ID: 72920347
Environmental Health - Host Site Description
Wisconsin Department of Health Services

Assignment Location: Madison, US-WI
Wisconsin Department of Health Services
Division of Public Health

Primary Mentor: Cristalyne Bell, MPH
Lead Epidemiologist
Wisconsin Department of Health Services

Secondary Mentor: Sheryl Bedno, MD, DrPH, MPH
Chief Medical Officer and State Epidemiologist
Wisconsin Department of Health Services

Work Environment
Hybrid

Assignment Description

The fellow will reside in the Wisconsin Childhood Lead Poisoning and Prevention Program (CLPPP) and have many opportunities to practice applied epidemiology, including conducting public health surveillance and identifying social determinates of health. The fellow will work with their primary mentor to create a workplan that will help them to develop their desired skills, address the core competencies of the fellowship, and serve the needs of the CLPPP team. Activities may include extracting, analyzing, and visualizing data, outreach to stakeholders, and disseminating information. Fellows will be encouraged to present and publish their work, as well as submit abstracts to the annual CSTE conference to highlight their accomplishments.

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

Information related to childhood lead screening and follow-up for children who are poisoned are stored in the Healthy Homes and Lead Poisoning Surveillance System (HHLPSS), a CDC supported web-based data management platform that is used by several childhood lead programs across the country. The fellow will have access to over three million records in HHLPSS, as well as programming software that will enable them to successfully query the database. The fellow will be given the time and resources to grow their SQL and SAS programming skills, or they may request access to an alternative programming software such as R. They will also have access Microsoft Office and other standard administrative resources and software. Depending on their skill level and interest, additional software may be available upon request, including Tableau and ArcGIS.

Projects

Surveillance Activity Title: Surveillance of childhood lead poisoning

Surveillance Activity Description:
Childhood lead poisoning remains a persistent public health concern in Wisconsin. In 2024, Wisconsin transitioned to universal testing recommendations to ensure all children under six are screened for lead poisoning at ages one and two or between the ages of three and five, if not previously tested. While testing has increased substantially, only 76% of one-year-olds and 43% of two-year-old received the recommended lead test.

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Surveillance Activity Objectives:
Objectives: The purpose of this project is to identify geographic regions and population characteristics where testing rates are below state recommendations and disease prevalence is higher than expected.

Deliverables: The fellow will be expected to collaborate on a report to be shared with the general public that details the overall burden of childhood lead poisoning in Wisconsin. The report will include universal testing outcomes and health disparities.

Surveillance Activity Impact:
This project impacts public health by identifying regions and populations that need additional resources to increase lead screening and decrease lead poisoning.

Surveillance System Evaluation Title: Childhood lead screening and electronically reported data

Surveillance System Evaluation Description:
Over 90% childhood lead tests are reported electronically. The quality of the data being reported has improved over time, but many reports are still missing important information.

Surveillance System Objectives:
Objectives: The purpose of this project is to assess the quality of childhood lead screening data that is electronically reported and create a near-real time reporting system to alert staff of any changes in reporting.

Deliverables: The fellow will be expected to create an internal dashboard that summarizes laboratory reporting and assess data quality.

Surveillance System Impact:
Data quality is important for understanding overall disease burden and identifying disparities.

Major Project Title: Feasibility of using alternative data sources to reduce missing demographic data

Major Project Description:
Almost 20% of childhood lead test results are missing race and ethnicity, making it difficult to accurately determine racial disparities. Other states have attempted to remedy this by using alternative data sources. As part of a pilot program, Maine was able to capture over 90% of race and ethnicity information by matching childhood lead test data to immunization and birth certificate data. When Tennessee linked childhood lead test data to vital records data, they were able to reduce the number of children with an unknown race by 75%. It is unclear if this is a viable approach for reducing the number of records that are missing demographic information in Wisconsin childhood lead test data.

Major Project Objectives:
Objectives: The purpose of this project is to assess the efficacy of using other data sources such as Medicaid, vital records, and immunizations to reduce the number of records missing demographic information.

Deliverables: The fellow will be expected to draft a manuscript to be submitted for peer-reviewed publication and present findings at the annual CLPPP meeting and/or CSTE conference.

Major Project Impact:
This project impacts public health by improving data quality to better assess health disparities.

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Additional Project #1 Title: Impact of the cinnamon applesauce recall on childhood lead poisoning in Wisconsin
Project #1 Type: Major Project

Project #1 Description:
In 2023, there was an increase in the number of lead poisoned children under six in Wisconsin that corresponded with a national recall on applesauce pouches that contain contaminated cinnamon. It is unclear if the increase in poisoned children can be attributed to the recalled item because the median blood lead levels for children who consumed the item was below the blood lead levels that requires a home investigation in Wisconsin. Clinicians identified five children who were poisoned after consuming the called item, but there may have been many more children who went undetected because they did not receive a lead test or a family with a poisoned child was not aware of the recall and did not report that their child consumed the item.

Project #1 Objectives and Expected Deliverables:
Objectives: The purpose of this project is to assess the feasibility of determining if there is a relationship between the number of children poisoned in 2023 and the cinnamon applesauce recall.

Deliverables: The fellow will be expected to consult with expert statisticians and conduct a comprehensive review on how other states have assessed the impact of the recalled item and apply those methodologies when analyzing Wisconsin data. Results may be submitted for peer-reviewed publication and presented at the annual CLPPP meeting and/or CSTE conference.

Project #1 Impact:
This project impacts public health by highlighting the potential risks of consumer products, as well as the importance of screening children for lead and identifying lead hazards among poisoned children even when their blood lead levels are on the lower end of the spectrum.

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

The fellow will assist with collecting, monitoring, and analyzing data related to the evolving issue of lead exposure in public schools that came to light earlier this year when a child in a Milwaukee Public School was poisoned by chipping and peeling lead paint. Further investigation in Milwaukee Public Schools showed widespread concerns and prompted school closures and CDC involvement. In addition to supporting efforts in Milwaukee, the fellow will assess the risk to students outside of Milwaukee. Up to 6 hours a week will be allotted to assist with emergency preparedness and response to lead exposure in Wisconsin public schools.

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

New universal testing recommendations may provide insight into previously unknown high-risk areas and help to identify children with lead exposure who are not in high risk categories. The fellow will perform a literature review, identify methodologies that could be applied in Wisconsin to detect clusters of poisoned children, and assist with the analysis and final report. Up to 10 hours a week will be allotted to assist with cluster and outbreak investigations.