Injury-Drug Overdose, Substance Use/Mental Health

Illinois Department of Public Health, Patient Safety and Quality

Chicago, Illinois

Assignment Description

The Fellow will be placed in the Office of Policy, Planning, and Statistics (OPPS) in the Division of Patient Safety and Quality situated in downtown Chicago. In addition to a primary focus on drug overdose surveillance, the Fellow will have the opportunity to become familiar with several key initiatives of the Division, particularly IDPH Opioid Data Dashboard, Illinois Hospital Report Card for public reporting, and the Public Health Community Map which disseminate hospital-level data to inform consumer choices and population-level health data to highlight trends and disparities, respectively. Rollout of the Illinois Adverse Events Reporting System and other projects highlighted further below also present opportunities for involvement.

In Illinois opioid overdose deaths rose dramatically between 2013 and 2017, but recent data shows the first annual decrease of 1.6% in 2018. However, this decrease was not seen among racial and ethnic minority populations, which had increases of 9.1% and 4.3% respectively. In contrast to the overall decrease in opioid-related mortality in 2018, ED visits due to an opioid or heroin overdose have continued to increase. Currently, IDPH’s Division of Patient Safety and Quality has multiple federal awards to address the opioid crisis: Overdose Data to Action (OD2A) and the Comprehensive Opioid Abuse Site-based Program (COAP) grant. Both projects aim to enhance collection, aggregation, analysis, and reporting of opioid-related morbidity and mortality data. The Fellow’s principal assignment will center on these efforts as s/he will serve as a key entry-level epidemiologist for the Department and engage in cross-sector data linkage and evaluation. This will require working closely with key data stewards both within and outside IDPH. Internal collaborators include IDPH’s Division of Infectious Disease for data on Hepatitis C and HIV; the Office of Emergency Preparedness’ Division of Emergency Medical Services & Highway Safety which collects prehospital patient care data; and the Office of Policy, Planning, and Statistics’ Division of Vital Records which will contribute Death Certificate data. Key external partners include the Illinois Prescription Drug Monitoring Program (PMP) and Division of Alcoholism and Substance Abuse both housed within the Illinois Department of Human Services. We are also partnering with Northwestern University/Ann and Robert H. Lurie Children’s Hospital of Chicago on data collection SUDORS.

Day-to-Day Activities

The Fellow will function as an entry-level epidemiologist supporting Patient Safety and Quality programs and policies in Illinois and be integrated into the work of the Division. There are opportunities for the Fellow to gain exposure to, and select from, an array of projects to enhance their skills and knowledge in surveillance and data collection, field investigation, statistics and data analytics, written and oral communications, quality improvement methodology, professional and lay communication, Illinois healthcare and public health systems, and public health preparedness.
Examples of specific routine activities include:

- Participate in weekly OD2A team meetings, which includes the IDPH Director for Strategic Opioid Initiatives, members of the Division of Patient Safety and Quality (drug overdose epidemiologist, data systems architect, senior policy analyst, and division chief), and the SUDORS team from Lurie Children’s Hospital.
- Organize and co-lead quarterly meetings of the Illinois Cross-sector Opioid Data Workgroup.
- Shadow key data stewards including the Hospital Discharge Data Manager/System Architect, drug overdose epidemiologist, Illinois PMP Administrator, and SUDORS data manager.
- Perform linkage and analysis of cross-sector data and develop state and county level reports to describe the who, what, where, when, and why of drug overdose death in Illinois. Create various communication products for professional and lay audiences.
- Develop data dashboards using Tableau software.
- Present at stakeholder meetings (e.g., local health department Infection Control Roundtables) and scientific conferences.
- Collaborate with other groups within the Division and Department as relevant.
- Participate in quarterly Epidemiology Roundtables held at IDPH’s Chicago office. This internal roundtable provides opportunities for agency staff to present about data-related activities, receive feedback on methodology, share epi skills and resources, and network with other epidemiologists.
- Participate in adverse events reporting advisory council meetings and develop reports.

Potential Projects

**Surveillance Activity**

**Assessment of Care Coordination Needs among Individuals Experiencing Opioid Overdose**

The Division of Patient Safety and Quality collects patient level discharge data from all Illinois acute care hospitals, specialty hospitals and ambulatory surgical treatment centers. The Division also has access to mortality data, prescription monitoring data and real-time hospital visits. Using linkage algorithms across these data sets a more complete picture of an individual’s history of health care encounters and medication use can inform their risk for an overdose and the need for case management in a Medication Assisted Treatment program. The Fellow will analyze patterns in repeat health care encounters related to opioid overdose risk. Variables such as visit frequency, location, and patient and hospital characteristics will be explored. This assessment will highlight sociodemographic gaps in treatment services and facilitate local efforts to link individuals to care.

**Surveillance Evaluation**

**Review and Evaluation of Existing Data Sources to Monitor Trends Associated with Marijuana Use**

In 2020, recreational marijuana use will be legalized in Illinois. There are multiple data sets that collect indicators of marijuana use, including the Behavioral Risk Factor Surveillance Survey and Youth Risk Behavioral Surveillance, hospital billing data in the Discharge Data and textual and coded references to use in the hospital syndromic surveillance data. The fellow will collaborate with other IDPH staff to: (1) conduct an evaluation across these data sets using surveillance system evaluation criteria (2) make
recommendations for additional information that may need to be tracked, such as product sources and delivery mechanisms, (3) analyze results for the association of marijuana with disease outbreaks, injuries and polysubstance abuse, and (4) conduct review of data and policies in other states that have legalized recreational marijuana.

**Major Project  Develop Indicators for Outcomes Related to Opioid Epidemic**

The Division is actively using multiple data sources to produce the opioid data dashboard to provide the public with information on current and historic trends in opioid morbidity and mortality. The data linkage and surveillance activities will facilitate improvements in the interpretation of data at both an organization level and the individual level. A limited amount of information on resources, such as naloxone distribution sites is also available on the dashboard, but more information is needed on the resulting interventions and their success and stemming the overdose epidemic. Multiple grants for opioid overdose prevention require a comprehensive program evaluation. The Fellow will design and conduct targeted analysis to describe outcomes of the funded activities. For instance, there is need to assess the effectiveness of data dissemination efforts and identify next steps. Results of this evaluation can be shared both as a policy brief or abstract for presentation at a scientific conference as well as dynamic performance metrics on the dashboard using data visualization software Tableau.

**Additional Project  Integration of Substance Abuse with Mental Health**

There is a continuous recognition that the opioid epidemic and substance misuse are intertwined with mental health issues, and there is a need to expand on the analysis measuring the scope of interdependence of these issues. From the data sets identified above and on-going data linkage activities, the fellow will be able to perform novel analysis at the individual-level on association of these health conditions and effective prevention strategies.

IDPH is developing and utilizing a technology platform, the IDPH Opioid Hub, to serve as a central repository for aggregating multiple de-identified datasets over time and provide the framework for producing integrated data reports. The Hub data can be utilized for non-opioid related health outcomes includes deaths, hospitalizations and Emergency Department visits.

The Fellow will work with Division of Patient Safety and Quality staff and Office of Health Promotion’s Injury and Violence Prevention Manager to develop methodologies for data linkage and will analyze the data to describe trends in, and risk factors for, fatal and non-fatal suicide and broader mental health conditions. Analysis will also include association of mental health with drug overdose (e.g., opioid overdose, marijuana-related hospital and Emergency Department visits). S/he will be involved in developing interactive online data dashboards using Tableau software that will be made available to a diverse array of stakeholders. This will include opportunity to provide training in use of dashboards and gather stakeholder input on best practices for data visualization. The Fellow will work with the Office of Health Promotion and the multidisciplinary group of key data stewards on the Illinois Suicide Prevention Alliance to identify a community-oriented set of surveillance metrics that will be publicly reported on the Illinois Public Health Community Map at http://www.healthcarereportcard.illinois.gov/map or a platform similar to the IDPH Opioid Data Dashboard https://idph.illinois.gov/OpioidDataDashboard/.
Additional Project  Adverse Health Care Events Reporting

The Illinois Adverse Health Care Events Reporting Law requires IDPH to collect reports of certain adverse health care events in hospitals and ambulatory surgical treatment centers in Illinois. IDPH is initiating roll-out of this mandate; through December 2020, IDPH will work with an advisory council to pilot adverse events reporting with a subset of facilities. Information will be used to fully scale out implementation of this statewide surveillance system. The Fellow will have the opportunity to participate in these discussions and analyze reported data. The Fellow will contribute to writing the 2021 and/or 2022 annual report to the Illinois General Assembly summarizing adverse health care events and lessons learned. The Fellow will have opportunity to gain policy experience related to this initiative.

Preparedness Role

The Fellow will become familiar with the real-time surveillance of hospital visits in syndromic surveillance. This tool can be used with many other disease and injury presentations, as well as provide context to overall healthcare utilization trend. Hospital ED visit surges can be caused by mass gatherings, sudden unexpected emergencies, or media reports on emerging health events that triggers worried-well visits. Any of these events can lead to longer wait times, bypass of ambulance services or increasing risks for severe outcomes. The fellow can support the Emergency Preparedness department during these events by monitoring hospital data for surges.

Specific tasks would include:

- Attending preparedness meetings for events such as the Democratic national convention in neighboring Wisconsin.
- Train Emergency Preparedness staff on how to view and interpret hospital visit data.
- Create and share dashboards for Emergency Preparedness teams with event-specific temporal and spatial analysis.

A second potential opportunity for the Fellow relates to the Community Assessment for Public Health Emergency Response (CASPER), which is an epidemiologic technique designed to provide household-based information about a community quickly and at low-cost. Local health departments typically contact IDPH for support when they decide to conduct a CASPER. When this happens, the Fellow would have the opportunity to participate in the door-to-door data collection and/or data analysis.
**Additional Activities**

Based on the Fellow’s interests and professional development goals, examples of additional opportunities may include:

- Conduct time series analysis and correlation of trends across opioid overdose data sets from field response to hospital visits and deaths. Each setting can be affected differently due to innervations and service and may have a dependent relationship on each other.
- Conduct spatial analysis at aggregate or individual-level for cluster detection, identifying hot spots using heat maps, or using spatial regression methods.
- Conduct surveys relevant to enhanced data collection identified by analysis of drug overdose or mental health issues.
- Participate in policy analysis and development of policy briefs related to patient safety and quality issues.
- Contribute to federal grant writing and reporting for opioid-related awards.

**Mentors**

**Primary**  
Stacey Hoferka, MPH, MSIS  
Drug Overdose Epidemiologist

**Secondary**  
Tiefu Shen, MD, PhD  
Deputy Director