

Infectious Diseases, Infectious Diseases

New Jersey Department of Health, Communicable Disease Service

Trenton, New Jersey

Assignment Description

The fellow will report directly to the primary and secondary supervisors in the CDS (organizational chart attached). Division of Epidemiology, Environmental and Occupational Health resides in NJDOH's Public Health Services Branch which includes staff with epidemiologic and programmatic expertise in communicable disease; occupational health; consumer and environmental health; cancer epidemiology; and family health services. The Fellow would be able to collaborate with staff in these various areas, depending on the Fellow's interests and projects.

Day-to-Day Activities

The fellow would be an integral part of the CDS team. The fellow's anticipated day-to-day activities would include work on long-term analytic projects and acute outbreak investigations. Other routine activities would include:

- Long-term analytic projects, which would involve collecting and analyzing epidemiological data and reporting findings.
- Acute outbreak investigations, which would potentially involve field investigations, developing and/or administering questionnaires, developing database/linelist, analyzing data, participating in conference calls with local, federal, and other state public health agencies. The CDS receives more than 300 reports of communicable disease outbreaks of various etiologies involving a wide range of settings each year.
- Oral and poster presentations to the public and health professionals.
- Access to statewide in-person and online public health trainings, e.g., SAS refresher course, Public Health Media Training, Communicable Disease Investigator Training, Introduction to Logic Models.
- Participation in CDS off-hours "on call" approximately twice a year.
- Participation in weekly meetings with CDS epidemiologists regarding current investigations/outbreaks and topical infectious disease discussions; and
- Participation in quarterly meetings with regional (i.e., based at local health departments) public health partners regarding current investigations/outbreaks and lectures on topic in public health.

Potential Projects

Surveillance Activity Evaluation of non-culture based methods -Shigella Surveillance

The addition of non-culture based methods into Shigella surveillance data has been problematic. As laboratories implement these methods and Shigella case definitions change to include these methodologies, Shigella case counts fluctuate making it difficult to track disease trends over time. Shigella surveillance is particularly critical in New Jersey where there have been large outbreaks of Shigella in the past associated with Hassidic and Orthodox Jewish communities. The proposed project would involve evaluating current Shigella surveillance system with an emphasis on the impact of non-culture based methods as it relates to overall case counts and application of revised case definitions.

Surveillance Evaluation Evaluation of Hepatitis A Surveillance

In 2009, Hepatitis A was made an immediately reportable condition in New Jersey. Each year around 300 cases of Hepatitis A are reported to NJDOH. Of these, less than 100 cases meet the confirmed case definition. Many of these non-cases are associated with false positive IgM results or total antibody results which are received. Both of these categories result in resources being utilized as Hepatitis A investigations often involve significant follow up to determine close contacts and ensure that post exposure prophylaxis is administered. The proposed project would involve evaluating the current reporting and investigation process of Hepatitis A as well as an analysis of Hepatitis A post-exposure prophylaxis efforts (compare timeliness and other attributes before and after Hepatitis A became immediately reportable condition).

Major Project Validation of NHSN influenza vaccination data

Annual influenza vaccination is recommended for all health care personnel (HCP). In August 2011, the Centers for Medicare and Medicaid Services (CMS) published a final rule requiring acute care hospitals to report HCP influenza vaccination data through the National Healthcare Safety Network (NHSN) beginning in January 1, 2013. These data are annually analyzed and published. NHSN is a secure web-based surveillance system managed by the CDC which allows NHSN participants to track and analyze data on healthcare-associated infections and other quality measures such as HCP influenza vaccination rates. For the 2016 - 2017 influenza season, 83.5 percent of HCP in New Jersey were reported to have received the influenza vaccine, compared to the national average of 87.6 percent and the Healthy People 2020 goal of 90 percent. The rates are self-reported to NHSN by the healthcare facility. Determining influenza vaccination rates can be challenging since the facility must include information for several groups including employees, licensed independent practitioners, and adult students/trainees and volunteers. The purpose of this project would be to validate the data submitted to NHSN by the healthcare facilities.

Additional RSV Surveillance Project

Respiratory syncytial virus (RSV) has long been known to cause significant morbidity among pediatric populations. Several vaccine manufactures are in late-stage clinical trials with vaccines designed to help prevent RSV disease. NJDOH been collecting laboratory information on RSV for a number of years but has not done case-level surveillance. The proposed project would develop a system to retrospectively identify RSV-associated deaths in NJ and develop a system to monitor deaths associated with RSV prospectively. The project would also involve conducting an evaluation to determine if other current surveillance systems (e.g., syndromic surveillance) might be used to supplement existing RSV surveillance.

Additional Evaluation of Rubella Surveillance Project

Rubella is a reportable disease in New Jersey. Rubella is a mild disease for most children and adults but is associated with severe congenital anomalies. While no longer common in the United States due to robust immunization programs, the disease is still endemic in many parts of the world and can be imported through international travel. It is recommended that all pregnant women be screened for rubella immunity. It is also common for certain groups such as students and healthcare workers to be screened for rubella immunity. When screening for immunity, IgM antibody will erroneously be performed and frequently are associated with false positive results. These false positives can result in additional referrals and testing primarily in pregnant women. The proposed project would entail an evaluation of the IgM positive results, the positive predictive value of a positive IgM, the factors associated with the ordering or IgM antibody for immunity screening, and the costs associated with false positive IgMs. Additionally, the project would involve developing a system for working with providers to further evaluate positive IgMs in pregnant women to limit morbidity associated with false positives.

Preparedness Role

The CDS has a close relationship with the Division of Public Health Infrastructure, Laboratories and Emergency Preparedness (PHILEP). CDS participates in activities and meetings with PHILEP and is involved planning for such events as pandemic influenza. In addition, CDS has a close working relationship with staff stationed at Newark International Airport located from the CDC's Division of Global Migration and Quarantine (DGMQ). CDS and DGMQ interact frequently to prevent the introduction of emerging pathogens into New Jersey through international travel. The fellow is welcome to participate in these meetings and activities. In the event of a public health emergency, the fellow would be part of the CDS response team (which includes sub-teams in the areas of business continuity, Emergency Call Center, communications, epidemiology/surveillance, and data management). The fellow would serve in either the epidemiologic/surveillance or data management sub-teams.

Additional Activities

Conduct an evaluation of non-influenza surveillance data currently collected by NJDOH and provide insight into how this data can be incorporated into respiratory reports for use by health care providers.

Mentors

Primary	Barbara Montana MD, MPH Medical Director, Communicable Disease Service
Secondary	Lisa McHugh MPH Research Scientist 1, Communicable Disease Service