

Example – CSTE Applied Epidemiology Host Site
Chronic Disease, Injury - Host Site Description
Cook County Department of Public Health

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Disclosure: This is an example of a past host site projects proposal and is not intended to be an available host site location. This is posted for example purposes of the projects and activities a host site can propose for the fellow.

Assignment Location: Forest Park, US-IL
Cook County Department of Public Health
Epidemiology

Work Environment
Hybrid

Assignment Description

The CSTE Fellow will be assigned to the Epidemiology Unit and work on topic areas that matches the fellow's skills and interests. The unit's office is located in southwest Cook County. Also, since the pandemic, much of the Unit's staff has continued to telework, although this is subject to change.

The Epidemiology Unit monitors health problems, disparities and trends by assembling, analyzing and disseminating data and information about the health of suburban Cook. We compile and analyze population, vital statistics, hospitalization, risk factor and other secondary database data for our jurisdiction. We prepare community profiles of all SCC municipalities, respond to data requests from the community, stakeholders, and researchers. We provide epidemiologic data for CCDPH programmatic units and community partners. We maintain and support CCDPH utilization and performance measures. We identify and analyze data sources to support public health programs, policy development, and resource allocation. During the pandemic, the Epidemiology Unit has collaborated with IDPH, academic institutions, and research scientists, biostatisticians, and mathematicians on predictive modeling of COVID to assist with resource allocations for the emergency response of this outbreak, and collaborated with the Communicable Disease (CD) Unit to conduct case investigation and contact tracing. We also work closely with CD to develop real-time surveillance of opiate, vaping, and tracking of occupational injuries using the ESSENCE system.

The Fellow's anticipated day-to-day activities will include monitoring surveillance data, conducting data analysis, develop reports, briefs, data visualizations, respond to data request, conduct case investigations for non-communicable diseases, and participate in community health assessments. The Fellow will participate in special research projects in partnership with the academic and community partners such as occupational health surveillance, qualitative research studies of long-term effects of acute injury, and health disparities research.

The Epidemiology Unit is a growing unit, covering topic areas including vital records, chronic diseases, substance use disorder, injury and occupational health. The Unit is leading the data analysis, assessments, and program evaluations for several Opioid-related grants totaling over 5.9 million dollars, including the CDC Overdose Data to Action, the SAMHSA-CARA grant, and the Bureau of Justice Assistance's, BJA Partnership to Support Data-driven Responses to Emerging Drug Threats, and the Comprehensive Opioid, Stimulant, and Substance Abuse Site-based Program (COSSAP). This grant funding is being used to prevent opioid overdose deaths, develop surveillance systems and increase access to and use of evidence-based substance use treatment programs. These grants open more opportunities for Fellows placed in the unit such as non-communicable case investigations, spatial analysis, and program evaluation.

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Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

The Fellow will have access to R, ArcGIS, SAS, biospatial, MENDS, the Illinois-National Electronic Disease Surveillance System (I-NEDSS), Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) through the National Syndromic Surveillance Program (NSSP), and additional software and supports for specialized projects.

Projects

Surveillance Activity Title: Evaluation of the Usefulness and Efficiency of Biospatial's EMS dashboard and Data Description

Surveillance Activity Description:

CCDPH presently is looking to better leverage its use of emergency medical services (EMS) data made available via the biospatial platform. The biospatial platform provides automated analysis of near real-time EMS data, aggregation of trends, and alerting to anomalies based on syndromes that leverage both categorical elements and natural language processing of free-text elements within EMS data. The fellow will evaluate the functionality and robustness of the biospatial platform in helping to achieve department objectives and how the data accessed via the biospatial platform compares to the EMS data acquired from the state (i.e., Illinois Department of Public Health) directly.

Surveillance Activity Objectives:

The fellow will first identify and summarize the types of data and dashboards that are available in the biospatial platform. The fellow will then work together with colleagues in CCDPH's epidemiology and communicable disease units to document and examine existing and proposed EMS-related workflows and their coherence with desired outcomes. Through this process, the fellow will identify gaps and/or inefficiencies in the department's present use and/or performance of the biospatial platform. (Known limitations include inefficient spatial filtering and querying and cumbersome exporting of EMS data into other platforms.) Lastly, the fellow will develop a report that includes insights and strategies for enhancing system and EMS data use and propose modifications to the biospatial platform itself to be shared with vendor.

Surveillance Activity Impact:

The insights and strategies communicated in the evaluation will improve the utilization of EMS data in department activities to inform surveillance, epidemiological, prevention effectiveness and other CCDPH public health activities.

Surveillance System Evaluation Title: Evaluation of the Usefulness and Efficiency of MENDS data products Description

Surveillance System Evaluation Description:

CCDPH recently signed a data use agreement to access Multi-state, electronic health records (EHR)-based Network for Disease Surveillance (MENDS) data products. MENDS is a pilot, EHR based, chronic disease surveillance system, led by the National Association of Chronic Disease Directors (NACDD) and funded by CDC Division for Heart Disease and Stroke Prevention. Use of EHR-based population health surveillance is a promising approach to generating timely, accurate and locally relevant prevalence data. CCDPH is partnering with AllianceChicago, which presently collects data from 18 health centers in Illinois with plans to expand to additional care providers. The fellow will evaluate the functionality and robustness of the existing MENDS platform to achieve department objectives.

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Surveillance System Objectives:

The fellow will first identify and summarize the types of data and dashboards that are available in the MENDS platform. The fellow will then work together with colleagues in CCDPH's epidemiology and communicable disease units to document and examine existing and proposed MENDS-related workflows and their coherence with desired outcomes. Through this process, the fellow will identify gaps and/or inefficiencies in the department's present use and/or performance of the MENDS platform. (One known limitation includes a current lack of data collected within CCDPH's jurisdiction.) Lastly, the fellow will develop a report that includes insights and strategies for enhancing system and MENDS data use and propose modifications to the MENDS platform itself to be shared with AllianceChicago and other system partners.

Surveillance System Impact:

EHR data made available via MENDS has the potential to help identify public health problems that can be best addressed through joint public health and clinical interventions. MENDS can also pinpoint geographic hot spots of specific risk factors to better plan programs and evaluate impact. The insights and strategies communicated in the proposed evaluation will improve the utilization of MENDS data in department activities to inform surveillance, epidemiological, prevention effectiveness and other CCDPH public health activities.

Major Project Title: Enhancement of Suburban Cook County Health Atlas

Major Project Description:

CCDPH is looking to enhance the content and functionality of its innovative health atlas, launched fall 2022, that makes available analytical and data acquisition tools for multiple stakeholders. Desired enhancements include products managed via a content management system, data and analyses from the department's health surveys, secondary data sources (e.g., hospitalization, vital statistics, electronic health reports) and social and structural determinants of health information.

Major Project Objectives:

The fellow will co-lead the enhancement of suburban Cook County's health atlas project by maintaining communication with the website vendor and partner agencies for timely and accurate buildout. The fellow will also identify and help formalize standard practices for processing and uploading various types of datasets into the atlas, including demographic data, mortality and natality data, prevalence and survey data on chronic diseases, infectious disease data, and other public health related data.

Major Project Impact:

The data, metrics, visualizations and reports made available via an enhanced health atlas will help inform agency policy, operations, programs and strategies as well as centralize and share critical public health information with health care partners and the broader community.

Additional Project #1 Title: Department's Vital Statistics Reporting Using Small Area Estimates

Project #1 Type: Major Project

Project #1 Description:

Like other local health departments around the country, CCDPH is increasingly using spatial analysis to document and address fine-scale geographic disparities in the burden of chronic disease morbidity, mortality, risk factors, and treatments. Such analyses require local data (e.g., neighborhood, census tract) and tools that yield accurate and precise prevalence estimates. Toward this end, CCDPH is looking to develop standard procedures for calculating and regularly reporting--both internally and to the broader public--local-level measures of chronic disease.

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Project #1 Objectives and Expected Deliverables:

The fellow will assist the CCDPH epidemiology unit to research and identify modeling techniques that can be employed to produce meaningful small-area estimates using the department's vital statistics, hospital discharge, communicable disease and behavioral health survey datasets. The fellow will then work with CCDPH staff to employ, compare and validate the reliability of results using CDC's recommended rate stabilization and perhaps other small-area estimation tools. These efforts will culminate in recommended standard operating procedures for unit staff specifying steps for calculation and language for reporting.

Project #1 Impact:

Both local health departments and the communities they serve need neighborhood-level measures of population health to assist in planning public health prevention programs, allocating resources, formulating health policy and engaging in health care decision making and delivery. Unfortunately, such small-area estimates are not yet widely calculated and reported. This project would help fill this gap at CCDPH, by providing the department a strategy for producing and communicating neighborhood-level estimates using readily available datasets.

Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

During the pandemic, the Epidemiology Unit has been instrumental in developing health and population indicators to assist the health department in determining need in our community for housing, interpreters, hospital capacity, and food security. The unit continues to collaborate with IDPH, academic institutions, and research scientists, biostatisticians, and mathematicians on predictive modeling of COVID to assist with resource allocations for the emergency response of this outbreak. The Fellow will have the opportunity to participate in investigations of disparities in the department's response to COVID over time.

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

The fellow will spend most of their time working on chronic disease for the Epidemiology Unit and very little, if any, time on cluster and outbreak investigation which is carried out by the Communicable Disease Unit.