity to house and provide services for these migrants. Our TB program has been particularly impacted and large scale efforts to reduce the burden of infection and disease in this population has been occurring in emergency shelters across the city.

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

The NYC DOHMH brings extraordinary diversity to the work of public health. True to our value of equity as a foundational element of all of our work, and a critical foundation to achieving population health impact in NYC, the NYC DOHMH has been a leader in recognizing and dismantling racism's impacts on the health of its residents and beyond. In 2021, the NYC Board of Health declared racism as a public health crisis. The agency has a commitment to advance equitable public health practices and to ensure diversity, equity, and inclusion not only in the work we do but within the workplace as well. The fellow will have the opportunity to participate in the agency and bureau's Race to Justice program that is designed around these goals. The fellow will also be working on a surveillance project to improve our capture of sexual orientation, gender identity, and race/ethnicity questions so that we may look at our data with a health equity lens.