Environmental Health, Chronic Diseases

Minnesota Department of Health, Health Promotion & Chronic Disease

St. Paul, Minnesota

Assignment Description

The fellow will work will focus on applied epidemiology projects for understanding and addressing the public health impacts of climate change. Working with both the Environmental Public Health tracking program and MN Climate & Health, the fellow will gain the skills for developing surveillance data, analyses and policy-relevant applications with the expertise and partnerships of the climate adaptation professionals. This billet encompasses a wide range of applied epidemiology methods, including survey assessment, health indicator development and validation, health-based guidelines, and identifying vulnerable populations.

Day-to-Day Activities

Day-to-day activities will include independent work and analysis time, team meetings, Department communities of practice and professional development resources, relationship building and communications with partners, and enjoying downtown St Paul.

Potential Projects

Surveillance Activity  Tracking Environmental Health Disparities and Climate Change Vulnerability Factors

Robust surveillance of environmental health disparities, including exposures, hazards and adverse health outcomes, is critical for developing and evaluating strategies to address health inequities. MDH’s Environmental Public Health Tracking (EPHT) program tracks over twenty environmental health indicators, but needs to standardize how disparities are tracked and displayed across diverse hazards and health conditions. Climate change is projected to exacerbate existing inequities, reinforcing the need for a systematic approach to understand various geographic, social and economic disparities and how they relate to each other. Consistent and transparent methods for tracking, integrating and visualization disparities and trends are needed to target intervention resources and create effective risk messages. Further, The CSTE fellow will build on a pilot project to apply evidence-based public health disparities surveillance approaches to integrate and co-display environmental exposures and hazards with adverse health outcomes in the EPHT network. The fellow will work closely with the EPHT mentor, EPHT Program Manager/Senior Epidemiologist and communications specialists to 1) analyze multiple disparities for EPHT indicators, 2) create unified messaging and data displays for the online MN Public Health Data Access Portal, and 3) develop an “issue brief” and outreach plan.
Surveillance Evaluation

Evaluating cold-related illness in hospital discharge data for the Environmental Public Health Tracking Network

Cold-related illness (CRI) is a group of conditions and injuries including hypothermia, frostbite, chilblains, and trench foot. Cold-related acute hospital visit outcomes are not currently tracked in MN, so we lack important information on occurrence, trends, geographic distribution, and potential risk factors to inform prevention efforts. While Minnesota winters are generally projected to warm under climate change, expected increases in snowfall and changes to snowmelt and ice cycles may have impacts on CRI. The Environmental Public Health Tracking (EPHT) Network has developed recommended surveillance indicators for CRI, but a systematic evaluation of case definitions and indicators is needed to understand risk factors, identify climate adaptation strategies, and develop effective health promotion messaging. Two specific case definition questions include the season for tracking CRI and the contribution of hypothermia due to cold water exposure. Additional data sets available for the evaluation include mortality data from MDH Vital Statistics and non-acute clinic visits from the MN All Payer Claims Database. While CSTE has developed methods for syndromic surveillance of cold-related illness, our MN syndromic system is in pilot phase, this new surveillance area in hospital discharge data would fill significant gaps in MN and the National EPHT network. The fellow will utilize CDC’s Guidelines for Evaluating Surveillance Systems and will work closely with EPHT PI mentor, Senior Epidemiologist, and CDC EPHT Climate Change Content Workgroup to evaluate cold-related illness.

Major Project

Understanding Clinical Presentations of Climate-related Health Outcomes and Concerns through a Survey of MN Healthcare Providers

Climate change impacts health in a number of ways from increases in heat-related illnesses to increased exposure to vectors that carry pathogens. Although much has been written about the health impacts of climate change (MDH, 2015; USGCRP, 2016), little is known about how climate change currently clinically manifests within Minnesota’s population and how healthcare providers are managing climate-related health issues. The MDH Climate & Health Staff, the School of Nursing at the University of Minnesota, and Health Professionals for a Healthy Climate are interested in learning more about the clinical presentation of climate-related health outcomes in Minnesota from the healthcare providers’ perspective. Working closely with the Climate & Health mentor and key stakeholders, the fellow will be responsible for designing a survey of health care providers, implementing the survey, and performing data analysis and interpretation, culminating in a journal article and other written materials to aid healthcare providers in addressing climate-related health outcomes.


Preparedness Role

The Environmental Public Health Tracking program has an ongoing disaster epidemiology project focused on building agency preparedness and response capacity for long-term health surveillance following an emergency event. To date, we have focused on developing tools and partnerships for the Long-term Surveillance Annex in MDH’s All-Hazards Plan, including a rostering tool for identifying and following exposed populations. The fellow will assist in planning table tops, exercises, and trainings to enhance response capacity for chronic disease and injury follow-up. The fellow will participate in CSTE Disaster Epidemiology Subcommittee calls and workshops and support any MDH responses as needed, such as opioid response or vaping-related respiratory injury.

Mentors

Primary Jessie Shmool DrPH, MPH
Epidemiologist Supervisor Senior, Environmental Epidemiology Unit Supervisor

Secondary Kristin Raab MOH, MLA
Environmental Impact Assessment Unit Supervisor, Climate & Health Program Director