

ID: 73019509

Injury, Environmental Health - Host Site Description

Oakland County Health and Human Services

Assignment Location: Pontiac, US-MI
Oakland County Health and Human Services
Health and Human Services

Primary Mentor: Lauren Fink, MPH
Epidemiologist
Oakland County Health and Human Services

Secondary Mentor: Mike Swain, MPH, PhD
Epidemiologist
Oakland County Health and Human Services

Work Environment

Hybrid

Assignment Description

The Fellow will be placed in the Planning & Evaluation unit and will work closely with the Environmental Health unit as well. The fellow's day-to-day activities will primarily include working with data, interpreting results, presenting findings and making recommendations. The fellow will be expected to write R code (training will be provided if needed), prepare reports and dashboards (using Power BI and/or FlexDashboard in R), create data visualizations and maps, and assist with survey development and analysis of survey data. The fellow will be expected to present data disaggregated by demographic factors and interpret the results of disaggregated data with sensitivity.

There will be many opportunities to attend meetings, community events and webinars and to network with staff across the department. This will ensure a well-rounded experience and understanding of local public health.

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

- Michigan Disease Surveillance System (MDSS)
- Michigan Syndromic Surveillance System (MSSS)
- MyInSight: Oakland County's electronic medical record (EMR) system
- Michigan Care Improvement Registry (MCIR)
- Oakland County's Forensic Case Management System (FCMS)
- Oakland County cooling towers
- Oakland County radon results
- Oakland County laboratory results (water focused - arsenic, nitrates, etc.)

The fellow will have access to the following programs, web-based applications, and software: R, Excel, Power BI, NVivo (for qualitative data), MySidewalk (for creating reports, maps, and data visualizations), ArcGIS (mapping), Qualtrics (survey software)

Projects

Surveillance Activity Title: Monitoring Lead Exposure Trends in Oakland County

Surveillance Activity Description:

This project focuses on analyzing lead surveillance data to identify trends in lead exposure across Oakland County. The fellow will clean and manage data from multiple sources, assess geographic and demographic patterns, and create reports to highlight high-risk areas and populations. The fellow will work closely with outreach nurses who provide services to families impacted by lead exposure as well as our environmental team that conducts investigations to uncover the sources of lead exposure. One goal of this project will be to harmonize service data across the two teams along with population data obtained from the state health department. Under the guidance of a highly trained and experienced environmental health epidemiologist, the fellow will gain experience in environmental health surveillance and data management while supporting community outreach efforts.

Surveillance Activity Objectives:

- Clean and integrate lead surveillance data from multiple sources while ensuring accuracy and consistency.
- Analyze lead exposure data to identify geographic and demographic trends.
- Produce periodic reports and visualizations summarizing findings and providing actionable recommendations for mitigation and prevention efforts.
- Collaborate with public health teams to validate findings and ensure the relevance of surveillance results.
- Present findings to stakeholders to support resource allocation and intervention planning.

Surveillance Activity Impact:

This project will strengthen Oakland County's ability to identify and respond to lead exposure risks, especially in vulnerable populations. By addressing data challenges and producing actionable insights, it will support targeted interventions and raise awareness about lead exposure prevention. Additionally, the project will build the fellow's skills in data cleaning, management, analysis, and communication, preparing them for future epidemiology projects.

Surveillance System Evaluation Title: Validation of Injury-Related National Syndromic Surveillance Program (NSSP) Queries for Michigan Syndromic Surveillance System (MSSS)

Surveillance System Evaluation Description:

In Michigan, local health departments utilize Michigan Syndromic Surveillance System (MSSS) rather than the more widely used national platform, ESSENCE, due to differences in system administration and data access policies. Unlike ESSENCE, which operates as a national platform, MSSS is managed at the state level, allowing for tailored surveillance efforts but limiting the ability of local epidemiologists to utilize standardized national queries based on syndrome definitions and other queries developed for ESSENCE. These queries are available from resources such as the National Syndromic Surveillance (NSSP) Knowledge Repository.

This project focuses on translating and validating existing queries for use in MSSS, with an emphasis on tracking injury-related visits. The fellow will ensure the accuracy, consistency, and usability of MSSS queries to monitor trends in injuries such as firearm incidents, traffic accidents, and other acute presentations. Collaborating with state and local epidemiologists, the fellow will test and refine queries to enhance the utility of syndromic surveillance data for injury prevention and response at the local level in Michigan.

Surveillance System Objectives:

- Identify and prioritize high-impact injury-related queries for validation in collaboration with public health teams.

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- Translate queries from resources such as NSSP's Knowledge Repository for compatibility with MSSS, focusing on injury indicators.
- Validate the performance of queries through testing and refinement.
- Document the validation process and create user-friendly guidelines for future use.

Surveillance System Impact:

This project will improve Oakland County's ability to monitor injury trends using the Michigan Syndromic Surveillance System (MSSS). It will also enhance MSSS usability for other local health departments in Michigan, supporting better public health interventions statewide and giving the fellow opportunities for cross-jurisdiction collaboration. The fellow will gain practical skills in injury epidemiology and data validation while contributing to important surveillance efforts.

Major Project Title: Community-Engaged Injury and Violence Prevention Epidemiology

Major Project Description:

In collaboration with community and agency partners, this project will enhance injury epidemiology efforts in Oakland County using data from the Medical Examiner's Office (MEO) and the Michigan Syndromic Surveillance System (MSSS), along with additional data sources identified by the fellow. Under the guidance of an epidemiologist experienced in injury surveillance and fatality review, the fellow will develop internal and external dashboards and examine trends in firearm-related injuries, suicides, traffic fatalities, drowning, and other injury incidents to inform data-driven prevention strategies.

As part of this work, the fellow will participate in the county's Suicide Fatality Review (SFR) team, which is a national demonstration site being developed with the support of the Intergovernmental Institute for Research (IIR) and in partnership with Michigan Public Health Institute (MPHI). Key responsibilities include data cleaning, analysis, visualization, and interpretation.

This project will involve close collaboration with the county's Medical Examiner Office, Suicide Prevention Task Force, and other key stakeholders.

Major Project Objectives:

- Clean, manage, and integrate injury data from multiple sources to enhance the availability and usability of injury data for stakeholders including Medical Examiner Office, health division leadership, and community partners.
- Work with the Medical Examiner's Office and epidemiologists to validate and refine data.
- Contribute to the development of the Medical Examiner Office annual report.
- Develop additional reports and dashboards tracking injury trends to guide prevention efforts.
- Provide evidence-based recommendations for injury prevention policies and interventions.
- Support targeted community outreach and education efforts to reduce injury-related morbidity and mortality.

Major Project Impact:

This project will enhance Oakland County's capacity to analyze and apply injury data for prevention. By identifying high-risk populations and geographic areas, the fellow's work will support targeted interventions, resource allocation, and policy decisions. The fellow will gain hands-on experience in injury epidemiology, data analysis, and stakeholder collaboration, helping to advance injury prevention efforts.

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Additional Project #1 Title: Indoor Radon Exposure Study

Project #1 Type: Surveillance Activity

Project #1 Description:

This project involves designing and implementing a study to assess indoor radon exposure risks in Oakland County. The study will include community engagement during Radon Awareness Month, distributing free radon test kits to residents, and working with interested residents in identified target areas to collect data on indoor radon levels. The results will be analyzed to identify high-risk areas and populations, guiding targeted public health interventions and awareness efforts.

Project #1 Objectives and Expected Deliverables:

- Engage community members and distribute radon test kits to households during Radon Awareness Month.
- Collect and analyze data on indoor radon levels to identify geographic areas and populations at higher risk.
- Produce a report and data visualizations summarizing findings and recommendations for mitigation.

Project #1 Impact:

The Indoor Radon Exposure Study aims to reduce lung cancer risks associated with radon exposure by increasing awareness and access to radon testing in Oakland County, and providing valuable information to assist with targeted outreach and mitigation efforts.

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

The fellow's syndromic surveillance project will help build department capacity for monitoring emerging threats. The fellow will participate in scheduled preparedness trainings and ad-hoc response activities. The fellow will assist with develop of risk communication materials related to environmental hazards, in collaboration with the emergency preparedness, environmental health, and health education teams. Preparedness and response activities will account for approximately 5% of the fellow's 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 support investigations of various environmental health and injury events. The fellow will have the opportunity to help shape the projects that meet this competency, with support of their mentor. For example they may wish to create alerts using biospatial, our EMS data platform, to identify potential spikes in various types of injuries. They may assist in analyzing syndromic surveillance data to identify trends in topics such as firearm injuries, traffic crashes, and suspected suicide clusters.

On a more regular basis, they will contribute to environmental exposure investigations, such as Legionella cases. If interested, they may also collaborate with or shadow the communicable disease team during outbreak investigations.

Time allocation will be flexible based on department needs and fellow interest.