

Environmental Health, Chronic Diseases

Minnesota Department of Health, Health Promotion and Chronic Disease

St Paul, Minnesota

Assignment Description

MN Tracking and Biomonitoring programs are both housed in the Chronic Disease and Environmental Epidemiology Section of the Health Promotion and Chronic Disease Division. Other sections in our division include: the Center for Health Promotion, Injury and Violence Prevention, and Comprehensive Cancer Control programs.

Day-to-Day Activities

Frequent activities will include, but are not limited to:

- Study coordination and planning.
- Data cleaning, analysis and interpretation.
- Collaboration with data and study partners on interpretation, outreach and dissemination of results.
- Off-site meetings with community and local agency partners in the Twin Cities and in Greater MN.
- Community engagement and decision-maker outreach about results, messages and actions.
- Weekly meetings with Biomonitoring study team, Tracking epidemiology team.
- Weekly check-ins with program mentors.

Potential Projects

Surveillance Tracking environmental health disparities Activity

Robust surveillance of environmental health disparities, including exposures, environmental 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. Consistent and transparent methods for tracking geographic, sociodemographic disparities and trends are needed to target intervention resources and create effective risk messages. The CSTE fellow will adapt and apply evidence-based public health disparities surveillance approaches [e.g., Public Health Disparities Geocoding Project (Krieger et al., 2003; 2005; 2007)] 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, staff epidemiologists and communications specialists to 1) develop and pilot methods, 2) create unified messaging and data displays for the online MN Public Health Data Access Portal, and 3) develop an "issue brief" and communication plan.

Surveillance Evaluating Chronic Obstructive Pulmonary Disease (COPD) surveillance using Evaluation hospital discharge data

Chronic Obstructive Pulmonary Disease (COPD) is a group of lung diseases and is the fifth leading cause of death in Minnesota. Smoking is the leading cause of COPD. Long-term occupational exposure to lung irritants is another key risk factor and air pollution is a trigger for exacerbations. Minnesota Environmental Public Health Tracking (EPHT) was one of the first programs to develop surveillance indicators for COPD hospitalization cases, and now works with the CDC's National Tracking Network to support nation-wide monitoring and analysis. A systematic evaluation, using CDC's Guidelines for Evaluating Surveillance Systems, of the COPD surveillance is critical at this stage for better understanding risk factors and target age-range, interpreting trends and finer-scale geographic variations, and developing effective health promotion messaging. Additional data sets available for the evaluation include COPD mortality data from MDH Vital Statistics, prevalence data from the Behavioral Risk Factor Surveillance System, and the MN All Payer Claims Database of non-acute clinical care utilization. Additionally, the 2016 release of hospital discharge data will include race/ethnicity information for the first time, and this evaluation will leverage other data sets to assess completeness and accuracy. The fellow will work closely with EPHT mentor, as well as MDH Health Economics section and CDC National Tracking experts.

Major Project Addressing urban and rural environmental justice concerns through biomonitoring: analysis and data collection

MN Biomonitoring will be conducting an innovative new biomonitoring project starting in summer 2018 that will measure exposure to chemicals in children from urban and rural communities, with a focus on environmental justice concerns and exposure disparities in these communities. The project will enroll preschool-aged children (around 200 total) from two communities: an urban community in Minneapolis heavily affected by air pollution and other exposures and disproportionately burdened by a range of health disparities, and a rural community in North-Central Minnesota with concerns about pesticide exposures and different health disparities. With the families' consent, the project will include a survey about sources of exposure and collect a urine sample for testing of a range of biomonitoring analytes that measure exposure to air pollution, pesticides and possibly other types of chemicals. Working with our study coordinator and other staff, the CSTE fellow will assist with data and sample collection in summer-fall 2018. Most importantly, the fellow will lead epidemiologic analysis of biomonitoring and survey results, and work with the PI and the program's Science Advisory Panel on interpreting results and developing community messaging. The fellow will also prepare manuscripts for publication.

Additional Project Addressing urban and rural environmental justice concerns through biomonitoring: community engagement and communications

An important component of the MN Biomonitoring project measuring exposure to chemicals in children from urban and rural communities will be sharing the project's results in an accessible, responsive and action-oriented manner. This project is being conducted in response to community concerns about environmental justice issues and exposure and health disparities. Thus, community engagement and outreach about the results will be done through working closely with the communities and will include actions participants and community members can take. In addition to providing individual results to all participants' families with constructive information about their children's chemical levels and ways to reduce exposure, this will involve sharing results with the larger community to help answer community questions and assess whether public health actions are needed to reduce exposures and protect health. The CSTE fellow will work with various community, local public health and state agency partners to identify the best ways to share messages in these particular communities and conduct this outreach, and to ensure that project findings about disparities in exposure inform state and local policies and programs.

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 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. Current key stakeholders include local MN Poison Control Center, American Red Cross, Minnesota Pollution Control Agency, MDH Emergency Preparedness and

Response, Injury and Violence Prevention, Environmental Health and Chronic Disease sections. Ongoing activities include tabletop and planning exercises and trainings. The CSTE fellow will focus on building new partnerships with the MDH Behavioral and Mental Health section, towards incorporating long-term mental health follow up in our agency emergency preparedness planning. The fellow will participate in CSTE Disaster Epidemiology Subcommittee calls and workshops and support any MDH responses as needed.

Additional Activities

The fellow will attend regular scientific and content meetings, including the MN Tracking epidemiology and content teams, and the program's Science Advisory Panel. The fellow will participate in intra-agency meetings with program partners including the Minnesota Pollution Control Agency and the Minnesota Department of Agriculture. The fellow will assist with manuscript preparation for results from past biomonitoring studies.

Mentors

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| Primary | Jessica Nelson PhD, MPH MN Biomonitoring Program Manager and Epidemiologist |
| Secondary | Jessie Shmool MPH, DrPH Environmental Public Health Tracking Program Manager |

