

# **Environmental Health Tracking and Biomonitoring Advisory Panel Meeting February 11, 2025**

**1:00 P.M. – 3:30 P.M.**

***Via Microsoft Teams***

Environmental Health Tracking and Biomonitoring Advisory Panel Meeting  
February 11, 2025

Minnesota Department of Health  
Environmental Health Tracking and Biomonitoring  
PO Box 64975  
St. Paul, MN 55164-0975  
1-800-205-4987  
[health.biomonitoring@state.mn.us](mailto:health.biomonitoring@state.mn.us)  
[www.health.state.mn.us](http://www.health.state.mn.us)

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## Agenda Overview

**Date: 2/11/2025**

### Welcome & Agenda

**1:00 p.m.**

Chair Ruby Nguyen will welcome attendees to the meeting. Panel members are invited to introduce themselves. Ruby will give an agenda overview.

### Cumulative Impacts Rulemaking

**1:10 p.m.**

Hassan Bouchareb, Engineer with the Minnesota Pollution Control Agency (MPCA), and Derek King, Advisory Panel member and Cumulative Impacts Coordinator with the MPCA, will give an overview of the state's cumulative impacts rulemaking process. Panel members are invited to ask questions.

### Healthy Kids Minnesota Preliminary Results: PAHs

**1:50 p.m.**

MDH Biomonitoring staff Jessica Nelson will present results from preliminary data analysis of polycyclic aromatic hydrocarbons (PAHs) in children's urine.

**2:10 p.m. Questions and Discussion**

#### Questions for Panel

- Are there additional analyses the Panel recommends?
- What are key findings important to share in the community report?

### Update: Legislative Session

**2:30 p.m.**

MDH Environmental Health Division Director Tom Hogan will give a short update on the state legislative session. Panel members are invited to ask questions.

### Sharing New Results Return Materials for Healthy Kids Minnesota

**2:40 p.m.**

MDH Biomonitoring staff Fathi Ahmed will present an update on the new results return packet being sent to Healthy Kids Minnesota families. Panel members are invited to ask questions.

## Public Comments, Audience Questions, New Business

**3:10 p.m.**

## Motion to Adjourn

**3:30 p.m.**

## Cumulative Impacts Rulemaking

### Speaker Biosketch

**Hassan Bouchareb** is an engineer in the Minnesota Pollution Control Agency's Air Policy unit and has worked at the MPCA for the last 13 years. Hassan's educational background includes a Bachelor of Science in Chemical Engineering from the University of Minnesota Twin Cities. Hassan's work is focused on the cumulative impacts rulemaking and mercury reduction efforts, while trying to find time to squeeze in other air program initiatives.

**Derek King** is Cumulative Impacts Coordinator with the MPCA and a member of the EHTB Advisory Panel. See his biosketch on page 16.

### Background

Hassan and Derek will provide an overview of the new cumulative impacts rulemaking process in Minnesota and a summary of work to date. More background on the cumulative impacts rulemaking process can be found at: [Cumulative impacts rulemaking | Minnesota Pollution Control Agency](https://www.pca.state.mn.us/get-engaged/cumulative-impacts-rulemaking) (<https://www.pca.state.mn.us/get-engaged/cumulative-impacts-rulemaking>).

## Healthy Kids Minnesota 2021 Preliminary Results: PAHs

### Background

This presentation will focus on analyses of urine concentrations of polycyclic aromatic hydrocarbons (PAHs) in Healthy Kids Minnesota 2021 participants. Participants were 454 pre-school age children from Southeast Minnesota and Minneapolis; please refer to the June 2023 Advisory Panel book for a demographic summary ([June 2023 Advisory Panel Meeting book \(PDF\)](#)) (<https://www.health.state.mn.us/communities/environment/biomonitoring/docs/2023junebook.pdf>).

Polycyclic aromatic hydrocarbons (PAHs) are a family of chemicals that form and are released into air when materials like wood, gasoline, coal, garbage, and tobacco are burned. They also form in food that has been grilled, barbecued, smoked, or fried. PAHs in air can irritate eyes and breathing passages, and exacerbate asthma and other respiratory conditions. They may be especially harmful for children because their lungs and other organs are still developing. Some PAHs may cause cancer. For more information on PAHs and common ways children may be exposed, see: [Healthy Kids PAH Information Sheet \(PDF\)](#) (<https://www.health.state.mn.us/communities/environment/biomonitoring/docs/enpahinfohkmn.pdf>).

The MDH Public Health Laboratory measured six PAH metabolites in children’s urine samples:

- 1-Hydroxypyrene (1-PYR)
- 1-Hydroxynaphthalene (1-NAP)
- 2-Hydroxynaphthalene (2-NAP)
- 2-Hydroxyfluorene (2-FLUO)
- 3-Hydroxyfluorene (3-FLUO)
- 3-Hydroxyphenanthrene (3-PHEN)

### Biomonitoring Results

Table 1 shows the distribution of urine PAHs for the overall Healthy Kids Minnesota 2021 population with comparison values from children of similar ages in the National Health and Nutrition Examination Survey (NHANES).

**Table 1: PAH results in Healthy Kids MN 2021 (n=454) with NHANES comparison**

PAH	% Detect	Geometric mean (GM) (ng/L)	GM 95% Confidence Interval (CI)	95 <sup>th</sup> percentile	NHANES GM* (ng/L)	NHANES GM 95% CI	NHANES 95 <sup>th</sup> percentile
1-PYR	100	85	81 - 90	257	117	103 - 133	457

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PAH	% Detect	Geometric mean (GM) (ng/L)	GM 95% Confidence Interval (CI)	95 <sup>th</sup> percentile	NHANES GM* (ng/L)	NHANES GM 95% CI	NHANES 95 <sup>th</sup> percentile
1-NAP	99%	473	429 - 522	3055	799	699 - 913	6090
2-NAP	100%	4198	3656 - 4821	45100	3390	2760 - 4160	18900
2-FLUO	100%	92	85 – 100	379	101	91 - 112	458
3-FLUO	95%	37	34 – 40	160	51	45 - 57	263
3-PHEN	97%	65	59 - 72	482	NA**	NA**	NA**

\* NHANES comparison population for children ages 3-5 from NHANES 2015-2016 (n=~475).

\*\* NHANES changed laboratory methods and combined 3-PHEN with another analyte so we cannot directly compare results.

## Data Analyses

Similar to preliminary results presentations at past Advisory Panel meetings for the other types of chemicals measured in Healthy Kids Minnesota, data analyses will be presented that look at the relationship between biomonitoring results and demographic and predictor variables gathered during recruitment interviews. Key demographic and exposure survey variables explored include: race/ ethnicity, household income, recruitment month/season, recent use of incense, consumption of smoked/grilled meats, and smoking exposure.

## Questions for Advisory Panel

- Are there additional analyses the Panel recommends?
- What are key findings important to share in the community report?

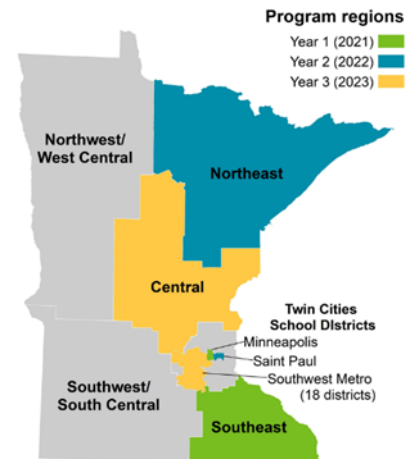


# Minnesota Biomonitoring Updates

## Healthy Kids Minnesota Program Update

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

The program rotates in five regions in the state, focusing on one non-Metro and one Metro region per year (see map). Recruitment for the first three program cycles is complete and work continues to report all results to families and analyze data for Healthy Kids Minnesota 2021-2023.



Healthy Kids Minnesota 2025 is working in Northwest/West Central Minnesota and the East/Southeast Metro. Partnerships and financial contracts with school districts and local public health in these areas are currently being finalized, and training and recruitment will begin in spring 2025. Healthy Kids Minnesota 2026 will work in Southwest/South Central Minnesota and the North Metro.

In addition to completing the two remaining years of the state-wide cycle, MDH is partnering again with Bois Forte Band of Chippewa to take a different community-based approach to recruitment of children. Planning meetings are being held and community outreach is slated to begin in winter/spring 2025 and recruitment in fall 2025.

The program is funded by the U.S. Centers for Disease Control and Prevention (CDC) and the state of Minnesota.

## Mercury Exposure and Use of Skin Lightening Products

In collaboration with the MDH Toxic Free Kids Program, efforts are underway to increase health care provider outreach about mercury exposure and the use of skin lightening products. Staff have conducted four trainings at Twin Cities clinics serving populations that may be at risk for elevated mercury exposure (see below). In addition to background information on the issue and possible health effects, staff discuss the utility of urine mercury testing to identify patients with elevated exposures and inform providers about how to request a home visit through MDH if urine levels are elevated. CME credits are offered for attendees.

Staff also continue to respond to elevated cases of urine mercury referred by 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.

## Recent Articles/Presentations

- Jessica Nelson, Nini Mentan. *Mercury in Skin Lightening Products: Exposure, Health Concerns, and Clinical Management*. Presentation at: Health Partners Center for International Health (Nov. 20, 2024), Northpoint Health & Wellness (Jan. 4, 2025), Health

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Partners Brooklyn Center (Jan. 24, 2025), Hennepin Healthcare Whittier Clinic (Feb. 5, 2025).

- Jessica Nelson, Carin Huset, Fathi Ahmed. *Healthy Kids Minnesota* [presentation]. CDC Grantee Meeting, Dec. 3, 2024, Atlanta, GA.
- Jessica Nelson, Fathi Ahmed. *Healthy Kids Minnesota Program* [presentation]. Minnesota Department of Education Early Childhood Screening webinar, Nov. 19, 2024.

## Section Overview: Other Information

This section contains documents that may be of interest to panel members.

- Upcoming Advisory Panel meeting dates
- Environmental Health Tracking and Biomonitoring Advisory Panel Statute
- Advisory Panel roster
- Biographical sketches of Advisory Panel members
- Biographical sketches of staff

## Upcoming Advisory Panel Meeting Dates

Advisory Panel meetings in 2025:

- June 10, 2025
- October 14, 2025

Unless otherwise announced, these meetings will take place from 1 – 3:30 pm.

*via Microsoft Teams*

## 144.998 ENVIRONMENTAL HEALTH TRACKING AND BIOMONITORING ADVISORY PANEL STATUTE

Subdivision 1. **Creation.** The commissioner shall establish the Environmental Health Tracking and Biomonitoring Advisory Panel. The commissioner shall appoint, from the panel's membership, a chair. The panel shall meet as often as it deems necessary but, at a minimum, on a quarterly basis. Members of the panel shall serve without compensation but shall be reimbursed for travel and other necessary expenses incurred through performance of their duties. Members appointed by the commissioner are appointed for a three-year term and may be reappointed. Legislative appointees serve at the pleasure of the appointing authority.

Subd. 2. **Members.** (a) The commissioner shall appoint eight members, none of whom may be lobbyists registered under chapter 10A, who have backgrounds or training in designing, implementing, and interpreting health tracking and biomonitoring studies or in related fields of science, including epidemiology, biostatistics, environmental health, laboratory sciences, occupational health, industrial hygiene, toxicology, and public health, including:

(1) At least two scientists representative of each of the following:

- (i) Nongovernmental organizations with a focus on environmental health, environmental justice, children's health, or on specific chronic diseases; and
- (ii) Statewide business organizations; and

(2) At least one scientist who is a representative of the University of Minnesota.

(b) Two citizen panel members meeting the specific qualifications in paragraph (a) shall be appointed, one by the speaker of the house and one by the senate majority leader.

(c) In addition, one representative each shall be appointed by the commissioners of the Pollution Control Agency and the Department of Agriculture, and by the commissioner of health to represent the department's Health Promotion and Chronic Disease Division.

Subd. 3. **Duties.** The advisory panel shall make recommendations to the commissioner and the legislature on:

- (1) Priorities for health tracking;
- (2) Priorities for biomonitoring that are based on sound science and practice, and that will advance the state of public health in Minnesota;
- (3) Specific chronic diseases to study under the environmental health tracking system;
- (4) Specific environmental hazard exposures to study under the environmental health tracking system, with the agreement of at least nine of the advisory panel members;
- (5) Specific communities and geographic areas on which to focus environmental health tracking and biomonitoring efforts;

(6) Specific chemicals to study under the biomonitoring program, with the agreement of at least nine of the advisory panel members; in making these recommendations, the panel may consider the following criteria:

- (i) The degree of potential exposure to the public or specific subgroups, including, but not limited to, occupational;
- (ii) The likelihood of a chemical being a carcinogen or toxicant based on peer-reviewed health data, the chemical structure, or the toxicology of chemically related compounds;
- (iii) The limits of laboratory detection for the chemical, including the ability to detect the chemical at low enough levels that could be expected in the general population;
- (iv) Exposure or potential exposure to the public or specific subgroups;
- (v) The known or suspected health effects resulting from the same level of exposure based on peer-reviewed scientific studies;
- (vi) The need to assess the efficacy of public health actions to reduce exposure to a chemical;
- (vii) The availability of a biomonitoring analytical method with adequate accuracy, precision, sensitivity, specificity, and speed;
- (viii) The availability of adequate biospecimen samples; or
- (ix) Other criteria that the panel may agree to; and

(7) Other aspects of the design, implementation, and evaluation of the environmental health tracking and biomonitoring system, including, but not limited to:

- (i) Identifying possible community partners and sources of additional public or private funding;
- (ii) Developing outreach and educational methods and materials; and
- (iii) Disseminating environmental health tracking and biomonitoring findings to the public.

Subd. 4. **Liability.** No member of the panel shall be held civilly or criminally liable for an act or omission by that person if the act or omission was in good faith and within the scope of the member's responsibilities under section 144.995 to 144.998.

## Environmental Health Tracking & Biomonitoring Advisory Panel Roster (as of February 2025)

Bruce Alexander, Ph.D.  
Div. of Environmental Health Sciences  
Univ. of MN, School of Public Health  
MMC 807 Mayo Building  
420 Delaware Street S.E.  
Minneapolis, MN 55455  
[balex@umn.edu](mailto:balex@umn.edu)  
Minnesota Senate appointee

Jay Desai, Ph.D., M.P.H.  
Chronic Disease & Environmental  
Epidemiology  
Minnesota Department of Health  
625 Robert St. N.  
St. Paul, MN 55164  
651-201-5882  
[Jay.Desai@state.mn.us](mailto:Jay.Desai@state.mn.us)  
MDH appointee

Derek King, M.S.  
Environmental Analysis & Outcomes  
Minnesota Pollution Control Agency  
520 Lafayette Rd.  
St. Paul, MN 55155  
(651) 757-2050  
[Derek.King@state.mn.us](mailto:Derek.King@state.mn.us)  
MPCA appointee

Sarah Kleinschmidt, Ph.D.  
3M Company  
3M Center, 220-6W-1  
St. Paul, MN 55144  
651-736-5485  
[sekleinschmidt@mmm.com](mailto:sekleinschmidt@mmm.com)  
Statewide business organization  
representative

Jennifer Lansing, M.S.  
Minneapolis Department of Health  
250S 4<sup>th</sup> St.  
Minneapolis, MN 55415  
[Jenni.lansing@minneapolismn.gov](mailto:Jenni.lansing@minneapolismn.gov)  
At-large representative

Rajinder Mann, Ph.D.  
Pesticide & Fertilizer Management Division  
Minnesota Department of Agriculture  
625 Robert St N  
St Paul, MN 55155-2538  
651-201-6697  
[Rajinder.mann@state.mn.us](mailto:Rajinder.mann@state.mn.us)  
MDA appointee

Zeke J. McKinney, M.D., M.H.I., M.P.H.,  
F.A.C.O.E.M.  
HealthPartners Occupational and  
Environmental Medicine/Institute  
Univ. of MN, School of Public Health  
HealthPartners St. Paul Clinic  
205 S. Wabasha St.  
St. Paul, MN 55107  
[zeke@umn.edu](mailto:zeke@umn.edu)  
At-large representative

Jill Heins Nesvold, M.S.  
American Lung Association of Minnesota  
490 Concordia Ave  
St Paul, MN 55103  
651-223-9578  
[Jill.heins@lung.org](mailto:Jill.heins@lung.org)  
Nongovernmental organization  
representative

Ruby Nguyen, Ph.D.  
Div of Epidemiology & Community Health  
Univ. of MN, School of Public Health  
1300 S 2<sup>nd</sup> St, Suite 300 WBOB  
Minneapolis, MN 55454  
612-626-7559  
[nguyen@umn.edu](mailto:nguyen@umn.edu)  
University of Minnesota representative

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Eileen Weber, D.N.P., J.D., P.H.N., B.S.N.,  
R.N.

Univ. of MN, School of Nursing (active  
retiree status)

10623 Nyberg Ave S

Hastings, MN 55033

651-276-1730

[eileenokeefeweber@gmail.com](mailto:eileenokeefeweber@gmail.com)

Nongovernmental organization  
representative

St Paul, MN 55101

651-470-9284

[lyost@ramboll.com](mailto:lyost@ramboll.com)

National business organization  
representative

VACANT SEATS

Statewide business organization  
representative

Lisa Yost, M.P.H., D.A.B.T.

Ramboll Environ

Local office

479 Iglehart Ave

Minnesota House of Representatives  
appointee

## Biographical Sketches of Advisory Panel Members

**Bruce Alexander** is a Mayo Professor in Public Health and Head of the Division of Environmental Health Sciences in the School of Public Health at the University of Minnesota. He earned a BS and MS in Environmental Health from Colorado State University and a PhD in Epidemiology from the University of Washington. His career has included working as an epidemiologist in a refugee relief operation and as an occupational and environmental epidemiologist working on a wide range of collaborative interdisciplinary research on the health effects of occupational and environmental exposures in relation to respiratory diseases, injury, cancer, and infectious diseases. His active interests include the development of multidisciplinary approaches to address complex public health problems and building public health practice capacity, One Health, the health of agricultural populations, and global health.

**Jay Desai** is the Manager of the Chronic Disease and Environmental Epidemiology Section within the Division of Health Promotion and Chronic Disease at MDH. The Section includes the Environmental Epidemiology, the Minnesota Cancer Reporting System, and the Sickle Cell Data Collection program. It also includes the Long-Term Surveillance of Chronic Disease and Disabilities Annex, a program designed for response and recovery in emergency situations such as the COVID-19 epidemic. Jay received his Epidemiology doctorate from the University of Minnesota, is a chronic disease epidemiologist, and has worked in academic research and public health practice at the University of Minnesota, HealthPartners Institute, and the Minnesota Department of Health since 1993. He has a strong interest in diabetes, diabetes prevention, obesity, cardiovascular disease, chronic kidney disease, gout, cancer prevention, sickle cell disease, their underlying behavioral risk factors, and social determinants of health. He is also interested in implementation science and health equity. At MDH Jay spent 16 years as the epidemiologist for the Minnesota Diabetes Program. At HPI he worked on primary care clinical decision support; using EMR's for diabetes, cardiovascular disease, and obesity surveillance; diabetes prevention in low income individuals, and HPV vaccination in underserved communities. Jay is also a standing member of the NIH Healthcare and Health Disparities study section.

**Derek King** is the Cumulative Impacts Coordinator for the Minnesota Pollution Control Agency. He earned his BS in Biopsychology from Augsburg University and his MS in Environmental Health, with a concentration in Regulatory Toxicology and Risk Assessment, from the University of Minnesota's School of Public Health. His career has included holding dual registrations as a nursing assistant in Minnesota and Florida, a student worker in infectious diseases with the Minnesota Department of Health, a front-line COVID-19 vaccination and testing lead with Hennepin County Public Health, and an air toxics scientist with the Minnesota Pollution Control Agency. Currently, he serves as the Minnesota Pollution Control Agency's first Cumulative Impacts Coordinator. His research has covered remediation of hydrogen sulfide contamination, zinc binding with fibrinogen and its  $\alpha$ C region, racial and sex differences in unintentional opioid overdose deaths, PFAS contamination within Minnesota, cumulative impacts, and the incorporation of lived experiences within regulatory processes.

**Sarah Kleinschmidt** is an epidemiologist with more than 20 years of experience in population-based epidemiologic research and infectious disease clinical trials. She joined the 3M Company in 2016 and serves as an epidemiologist within the Corporate Occupational Medicine Department where she evaluates the health experience of employee groups. Prior to joining 3M, Dr. Kleinschmidt was an occupational epidemiologist for DuPont in Wilmington, DE and



taught epidemiology at the University of Delaware as an Adjunct Instructor. She has also held research positions at the University of Iowa, Illinois Department of Public Health, and Southern Illinois University School of Medicine. She earned a B.S. and M.S. in biology from the University of Illinois at Springfield, and a M.S. and Ph.D. in epidemiology from the University of Iowa with specialized training in both infectious disease and occupational epidemiology.

**Jenni Lansing** is the Sr. Environmental Research Analyst for the Minneapolis Health Department – Environmental Programs. She has been with the City for 10 years and during that time her work has included community air monitoring, pollution reduction projects with businesses, and drinking water protection at transient noncommunity water systems. Ms. Lansing has a B.S. in Fisheries and Wildlife Conservation Biology from the University of Minnesota - Twin Cities and a M.S. in Environmental Sciences from the University of Colorado.

**Rajinder Mann** is a pesticide program manager for the Pesticide and Fertilizer Management Division of the Minnesota Department of Agriculture. He has been with the department for more than 10 years. His work includes overseeing pesticide and fertilizer-related technical programs that include registering pesticides and fertilizers, conducting special registration reviews of pesticides, developing and promoting agricultural chemicals best management practices (BMPs), and analyzing water quality monitoring data for pesticides. Raj has a PhD in entomology with specialized training in pesticides. Raj has also worked on insect vectors during his tenure at the University of Florida.

**Zeke McKinney** is a board-certified Occupational and Environmental Medicine (OEM) physician who works at the HealthPartners Clinic in St. Louis Park, MN. He is additionally board-certified in Public Health & General Preventive Medicine, Clinical Informatics, and Lifestyle Medicine. He completed all of his medical training here in Minnesota. His professional interests are in preventing work-related illness/injury, improving data-driven decision-making in clinical contexts, environmental toxicology, health equity, environmental justice, public safety medicine, managing complex impairment/disability, and increasing the health literacy of patients and communities. He practices clinical occupational and environmental medicine in the Twin Cities, and he is one of few clinicians in Minnesota who evaluates work and community-related environmental toxicologic exposures. He is the Minnesota physician contact for the Pediatric Environmental Health Specialty Units (PEHSU), a national resource for environmental medical information in partnership with ATSDR and CDC.

**Jill Heins Nesvold** serves as the National Director of Lung Health for the American Lung Association. Her responsibilities include program oversight and evaluation related to asthma, chronic obstructive lung disease (COPD), influenza, and quality improvement. She holds a master's degree in health management and a short-course master's degree in business administration. She has published extensively in a variety of public health areas.

**Ruby Nguyen** is an assistant professor at the University of Minnesota School of Public Health Division of Epidemiology & Community Health. She received her PhD in Epidemiology from Johns Hopkins University. Ruby's research focuses on maternal, child and family health; the etiology of reduced fertility; pregnancy-related morbidity, and infertility and later disease.

Currently, Ruby is conducting a longitudinal study examining the role of endocrine disrupting chemicals in child development. From 2016-2017, Ruby was Co-Principal Investigator of a statewide prevalence study investigating violence against Asian women and children.

**Eileen Weber** is a nurse attorney and Clinical Associate Professor Ad Honorem at the University of Minnesota School of Nursing (active retiree status). She founded the Upper Midwest Healthcare Legal Partnership Learning Collaborative. She earned her Doctor of Nursing Practice degree in Health Innovation and Leadership in 2014 from the University of Minnesota. She earned her RN diploma from Thomas Jefferson University Hospital in Philadelphia, PA, her BSN summa cum laude from the University of Minnesota, and her JD in the founding class of the University of St. Thomas School of Law in Minneapolis. Her clinical experience and past certifications have largely been in urban critical care and emergency nursing. She has served as vice-president of the Minnesota Nurses Association, earning awards for political action and outstanding service. She represented nursing on the Minnesota Health Care Commission, was a regular editorial writer for the St. Paul Pioneer Press and an occasional op-ed contributor for the Star Tribune. She founded Friends of Grey Cloud and worked with environmental leaders at the local, regional, state and national levels to protect Lower Grey Cloud Island from harmful development and to conserve the Grey Cloud Sand Dune Prairie. She has extensive experience in legislative lobbying, community activism, and political campaign management. Her scholarly work is focused on the intersection of law, public policy, and interprofessional healthcare practice and education.

**Lisa Yost** is a Principal Consultant at RAMBOLL ENVIRON, an international consulting firm. She is in their Health Sciences Group, and is based in St. Paul, Minnesota. She completed her training at the University of Michigan's School of Public Health and is a board-certified toxicologist with expertise in evaluating human health risks associated with substances in soil, water, and the food chain. She has conducted or supervised risk assessments under CERCLA, RCRA, or state-led regulatory contexts involving a wide range of chemicals and exposure situations. Her areas of specialization include exposure and risk assessment, risk communication, and the toxicology of such chemicals as PCDDs and PCDFs, PCBs, pentachlorophenol (PCP), trichloroethylene (TCE), mercury, and arsenic. Lisa is a recognized expert in risk assessment and has collaborated in original research on exposure issues, including background dietary intake of inorganic arsenic. She is currently assisting in a number of projects including a complex multi-pathway risk assessment for PDDD/Fs that will integrate extensive biomonitoring data collected by the University of Michigan. She is also an Adjunct Instructor at the University of Minnesota's School of Public Health.

## Biographical Sketches of Staff

**Fathi Ahmed** is currently the Program Manager with MN Biomonitoring. She received a bachelor's degree in Public Health with concentrations in Community Health and Public Policy from St. Catherine University. Fathi worked in the Biomonitoring program in 2016-2017 as a Student Worker on the MN FEET study as she was getting her B.S. in Public Health. Since then, she has done work in different public health, community engagement, and research positions. These include work with The Beautywell Project, SoLaHmo, the University of Minnesota, and the International Institute of Minnesota. Fathi has recently re-joined the Biomonitoring team as the new Program Manager in January 2023.

**Sheila Amenumey** is currently the Biomonitoring Epidemiologist at MDH. Sheila collaborates with the Biomonitoring Program Director and key stakeholders leading the various biomonitoring projects including Healthy Kids Minnesota, the statewide project focused on children's environmental health. She completed her MPH in Maternal and Child Health and PhD in Water Resources Science (Water Quality Hydrology Emphasis) at the University of Minnesota. Prior to her work with the biomonitoring program, Sheila worked with the Maternal and Child Health Section at MDH. Her role as the Maternal and Child Health Epidemiologist involved leading and collaborating with external partners in conducting program evaluation across multiple federal adolescent health grants, and assisting them in monitoring program outcomes and achievement of their health and education goals for the youth they serve. Before coming to MDH, Sheila conducted water quality research at the University of Minnesota to determine the impact of agriculture on water quality.

**Jessie Carr** supervises the Environmental Epidemiology Unit at MDH and is the Principal Investigator for the Environmental Public Health Tracking program. Jessie received her MPH from the Mailman School of Public Health at Columbia University and DrPH from the University of Pittsburgh, where her training and research focused on exposure assessment, GIS and spatial statistics, community-engaged research methods, and environmental health disparities. Prior epidemiology studies have examined social susceptibility to air pollution exposure in chronic disease etiology and adverse birth outcomes.

**Nicole Frederickson** is a Council of State and Territorial Epidemiologists (CSTE) Applied Epidemiology Fellow, where she works with the MN Tracking Program and MN Biomonitoring. Nicole received her MPH in Epidemiology from the University of Nebraska Medical Center. Her projects focus on understanding and addressing environmental health disparities while working in areas such as children's environmental health, heat and cold related illness, and traffic pollution. Nicole is passionate about using data and research to improve public health outcomes, especially for vulnerable populations affected by environmental risks.

**Carin Huset** has been a research scientist in the Environmental Laboratory section of the MDH Public Health Laboratory since 2007. Carin received her PhD in Chemistry from Oregon State University in 2006 where she studied the fate and transport of perfluorochemicals in aqueous waste systems. In the MDH PHL, Carin provides and coordinates laboratory expertise and information to program partners within MDH and other government entities where studies require measuring biomonitoring specimens or environmental contaminants of emerging

concern. In conjunction with these studies, Carin provides biomonitoring and environmental analytical method development in support of multiple analyses.

**Tess Konen** graduated from the University of Michigan's School of Public Health with a master's degree in Occupational Environmental Epidemiology. She completed her thesis on the effects of heat on hospitalizations in Michigan. She worked with MN Tracking for 2 years as a CSTE Epidemiology Fellow where she was project coordinator for a follow-up study of the Northeast Minneapolis Community Vermiculite Investigation cohort. She currently is an epidemiologist working on birth defects, pesticides, and climate change, and is developing new Disaster Epidemiology tools for MDH-HPCD.

**Clara Lucero** is an Association of Public Health Laboratories (APHL) fellow with MN Biomonitoring. She recently graduated from the University of St. Thomas with a bachelor's in Biochemistry. She is working primarily on the Healthy Kids Minnesota program. Clara will be attending medical school in the fall.

**Jessica Nelson** is Program Director and an epidemiologist with MN Biomonitoring. She works on design, coordination and analysis of biomonitoring projects, and has been the Principal Investigator for the Healthy Rural and Urban Kids, MN FEET and PFAS studies. Jessica received her PhD and MPH in Environmental Health from Boston University School of Public Health where her research involved the epidemiologic analysis of biomonitoring data on perfluorochemicals. Jessica was the coordinator of the Boston Consensus Conference on Biomonitoring, a project that gathered input and recommendations on the practice and uses of biomonitoring from a group of Boston-area lay people.

**Kathy Raleigh** is an epidemiologist for MN Tracking. She completed her PhD in Environmental Health at the University of Minnesota's School of Public Health and her MPH in Environmental and Occupational Health at the University of Arizona. She has worked on a variety of environmental health projects including: pesticide exposure in children, occupational asthma, mercury exposure in women and children, and occupational exposure to PFOA. Prior to coming to MN Tracking, Kathy was working on maternal and child health projects both internationally with USAID and, more recently, at MDH. She will also be working on the coordination and collection of hospital discharge data, including heart disease and asthma surveillance projects for MN Tracking with a focus on health disparities.

**Deanna Scher** is an epidemiologist in the Environmental Epidemiology Unit. Since joining MDH in 2007, she has led a variety of studies to assess exposures to, and health impacts from environmental contaminants, particularly among at-risk and vulnerable populations. She currently serves as Chair of the MDH Institutional Review Board and the U.S. Environmental Protection Agency's Children's Health Protection Advisory Committee. Deanna received her Ph.D. in Environmental Health Sciences from the University of Minnesota, School of Public Health, where her research focused on methods to integrate biomonitoring and biological plausibility into pesticide risk assessment and epidemiology studies.

**Blair Sevcik** is an epidemiologist with MN Tracking at the Minnesota Department of Health, where she works on the collection and statistical analysis of public health surveillance data for

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MN Tracking. Prior to joining MN Tracking in January 2009, she was a student worker with the MDH Asthma Program. She received her Master of Public Health degree in epidemiology from the University of Minnesota School of Public Health in December 2010.