

**ID: 88166127**

## **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 Hepatitis, HIV, and STIs

**Primary Mentor:** Zoe Edelstein, PhD, MS  
Director, HIV Epidemiology Program  
New York City Department of Health and Mental Hygiene

**Secondary Mentor:** Qiang Xia, MD, MPH  
Director of HIV Core Surveillance Analysis and Reporting  
New York City Department of Health and Mental Hygiene

### **Work Environment**

Hybrid

### **Assignment Description**

The Fellow will be assigned to the HIV Epidemiology Program in BHHS, one of six Bureaus in the Division of Disease Control in the NYC Health Department. The HIV Epidemiology Program maintains the NYC HIV surveillance registry, which includes over 270,000 people ever reported with HIV in NYC, with over 16 million associated HIV-related laboratory reports. The goals of the HIV Epidemiology Program are to conduct HIV surveillance, perform partner notification and linkage to care services, and carry out epidemiologic research in order to describe and contribute to a more comprehensive understanding of the HIV epidemic in NYC. Additionally, our HIV surveillance reporting extends to infants perinatally exposed to HIV, investigating over 150 new perinatal exposures and completing follow-up for over 300 infants annually. Members of the HIV Epidemiology Program are also responsible for investigations of HIV molecular clusters, HIV time-space clusters, HIV cases of public health importance, and acute HIV infections, as well as monitoring antiretroviral resistance among people newly diagnosed with HIV.

The Fellow's main assignments will involve assisting in, developing, and taking the lead on data analyses of HIV surveillance data. BHHS administers over 150 million dollars of programmatic funding for HIV prevention, treatment, and other services for people with diagnosed HIV. The Fellow would join a committed group of public health professionals working to understand HIV at the population level in order to assist in the implementation of data-informed HIV prevention, testing, care, and treatment initiatives by the NYC Health Department and its partners. The Fellow would specifically concentrate on areas where epidemiologic analysis can impact the Bureau's understanding of the state of the HIV among subpopulations that are disproportionately affected by the epidemic.

The Fellow will fully participate in the day-to-day activities of surveillance analysis, which include data collection, cleaning, quality assurance, analysis, and dissemination. The Fellow will primarily conduct analyses of HIV surveillance data and work on data dissemination. Analyses will include descriptive analyses of outcomes by demographic and other relevant variables, comparisons of these outcomes across sample years, and inferential analyses of specific research questions. The inferential analyses will involve developing and testing explanatory models using multivariable statistical techniques. Analyses will primarily be conducted using SAS. In addition to assisting in ongoing analyses, the CSTE fellow will develop analysis concepts and take the lead in implementing analyses. Dissemination activities will include collaborating on external reports and publications, presenting standard surveillance data to external audiences, and responding to data requests from internal and external sources. In addition to working on journal-quality articles, the CSTE Fellow will develop and produce reports, and will participate in oral and poster presentations of data analyses.

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Other day-to-day activities would be tailored to the Fellow's interests and could include a variety of other work. The Fellow will also be included in all of the following meetings/educational opportunities:

- a. Attending monthly data analyst meetings;
- b. Attending meetings with other disease programs regarding ongoing programmatic collaborations;
- c. Participating in monthly surveillance conference calls with New York State regarding issues with surveillance data transfers, laboratory QA, and data flow;
- d. Attending Town Hall meetings for Program, Bureau, Division, Agency for updates on work carried out at different levels;
- e. Attending agency-wide Data Task Force meetings where a variety of topics are discussed;
- f. Attending the NYC Health Department's many formal educational opportunities including Epidemiology Grand Rounds, BHHS Brown Bags, Commissioner of Health Grand Rounds, research seminars, and trainings; and
- g. Participating in collaborations with HIV researchers outside the Bureau and outside of the NYC Health Department, including academic public health partners (e.g., Columbia University and Hunter College).

Furthermore, if the Fellow has a specific interest in an area of HIV, this could also be accommodated through connection to the HIV Prevention or Care and Treatment Programs.

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

The Fellow will have access to SAS, ArcGIS, R, eHARS, and other software and surveillance systems. The HIV Epidemiology Program has numerous research scientists as well as its own IT staff to assist the Fellow with statistical and data analysis, and IT support. The Bureau of Epidemiology Services within the Center for Population Health Data Science is another resource for advanced support. Additionally, the training and educational resources of the NYC Health Department would be available to the Fellow, which include monthly Epidemiology Grand Rounds; short-term courses on topics such as geographic information systems (GIS)-based analysis and advanced SAS topics.

**Projects**

**Surveillance Activity Title: Participation in HIV Surveillance Activities as Data Analyst**

*Surveillance Activity Description:*

The NYC Health Department HIV Epidemiology Program is authorized by the New York State Department of Health to conduct HIV surveillance in NYC. The Surveillance Unit is responsible for the investigation and reporting of HIV diagnoses as well as the investigation of any identified clusters of HIV infections or HIV cases of public health importance. As of the end of 2024, there were 136,864 people diagnosed with HIV, reported in NYC, and were presumed to be alive. In 2024, 1,791 people were newly diagnosed with HIV in NYC, an increase of 5.4% from 2023. The 2023 to 2024 increase in new HIV diagnoses follows a similar increase (6.9%) in new HIV diagnoses from 2022 to 2023. These recent trends contrast with the yearly declines in new diagnoses in NYC prior to 2020. NYC continues to have one of the largest HIV epidemics in the United States. The Fellow would be based within the HIV Epidemiology Program's Surveillance Unit, and therefore, their main assignments would involve assisting in, developing, and taking the lead on data analyses of HIV surveillance data. Specific surveillance activities could include the following: shadow Public Health Investigators during medical record abstraction for case investigation, participate in manual review of data matches with NYC HIV Surveillance data, complete data requests using SAS and other analytic software, participate in quality assurance checks for frozen analytic datasets, develop and produce slide presentations and reports, and participate in oral and poster presentations of data analyses.

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*Surveillance Activity Objectives:*

This project is intended to improve our understanding of the current dynamics of the HIV epidemic in NYC, as well as respond to the needs of internal and external partners for their data needs. Deliverables include routine surveillance products (annual and midyear reports, slide sets, one-page report, and statistics tables), journal articles, posters, and presentations.

*Surveillance Activity Impact:*

Improved understanding of the current dynamics of the HIV epidemic in NYC, and a resulting improvement in program planning and service delivery.

**Surveillance System Evaluation Title: Evaluation of Matching Algorithm**

*Surveillance System Evaluation Description:*

A primary function of the HIV Epidemiology Program's Surveillance Operations unit is to investigate and confirm newly diagnosed and reported cases of HIV and AIDS in NYC. This system includes receiving and processing laboratory reports from NYC medical providers, matching cases with the HIV surveillance registry, and assigning cases that do not match with an existing case for investigation. The Fellow would be included in a reexamination of procedures used to assign cases to Surveillance Operation investigation based on labs, and, with the help of current data analysts and operations staff, conduct an evaluation of the matching algorithm currently used to assign cases. HIV surveillance data are also matched to other datasets to enhance our understanding of the cases therein, conduct descriptive epidemiology to examine co-occurring morbidities, and for the purposes of outreach through data-to-care. The current matching algorithm is based on a deterministic approach and consists of 36 keys. Using manual review as the gold standard, the Fellow will evaluate this matching algorithm and identify the optimal number of keys to be included for various matching projects.

*Surveillance System Objectives:*

Improve the tools we use to conduct matches with the surveillance registry, both to determine new cases and to match with other disease registries. The expected deliverable is a report on the optimal keys to be used for various matching projects for the best, most efficient results.

*Surveillance System Impact:*

Improved matches will free up staff time to conduct more analyses, and will lead to more complete and correct data. Improvements in the matching algorithm will also inform improvements to the case investigation initiation protocol to refine procedures in an effort to investigate fewer non-cases.

**Major Project Title: Evaluation of Timeliness and Consistency of Perinatal HIV Exposure Surveillance Investigations**

*Major Project Description:*

Completing perinatal HIV exposure investigations of infants born in NYC is a key objective for the HIV Epidemiology Program's Pediatric/Perinatal HIV Surveillance team. Timely investigations are essential to ensure HIV-positive infants are identified and linked to immediate antiretroviral therapy (ART) and provide a definitive final status for HIV-negative infants and maintain accurate surveillance data to track perinatal transmission rates and the effectiveness of prevention strategies. The CSTE Fellow will evaluate the timeliness and consistency of these investigations, focusing on identifying bottlenecks in the investigative process, reasons for 'indeterminate' statuses beyond the 24-month follow-up period, and examine if specific conditions, facilities, or geographic areas experience longer delays in achieving a final case resolution.

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*Major Project Objectives:*

Findings will be used for on-going internal monitoring of investigative processes and inform the development of reports and/or dashboards aimed at improving complete diagnostic testing of infants perinatally exposed to HIV.

*Major Project Impact:*

Complete diagnostic testing of infants perinatally exposed to HIV will ensure that the Health Department has identified all cases of perinatally transmitted HIV, and that all such cases are linked to care and being treated.

**Additional Project #1 Title: Repeat Third Trimester HIV Screening Adherence in NYC**

**Project #1 Type: Major Project**

*Project #1 Description:*

Third-trimester screening is a critical component of the “Ending the HIV Epidemic” initiative, as it identifies acute infections acquired during pregnancy, which are associated with an increased risk of mother-to-child transmission due to the high maternal HIV viral load. The New York State testing recommendations were updated to clarify that repeat HIV testing during the third trimester (before 36 weeks of gestation) is recommended in all cases, even when there were negative HIV test results documented earlier in pregnancy. Although NYC has achieved notable success in reducing perinatal HIV transmission, recent transmissions in NYC suggest that there may be gaps in repeat third-trimester screening rates. This project aims to investigate which data sources can be used to examine adherence to and disparities in third trimester HIV screening among all pregnancies, and to propose how testing rates can be monitored and improved over time.

*Project #1 Objectives and Expected Deliverables:*

Our objective is to improve our knowledge of screening adherence, and our ability to collect data that will allow us to monitor this crucial activity. The expected deliverable is a process to monitor third trimester HIV screening adherence, as well as recommendations to improve that adherence.

*Project #1 Impact:*

Improved third trimester HIV screening will ensure that more cases of potential perinatal transmission are identified in a timely fashion, and that steps can be taken to prevent perinatal transmission.

**Additional Project #2 Title: Additional Fellow projects**

**Project #2 Type: Other**

*Project #2 Description:*

Additional Fellow projects could include:

1. Perform descriptive analyses on data among people with diagnosed HIV who have a transmission category of history of injection drug use: There have been significant improvements in HIV diagnoses among New Yorkers with a history of injection drug use (IDU). The Fellow could be involved in analysis of historical trends in diagnoses among IDU, trends in care engagement, describing changes that have occurred through the years and demographic shifts among IDU.
2. Support analyses co-infected individuals: The HIV surveillance registry data are routinely matched with the STI surveillance registry. In an effort to better understand syndemic dynamics in NYC, the Fellow will support analyses to describe characteristics and trends of co-infected individuals. These analyses could help inform public health action and programming by the NYC Health Department.
3. Other analyses as desired: The HIV epidemic in NYC is one of the largest in the country, and therefore the NYC HIV surveillance registry is one of the largest HIV cohorts in the country. The Fellow can work with mentors and co-workers in the HIV Epidemiology Program to develop their own analysis plans for areas that are of particular interest.

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*Project #2 Objectives and Expected Deliverables:*

These projects would have a variety of objectives and expected deliverables, developed in collaboration with the fellow and HIV Epidemiology Program employees.

*Project #2 Impact:*

The expected public health impact of these projects will be an improved understanding of the dynamics of the HIV epidemic in New York City, allowing for better program planning and service delivery.

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

The Fellow would be assigned a role within the NYC Health Department emergency response structure (the Incident Command System). Past Fellows have been activated to work on various public health emergency responses at the NYC Health Department, such as the Ebola response and outbreaks of Invasive Meningococcal Disease (IMD) and Legionellosis. The Fellow would also attend Point of Dispensing (POD) training, which is regularly offered to agency employees.

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

The Fellow would participate in HIV cluster detection and response leadership meetings, where cluster growth and characteristics are reviewed and discussed, along with cluster response activities, including individual outreach, cluster-level interventions, and structural interventions, as indicated by cluster characteristics and dynamics. The Fellow would also participate in the discussion of Time-Space cluster identification, analysis, and any potential outreach that could result.