Host site: Illinois Department of Public Health Office of Disease Control/Office of Policy, Planning, and Statistics

Assignment Location: Chicago, Illinois

Primary Mentor: Stacey Hoferka, MPH, MSIS
Secondary Mentor: Sarah Patrick, MPH, PhD

Agency Description:

The Illinois Department of Public Health (IDPH) collaborates with independent local health departments (LHDs), acute care hospitals, commercial laboratories, physicians, the CDC, FDA, USDA and other agencies to conduct disease surveillance, investigation, and control activities. IDPH has over 200 programs working to keep the residents and visitors of Illinois Healthy. IDPH is organized into 12 offices, each of which addresses a distinct area of public health. Each office is dedicated to a distinct area of public health and operates and supports numerous ongoing programs.

In our most recent strategic plan IDPH created a new mission and vision:

Mission:

The Illinois Department of Public Health is an advocate for and partner with the people of Illinois to re-envision health policy and promote health equity, prevent and protect against disease and injury, and prepare for health emergencies.

Vision:

Illinoisans empowered and supported to achieve their optimal health with dignity and acceptance in diverse and thriving communities.

In order to promote the health of all Illinoisans effectively, IDPH recognizes the importance of using science and timely data to drive decisions, policies, and programs. Data from across the agency is housed throughout various systems. IDPH developed the IDPH data HUB to facilitate data linkages.

The IDPH data HUB represents an integrated platform architecture across agency offices, programs and surveillance systems. The HUB supports advanced data linkage at the individual-level for the most complete record of patient illness and injury. The architect of the HUB and supporting informatics staff are located in the Office of Policy, Planning and Statistics, where an agency informatics unit is being expanded with additional staff and technology. The HUB supports linkage of data from vital records, hospital discharge and syndromic surveillance. Initially established in response to the opioid epidemic, it has then been critical to COVID surveillance activities. The informatics unit supports high priority
projects in the Office of Disease Control, including communicable disease reporting, immunization, electronic laboratory reporting and electronic case reporting.

Assignment Description:

The fellow will sit in the IDPH Office of Disease Control as part of the informatics team in the Communicable Disease Control Section. The IDPH Communicable Disease Control staff are housed in two locations with the majority of staff located in the central office in Springfield and others in Chicago. These staff manage all aspects of the Communicable Disease program from consultations, investigations, trainings, resource development and delivery, review and closure of cases, outbreak detection, epidemiological analysis, outbreak response and multi-county coordination, research, infection control assessments and recommendations, data report generation, after-hours on-call response, management of informatics tools, grant writing, rule changes, and involvement in national efforts. The division monitors and responds to reportable disease cases and outbreaks using various surveillance systems.

The fellow will also have the unique opportunity to work with teams in across the agency, including the Office of Policy, Planning and Statistics, which is home to additional informatics staff and the architect of the IDPH Data HUB. The fellow will also be exposed to work across the agency as part of the Data Modernization Initiative.

During the assignment the fellow will have hands-on learning opportunities in public health informatics working with both a mature, well-established disease surveillance system and developing a system for working with new sources of surveillance data. The Illinois-National Electronic Disease Surveillance System (I-NEDSS) was established in 2004 to collect data on mandatory communicable disease reporting in Illinois. Improving the timeliness and completeness of data into I-NEDSS involves the expansion of Electronic Laboratory Reporting (ELR) to hospitals and the collection of relevant clinical data from provider Electronic Health Records as well as the use of electronic case reporting (eCR).

Potential day to day activities:

- Participate in conference calls and webinars about Electronic Laboratory Reporting, eCR and data modernization
- Conduct on-boarding activities that include validation of HL7 messages for quality, recommending corrections, evaluating timeliness and completeness of data, conducting calls with hospital staff as needed and monitoring continuous submissions of data
- Conduct analysis of surveillance data to identify areas in need of improvement and devise improvement plans
- Work with project teams to further eCR use, use eCR data to enhance opioid overdose surveillance, and drive the data modernization initiative at IDPH.
Preferred Background & Skills:

Ideally the fellow would have some background in informatics or computer science. Understanding of standards, including HL7, SNOMED or LOINC. Familiarity with XML is a plus. Strong skills in programming, either in SAS or R or SQL, python facilitate the learning curve for other computer languages. The fellow should also have a working knowledge of disease surveillance in public health.

What can the fellow expect to gain from 2 years at this host site?

Upon completing the fellowship the fellow will have an in depth understanding of disease surveillance and electronic surveillance systems. The fellow will have an understanding of the infrastructure needs of health departments, the epidemiological characteristics of the surveillance data and its use in public health practice. The fellow will have experience working with various forms of electronic surveillance data including evaluating that data for quality and completeness. As an HL7 standard, the fellow will be trained in Rhapsody, as past APHIF fellows have been, receiving the Associate certificate or more advanced certification, if interested.

Potential Projects include:

Host sites have listed up to 5 projects

Project 1: Implementing Electronic Case Reporting at IDPH

The fellow will be part of a team developing the electronic case reporting (eCR) system at IDPH. As electronic case reporting is in its infancy, the fellow will have the opportunity to be involved in all phases of implementation. Over the course of the project the team will collaborate with subject matter experts to complete authoring of reportable conditions specifications in RCKMS and test and publish these conditions, making updates as needed. IDPH will work to develop a Rhapsody route to transform the XML versions of the reports into a format that is ingestible by the surveillance system. In addition, the team will develop materials and provide trainings on eCR for local health department and program staff so that they understand how eCR may change their workflow and how best to use eCR. The team will develop informational materials and web content to share with interested providers and work to recruit and onboard facilities and providers within Illinois. Developing and employing a protocol for moving facilities through the onboarding process and validating test files will also be key to moving the project forward.

Objectives and Deliverables:

- Author all reportable conditions to publication
- Develop Rhapsody route so that eCRs can be ingested into surveillance system
• Onboard providers to submit eCRs for all diseases
• Develop educational and reference materials for health departments and providers

The automatic ingestion of electronic case reporting data into INEDSS is an important advancement in disease surveillance. Automated electronic case reporting will enable public health to collect more timely and complete data on more disease cases with a reduced burden on both public health personnel and providers. This information will be used for tracking disease incidence, and identifying risk factors and disease clusters so that public health is able to address and mitigate threats to the public more effectively.

Project 2: Opioid Overdose Reports Received from Electronic Case Reporting (eCR)

The fellow will expand the sources of data used for surveillance monitoring of drug overdoses. Opioid overdoses are one of the included conditions in the larger eCR initiative. eCR is an opportunity to improve individual level case reporting for investigation purposes. Investigations can lead to the identification of novel products and new risks that can be communicated to the public. At IDPH, once eCR is established, the opioid overdose reports will need to be re-routed to the other programs engaged in opioid overdose surveillance and response, the Office of Policy, Planning and Statistics' Division of Patient Safety and Quality and the Office of Health Promotion’s Division of Emerging Health Issues. The opioid overdose reports received from eCR will provide person-level data that supplements the reporting received now from syndromic surveillance emergency department visits which fulfills a 48-hour opioid overdose reporting mandate on IL, the Emergency Medical Service (EMS) run data, High-Intensity Drug Trafficking Area (HIDTA) data, Illinois Poison Control calls, mortality data including SUDORS, drug supply checking and patient toxicology of non-fatal cases. The fellow will extract eCR reports on opioid overdoses and use them as a bases to set up person-level investigation steps. This includes building an investigation form in the IDPH REDCap application.

Objectives and Deliverables:
• Identify opioid overdose reports submitted to IDPH via eCR
• Extract data in eCR and send to the appropriate reporting system or shared with the opioid overdose surveillance tea
• Build a project that can ingest eCR reports and include additional data fields to be collected by case investigation

There is a growing need to investigate some overdose cases to identify unusual drug usage patterns and understand clusters in order to improve communication, naloxone access, warm-hand off case management and linkage to care, establish more syringe service programs where needed, and support for our local health departments, harm reduction agencies and the state Opioid Action Plan.

Project 3: Data Modernization Project
The fellow will participate in a team to take an enterprise approach to implementation of modernization activities across all diseases and conditions addressed by the HD. The project will require cross departmental offices including informatics, public health labs, reportable conditions, vital records, disease surveillance, and others.

Objectives and Deliverables:

- Establish current state of data and health information systems and services including data exchange and systems supporting epi and labs to identify opportunities of modernizations and improve interoperability.
- Assess jurisdictional data science capabilities for intra-jurisdictional and inter-state and federal data sharing.
- Leverage assessment to inform modernization plan for IT and informatics infrastructure.

Improve access to high quality through the acceleration of data modernizations and workforce enhancements. Identify and address challenges to enhancing or accelerating data exchange and systems interoperability. Assess and address department wide data and IT governance plan, continuous monitoring activities, data analytics, visualization and reporting activities.

Additional information about the placement:

The fellow will have the opportunity to work across teams and projects, providing a unique opportunity for exposure to different areas of public health.