ID: 86481284
Injury - Host Site Description
New York City Department of Health and Mental Hygiene

Assignment Location: New York, US-NY
New York City Department of Health and Mental Hygiene
Environmental Health

Primary Mentor: Ariel Spira-Cohen, PhD
Senior Environmental Epidemiologist
New York City Department of Health and Mental Hygiene

Secondary Mentor: Lawrence Fung, MPH
Senior Traffic Safety Specialist
New York City Department of Health and Mental Hygiene

Work Environment
Hybrid

Assignment Description

The Fellow will be assigned to the Injury and Violence Prevention Program (IVPP) housed within the Bureau of Environmental Surveillance and Policy. IVPP is currently staffed with seven full-time staff—five of whom are epidemiologists and data analysts -- and one student intern. IVPP staff conduct surveillance and epidemiologic research on both intentional (e.g., homicide, suicide) and unintentional (e.g., transportation crashes, falls) injuries in NYC to support injury prevention programs and related policies. The Fellow will work closely with their mentors, including the IVPP Executive Director, and IVPP staff to ensure injury analyses are salient to current program and policy needs.

Injuries are a leading cause of morbidity and mortality for New Yorkers. Leading causes of death and hospitalization rankings reveal that New Yorkers of all ages are affected by injuries. Traffic crashes, violence, and falls are among the leading causes of injury death and hospitalization in New York.

IVPP utilizes multiple surveillance systems to monitor and describe the burden and patterns of injury in NYC, including mortality data, hospitalization and emergency department data, syndromic surveillance data, poison control center data, local and national population-based health surveys, and review of medical examiner records for specialized surveillance projects.

The Fellow's work with IVPP will cover three main project areas: (1) Creating effective data visualizations for violence-related surveillance data in the form of an automated report or dashboard to directly inform prevention efforts; (2) Abstracting traffic mortality data and working on emerging injury surveillance challenges in categorizing and quantifying traffic injuries from newer micromobility devices; and (3) Conducting exploratory research into older adult falls patterns in NYC with a special emphasis on demographic patterns, co-occurring risk factors, and how patterns may have shifted in recent years. These projects reflect IVPP's three priority workstreams.

IVPP disseminates data findings through NYC Health publications and web-based data portals. Recent publications include updates on the Environment and Health Data Portal to data indicators on hospital and emergency department visits for falls and transportation-related injuries, and a Data Story on homicide and suicide among younger New Yorkers.

IVPP's data systems will provide the Fellow with an excellent opportunity to apply and advance his/her epidemiological skills. As experienced by our past Fellows, the Fellow will be a fully integrated member of IVPP. The Fellow will attend

monthly IVPP staff meetings; bi-weekly IVPP data meetings; and monthly bureau-wide staff meetings. In addition, the Fellow will be encouraged to attend and participate in the agency's monthly Epidemiology Grand Rounds to better understand the surveillance and analysis activities of a large health department, as well as specialized intra-agency data groups including a Data Forum and TalkR sessions.

The Fellow will have his/her own analytic projects to work on daily (described in next section). At the same time, the Fellow will be an essential member of our analytical team, gaining experience in medical examiner chart abstraction, population-based survey design and analysis, and in-house data quality control and analysis procedures for working with administrative data including mortality and hospitalization datasets. The Fellow will become a skilled analyst who helps fulfill injury-related data requests for both internal and external partners, allowing the Fellow to learn ICD-10/ICD-10-CM classification systems, including CDC injury classification matrix framework, and build statistical analysis skills by conducting analyses using programming languages such as SAS and R, and software such as Tableau and ArcGIS Pro.

The Fellow will also gain experience in public health communications, as IVPP staff are regularly involved in the construction of press releases, presentations for lay and technical audiences, and data accessible through the Health Department's interactive data portals. We will also encourage the Fellow to interact with other public health professionals working in injury surveillance and prevention. These activities will include attending symposia and meetings organized by BESP, other City agencies, such as the Department of Transportation and Department for the Aging, and/or community-based organizations that are developing prevention programs based on our epidemiologic findings. In the past, we funded travel for a CSTE Fellow to attend symposia at the NY State Department of Health's Injury Prevention Program, recognizing that exposure to state-level agency work provides another useful perspective.

A range of additional epidemiologic and training opportunities exist at NYC Health. The Fellow will be welcome to enroll in a scientific writing course and other staff development workshops.

NYC Health staff are expected to help with emergency response activities, and if major communicable disease outbreaks occur and require a large NYC Health response, the Fellow will also have the opportunity to take part in infectious disease epidemiology fieldwork and analysis. Former Fellows have been involved in heat-related illness investigations, and agency responses to COVID-19, Hurricane Sandy, Ebola, and Legionnaire's outbreaks.

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

The Fellow will have access to statistical software such as SAS EG, Microsoft SQL Server, Tableau, JupyterHub for Python, R, PowerBI and ArcGIS Pro. The Fellow will have the opportunity to describe the epidemiology of injuries in NYC from the wide-ranging data sources available, including: Vital Statistics mortality data; Office of the Medical Examiner records; administrative emergency department and hospitalization discharge data; syndromic surveillance data; poison control center data; population-based health surveys (NYC Community Health Survey, NYC Youth Risk Behavior Survey, NYC Health and Nutritional Examination Survey); and specialized surveillance systems such as traffic fatality surveillance data. The Fellow will receive analytic support by IVPP, other BESP staff, and agency-wide data work groups.

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Projects

Surveillance Activity Title: Syndromic Surveillance Gunshot Wound Report

Surveillance Activity Description:
The utility of near real-time ED Syndromic Surveillance data to monitor injuries in NYC was previously demonstrated through the work of a former CSTE fellow (Seil et al., 2015). DOHMH routinely uses ED Syndromic Surveillance to provide situational awareness and inform prevention messaging across the agency.

Currently the Injury and Violence Prevention Program and the Center for Health Equity and Community Wellness receive a daily line list of gunshot wound emergency department visits from the syndromic surveillance system which was developed using a combination of chief complaint and disease classification coding. This daily line list gives the programs a raw snapshot of these data but does not easily facilitate the identification of patterns. This project would involve designing an automated report or dashboard to summarize and contextualize the daily syndromic surveillance gunshot wound visits.

Surveillance Activity Objectives:
The Fellow would be responsible for designing an automated report or dashboard that summarizes these visits, including a time-series graph to determine days when there are peaks in the syndrome. Other descriptors available in the data that may be included in the report are geography, sex, age, time of visit, and discharge status. The Fellow is expected to work closely with current staff on a design that will most effectively visualize the data in a clear, interpretable way. When completed, the automated report or dashboard will be delivered via email to NYC Health program staff who work on violence prevention. The Fellow will also have the opportunity to submit this work for external presentation to a local epidemiology conference (the NYC Epidemiology Forum).

Surveillance Activity Impact:
The report will inform collaborative work on violence prevention with NYC Health's Center for Health Equity and Community Wellness. Being able to track near real-time patterns in gunshot injuries can help identify new opportunities for our partners working on NYC Health's Violence Prevention Initiative. Hospital-based Violence Intervention Programs (HVIP) aim to reduce the risk of readmissions or re-injury among violently injured patients. These programs work to mediate conflict, establish relationships with survivors, and link them to culturally affirming resources and services.

Surveillance System Evaluation Title: Effects of new micromobility codes in ICD-10-CM

Surveillance System Evaluation Description:
The Fellow will review traffic safety ICD-10-CM coding, focusing on new micromobility codes introduced in 2021. The Fellow will examine these patterns by borough, sex, age, and other related descriptors. The Fellow will be expected to describe and summarize traffic-related injuries before and after the introduction of these new micromobility codes and determine the patterns of how these new codes are being used compared with older, nonspecific codes.

Surveillance System Objectives:
The Fellow's objective will be to track how hospital coders shifted their coding over time with the introduction of new ICD-10-CM codes for injuries sustained by people using particular micromobility device types. The Fellow is expected to provide a visual summary of the data reflecting recent patterns of the new codes. The Fellow should also be able to identify and to describe any potential coding gaps that may exist, even with newer codes. The Fellow will be expected to present and communicate these findings to Vision Zero partners, internal NYC Health colleagues, and others, with the potential to disseminate these findings in data briefs, oral or poster presentations and related professional conferences.

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Surveillance System Impact:
Micromobility is becoming a more popular mode of transit in NYC, and the Fellow's analysis will help better understand the population impact of traffic injuries due to emerging micromobility devices. Findings from this project will be used to help assess the burden of micromobility injuries in recent years to identify vulnerable populations. Findings will also be disseminated with the NYC Vision Task Force to inform traffic safety initiatives.

Major Project Title: Quality of external cause coding of micromobility fatalities

Major Project Description:
Recent data from crash reports at the NYC Department of Transportation indicate an increase of micromobility deaths in the last five years. However, the quality of public health-sourced micromobility fatalities, specifically from death certificates, is currently unknown. ICD-10 codes to classify micromobility deaths do not exist, unlike ICD-10-CM codes used in healthcare data. These traffic deaths may have a general, non-specified ICD-10 code assigned. The Fellow will be responsible for analyzing data collected through a review of medical examiner records in the last three years of available data to identify potential death coding improvements and describe micromobility deaths.

Major Project Objectives:
The Fellow's main objective will be to evaluate the data quality of micromobility fatalities by reviewing death certificates and reviewing medical examiner files. The Fellow is expected to quantify the total number of micromobility fatalities and describe how the coding could be improved based on factors such as frequency of unspecified codes used for these types of fatalities. The Fellow will provide a visual summary of the data to describe recent patterns and trends related to socio-demographic and related risk factors and offer recommendations to improve quality. The Fellow will be expected to present their findings to Vision Zero partners, internal NYC Health colleagues, and others, with the potential to disseminate these findings in data briefs, oral or poster presentations, and discussions at related professional conferences.

In addition to working with IVPP staff, the Fellow will work with staff from NYC Health's Bureau of Vital Statistics and Office of Chief Medical Examiner. The Fellow will be encouraged to attend Vision Zero work group meetings, as appropriate, to share relevant findings from this analysis. The Fellow will also be encouraged to participate in CSTE's Injury Workgroup.

Major Project Impact:
The findings will contribute to the larger understanding of micromobility fatalities and its epidemiology to identify vulnerable populations. The Fellow may identify coding gaps that can lead to improved fatality coding for micromobility injuries. Findings will also be disseminated with the NYC Vision Task Force to inform traffic safety initiatives specifically around these devices. Lastly, this project and these findings can also lay the groundwork for a future data integration project with other data sources, such as police crash reports and hospitalization records.

Additional Project #1 Title: Streamlining Injury Surveillance Workflows
Project #1 Type: Surveillance Activity

Project #1 Description:
The Injury and Violence Prevention Program distills available data into meaningful injury indicators to share publicly on the Environmental Health and Data Portal. Each indicator requires regular updating. The program has identified a need to streamline workflows for optimized data analysis with the growing number of injury indicators. This project would require an inventory and review of current indicators, creation of a centralized repository of analytic code sets, and work with analytic staff to take stock of current workflows for data updates, as well as researching possible technological tools to aid efficiency.

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Project #1 Objectives and Expected Deliverables:
The objective of this project is to improve efficiency in updating surveillance data released publicly. In collaboration with IVPP's analytic staff, the Fellow is expected to review current practices, explore options for improvement, and develop a workplan to facilitate a more efficient workflow to process these recurring updates to injury surveillance indicators, which are created from standard hospitalization and mortality datasets. The Fellow will be expected to work with staff to implement the new workflows.

Project #1 Impact:
This is an opportunity to support the provision of publicly available data displayed on the Environment and Health Data Portal. The Environment and Health Data Portal is one of NYC Health's marquee data communications websites. With a strategy of making data easier to access, understand, and use, the Portal turns public health's most valuable asset, data, into a tool that more people can use to improve health.

Additional Project #2 Title: Patterns of Older Adult Fall Injuries
Project #2 Type: Surveillance Activity

Project #2 Description:
This project will describe demographic patterns of non-fatal falls among older adults in NYC. The project may include analysis of Community Health Survey data and/or hospitalization data from NY's Statewide Planning and Research Cooperative System data, which includes all hospital claims for visits to a hospital in NYC. These data systems will be used to study patterns of non-fatal falls in NYC. Previous work has found higher fall-related hospitalization rates among older-aged older adults, White non-Latino older adults, and older adults living in Staten Island. The project would seek to understand what factors may be driving these differences, such as differences in chronic disease prevalence or comorbidities like hearing or vision loss, as well as socio-behavioral and environmental factors like household composition, physical activity, or emotional distress.

Project #2 Objectives and Expected Deliverables:
The objective of this project is to analyze factors that may explain previous findings of higher rates of older adult fall-related hospitalizations among specific demographic groups in NYC using available data sources. The expected deliverable is a research report including detailed tables and figures, and the Fellow will be expected to present to a wide variety of audiences working on falls prevention. Data products may include an agency publication such as an Epi Data Brief or a peer-reviewed publication.

Project #2 Impact:
Findings will be communicated to internal and external colleagues such as NYC Health's Healthy Aging unit, NYC Aging's Wellness unit, and injury prevention coordinators at NYC trauma centers, all of whom are participants in the NYC Falls Prevention Coalition. The findings could also be communicated at scientific conferences, such as APHA, SAVIR, or NYC Epidemiology Forum. The findings would help existing falls prevention programs, including outreach and education efforts, to better prioritize identification of older adults who are at risk of falls, better focus messaging, and inform medical practice or policy for older adults.

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

NYC Health has responded to many citywide and national emergencies over the last few years, including but not limited to Legionella outbreaks in 2015 and 2025, COVID-19 in 2020, Ebola in 2014, Hurricane Sandy in 2012, the H1N1 epidemic in 2009, and the response to the terrorist attacks and anthrax investigation in 2001.

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We fully anticipate that the Fellow will be an active member of NYC Health's Incident Command System—particularly its Environmental Assessment and Analysis Resource Group (EAARG)—and we are committed to having the Fellow obtain both field and analytical experience during activation. We expect this activation would last one to two weeks full-time or longer depending on the emergency.

We anticipate the Fellow's role in preparedness and response efforts will be similar to experiences of past Fellows. For example, prior CDC/CSTE Fellows were involved in the Agency's response to the Legionella outbreak, assisting with an audit of documentation submitted by buildings to assess compliance with a new policy that cooling towers be disinfected and undergo regular maintenance. A Fellow also served as an Ebola Out of Jurisdiction Coordinator responsible for notifying and collaborating with other jurisdictions to monitor individuals who had returned from travel from Liberia, Guinea, and Sierra Leone. Our former CDC/CSTE Fellows were involved in disaster response by tracking injuries during Hurricane Sandy using syndromic surveillance data and investigating heat-related illness deaths using medical examiner data.

Should a major emergency not emerge, the Fellow will participate in emergency preparedness planning activities coordinated in Environmental Health by the Department's Environmental Assessment and Analysis Resource Group. The Fellow will also serve as an on-call heat illness analyst to monitor and assist in any heat event during summer months.

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 at least one cluster or outbreak investigation, such as a Legionella outbreak, foodborne illness investigation or other environmental investigation. There could be the possibility of working with colleagues elsewhere in the Department on measles or other communicable disease outbreaks. The Fellow's role would be similar to that described in Emergency Preparedness and Response. We expect this work would last one to two weeks full-time or longer depending on the investigation.