

ID: 73563401

Environmental Health, Injury - Host Site Description

Public Health - Seattle & King County

Assignment Location: Seattle, US-WA
Public Health - Seattle & King County
Environmental Health Services

Primary Mentor: Bradley Kramer, PhD, MPA
Senior Program Manager
Public Health - Seattle & King County

Secondary Mentor: Myduc Ta, PhD, MPH
Epidemiologist
Public Health - Seattle & King County

Work Environment

Hybrid

Assignment Description

This fellowship will be focused on environmental health and injury surveillance efforts at Public Health - Seattle & King County in the Divisions of Environmental Health and Health Sciences. The fellowship will be split so that approximately 50% of the fellow's time is spent with the Violence and Injury Prevention team and the Assessment, Policy Development & Evaluation unit in Health Sciences Division. The Violence and Injury Prevention team works collaboratively with epidemiologists in the Assessment, Policy Development and Evaluation unit to use data to inform programmatic activities addressing unintentional and intentional injuries through a health equity lens. The other 50% of the time will be supporting the Climate & Health Equity Initiative. The Climate and Health Equity initiative uses data to improve the ability to anticipate, respond, and adapt to the effects of extreme weather events, and aims to promote community resilience and health equity. There will also be opportunities to collaborate with other divisions of Public Health on emerging public health threats and investigations.

The fellow's day-to-day activities will include:

- Conducting literature reviews to support improved understanding of new or emerging topics in climate and health or traffic and water safety
- Support health department response to extreme weather events, other emerging threats (e.g. foodborne illnesses or vaccine-preventable diseases)
- Analyzing syndromic surveillance data around extreme weather and exploring its use for environmental health and injury topics
- Analyzing and summarizing surveillance or programmatic data (e.g.; environmental exposure data for pollutants)
- Conducting program evaluation which may involve: developing surveys, collecting data, analyzing data, and disseminating findings
- Creating/maintaining online data dashboards for climate and health or unintentional injury topics
- Participating in project team or division-wide meetings; Interacting with epidemiologists (internal and external) or with community partners, state agencies, and the public
- Participating in community engagement events to share data, health education, and other resources
- Writing up findings for conference abstracts, reports, manuscripts for peer-reviewed publications, or white papers

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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, Tableau, SQL, GIS, and any other software that is needed to complete their work. They will also have access to various surveillance datasets that will be used throughout the fellowship including vital statistics data, syndromic surveillance data, medical examiner's office data, environmental health program data, and other survey data, such as our local Healthy Youth Survey, Behavioral Risk Factor Surveillance system, among others.

Mentors will help support the fellow with statistical and data analysis support, and the Assessment, Policy Development and Evaluation unit also has many resources to support the learning of R, Tableau, GitHub, and SQL. There are Microsoft Teams channels to ask questions and engage in discussion, as well as office hours to help troubleshoot problems. Epidemiologists throughout the Environmental Health and Health Sciences divisions will be available to assist with software, and there are also many resources already developed to analyze data from the surveillance systems mentioned above.

Projects

Surveillance Activity Title: Preventable drownings in King County, WA: Characteristics of residential and open water events

Surveillance Activity Description:

Between 2018-2024, review of the King County Medical Examiner's Office data identified 190 preventable unintentional drowning deaths with elevated numbers since 2020. Most of King County unintentional drowning fatalities happen in open water such as lakes and rivers while the second most common site of drowning deaths are bathtubs and pools/spas. Understanding the common and unique risk factors of recreational and residential event types would inform tailoring or prevention strategies.

Surveillance Activity Objectives:

The fellow would work with Public Health's water safety program manager to develop an analysis plan, informed by literature review, to identify common and unique factors associated with residential and open water drowning fatalities in King County, WA using medical examiner data. Findings will be summarized in a slide deck presentation and shared with internal program staff and external partners, where appropriate.

Surveillance Activity Impact:

The findings from this activity can be used to identify gaps in water safety prevention messaging and tailor programmatic unintentional drowning prevention work. This work can additionally tie into extreme heat related safety work with the Climate & Health Equity team.

Surveillance System Evaluation Title: Assess and compare surveillance on heat related illness used by local health jurisdiction, regionally across Washington, Oregon and British Columbia.

Surveillance System Evaluation Description:

This project will start with a more comprehensive look at our own local syndromic surveillance for heat related illness. We will revisit the 2021 heat dome using three data sources: 1) emergency room visits through Rapid Health Information Network (RHINO) Washington State's syndromic surveillance data; 2) Medical examiners office data; and 3) hospital admission data. These data will help inform the case-definition and a more comprehensive look our syndromic surveillance approach. The project will then comparatively assess how other regional, local health jurisdictions assessed

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the impact of the 2021 heat dome, including our metropolitan counterparts in Multnomah, Oregon and Vancouver, British Columbia.

Surveillance System Objectives:

The goals of this study are: 1) Define health related illness through different data sets (emergency department, emergency medical services, death) and what differences exist in how excess deaths were accounted for in the region (Oregon, Washington, and British Columbia). 2) Characteristics of heat related illness and excess deaths: We will use multiple data sources (including electronic health record data) to qualitatively assess each excess death and more comprehensively understand factors of heat related illness and death, and then compare these results to the case definition of heat related illness. 3) Assess local surveillance operations for King County, and how to improve based on regional accounting. 4) Identify strategies to use data to inform health care systems and public health operations during heat events.

Surveillance System Impact:

This project will improve surveillance efforts for monitoring the health impacts of heat related illness in King County with the potential to support improvements and coordination regionally. From a practice-based perspective, this study provides the opportunity to learn how public health operations are connected across divisions (e.g., emergency preparedness, syndromic surveillance, health prevention and promotion programs, communications, medical examiner), as well as partners in our emergency management and hospital systems. In order to inform preparedness and response efforts. These efforts can also be disseminated to improve surveillance efforts in other parts of Washington and nationally. This study has the potential for broader impact through partnerships built for this cross-jurisdictional learnings - the Collaborative on Extreme Heat (OR, WA, BC) and the Northwest Health Care Response Network.

Major Project Title: Factors associated with nonfatal, serious injuries among pedestrians in King County, WA

Major Project Description:

Fatalities among pedestrians, pedal cyclists, and persons on personal conveyance (walkers and rollers) in King County, WA decrease 13% in 2024 compared to 2022, however half of walker and roller fatalities statewide were among King and Pierce counties. While the decrease in 2024 is promising, the overall increasing trend of pedestrian deaths is a public health concern. King County Target Zero coalition partners are working to address active transportation user safety and understanding pedestrian serious injuries informs prevention activities. This project uses WA Dept of Transportation crash data reported by law enforcement to identify modifiable risk and protective factors within the Safe System Approach associated with nonfatal serious injuries. This analysis would inform local traffic safety work and complement learnings from statewide fatality case reviews of active transportation users conducted by Cooper Jones Active Transportation Safety Council convened by WA State Traffic Safety Commission.

Major Project Objectives:

In conjunction with Public Health Violence and Injury Prevention staff and subject matter expert input from WA Traffic Safety Commission Research and Data Division colleagues, the fellow will develop an analytic plan to address research questions informed by King County Target Zero coalition partners. The fellow will then work with WA State Dept of Transportation to obtain and create an analytic data set of law enforcement reported crash data for King County. Third the fellow will conduct analyses and summarize results for sharing with internal program staff and external partners in slide presentations, blog posts, and/or data briefs in consultation with program staff.

Major Project Impact:

Findings will inform local traffic safety coalition partners' work, including a recently created King County Active Transportation Safety Champions committee and existing Engineering committee, to address increasing trend of active transportation fatalities that are at a historical high in our county and statewide.

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Additional Project #1 Title: Quantifying the economic impacts of extreme weather events on human health to understand the benefits of proactive public health mitigation measures.

Project #1 Type: Major Project

Project #1 Description:

Extreme weather events (e.g., increased frequency and severity of extreme heat, wildfire, drought, flooding, and severe winter weather) have a variety of direct and indirect impacts on human health, including increased mortality, morbidity, and health care utilization. While many of the health impacts have been quantified by epidemiologists, the health economic implications of these events have not been comprehensively studied. For example, epidemiology studies have quantified increase emergency medical service calls and emergency room visits during extreme heat events. The quantification of the impacts on our health and social systems, can inform the required cost-benefit analysis for federal grants to develop infrastructure projects and community interventions that address these concerns. We propose to explore the translation of health impacts (i.e. increased health care service utilization, morbidity, and mortality) into health economic values that assess the burden of extreme weather on our public health systems, health care expenditures, and broader burden of disease on our communities.

Project #1 Objectives and Expected Deliverables:

The objective and deliverables of this project would be: 1) Quantify direct costs (emergency response and health care utilization) associated with extreme weather events; 2) Assess indirect impacts (e.g., missed school or work days, long-term costs from chronic conditions); 3) Analyze impacts across different exposure, sensitivity, and access to preventative resources for our most impacted communities; 4) quantify the potential economic benefits - through assessment of losses avoided - of potential public health mitigation measures that serve to reduce population exposure and vulnerability to anticipated impacts; 5) Disseminate results to partners to inform project and grant proposal that resource public health mitigation measures that demonstrate a potential return-on-investment.

Project #1 Impact:

This project will provide important and new data that will help expand our understanding of the potential economic costs of human health impacts anticipated to result from extreme weather events. The results will be important in prioritizing investments and approaches to address the needs of our most impacted communities to these events. These actions can lead to improved public health resourcing to address the needs in extreme weather events, inform health care resources, and more effective policies as we adapt to these changing weather patterns, and identify investment opportunities that have the greatest potential return-on-investment for the prioritization and implementation of proactive adaptation and public health mitigation measures to reduce human health impacts from these extreme weather events.

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

There will be many opportunities to play a role in preparedness and response efforts. The fellow will be deployed on a short-term basis to the PHSKC Emergency Preparedness Unit to assist with a workshop, simulation, training, or other activity. The Preparedness unit of Public Health activates their Health and Medical Area Command (HMAC) when there are emergency response efforts needed, such as during periods of extreme heat, extreme cold, or other public health emergencies (e.g. COVID-19). The fellow will have the opportunity to closely collaborate with the Preparedness team by providing relevant data, participating in coordination calls, joining staff in site visits, developing needed education and outreach materials, and helping to conduct after-action evaluations of the response. The fellow's effort on preparedness and response activities is currently envisioned to be time-limited. The fellow and their mentors will discuss any longer-term deployment opportunities that become available during the fellowship, where applicable.

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

There will be opportunities for the fellow to work with other sections of the health department, such as our Communicable Disease Epidemiology team to conduct cluster or outbreak investigations. The fellow would work with their team on a short-term basis on a cluster or outbreak investigation. One example of possible work could be on communicable disease investigation at certain facilities (e.g. long term care facilities, schools). Other environmental health examples could be around food borne illness (e.g. vibriosis).