

Injury

Assignment Description

The New York City Department of Health and Mental Hygiene (NYC DOHMH) is a large and well-staffed City agency with expertise in descriptive and analytic epidemiology, policy and program administration, public health prevention programs, and emergency management. We are the primary public health agency for over 8 million ethnically and socio-economically diverse people living in the highest population density area in the United States.

DOHMH's Injury Surveillance and Prevention (ISP) Program conducts surveillance on both intentional (e.g., homicide, suicide) and unintentional (e.g., transportation accidents, falls, burns, etc.) injuries in NYC, identifies populations at risk, evaluates prevention programs, and collaborates with multiple City agencies to develop and support injury prevention programs and related policies. Under the direction of a seasoned injury epidemiologist and program evaluator, ISP is staffed with five full-time and one part-time (consultant) epidemiologists and data analysts as well as five injury prevention program specialists (e.g., project coordinators, health educators, and fieldworkers). Situated in the Bureau of Environmental Disease Prevention (EDP), ISP works closely with EDP's Director of Policy and Planning.

Injuries are a leading cause of morbidity and mortality for New Yorkers, accounting for approximately 2,600 deaths, 137,000 live hospitalizations, and 601,000 live emergency department visits each year. Leading causes of death and hospitalization rankings reveal that New Yorkers of all ages are affected by injuries (<http://home.nyc.gov/html/doh/html/data/ip-index.shtml>).

Among the youngest New Yorkers, suffocation, fires, and falls are among the leading causes of injury death and hospitalization. Recent analyses show that injuries are the top three causes of death among 15 to 24 year-olds. Homicide is the leading cause of death for this age group, with approximately 170 homicides per year. Unintentional injuries and suicide rank second and third respectively. Assaults also feature prominently as a cause of non-fatal injuries among 15 to 24 year olds, with 2,000 assault-related hospitalizations and 17,000 assault-related emergency department (ED) visits occurring each year. Injuries exact a heavy toll on older New Yorkers. Nearly 300 older adults die from falls annually. Approximately 28,000 older adults are treated and released from the ED, and more than 17,000 are admitted to the hospital each year because of falls.

ISP manages a wide variety of surveillance sources to guide the program's priority areas for prevention and policy work. Our main passive surveillance sources of injury data include Vital Statistics, emergency department (ED) and inpatient hospital discharge data from the NY State Planning and Research Cooperative System (SPARCS, NYS DOH), motor vehicle crash data, and syndromic surveillance data. Specialized active surveillance projects in collaboration with the Office of the Chief Medical Examiner have generated several datasets that capture incident and decedent characteristics; datasets available for ongoing analyses include surveillance of homicide, suicide-related falls among the elderly, traffic-related fatalities, heat-related deaths, and Hurricane Sandy-related deaths. These data sources are supplemented by additional information gathered through representative health surveys (e.g., NYC

Community Health Survey, US Census Bureau's Housing and Vacancy Survey, NYC Housing Authority's Senior Survey).

Findings from ISP's surveillance activities are posted on DOHMH's website and disseminated to internal and external partners. For example, our data are the primary focus of the annual City-mandated NYC Child Fatality Review Advisory Team report. We have also created guidelines for providers on falls prevention for older adults and intimate partner violence screening (<http://www.nyc.gov/html/doh/downloads/pdf/chi/chi29-4.pdf>; <http://www.nyc.gov/html/doh/downloads/pdf/chi/chi27-suppl2.pdf>). Program staff routinely write formal data products (e.g., Epi Data Brief, Vital Signs); recent areas of focus in our publications have included the health of older adults (i.e., falls prevention), traffic safety, suicide, noise exposure and hearing loss, and firearm-related injuries. With this large body of data resources and prepared materials, ISP serves as the City's primary epidemiological resource to organizations in need of guidance for needs assessments, grant applications, trainings, and publications.

Day-to-Day Activities

The Fellow's anticipated day-to-day activities would include work on long-term analytic projects and acute outbreak investigations (suggested projects below). Other routine activities would include:

ISP'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 ISP. The Fellow will attend regular Program and Bureau meetings and will be encouraged to attend and participate in the agency's monthly Epidemiology Grand Rounds in order to better understand the surveillance and analysis activities of a large health department.

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 fieldwork and analytical teams, gaining experience in medical examiner chart abstraction and in-house data quality control and analysis procedures. 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-9 and ICD-10 classification systems and build statistical analysis skills in SAS, SUDAAN, ARC GIS, and SQL. The Fellow will also gain experience in public health communications, as ISP staff are regularly involved in the construction of press releases, presentations for lay and technical audiences, production of material for our website, and data accessible through the Health Department's queryable databases.

We will also encourage the Fellow to interact with other public health professionals working in injury prevention and control. These activities will include attending symposia and meetings organized by ISP, 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 have funded travel for a CDC/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 perspective to a career in government. In the past two years, New York City was fortunate enough to become home to two CDC-funded Injury Control Research Centers – one at

Columbia University, the other at Mt Sinai School of Medicine. Each Center has distinct foci, and ISP is building relationships with both of them (with ISP's Director serving on the Columbia Center's external advisory group).

Since 2010, DOHMH's ISP has taken on a new role as the implementing agency for Cure Violence program replication in New York City. Cure Violence is a promising program that employs a public health approach to violence prevention. The program uses violence interrupters and outreach workers from the community who have experienced violence and also have strong relationships with young adults, community leaders, and service providers. Violence interrupters stop conflicts before they happen, and outreach workers redirect the highest-risk youth away from life on the streets. Outreach workers implement a detailed risk reduction plan that links youth with needed services. These connections result in the cooling of violence hot spots and promote positive outcomes for those who participate in the intervention. Cure Violence staff also mobilize the community to reject violence as a social norm. ISP is responsible for administering contracts; program monitoring, using indicator tracking to assess adherence to the model, deliver feedback, and issue corrective action if sites are off-model; and is part of a team of evaluators citywide looking at various outcomes of the program. ISP analysts are using newly acquired crime data from the NYC Police Department (NYPD) to assess community-level violence in areas where the program is being implemented compared to areas where it is not. Currently, the program is in operation in six high-violence communities in New York City, with other sites likely to follow.

Finally, a range of additional epidemiologic and data analysis training opportunities exist at the NYC DOHMH. The Fellow will be welcome to enroll in DOHMH's "GIS Bootcamp", Epi-In-Action, a scientific writing course, etc. If major communicable disease outbreaks occur and require a large DOHMH response, the Fellow will also have the opportunity to take part in infectious disease epidemiology fieldwork and analysis. Former Fellows have been involved in H1N1 surveillance, heat-related illness outbreak investigations, and agency response to Hurricane Sandy. These resulted not only in a unique learning experience, but also co-authorship on a peer-reviewed journal article and central contribution to a federal grant proposal.

Potential Projects

The Fellow will have the opportunity to work on a variety of exciting projects that involve field investigations, data analyses, data dissemination, and interpreting recommendations. Specific projects that would provide skills-building experience in epidemiologic methods and public health practice and policy include, but are not limited to:

Evaluation project: Assessment of the Primary Care Information Project's Hub Population Health Network data to track injury outcomes and risk

The Primary Care Information Project (PCIP) is a NYC DOHMH Bureau that was founded in 2005; it supports public health efforts to prevent and control disease by encouraging clinicians' adoption of health information technology. PCIP has established the Hub Population Network to house electronic health record (EHR) data. It currently includes 640 practices with 2,500 providers serving approximately

3.2 million patients, over 1 million of whom visited PCIP-registered practices in 2011. PCIP's hub data provide a unique opportunity to track injuries of low severity (i.e., nonfatal injuries not treated in an emergency department nor requiring hospitalization). Hub data may also enhance current surveillance of non-fatal occupational injuries in NYC. Data could potentially be used to describe prevalence of risk factors for injury and characteristics of at-risk populations as well. The Fellow will extensively review the available hub data elements and how the data are collected so they may fully describe potential uses and limitations for injury surveillance. After identifying uses of the data, the Fellow will then analyze the data to describe appropriate injury patterns and trends. The Fellow will be expected to document and interpret the results in a technical report and present their findings at the annual CSTE national conference.

Data analysis project 1: Co-occurring mental illnesses among victims of violence -ISP's oversight of Cure Violence replication in New York City has uncovered a range of empirical questions about violence as a public health concern. Research points to trauma as both a cause and consequence of violence victimization. Epidemiologic information about the co-morbidity of mental illness and violence victimization is scant. To inform distribution of proper resources to our Cure Violence sites, we seek to understand the mental health needs of victims of violence. Thus, to fill gaps in current epidemiologic understanding in general and to advance local program planning more specifically, the Fellow will examine patterns of co-occurring mental health diagnoses of assault-related ED visits and hospital admissions using NYS DOH SPARCS data. The Fellow will develop and execute an analytic plan that yields a comprehensive, descriptive epidemiologic summary of such non-fatal assaults.

Data analysis project 2: Describing epidemiology and contributing factors to traffic crashes - New York City's traffic fatality rate less than one-third of the national rate (3.3 vs. 10.7 per 100,000 in 2010) and has declined rapidly in recent decades. The number of traffic fatalities in NYC is low, but it remains an important public health problem. Traffic crashes are a leading cause of injury-related death and hospitalization for many New Yorkers, including child and older adult pedestrians. ISP uses multiple data sources to describe traffic injuries of motor vehicle occupants, bicyclists, and pedestrians, including Vital Statistics, hospitalization and ED data, medical examiner data, and crash data. The Fellow will advance an ongoing project examining alcohol involvement in crash injuries. There will be additional opportunities for other traffic-related injury studies, such as describing the contribution of traffic fatalities to overall child injury death. The Fellow will be a central analyst and author to NYC DOHMH/ISP's annual Child Fatality Review Team report. The Fellow will also contribute to analyses describing the epidemiology of motorcyclist injuries, investigating the role of cell-phone use or other forms of distraction in traffic injuries, and evaluating the newly implemented NYC bike share program, Citi Bike.

Data analysis project 3: Evaluation of an intervention to prevent older adult falls - Falls are a leading contributor of morbidity and mortality among adults aged 65 years and older in NYC and are expected to become an even greater burden to the City's complex health care system as the number of older adults increases over the next two decades. Falls are a complex public health problem among this vulnerable population, with multiple risk factors at play. ISP is currently partnering with researchers at the Staten Island University Hospital to examine the feasibility of a home health care intervention for older adults seen in the ED for fall-related injuries. This project would give the Fellow the opportunity to be part of an epidemiological study and compare fall outcomes between those that receive the intervention and a control group. Participation in this study would give the Fellow experience in working on a multidisciplinary team and may provide the opportunity to contribute to a manuscript to be published in a peer-reviewed journal.

Prevention Project (Supplementary): Establishing a web-based occupational injury census and information system for construction workers - Preventing occupational injuries and death among construction workers is an important public health concern in NYC, as these workers represent only around 6% of the labor force, but account for almost 30% of all work-related fatalities. From 1996 to 2009, a total of 378 preventable, fatal occupational injuries were identified among NYC construction workers. EDP recently produced a data brief describing the extent of the problem (<http://www.nyc.gov/html/doh/downloads/pdf/survey/survey-2011-construction-workers.pdf>) and is now moving towards creating a resource combining educational materials with incident reports so that workers, employers, and health and safety professionals can easily obtain this information and develop priority for the prevention of such occupational injuries and fatalities. The Fellow would be expected to assist with creating a system to collect verifiable information in a comprehensive and timely manner and to help design web-page content. As many construction worker deaths occur among workers with low education, Hispanic ethnicity, or non-native origin, this project will allow the Fellow to gain experience in moving ISP's data into action for a disenfranchised group of the NYC population.

Preparedness Role

NYC DOHMH has responded to a number of citywide and national emergencies over the last few years, including Hurricane Sandy in 2012, Hurricane Irene in 2011, the H1N1 epidemic in the spring and fall/winter 2009, the steam pipe explosion in midtown Manhattan in 2008, the citywide blackout in August 2003, and the response to the terrorist attacks and anthrax investigation in 2001. 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. Former Fellows also made substantial contributions to H1N1 emergency response efforts, including cleaning and analyzing data from self-reported surveys obtained at schools where H1N1 was detected and joining a specimen tracking team to write a protocol for the process of obtaining potential H1N1 specimens, ensuring delivery to the Public Health Lab for testing. We fully anticipate that the Fellow will be an active member of DOHMH'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.

Assignment Location: New York City Department of Health and Mental Hygiene
New York, New York

Primary Mentor: Jennifer Marcum, DrPH, MS
Senior Analyst

Secondary Mentor: Catherine Stayton, DrPH, MPH
Director of Injury Surveillance and Prevention Program