DEPARTMENT OF HEALTH

Environmental Health Tracking and Biomonitoring

REPORT TO THE LEGISLATURE

March 2025

Environmental Health Tracking and Biomonitoring

Minnesota Department of Health
Environmental Epidemiology Unit
PO Box 64882
St. Paul, MN 55164-0882
651-201-5662
health.tracking@state.mn.us
www.health.state.mn.us

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As requested by Minnesota Statute 3.197, this report cost approximately $2,000 in staff time to prepare.

Contents

Program overview

Established by the Minnesota Legislature in 2007, Minnesota's **Environmental Health Tracking and Biomonitoring (EHTB)** program serves Minnesotans by creating, analyzing, and sharing critical data to identify communities most impacted by environmental health hazards. Data-driven approaches to connect the dots between the environment, chemical exposures, health outcomes, and social determinants of health inform effective, collaborative, and equitable public health programs and interventions. Today, EHTB programs are focused on novel approaches to monitoring children's environmental health, modernizing data collection and sharing, and partnering on analyses responding to pressing public health and community concerns.

Having completed strategic planning to build data collection and analysis capacity and partnerships as mandated in the originating statute, we are currently gathering information from partners about environmental health and community data needs, concerns, and opportunities. The EHTB Strategic Plan will be available for Legislator review during the 2026 Legislative session.

Environmental Public Health Tracking

Minnesota Tracking connects data from environmental monitoring, biomonitoring, and disease surveillance to understand geographic patterns, trends over time, and disproportionate impacts. Strong partnerships with MDH programs, other state agencies, local public health departments, and community-based organizations drive data collection and analysis priorities and actionable reporting to inform public health programs and policies.

What we do:

- Develop novel indicators, metrics, and visualizations to make environmental health data more actionable, understandable, and accessible to the public and a wide array of partners.
- Manage the Minnesota Public Health Data Access Portal to provide user-friendly, transparent, and innovative public access to data and tools for more than 25 public health topics: MN Public Health Data Access Portal | MDH.
- Conduct ongoing surveillance and targeted investigations to identify populations and geographic areas at higher-risk, respond to emerging environmental health concerns, and provide evidence for public health decision-making, evaluation and planning. Data analysis emphasizes health equity and environmental justice to provide partners and communities with needed information to drive public health action.
- Address data capacity gaps within MDH and with local public health departments, and help develop the future environmental health workforce through internships and university partnerships.

Minnesota Tracking is supported in-part by a federal cooperative agreement with the U.S. Centers for Disease Control and Prevention (CDC)'s National Environmental Public Health Tracking Network | CDC.

Biomonitoring

We are all exposed to chemicals in our air, water, food, and consumer products. Some can be harmful to our health. The **Minnesota Biomonitoring** program measures levels of chemicals in people from different communities in the state. We check whether levels differ between groups or over time. Our information is used to promote public health actions that reduce chemical exposures and address health inequities.

What we do:

- MDH staff work in collaboration with community partners and across the public health system to identify environmental chemicals of concern and localized exposure risks. Together we design projects to test for chemicals in urine or blood to:
  - Evaluate and inform public health actions to reduce exposures.
  - Identify groups that are highly exposed to chemicals.
  - Measure and track changes in chemical exposure over time.
- Increase our state Public Health Laboratory capacity to monitor chemical exposures. Because MDH continues to improve its surveillance methods, Minnesota is uniquely prepared to address exposure concerns, evaluate environmental health interventions, and respond to emergencies.

Minnesota Biomonitoring is supported in-part by the CDC's State Biomonitoring Grants | National Biomonitoring Program | CDC.

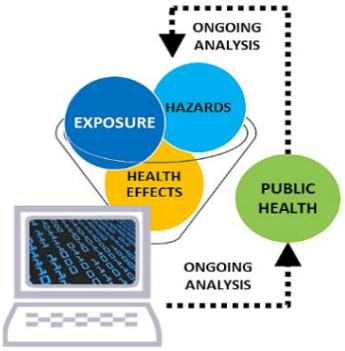
Scientific Advisory Panel

The **Environmental Health Tracking and Biomonitoring Advisory Panel** was established as part of the 2007 Legislation. Members represent key stakeholder groups, including research, industry, state and local government agencies, and community-based organizations. Members are experts in their fields and bring their varied backgrounds in public health or related sciences to provide important guidance to the Commissioner of Health. They advise on EHTB program decisions, such as selection of chemicals and communities for Minnesota Biomonitoring, as well as data and analyses for Minnesota Tracking.

Advisory Panel meetings are held virtually three times per year and are open to the public. Member roster, meeting notes and the complete statute are available online: Minnesota Environmental Health Tracking and Biomonitoring Advisory Panel | MDH.

Environmental Public Health Tracking

BUILDING DATA CAPACITY



Over the past biennium, Minnesota Tracking has expanded data capacity by integrating new data streams, improving public access to data, and supporting public health workforce development.

Modern Data Access Portal

The Minnesota Public Health Data Access Portal tracks data on over 25 environmental and public health topics and is a core part of the public health system's data infrastructure. The portal offers an efficient platform for sharing data in one place, avoiding costs of creating and maintaining many data access systems. Timely, high quality environmental health data is critical to improve the health of all Minnesotans. Data are used to:

- Compare environmental health trends over time and across communities.
- Track and evaluate the effectiveness of public health programs and policies.
- Help communities take action to reduce exposures and improve health.

Minnesota Tracking continues to evolve and improve the data portal to better serve local public health departments, communities, health care providers, and a broad range of data users. In partnership with MN IT Services, we are modernizing the data portal technology, visualizations, cost-effectiveness, and usability to ensure we are ready to meet future challenges. Working toward CDC's Data Modernization Initiative, Minnesota Tracking is helping to build a public data platform that accelerates data-to-action.

Near-real time data

Syndromic surveillance leverages near real-time hospital visit data to detect and characterize unusual activity for further public health investigation. Syndromic data can be used to detect illness, injuries, and health care needs after disasters and environmental events such as hurricanes, floods, extreme heat, snowstorms, and poor air quality due to wildfires.

Minnesota Tracking leads syndromic data development for environmental health topics, with focus on health impacts of climate change. This new data stream builds on past analyses of heat-related illness trends and disparities across Minnesota communities (Heat-related illness | MN Public Health Data Access | MDH) and advances health goals of the Minnesota Climate Action Framework. Currently, we are working with **Minnesota Climate and Health Program** and other partners to leverage near-real time data to improve timeliness and localization of prevention and response efforts.

Workforce development

Providing real world public health training is critical for building the environmental public health workforce. We work with universities to build applied public health skills and connections to the communities we serve. We also partner with national organizations to host long-term federally funded fellows to complete environmental health data projects.

PARTNERING FOR ACTIONABLE ANALYSIS AND REPORTING

Minnesota Tracking staff provide epidemiology technical assistance to pressing environmental health issues and support partners in novel environmental health analyses.

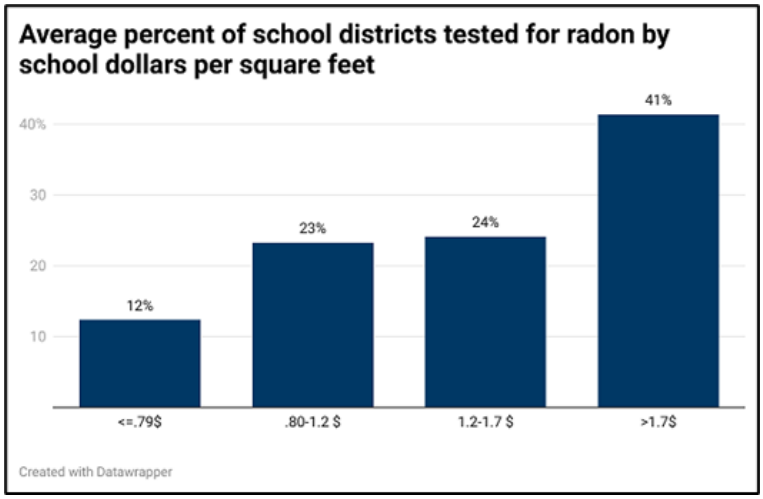
Radon testing in public schools

Minnesota Tracking led a first-of-its-kind analysis of voluntary radon testing in school buildings and found that **only 39% of Minnesota public schools tested for radon** (Testing trends for radon in indoor air in public schools | MDH).

Radon, an odorless, colorless gas, is linked to more than 21,000 lung cancer deaths in the United States each year. It occurs naturally in Minnesota soils and enters buildings through cracks or openings in walls or foundations. This new information is helping MDH's **Indoor Air Program** target resources and improve outreach to increase radon testing.

Our analysis showed:

- Of the schools that tested, 16% had elevated radon in one or more rooms.
- School districts with a higher proportion of low-income families were less likely to test for radon.
- School districts with less funding for facilities were less likely to test for radon.



Air pollution and health

MDH and the Minnesota Pollution Control Agency (MPCA) work together to understand local risk factors and coordinate health protection strategies with governmental partners and communities. Over the past biennium, we focused on novel analyses and strategies to prevent adverse health impacts of air pollution.

Minnesota Tracking staff work closely with MPCA partners on **Cumulative Impacts Rulemaking** to help develop data indicators for a cumulative impact analysis and to define a substantial adverse environmental and health impact. Through public engagement, we are learning about community priorities and concerns for mitigating environmental stressors.

As **wildfires increase in frequency and severity**, Minnesota Tracking developed analyses to understand population susceptibility to smoke exposure and develop data tools to support emergency preparedness and response. This work builds on previous work to estimate health impacts of fine particles and ozone pollution and quantify health inequities of air pollution across the state (Health impacts of air pollution | Life & Breath | MDH). For example, analyses showed that zip codes with the largest percentage of Black, Indigenous, and people of color had

more than *five times* the rate of asthma emergency room visits related to air pollution compared to areas with more White residents..

We partnered with MDH Asthma and Climate and Health programs to develop voluntary guidance for actions schools and child care providers can take to lower the risk of negative impacts to children's health due to poor air quality events (Minnesota Outdoor Air Quality Guidance for Schools and Child Care | MDH).

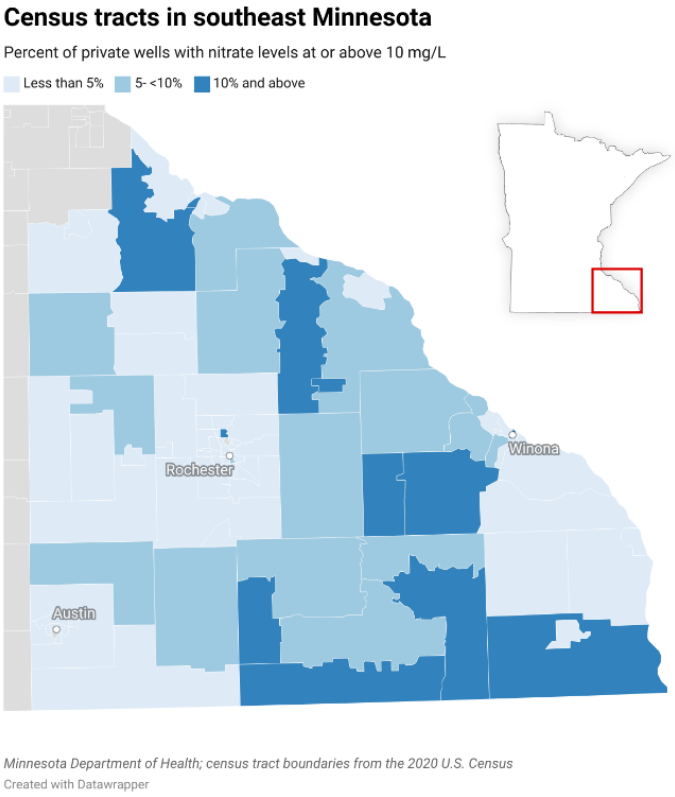
Nitrate levels in private well water

Nitrate is a compound that naturally occurs and has many human-made sources. The only way to know if a private well contains nitrate is to have it tested. You cannot taste, smell, or see nitrate in water. Consuming too much nitrate can be harmful, especially for babies.

Nitrate is of specific concern in some lakes, rivers, and groundwater in Southeast Minnesota, and Minnesota Tracking is supporting **MDH Water Policy Center** to disseminate timely data and risk information to help inform communities and public health responses.

New information on the Minnesota Public Health Data Access Portal is helping share timely nitrate testing data and maps (Private Wells in Southeast Minnesota | MN Public Health Data Access Portal | MDH).

In 2025, Minnesota Tracking will release new analysis and maps estimating statewide private well utilization and nitrate vulnerability.



Post-acute COVID-19 surveillance

Minnesota Tracking supports ongoing workforce capacity in disaster epidemiology and manages the Long-Term Surveillance Annex in Minnesota's All-Hazards Plan. This capacity is important, because early implementation of new surveillance systems is necessary for timely and effective characterization of long-term health outcomes.

Tracking's surveillance planning expertise enabled Minnesota to be among the first states to be actively working on local data collection, analysis, partnership development, and communications about Long-COVID (Long COVID: A Post-COVID Condition | MDH).

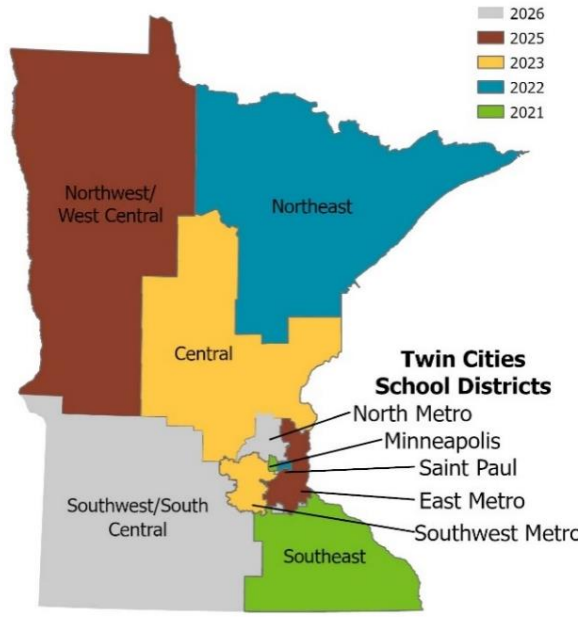
Minnesota Biomonitoring

HEALTHY KIDS MINNESOTA

Healthy Kids Minnesota uses biomonitoring to measure chemicals in kids across the state in partnership with local public health, school districts, and tribal nations. **Children's developing bodies are especially vulnerable to environmental chemicals.** Healthy Kids is the first program of its kind in Minnesota designed to give a picture of children's chemical exposures statewide. Results help empower families, address community concerns, and inform public health programs to reduce childhood exposures and create healthy neighborhoods and homes.

Expert guidance from the MDH **Environmental Health Tracking and Biomonitoring Advisory Panel** is critical for delivering high-quality service to participants and translating scientific findings to actionable public health prevention efforts and interventions.

Healthy Kids Minnesota Program regions



How the program works

Healthy Kids Minnesota partners with Early Childhood Screening (ECS) programs at school districts, local public health agencies, and tribal nations to recruit preschool-age children for environmental chemical exposure screening. With families' consent, urine samples from participants are tested for different chemicals.

Participation is voluntary, families are compensated for their time, and all personal information is kept private and protected in accordance with Minnesota law.

The program rotates through five regions in the state (see map), focusing on one non-metro and one metro region per year. **Our goal is to reach 250 – 300 children per region each year.**

Recruitment for the first three years is complete, with the following highlights:

- Urine samples from 1,350 children have been collected.
- 170 free well test kits were offered to families who rely on private well water.
- Partnerships were established with 20 school districts, local public health agencies, and Tribal nations.
- **High participation rates – from 55 to 75% – are a testament to these strong partnerships, the benefit to families, and community trust in ECS programs.**

Healthy Kids Minnesota 2025 began in April with recruitment in the Northwest/West Central and the East Metro regions. MDH is currently partnering with the Bois Forte Band of Chippewa to co-create a community-based approach to participation. Community outreach is slated to begin in spring 2025 and recruitment in fall 2025.

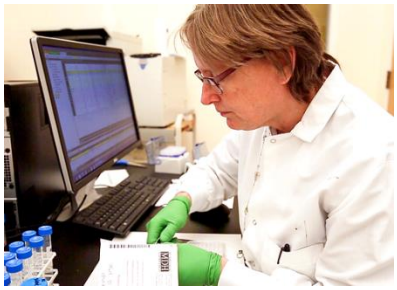
Measuring a broad panel of chemicals

The chemicals measured in Healthy Kids were selected because they may impact child development. From a single urine sample, the MDH Public Health Laboratory measures over 70 chemicals, including:

- **Metals** found in drinking water, air pollution and some foods and products.
- **Pesticides** used in agriculture and to control pests in and around the home.
- **Phthalates** found in personal care products, toys and some foods.
- **Flame retardants** found in household products like furniture and toys.
- **Environmental phenols** found in personal care products, toys, and some foods.
- **Air pollution chemicals** from traffic exhaust, cigarette smoke, and fires.

More on chemicals can be found online at: Healthy Kids Minnesota: Chemical Information and Resources | MDH.

Growing laboratory capacity



Through these projects, the **MDH Public Health Laboratory** continues to develop the ability to analyze many new chemicals in people's bodies. This scope of available testing far exceeds most other states, making Minnesota uniquely prepared to monitor population chemical exposures and respond to community concerns and exposure-related emergencies.

Since 2019, Healthy Kids biomonitoring and laboratory capacity development has been funded in part by a grant from the CDC's Division of Laboratory Systems.

Sharing what we learn

Results are shared with participants first. Culturally competent, plain language materials are mailed to families with an option to speak with staff. Families also receive practical tips for reducing their child's exposure to chemicals.

If high levels of certain chemicals are found, families are contacted as soon as possible and supported in reducing their child's exposures.

Currently, we are concluding a year-long effort to improve how we share results, making the information more accessible and visual for all families in our program. Upcoming interviews with families will help us assess their experiences in receiving their child's results and make culturally responsive improvements.

Early findings and actions

A broad summary of key findings and take-aways will be released in summer 2025, identifying different ways that Minnesota kids are exposed to these chemicals, from diet to personal care product use to incense use. The report will also highlight patterns among children experiencing higher exposures than others and point to actions needed to reduce exposures. Examples of early findings and public health actions include:

- MDH staff have contacted families of 71 children who had urine levels of arsenic, manganese, or mercury above our follow-up threshold. We offered families more information, an intervention to reduce exposure (such as private well testing or a home visit to check for mercury), and a free urine re-test to see whether levels decreased.
- Follow-up with families whose children had high arsenic levels revealed that frequent rice consumption (two or more meals per day) and eating certain types/brands of rice are possible risk factors. We worked with the Minnesota Department of Agriculture to purchase a variety of rice brands from area stores and testing is underway.
- After well and urine testing, some families learned they have private well water with arsenic levels above MDH guidance values. These families were able to take steps to remediate their water and decrease family exposures.

Investing in a healthy future for all Minnesotans

Healthy Kids Minnesota can tell us if more action is needed to protect preschoolers from chemicals so that they are ready to learn and do well in school. Results will also advance our understanding of chemical exposures in all Minnesotans and build a potential baseline for future surveillance of chemical exposures. **By returning to each region after the first cycle is complete, we can track regional trends over time and improve public health prevention and interventions.**

TOXIC EXPOSURES AND SKIN LIGHTENING PRODUCTS

Health care provider outreach

In collaboration with the MDH **Toxic Free Kids Program**, efforts are underway to increase health care provider outreach about harmful chemical exposures from skin lightening products, including mercury, steroids, and hydroquinone. In 2025 so far, we have conducted four trainings at Twin Cities clinics serving populations that may be at risk.

Trainings include background on the issue, colorism, and possible health effects. MDH staff discuss the utility of testing urine to identify patients with elevated exposures. Trainings also inform providers how to request a home visit through MDH if levels of mercury in urine are elevated. CME credits are offered for attendees.

Exposure response and intervention

Biomonitoring staff are core responders when urine tests indicate elevated mercury exposure in cases referred by health care providers and Minnesota Poison Control. Voluntary home visits are offered to identify and control the source of exposure in partnership with the Minnesota Pollution Control Agency and local public health. MDH staff work with affected individuals to identify and safely dispose of potential sources of mercury exposure, and to connect them with other public health resources. We offer follow-up urine testing to ensure that mercury levels decline.

Supporting community-based education

EHTB staff support grant administration for community organization Beautywell to conduct education and awareness activities, as outlined by the Minnesota Legislature (MN Session Laws 2023, Ch. 70, Art. 4, Sec. 3, Subd. 3(d)).

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