

Infectious Diseases

New York City Department of Health and Mental Hygiene, Bureau of Immunization, Division of Disease Control

Queens, New York

Assignment Description

The Fellow would be assigned to the Bureau of Immunization (BOI) within the NYC DOHMH. The Bureau is responsible for assuring that all New Yorkers are appropriately vaccinated across the entire lifespan. BOI is composed of programmatic units focused on: Surveillance, Perinatal Hepatitis B Prevention, Program Support (child care and school immunization compliance), Administration, Citywide Immunization Registry, Clinical Services, Provider Quality Assurance, Vaccine Management, and Adult Immunization. Upon arrival, the Fellow would meet with each of the Bureau's Unit Chiefs to learn about their work and explore possible projects and activities of interest.

The Fellow's primary assignment would be within the Surveillance Unit. The Surveillance Unit, working with other units of BOI, is responsible for the surveillance and control of vaccine-preventable diseases in NYC, and regularly responds to outbreaks of measles, mumps, pertussis, and varicella. In 2010, we experienced one of the largest outbreaks of mumps in the U.S. since 2006 and had additional outbreaks of mumps in 2014 and 2015. In 2013, we experienced what was at the time the largest outbreak of measles in the U.S. since 1996, and experienced another outbreak of measles in 2014. We also investigated large outbreaks of pertussis in 2011-2012 and 2014-2016 and an outbreak of varicella in 2016. Past CSTE Fellows have participated in these outbreak investigations, which consistently led to opportunities for additional studies, presentations, and publications for the Fellow.

Also housed within the Bureau is the Citywide Immunization Registry, a mature population based registry which maintains the immunization records of all New Yorkers under 19 years of age and consenting adults 19 years of age and older. The Citywide Immunization Registry is an important source of data about immunization status for children, and would be utilized by the CSTE Fellow throughout project analyses.

Day-to-Day Activities

The Fellow will spend the majority of their time working on agreed upon projects. The Fellow will be incorporated into outbreak response and control activities. In addition, the Fellow will participate in vaccine-preventable disease surveillance unit activities such as weekly case classification, unit meetings, intake and investigation of reportable disease cases and intermittent analyses of surveillance data. The Fellow will attend meetings within the Bureau (e.g. NYC Childhood and Adult Immunization Coalition meetings) and Agency (e.g. Epidemiology Grand Rounds) to gain exposure to all aspects of the Bureau's and Department's work.

Potential Projects

Surveillance Investigation of a vaccine-preventable disease outbreak Activity

The CSTE Fellow would be responsible for overseeing the investigation and epidemiologic analysis of a vaccine-preventable disease outbreak. CSTE Fellow responsibilities would include:

- Establishing data variables of interest to add to case investigation interview forms
- Conducting case interviews and medical record reviews
- Analyzing outbreak-related variables
- Developing line lists of outbreak cases under investigation
- Creating epidemiologic curves and other figures to graphically display outbreak-related data
- Determining factors associated with disease transmission
- Assisting with implementation of control measures, which may include drafting letters or health notices for the public via print or social media, meetings with providers, elected officials, or school leaders, and assisting with distribution of vaccine
- Drafting a report of the outbreak summarizing the findings
- Presenting the results of the outbreak in various potential forums, including internal meetings, local or national conferences, and or publications

Surveillance Evaluation of electronic laboratory reporting for varicella in NYC Evaluation

A potential project would include a surveillance system evaluation of the Bureau of Immunization's electronic laboratory reporting system for varicella. Such an evaluation is particularly important because laboratory reports are currently the only source of reports for varicella in NYC. This would be timely in anticipation of a potential Health Code change that will require provider reporting of varicella in NYC. CSTE Fellow responsibilities would include:

- Collecting and cleaning data from the NY Electronic Clinical Laboratory Reporting System, a large database containing all reports of positive varicella diagnostic tests submitted by laboratories electronically
- Analyzing types and frequencies of diagnostic tests for varicella that are reported (e.g. serology, polymerase chain reaction (PCR), culture, direct fluorescent antibody stain (DFA) in NYC
- Analyzing demographic variables to describe where testing of varicella is occurring and for which populations
- Estimating the potential burden of clinical varicella disease in NYC based on the volume of laboratory reports
- Drafting a report summarizing the findings
- Presenting the results of the analysis in various potential forums, including internal meetings, local or national conferences, and or publications
- Implementing case-based varicella surveillance if varicella becomes reportable by providers

Major Project Assessing trends in adult immunization coverage throughout NYC

A potential project would involve assessing adult immunization coverage in NYC. Approximately 42,000 adults in the United States die each year from vaccine-preventable diseases. Many barriers to adult immunization exist and national estimates of adult vaccination rates are below the Healthy People 2020 goals. In 2009, pharmacists in NYC became authorized to administer influenza and pneumococcal vaccines. Since then, the authority has been expanded to include the pertussis vaccine (Tdap), the zoster vaccine, and meningococcal vaccines. Pharmacists are now required to report adult immunizations administered to the NYC Citywide Immunization Registry (CIR) (with consent) which provides the opportunity to assess adult immunization coverage based on population-based registry data. CSTE Fellow responsibilities would include:

- Accessing and cleaning data from two large databases, the CIR and the Community Health Survey
- Analyzing trends in immunization coverage of adults in NYC
- Identifying geographic disparities in adult immunization coverage
- Estimating and comparing vaccination coverage from the CIR to that of the Community Health Survey
- Drafting a report summarizing the findings
- Presenting the results of the analysis in various potential forums, including internal meetings, local or national conferences, and or publications

Surveillance Additional analytic projects would be developed specific to outbreaks or emergent Activity issues that may arise during the fellowship.

Examples of recent projects conducted by CSTE Fellows include:

- Evaluation of rubella diagnostic testing and surveillance in NYC
- Evaluation of the use of social media during a mumps outbreak in 2015
- Evaluation of non-mumps parotitis during the 2014-2015 influenza season
- Mumps vaccine effectiveness and risk factors for disease in households during an outbreak in NYC
- Effectiveness of measles post-exposure prophylaxis during an outbreak in NYC
- Provider awareness and altered practices survey following a 2011-2012 pertussis outbreak in NYC

Preparedness Role

Bureau of Immunization staff have specific emergency preparedness roles and the CSTE Fellow would be able to participate in these activities. For example, the Bureau is part of the Countermeasure Branch which is responsible for pandemic influenza planning and mass prophylaxis plans. The CSTE Fellow would attend emergency preparedness meetings. They would be engaged in emergency response activities. For example, the most recent CSTE Fellows were responsible for the monitoring of travelers from ebola-affected countries who were traveling between U.S. jurisdictions. Other fellows have participated in mass vaccination clinics and overseeing data collection at the clinics.

Additional Activities

The CSTE Fellow would have the opportunity to give presentations at local and national conferences and to write manuscripts for potential publication. The Fellow would also be encouraged to participate in other disease outbreak investigations that come up in other parts of the agency.

Mentors

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| Primary | Jennifer Rosen MD Director of Epidemiology and Surveillance |
| Secondary | Jane Zucker MD, MSc Assistant Commissioner |