

**ID: 74492787**

**Chronic Disease, Maternal and Child Health - Host Site Description**

**Chicago Department of Public Health**

**Assignment Location:** Chicago, US-IL  
Chicago Department of Public Health  
Office of Epidemiology

**Primary Mentor:** Hannah Matzke, PhD, MS  
Epidemiologist IV  
Chicago Department of Public Health

**Secondary Mentor:** Emma Boylan, PhD, MS  
Epidemiologist III  
Chicago Department of Public Health

**Work Environment**

Hybrid

**Assignment Description**

A fellow at Chicago Department of Public Health would work and have mentorship across Chronic Disease. In order to conduct their work, the Fellow will meet regularly with the mentorship team (primary/secondary mentors plus current AEF fellow, and Director of Epidemiology, Nik Prachand) to develop and progress the projects. The Fellow will conduct their data analyses on CDPH software and provide transparency to the methods, and ultimately collaborate with the Epidemiology team on data visualization and presentation.

The Fellow will need to develop relationships, with our introductions, to the staff at CDPH, as this will facilitate community outreach and understanding of community needs. An important responsibility of the Fellow's role will be responding to community requests for information about local health and its determinants. Many of these requests will be forwarded by project management staff working with CBOs and community health workers in the Community Health Response Corps, but they may also come from public data requests, meetings with community members, or other government entities. The Fellow will also develop relationships with academic researchers to advance our understanding and measurement of disparity and equity. The Fellow will be introduced to academic partners who are already instrumental to our work such as the C3 and the CAPriCORN research network; and will be supported to pursue other partnerships that advance their projects and professional goals.

The proposed projects align with CDPH's goals to maintain and improve our infrastructure for public health surveillance. Therefore, the Fellow will be asked to present their plans and work product to CDPH leadership and to provide substantive input to ongoing department-wide data infrastructure projects that support chronic disease surveillance. CDPH is a collaborative atmosphere, and in the time of COVID, staff have been asked to stay abreast of current updates. Therefore daily activities may include answering questions from our external partners or helping facilitate community engagement in COVID prevention. The Fellow should anticipate being logged into the Microsoft Teams and Outlook email daily for the duration of the work day and respond (as appropriately timely) to requests for assistance, updates, questions, etc.

The Fellow will work in the Office of Epidemiology, Research and Evaluation with direct support of the Office of Chronic Disease and Prevention. The support team includes Dr. Hannah Matzke, Dr. Emma Boylan, and Director of Epidemiology, Nik Prachand, MPH. The Offices of Chronic Disease and Epidemiology have collaborated on this application and project proposals and will work collaboratively to develop the Fellow's projects and provide support and mentorship.

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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 the same analytic and productivity software as other CDPH epidemiologists including SAS, R, ArcGIS Pro, Tableau Server, and Office 365. The Fellow will also have the same access to surveillance data and other data sources relevant to chronic disease prevention and control that other epidemiologists have including raw Healthy Chicago Survey data; Illinois vital records, cancer registry, and hospital discharge data; CDPH GIS datasets; EMS data; internal program evaluation data; and both public and internal-facing versions of data posted to the Chicago Data Portal. The Fellow will have back-end access to the Chicago Health Atlas and the data posted there. As new data becomes available, for example the CAPriCORN EHR data described below.

**Projects**

**Surveillance Activity Title: Evaluating Healthy Chicago Survey to understand the needs of pregnant and recently postpartum Chicagoans**

*Surveillance Activity Description:*

The CDPH Office of Epidemiology conducts its own annual health survey, the Healthy Chicago Survey (HCS). The survey is designed to provide prevalence estimates for the city as a whole by demographic group each year, and for each of Chicago's 77 community areas every two years. Topics in the survey include health care access, behavioral health, chronic health conditions, and household and neighborhood resources.

Starting in 2021, the Healthy Chicago Survey has included a question asking if a respondent was pregnant or had been pregnant in the last year. CDPH has now accumulated four years of data collection from the Healthy Chicago Survey in which pregnancy and postpartum status can be assessed. The fellow will work with the lead HCS epidemiologist, Dr. Matzke, and the Bureau of Maternal, Infant, Child, and Adolescent Health to assess data quality, stratify analysis by pregnant and postpartum status, and analyze service gaps, prenatal and postpartum mental health, and chronic health conditions affecting pregnant and postpartum Chicagoans. The fellow will also review the survey instrument and suggest improvements to better capture information relevant to Maternal, Infant, Child, and Adolescent Health Bureau.

*Surveillance Activity Objectives:*

- 1) Assess the usage of the Healthy Chicago Survey as a means of understanding the health status of pregnant and postpartum Chicagoans
- 2) Validate Healthy Chicago Survey estimates for pregnant and postpartum compared to similar public health surveys, such as NHANES and PRAMS, and vital statistics data.
- 3) Create indicators based on Healthy Chicago Survey data to continually assess trends in chronic and mental health for pregnant and postpartum people.

*Surveillance Activity Impact:*

The Maternal, Infant, Child, and Adolescent Health Bureau is continually assessing its programming and health initiatives to best serve the health of pregnant and postpartum Chicagoans. Using insights from the Healthy Chicago Survey, the Bureau will be able to better assess the mental health of pregnant and postpartum Chicagoans and address relevant chronic and mental health service gaps.

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**Surveillance System Evaluation Title: Validating population health indicators from EHR data**

*Surveillance System Evaluation Description:*

Use of electronic health record (EHR) data for population health surveillance is an emerging area of work for applied epidemiologists, especially in maternal and child health and chronic disease. EHR data has the potential to fill critical gaps to inform public health interventions, for example, by linking the health outcomes of mothers and babies; learning what share of people with chronic diseases are receiving recommended screenings and care; or collecting data on conditions that may prevent people from answering public health surveys. This information can be used to better inform public health departments' choice of interventions and use of limited resources.

For the past two years, CDPH has worked to establish a new data pipeline from CAPriCORN, a federated network of EHR data covering Chicago's major health systems. The graduating AEF (Class 21) collaborated with CAPriCORN network members and CDPH epidemiologists to develop multiple queries that will allow us to describe the prevalence of additional chronic conditions, screening adherence, disease control, and maternal and child health outcomes. Data are expected to be delivered beginning Spring 2025.

For this project, the prospective AEF (Class 23) will collaborate with epidemiologists from the CDPH Offices of Epidemiology and Chronic Disease, Bureau of Maternal, Infant, Child, and Adolescent Health; and researchers and informaticists with the CAPriCORN network. The AEF will lead CDPH's internal analysis of EHR data, maternal/infant data linkage, and validation of selected indicators against public health survey data. The AEF will collaborate with CAPriCORN researchers, Dr. Matzke, and Dr. Boylan to evaluate the approach to population weighting. This project will give the AEF the opportunity to present to multiple internal and external audiences, coauthor scientific manuscripts, and contribute to local and national standards for population health surveillance.

*Surveillance System Objectives:*

- 1) In collaboration with the project team, develop a validation protocol for selected population health indicators based on prior research
- 2) Implement the validation analysis and develop an internal visualization and report of results
- 3) Develop internal documentation and SAS code that can be used by other CDPH epidemiologists for EHR-based surveillance
- 4) Contribute to writing and analysis of deliverables as appropriate to validation results

Depending on validation results, specific deliverables may include scientific manuscripts or presentations, contributions to internal and external methodology reports, program evaluation indicators or performance measures, or dashboards.

*Surveillance System Impact:*

This project enhances the population health surveillance capacity of CDPH and directly addresses the priorities of CDC's Data Modernization Initiative as they relate to chronic disease. EHR data includes information that currently cannot be obtained from existing public health data systems for most chronic conditions, including prevalence of rarer conditions; screening and treatment; comorbidities; and development across the life course. Process work will enhance the professional development and technical capacity of CDPH epidemiologists.

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**Major Project Title: Using local survey data for data informed decisions and evaluation of precision public health activities**

*Major Project Description:*

CDPH conducts its own annual health survey, the Healthy Chicago Survey (HCS), which forms the basis of much of our office's chronic disease surveillance activities. The survey is designed to provide updated prevalence estimates for the city as a whole by demographic group each year, and for each of Chicago's 77 community areas every two years.

*Major Project Objectives:*

- 1) Collaborate with programs to map processes to the theory of change framework.
- 2) Inventory available data and identify data elements and crosstabulations that would be use as metrics in program evaluations
- 3) Review and analyze existing HCS data and documentation to identify specific public health questions that cannot be addressed using currently available HCS data, or that are incomplete or out of date due to changing language or guidelines
- 4) Evaluation study on the use of HCS data in spatial analysis

*Major Project Impact:*

This project directly addresses the priorities of CDPH's 2025 Strategic Plan, particularly as it relates to chronic disease. This process will enhance the ability to conduct performance evaluation by identifying geographically specific short-, mid-, and long-term metrics. This project will also explore possible solutions to common challenges with a precision public health approach including developing new survey questions and testing methods for estimating prevalence in small geographies (small area estimation).

**Additional Project #1 Title: Comparison of Results from Two Chicago Community Health Surveys**

**Project #1 Type: Surveillance Activity**

*Project #1 Description:*

In 2024 Illinois Department of Public Health launched Healthy Illinois Survey and are expecting to share the first year of data for the jurisdiction of Chicago by the end of 2025. In collaboration with IDPH, CDPH requested specific questions to include in surveys going to Chicago residents, and tested phrasing of some questions.

The purpose of this project is to evaluate the consistency of responses across the two surveys, evaluate the impact of different phrasing choices, statistically evaluate potential biases, and compare results to state and national prevalence estimates.

The Fellow will conduct an exploratory literature search on possible survey methodologies to consider in future iterations of the Healthy Chicago Survey. The Fellow will work with their team of mentors to make recommendations for the following years Healthy Chicago Survey, and participate in methodological discussions related to potential changes in sampling or survey methods. These activities would occur for both the 2026 and 2027 surveys.

*Project #1 Objectives and Expected Deliverables:*

- 1) Comparison tables of estimates across Healthy Chicago Survey and Healthy Illinois Survey.
- 2) Inventory estimates available in statewide or national datasets that are comparable to Healthy Chicago Survey and Healthy Illinois Survey
- 3) Identify validated wording for new or updated questions from relevant sources such as Healthy People 2030, CDC Chronic Disease Indicators, NHIS, or BRFSS

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4) Synthesize findings into a list of requested new/updated/retained questions for submission to HCS leadership

5) With mentorship team, represent Chronic Disease data requests on future HCS steering committees

*Project #1 Impact:*

This project directly supports Office of Epidemiology objectives of increasing engagement with external partners and ensuring maintenance, management, and documentation of datasets for departmental use. The results of this project will help inform the decision making process for future questionnaires when new methodologies are implemented or changes in funding.

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

Implement an ICS related data collection activity for the Community Response Corps

- Prepare and Maintain the ICS through the Life Cycle: Maintain tool, respond to problem reports, determine when custom data collection tool will be retired and follow appropriate procedures to remove access, produce final reports or data tables and documentation

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

Implement an ICS related data collection activity for the Community Response Corps

- Intake: receive request, follow up with ICS epidemiologists, determine data collection and reporting needs, agree on roles
- Development: Build and lead testing of a custom REDCap data collection tool and relevant reports and documentation
- Implementation: Lead training of CHWs in use of new form, serve as face of initiative to Corps, attend ICS meetings and act as liaison between CHRC and ICS
- Depending on EMS results, there may be opportunity to investigate areas with large numbers of OHCA and a potential need for targeted outreach