Infectious Disease

New York City Department of Health and Mental Hygiene, Bureau of Tuberculosis Control
Long Island City, NY

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 (8.0 per 100,000 in 2013) in the US and the BTBC is the largest TB control program in the US with approximately 250 staff. BTBC is composed of the following offices: Bureau Director, Surveillance and Epidemiology, Clinic Operations, Field Operations, Education and Training, 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 office. The Office of Surveillance and Epidemiology is comprised of a surveillance team, data team, field epidemiology team, laboratory reporting team, and outbreak prevention and control team. Surveillance and Epidemiology Office staff perform a number of functions including TB registry maintenance, research, TB contact investigations at congregate settings, and TB outbreak and cluster investigations. 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 offices and units, particularly the Planning and Policy, Education and Training, 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 along with social disparities.

Day-to-Day Activities

The fellow will participate in routine surveillance and epidemiology activities such as analyzing epidemiologic and surveillance data, participating in research from the protocol development stage through manuscript preparation, conducting outbreak and cluster investigations, and presenting at internal and external seminars. These activities will provide opportunities for the fellow to gain hands-on program management 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.

The fellow will have the opportunity to attend a BTBC orientation, monthly TB-related journal club and methods seminars, the Columbia Mailman School of Public Health TB epidemiology course, epidemiology staff meetings, DOHMH epidemiology grand rounds, relevant team meetings, and Citywide TB rounds. SAS and other relevant computer software training will be available along with other trainings at the NYC DOHMH in many areas such as scientific writing, presentation skills, and epidemiology.
Potential Projects

Surveillance Evaluation
Evaluation of co-morbidities data in the NYC TB case management and surveillance registry

In 2010, the NYC BTBC implemented a new case management and surveillance registry system. This system includes detailed information on co-morbidities for confirmed and suspected cases of TB. A number of co-morbidities, including HIV infection, diabetes, and hepatitis, are known to impact TB treatment and outcomes; as such, complete and accurate data on these conditions are essential. This project would seek to evaluate the completeness and accuracy of co-morbidity data in the TB registry. Fellow activities would include data cleaning, descriptive analysis, and chart review using TB clinic data.

Surveillance Activity
Enhanced surveillance activities during outbreak investigations and citywide emergencies

During TB outbreak investigations, enhanced surveillance is routinely established to monitor incoming reports of TB cases suspected to share demographic, clinical, or genotypic characteristics with other outbreak cases. Similarly, during citywide emergencies, the NYC DOHMH is often called upon to design ad-hoc surveillance systems to assist with data management. The fellow would be involved in these activities as they arise. Fellow responsibilities might include survey and questionnaire design, database design, creating and running reports, and performing data analyses as needed.

Major Project
Prevalence of diabetes and treatment outcomes among persons with tuberculosis

Diabetes has increasingly been recognized as an important risk factor for tuberculosis, particularly as the national and global prevalence of diabetes grows. Recent evidence suggests that individuals with diabetes have three times the risk of active TB compared to individuals without diabetes and some studies suggest an increased risk of death among persons with TB and diabetes. The NYC BTBC began systematically collecting diabetes information beginning in September 2010. However, diabetes status is missing for many TB cases and the impact of diabetes on clinical characteristics and TB outcomes has not been explored. This project would involve matching TB registry data with the HbA1c registry maintained by the NYC DOHMH Primary Care Information Project (PCIP). The match will allow the fellow to validate the diabetes status of NYC TB cases. Using TB registry data, the fellow will then evaluate the impact of diabetes on TB treatment outcomes by conducting a case-control study comparing cases with and without diabetes.

Major Project
Understanding transmission dynamics between New York City, New Jersey, Connecticut, and surrounding New York counties

New York City has been using genotyping as part of routine TB control since 2001. In 2004, CDC started the National Genotyping Service, which offers TB control programs TB strain information that they can use to understand transmission dynamics. Many people live outside NYC, but work in NYC and vice versa. There have previously been genotype clusters of TB that have crossed jurisdictions; however, we have not systematically compared our data with that of neighboring jurisdictions to quantify the extent of this transmission. The fellow would collaborate with our TB control colleagues from Suffolk, Nassau, Rockland and Westchester counties in New York, New Jersey, and Connecticut to collect patient demographic and genotyping data to analyze any unidentified cross jurisdiction transmission that may be occurring to inform NYC transmission dynamics.
**Preparedness Role**

The fellow will be part of NYC DOHMH’s emergency response structure and be assigned to the Epidemiology/Surveillance sub-section. 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.

**Additional Activities**

**Outbreak/field investigations**

The fellow will serve as lead investigator for an expanded contact investigation (ECI) at a congregate setting (school, worksite, hospital, etc.) that has had a TB exposure. This typically involves working with the site to conduct an education session on TB and its transmission, arranging testing of persons exposed to TB, ensuring all that are exposed are evaluated, reviewing and analyzing the evaluation results to make a transmission assessment, and writing a report of the investigation.

**Genotype cluster investigations**

The fellow will also participate in and lead genotype cluster investigations. This involves reviewing patient records and re-interviewing patients to identify sites of exposure and epidemiologic links between patients.

**Mentors**

**Primary**

Shama Ahuja, PhD, MPH  
Director, Office of Surveillance and Epidemiology, Bureau of Tuberculosis Control

**Secondary**

Natalie Stennis, MPH  
City Research Scientist II