

Substance Abuse

Assignment Description

The Bureau of Alcohol and Drug Use, Prevention, Care and Treatment (BADUPCT) will provide abundant opportunities for a Fellow to apply his/her epidemiological skills. BADUPCT approaches substance use as a public health issue, thus, conducts both drug-related morbidity and mortality studies. Research focuses on the burden of substance use and highlights the influence of environmental and contextual factors. The goal of our research is to reduce the negative health and social consequences of substance use. One of the primary objectives of the substance use related studies is to identify patterns of use and emerging trends, thereby providing opportunities for early warning and effective interventions. Morbidity studies include analysis of emergency department and hospital discharge data, as well as drug treatment data. Mortality research primarily focuses on unintentional drug poisoning, which involves data analysis from two linked sources, death certificates and medical examiner files. Studies examine patterns of drug use by range from examining stakeholder communication and problem-solving

Day-to- Day Activities

Activities will be dictated by the final agreement made with the Fellow; nevertheless, a typical day's activity could include any of the following: working with any number of large sets of varying complexity. Linking data sources and running an analysis for a specific research project. He/she will become a skilled substance use researcher, who will become familiar with ICD-9 and ICD-10 classification systems and coding and will develop and sharpen statistical analytic skills. He/she will gain experience with writing research protocols, preparing IRB applications, and securing data-source agreements. He/she will also have the opportunity to contribute to research designs, as well as providing significant input into data analysis planning. The Fellow will learn how to abstract data from medical examiner files, interpret data, write scientific reports, and articles for peer reviewed journals. He/she will be afforded the opportunity to develop, in collaboration with the Office of the Chief Medical Examiner and the Office of Vital Statistics, a system for active surveillance of drug-related poisoning. In addition, the Fellow, will be given ample opportunities to present data findings at meetings and conferences. He/she will be encouraged to form relationships with other public health professionals, of which there are numerous possibilities. The fellow will be encouraged to attend any of the myriad trainings sponsored by DOHMH, including SUDAAN and "GIS boot camp". He/she will attend New York State Department of Health's quarterly SEOW meetings and monthly epidemiology grand rounds. Finally, the mentor's will introduce the Fellow to a range of substance use research and epidemiology experts in New York City.

Potential Projects

Potential Projects: There are multiple project opportunities, including working with the morbidity and mortality data sources discussed above.

Additionally, there are two other major projects:

- 1) Estimating the Number of Problem Drug Users in New York City (NYC) Despite widespread recognition of the heavy costs and grave consequences of illegal drug use, many fundamental questions about the extent and nature of drug abuse in the United States overall, and in New York

City specifically, remain unanswered. In particular, there is a need for more reliable and accurate estimates of the number of chronic drug users, their geographic distribution, demographic characteristics, and patterns of use. Local level information on the number of people who use illicit drugs or misuse licit drugs is critical for measuring the impact and effectiveness of demand reduction efforts, including prevention, treatment, and law enforcement measures. In partnership with the New York State Office of Alcohol and Substance Abuse Services, the New York State DOH and the NY/NJ HIDTA the Fellow will have the opportunity to work on this cutting-edge research, estimating the number of “problematic drug users” in the five boroughs of New York City. The proposed study will be the first of its kind to be conducted in this region and will provide a true baseline – a reliable denominator—against which public health interventions, treatment services, and other drug control policy efforts may be measured. We propose using an indirect estimation method known as “capture-recapture.” It is one of the most accepted methods for prevalence estimation in the field of drug use epidemiology and is particularly effective in estimating hidden populations. Findings from the study will not only provide an accurate estimate of the number of problematic drug users in New York City as a whole, but will identify the number of users by type of drug (including heroin, synthetic opioids, powder cocaine and crack cocaine), as well as the number of users by borough of residence, gender, age group, and route of administration. In addition to providing critical information to local policymakers, this study will provide a model for application in other areas of the United States.

Data analysis opportunities:

- Collect data from three sources of problem drug users;
- Match the data sources—identifying people who are in more than one data source, and which data sources are involved:
 - Prepare a multi-way table of the numbers of matches
 - Analyze the entire sample using Poisson regression;
 - Repeat the Poisson regression analysis for subgroups, such as borough of residence, sex and age groups, and type of drug use.

2) Development and implementation of active surveillance for drug poisoning mortality During the past decade, poisoning has become the second leading cause of injury death overall in the United States, and the leading cause of death for those between 35 and 54 years of age, surpassing both firearm-related and motor vehicle-related deaths in this age group.

(1) Drug poisoning accounts for the largest portion of the poisoning burden, and opioid analgesic-related deaths represent the fastest increasing category of drug poisoning deaths.

(2) In New York City (NYC), drug poisoning fatalities are the fourth leading cause of death before age 65. However, unlike national trends, data from NYC indicate a decrease in the overall number and rate of unintentional drug poisoning deaths in recent years. Nevertheless, drug poisoning remains a major public health concern in NYC. There is a critical need for the development and implementation of a drug-related surveillance system, to provide early warning for mortality, and to inform a comprehensive public health response addressing this significant health problem.

The purposes of the proposed surveillance are:

- Monitoring of drug poisoning trends;
- Early identification of emerging patterns in drug poisoning death
- Targeted interventions based on distribution of fatalities on individual level and community level characteristics Following the recommendations of the CDC, the proposed surveillance will require ongoing systematic collection, analysis and interpretation of drug poisoning death data and timely

dissemination of these data to those responsible for prevention and control. Case Definition: “Unintentional Drug Poisoning Death” is defined as follows: • Unintentional drug poisoning death as a death occurring in NYC for which the death certificate recorded (i) manner of death as “accidental,” (ii) the underlying causes of death with codes for “poisoning by a psychoactive substance (excluding alcohol or tobacco)” (ICD-10 codes X40-X44) or a “mental or behavioral disorder due to a psychoactive substance” (ICD-10- codes F11-16, F18-19). • Deaths directly due to use of illicit substances or misuse of licit substances such as prescription medication Methods and analysis: In collaboration with OVS, on a weekly basis upload death certificate data and search database to identify “drug poisoning deaths”.

The Fellow will analyze data on a monthly basis and prepare a brief summary report. Additionally, he/she will link death certificate data with the ME case number. The toxicology data will then be abstracted from the medical examiner files. Upon completion of the data abstraction, the Fellow will analyze data by drug type and demographics, drug type and geography and prepare a final monthly report with an accompanying GIS map of fatalities

Preparedness Role

The fellow will be encouraged to participate in any training and exercises sponsored by the DOHMH Bureau of Emergency Preparedness. NYC DOHMH has responded to a number of citywide emergencies and epidemics including a meningitis outbreak in 2006, for which Dr. Paone was asked to work on the response team. In the case of an emergency the Fellow may have the opportunity to work on a response team.

Assignment Location:	New York, NY
Primary Mentor:	Cynthia Driver, DrPH, MPH Senior Epidemiologist New York City Dept of Health and Mental Hygiene
Secondary Mentor:	Denise Paone, EDd, MS Director, Research, Bureau of Alcohol and Drug Use Prevention, Care, and Treatment New York City Dept of Health and Mental Hygiene