

Substance Abuse, Non-Infectious Diseases (Cross-Cutting)

Illinois Department of Public Health, Division of Patient Safety and Quality

Chicago, Illinois

Assignment Description

IDPH will provide salary support for the Fellow, who will be assigned to OPPS' Division of Patient Safety and Quality situated in downtown Chicago. In addition to a primary focus on opioid overdose surveillance, the Fellow will have the opportunity to become familiar with several key initiatives of the Division, particularly the Illinois Hospital Report Card and Public Health Community Map which disseminate hospital- and population-level health data to inform consumer choices and highlight trends and disparities. Surveillance and prevention efforts related to health care associated infections and antimicrobial resistance (HAI/AR) also present opportunities for involvement.

Illinois is reeling from an epidemic of drug overdose. With an estimated 280,000 users of nonmedical prescription opioids, Illinois was one of nine states that experienced a statistically significant increase (120%) in synthetic opioid overdose deaths between 2014 and 2015. The Division of Patient Safety and Quality, which houses the Illinois hospital discharge dataset, recently received two federal awards: Enhanced State Surveillance of Opioid-Involved Morbidity and Mortality (ESOOS) and the Comprehensive Addition and Recovery Act (CARA) 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 which implements syndromic surveillance reporting with all 185 acute care hospitals in Illinois with an Emergency Department; the Office of Emergency Preparedness' Division of Emergency Medical Services & Highway Safety which collects prehospital patient care data; and OPPS' Division of Vital Records which will contribute Death Certificate data. Key external partners include the Illinois Prescription Drug Monitoring Program (PDMP) and Division of Alcoholism and Substance Abuse both housed within the Illinois Department of Human Services. We are also partnering with Ann and Robert H. Lurie Children's Hospital of Chicago, a bona fide agent of IDPH for the Illinois Violent Death Reporting System (IVDRS).

Day-to-Day Activities

The Fellow would 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. The Fellow would work closely with the Division's Senior Epidemiologist, Ms. Runez, the State Epidemiologist, Dr. Layden, and the key internal and external partners described above. There are opportunities for the Fellow to gain exposure to, and select from, an array of projects to enhance their epidemiologic skills and professional development in statistics, mixed methods evaluation and survey design, quality improvement, professional and lay communication, public health systems, and public health

preparedness. Broadly, the Fellow's routine activities would include functions related to surveillance, data infrastructure building and analysis, and assessment.

Specific activities include:

- Attend weekly progress meetings with mentors.
- Participate in bi-monthly steering team meetings with IDPH senior leaders including the Deputy Director of the Office of Policy, Planning and Statistics, the Chief Medical Officer and State Epidemiologist, the Medical Advisor for Health Research and Policy, and the Director of Strategic Health Initiatives.
- Participate in state committees such as the Governor's Opioid Overdose Prevention and Intervention Task Force (co-chaired by the Lt. Governor and IDPH Director), Illinois Opioid Advisory Council, and the Illinois HAI/AR Prevention Advisory Council.
- Participate in monthly Epidemiology Roundtables at IDPH's Chicago office.
- Shadow key data stewards including the Hospital Discharge Data Manager/System Architect, Syndromic Surveillance and Informatics Epidemiologist, Illinois PMP Administrator, and IVDRS 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.
- Develop data dashboards using Tableau software.
- Create data briefs, fact sheets, and reports for lay and professional audiences.
- Present to IDPH staff and at stakeholder meetings and scientific conferences.
- Collaborate with other groups within the Division and Department as interested, including the HAI/AR program on outbreak investigations.

Potential Projects

Surveillance Activity Assessment of Unmet 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 data captures information about utilization and costs of health care services. Using the hospital discharge dataset, the Fellow will analyze patterns in repeat health care encounters related to opioid overdose treatment. Variables such as visit frequency, location, and patient and hospital characteristics will be explored. This assessment will highlight sociodemographic gaps in appropriate discharge planning and linkages to ongoing support.

Surveillance Evaluation Validation of Syndromic Surveillance for Opioid Overdose Reporting

In compliance with the mandates of the 2015 Illinois Heroin Crisis Act, IDPH's Division of Patient Safety and quality and Division of Infectious Disease are collaborating on a pilot to capture emergency department opioid overdose syndromic case reporting within 48 hours. Syndromic surveillance provides near real time data availability for 99 percent of all Illinois emergency department visits and has the potential for rapidly identifying opioid overdose hot spots; 100% of sites send diagnosis and chief complaints and 45% send triage notes. Triage notes have been reviewed to refine diagnosis codes but additional work is needed to improve overdose definitions.

Under mentorship from the Surveillance and Informatics Epidemiologist in IDPH's Division of Infectious Disease, the Fellow will perform syndrome validation to: (1) compare chief complaints to ICD-10 diagnosis code and triage note information, (2) identify exclusion terms, (3) assess emergency department visits detected by current syndromic case definitions, and (4) validate retrospective syndromic surveillance cases against the hospital discharge database.

Major Project Cross-Sector Data Linkage and Dissemination for Opioid Overdose Prevention

IDPH recently received multi-year grant funding from the CDC's National Center for Injury Prevention and Control and the Department of Justice's Office of Justice Programs to track opioid overdose morbidity and mortality, improve the timeliness and quality of this data, leverage cross-sector datasets to create a holistic view of the Illinois opioid epidemic, and identify best practices for data sharing.

IDPH will develop and utilize 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 opioid related data available for this project include IDPH data (on overdose deaths, hospitalizations, Emergency Department visits, emergency transport naloxone administration, Neonatal Abstinence Syndrome, HIV and viral hepatitis state-wide case reporting data); de-identified aggregate PMP data on prescriber registrations and opioid prescribing;

de-identified IVDRS data; and other external data (DASA data on treatment providers, admissions, and naloxone overdose prevention programs, arrest and substance seizure data from the Illinois State Police, and prison data from the Illinois Department of Corrections). Data sharing agreements are already in place for the IDPH, PMP, and IVDRS data, and initial work will commence with some of these datasets.

The Fellow will work with the Hospital Discharge Data Manager/Systems Architect and both mentors to develop methodologies for data linkage and will analyze the data to describe trends in, and risk factors for, fatal and non-fatal overdose. A particular interest is to explore whether fragmentation of care, certain comorbidities, or previous overdoses are predictive of opioid overdose deaths. 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 project steering team and a multidisciplinary group of key data stewards to identify a consumer-oriented set of surveillance metrics that will be publicly reported on the Illinois Public Health Community Map at <http://www.healthcarereportcard.illinois.gov/map>. Currently, county level rates of opioid overdose deaths, hospitalizations and emergency department visits are published on the Map. Finally, the Fellow will participate in assessing stakeholder data needs and utility of the Opioid Hub and in building key partnerships to extend data reach. The steering team will provide a pipeline into the statewide Task Force for review and input about the data.

Additional Disparities in healthcare utilization and outcomes Project

The Division collects patient level discharge data from all Illinois acute care hospitals, specialty hospitals and ambulatory surgical treatment centers. The Fellow will have the opportunity to analyze a topic of interest from a health equity perspective (e.g., chronic disease, infectious disease, etc.) for publication on the Illinois Public Health Community Map. The Fellow will be encouraged to develop an accompanying policy brief and abstract for presentation at a scientific conference.

Preparedness Role

The data linkage and syndromic surveillance activities described above will facilitate the identification of emerging opioid hotspots and inform preparedness and response activities. Using data visualization software Tableau, the Fellow will help with creating, and evaluating use of, online dashboards for a variety of stakeholders.

As indicated in the accompanying letter of support, the Fellow will also collaborate with the Division of Emergency Management and Highway Safety on statewide implementation of a cloud-based patient tracking system called EMTrack. This tool can be leveraged to manage mass casualty incidents, healthcare facility planned moves and evacuations, drug dispensing operations, and a variety of other situations. Specific tasks would include:

- Perform gap analysis of patient tracking and develop a report or white paper outlining identified needs and potential application of EMTrack to address these needs.
- Develop patient status and location data visualization solutions within EMTrack and create end use and administrator level EMTrack training curricula and materials.
- Collaborate with the Office of Preparedness Division of disaster Planning & Readiness to develop and implement drills and exercises to test EMTrack.

Finally, there will also be opportunities to be involved in outbreak investigations with the HAI/AR team as well as participate in various Table Top activities and other emergency preparedness activities across the Department.

Additional Activities

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

- Participate in outbreak investigations with the HAI/AR prevention team or Division of Infectious Disease.
- Participate in policy analysis and development of policy briefs related to patient safety and quality issues.
- Participate in grant writing, budgeting, and grant management.
- Assess impact of supportive housing on homelessness by utilizing the Chicago Homeless Management Information System to analyze patterns of opioid overdose and mortality among homeless individuals.
- Create an in-depth analysis on a topic of interest to the Fellow using the Illinois Violent Death Reporting System data.
- Assess antibiotic prescribing and stewardship practices, drawing from available data sources.
- Analyze infection data reported to the National Healthcare Safety Network.

Mentors

Primary	Jennifer Layden MD, PhD Chief Medical Officer and State Epidemiologist
Secondary	Anh-Thu Runez MPH Senior Epidemiologist