

Injury

Description:

The NYC Department of Health and Mental Hygiene (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 Epidemiology Unit (IEU) conducts active and passive 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. The unit is staffed with several full time epidemiologists, analysts and other injury specialists. Injuries are a leading cause of morbidity and mortality for New Yorkers, accounting for approximately 2,400 deaths, 136,700 live hospitalizations, and 469,000 live emergency department visits each year. A recent IEU ranking of causes of death and hospitalization in NYC revealed that all NYC's age groups are affected by injuries (Summary tables are available at <http://www.nyc.gov/html/doh/html/ip/ip-index.shtml>).

Our urban environment presents significant challenges to pedestrians, a fact reflected in an age-adjusted death rate 13% greater than national rate. Among the youngest New Yorkers, suffocation, fires, and falls are also leading causes of death and hospitalization. Homicide is the leading cause of death for those between the ages of 15 and 34 with approximately 600 homicides, 65,000 assault-related hospitalizations, and 47,000 assault-related emergency department visit occur each year. Among older adults, about 300 older adults die directly from falls and our hospitals treat and release more than 21,000 older adults and admit more than 16,000 for falls each year.

Given the extent to which injuries impact the health and wellbeing of New Yorkers, the IEU maintains an Injury Surveillance System (ISS) that utilizes three data sources, including mortality data from the NYC DOHMH's Bureau of Vital Statistics, hospital discharge data from the State Planning and Research Cooperative System (SPARCS, NYS DOH), and treated and released case data from emergency departments at a sample of NYC hospitals. These data sources are supplemented by violence and injury-related information gathered through representative health surveys in both the NYC adult and high school populations. In addition, we examine medical examiner records through special surveillance projects undertaken by the unit. Findings from the IEU's surveillance activities are posted on DOHMH's website and we disseminate this information to internal and external partners. For example, our data have been used to generate provider guidelines on intimate partner violence screening that was printed and mailed to all NYC physicians and nurses through a public health detailing campaign. We have also examined data to produce key reports, including the city-mandated Child Fatality Review Team Report (annual), Intimate Partner Violence against Women in New York Report (2008) and Bicyclist Fatalities and Serious Injuries in New York City Report (2006). These reports have guided NYC Safe Kids education activities and helped NYC's Department of Transportation prioritize more than 200 miles of bicycle lane

construction. Finally, the IEU also serves as the City's resource to non-governmental health and social service organizations in need of injury-related data for needs assessments, grant applications, trainings, and publications.

Day-to-Day Activities:

The Injury Epidemiology Unit's data systems would provide a CDC/CSTE fellow an excellent opportunity to apply his/her epidemiological skills to the important, but often overlooked area of injury prevention and control. As experienced by our Class VI fellow (2008-2010), the Class VIII fellow will be a fully integrated member of the IEU. He/she will attend weekly unit and bureau meetings and will be encouraged to attend the agency's monthly Epidemiology Grand Rounds in order to better understand the surveillance and analysis activities of a large local health department. The fellow will have his/her own analytic projects to work on daily (described in next section). At the same time, he/she will be an essential member of our fieldwork team, gaining experience in hospital and medical examiner chart abstraction on a quarterly basis. He/she will become a skilled analyst who helps fulfill injury-related data requests, allowing the fellow to learn ICD-9 and ICD-10 classification systems and build statistical analysis skills in SAS and SUDAAN. He/she will also gain experience in public health communications as IEU staff are regularly involved in the construction of press releases and the production of material for our website. We will also encourage the fellow to interact with other public health professionals working in Injury Control. These activities will include attending symposia and meetings organized by the IEU, other city agencies such as the Department of Transportation and Department for the Aging, and/or community based organizations related to developing prevention programs based on the Unit's epidemiologic findings. In the past, we have funded travel for the Class VI CDC/CSTE fellow to attend symposia at the New York State Department of Health's Injury Prevention Program, recognizing that exposure to state-level agency work provides another perspective to a career in government. Finally, a range of additional epidemiologic and data analysis training opportunities also exist at the NYC DOHMH. The fellow will be supported to take SAS and SUDAAN training classes, as well as other trainings if relevant or interested, such as a "GIS Bootcamp", a scientific writing course, etc. If major communicable disease outbreaks occur or if the nH1N1 epidemic requires a large DOHMH response, this fellow will also have the opportunity to take part in field data collection and analysis efforts pertaining to outbreak control.

Potential Projects:

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

- Evaluation of FDNY's Emergency Medical Service Database as an Injury Surveillance Tool

Under mentor guidance, the CDC/CSTE fellow will lead the evaluation of a recently acquired "Prehospital Care System" database from the Fire Department of New York's Emergency Medical Services. FDNY-EMS respond to more than 1.2 million medical emergencies per year, and this database

is generated from related care reports completed by emergency medical technicians and paramedics for the express purpose of documenting care provided during response. The FDNY has recently provided electronic reports for all injury-related incidents to the IEU, thus increasing the potential for enhanced surveillance of the burden of injuries in NYC beyond current IEU sources of Vital Records/Statistics and hospital discharge databases. For this project, the fellow will utilize and enhance his/her applied statistical and evaluation skills to generate statistics on the burden of injury-related EMS reports and describe them in terms of person, place, and time. He/she will describe outcomes related to these incidents and also compare the volume and demographic trends to IEU's other surveillance sources on fatalities and hospitalizations. Importantly, the fellow will generate an evaluation report that describes the public health importance of the injuries under surveillance, describes the purpose and operation of using the FDNY-EMS surveillance system, and gathers credible evidence regarding the performance of the surveillance system in terms of simplicity, data quality, representativeness, flexibility, timeliness, and stability. This project will prepare the fellow to submit an abstract for the CSTE Annual Conference. The fellow will also be expected to prepare an oral presentation to DOHMH colleagues interested in the potential use of the database for other substantive areas in public health surveillance.

- Data Analysis Project 1: The Epidemiology of Traumatic Brain Injuries

Traumatic brain injuries (TBIs) are a complex set of injuries resulting from a blow or jolt to the head or penetrating head injury that disrupts the normal function of the brain. These injuries are serious and can have devastating effects on individuals and their families. The IEU would like the fellow to execute a comprehensive descriptive epidemiology project that describes the annual volume and trend of traumatic brain injuries in New York City. The fellow will utilize death and hospitalization data to document the number of TBIs, identifying various severity levels, key demographics (e.g. age, gender, race/ethnicity, geography), major causes (e.g., falls, motor vehicle crashes, assaults), and potential comorbidities. He/she will also investigate which data sources are useful for following long-term outcomes of TBI's. The project will include the preparation of a report that includes recommendations for targeted prevention messaging and outreach to internal and external partners working in this substantive area.

- Data Analysis Project 2: Child Health Survey

In 2009, the Bureau of Epidemiology Services is conducting a population-based survey to obtain prevalence estimates for specific diseases and conditions among New York City child age 0-12. This random digit dial survey of approximately 1500 households includes an injury-related section thereby allowing IEU to more fully understand the impact of injuries on NYC's children than what is currently possible using Vital Statistics and hospitalization data. The section includes questions on types of injuries sustained, causes, and severity. The fellow will be the lead analyst on this project and will access and analyze the data for IEU. He/she will learn to use SUDAAN in order to develop prevalence estimates and identify potential risk factors for injury from other sections in the survey (e.g., demographics, family composition, developmental status). It is anticipated that the fellow will contribute a brief report on the survey's results for posting on the IEU's website and use as a dissemination tool.

- Data Analysis Project 3: Child Fatality Review Team Report

In 2006, New York City established a multi-disciplinary Child Fatality Review Team (CFRT) to examine fatal injuries among children between the ages of one and 12 years old. Past reports have focused on traffic safety, fires and burns, and injuries in the home. The production of each report involves active surveillance at the Office of the Chief Medical Examiner and acquisition of auxiliary data from sources such as the Fire Department of New York, NYC Department of Buildings, the Consumer Product Safety Commission, and the New York City Police Department. As a member of the IEU, the fellow will work closely with the chair and coordinator of the CFRT to abstract and review fatality files for 2010's report and assure other data sources are obtained and appropriately matched to each file. In past years, the CDC/CSTE fellow has also contributed text to the report, most notably constructing a home safety checklist in the recommendation section of the report for parents and providers. This is an excellent opportunity for the fellow to participate in quarterly meetings with external partners, child health advocates and researchers and to contribute to a high profile report.

- Additional Project: The impact of policy on unintentional injury

The fellow will review literature to examine the impact of various policies on prevention of unintentional fatal and non-fatal injuries in NYC (e.g., motor vehicles, falls, and fires) by writing a brief on the roles of local and state policies (e.g., blood alcohol and safety belt legislation, helmet use, window guards, pedestrian safety, smoke detectors) and model the impact of these various policies on unintentional injury-related morbidity and mortalities since 1990. The brief should include graphics that track policy implementations and injury trends. Analyzing injuries in this way will help expand prevention efforts traditionally focused on messages related to personal behavior. In addition to preparing this report, the fellow will have the opportunity to work with his/her mentor on advancing DOHMH's legislative agenda as it pertains to injury prevention. For example, our past fellow conducted literature reviews on the utility of safety restraints on school buses and the banning of novelty lighters. This work resulted in policy statement contributions used by the DOHMH's Department of Intergovernmental Affairs during key legislative votes, teaching the fellow how scientific evidence can shape citywide policy.

The fellow, if interested in the important projects listed above, is encouraged to use findings for conference abstract submission and research manuscripts. Our current CDC/CSTE fellow has presented her work from two of her main projects at the annual CSTE and APHA conferences and has also prepared a manuscript for peer-review publication.

Emergency Prep Role:

The NYC DOHMH has responded to a number of citywide and national emergencies in the last few years including the nH1N1 epidemic in the spring and fall/winter 2009, the citywide blackout in August 2003, and the response to the terrorist attacks and anthrax investigation in 2001. As such, the IEU's Class VI CDC/CSTE fellow has already made substantial contributions to nH1N1 emergency response effort including cleaning and analyzing data from self-reported surveys obtained at schools where nH1N1 was detected and joining a specimen tracking team to write a protocol for the process of obtaining potential nH1N1 specimens and ensuring delivery to the Public Health Lab for testing. We fully anticipate that the Class VIII fellow will also be assigned to the Epi and Data Unit of the Surveillance and Epidemiology

Section of DOHMH's Incident Command System, allowing the fellow to participate in unit meetings, drills, and DOHMH's response to nH1N1 and/or future emergencies. We are also supportive of having the fellow obtain field experience related to DOHMH's nH1N1 and/or flu vaccination programs throughout the city if such programs are implemented during the fellow's tenure.

Assignment Location: New York, NY

Primary Mentor: Laura DiGrande, DrPH, MPH
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Secondary Mentor: Catherine Stayton, DrPH, MPH
Director, Injury Epidemiology Unit
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