DEPARTMENT OF HEALTH

Environmental Health Tracking and Biomonitoring Advisory Panel Meeting

JUNE 13, 2023

1:00 p.m. – 4:00 p.m.

Via Microsoft Teams

Environmental Health Tracking and Biomonitoring Advisory Panel Meeting

Minnesota Department of Health
Environmental Health Tracking and Biomonitoring
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Contents

Agenda Overview

Date: 6/13/2023

Welcome & Agenda

1:00 p.m.

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

CNN White Lies Series: Impact and Take-aways

1:10 p.m.

CNN International Reporter Meera Senthilingam, author of the recent CNN story that featured a Minnesota case of vision loss from skin lightening/mercury exposure, will give a brief overview of the larger CNN White Lies series and share her thoughts on the impact of the Minnesota story and take-aways. Panel members are invited to ask questions.

Skin Lightening Products and Urine Mercury Testing: Recommendations for Future Work

1:30 p.m.

Erin Batdorff, a physician who recently completed a fellowship in Medical Toxicology training at Region's Hospital and the Minnesota Poison Control System, will share lessons learned from her work on urine mercury testing and response, and offer recommendations for future work in this area. Panel members are invited to ask questions.

2:10 p.m. Discussion

Questions for the Panel

- Which recommendations from Dr. Batdorff should we prioritize for the work of our program, both in the short-term and as a long-term vision?
- Our efforts on urine mercury testing and response are a collaborative effort between MDH, MPCA, Poison Control, and clinics. What is the panel's feedback on how we can all work together most effectively?
- What are the panel's suggestions about best strategies to engage health care providers on the issue and encourage them to identify patients who may be at risk of exposure?

Healthy Kids Minnesota 2021: Preliminary Results

2:40 p.m.

MDH Biomonitoring Epidemiologist Sheila Amenumey will present results from preliminary analyses of Healthy Kids Minnesota 2021 data. Panel members are invited to ask questions.

3:10 p.m. Discussion

Questions for the Panel

- Are there additional analyses the Panel recommends?

Legislative Session Update

3:30 p.m.

MDH Environmental Epidemiology Unit Supervisor Jessie Carr will share updates from the recent legislative session. Panel members are invited to ask questions.

Public Comments, Audience Questions, New Business

3:50 p.m.

Motion to Adjourn

4:00 p.m.

CNN White Lies Series: Impact and Take-aways

Speaker Biosketch

Meera Senthilingam is a journalist and editor specializing in global health. She has Masters degrees in Science Communication from Imperial College London, and Control of Infectious Diseases at the London School of Hygiene and Tropical Medicine (LSHTM). Meera is editor for CNN "As Equals," the network's gender inequality desk, and was formerly international health editor for CNN. She has led on a wide range of series focusing on health and inequality issues worldwide, most recently the series "White Lies" which investigated the global skin whitening culture and industry, and a separate series focusing on maternal mental health worldwide. Prior to CNN she worked for many global news organizations, including the BBC World Service and Thomson Reuters Foundation. She has also worked with research institutions including the London School for Hygiene and Tropical Medicine and Wellcome Trust.

Background on Presentation

The CNN International series "White Lies" included a number of news stories and online features about the global use of skin lightening products, its roots in colorism, and the harms that mercury and other exposures may cause. Senthilingam authored a recent story describing a Minnesota case of vision loss from skin lightening/mercury exposure. The response to this case was handled by Dr. Erin Batdorff, formerly with the Minnesota Poison Control System (see next section), the MDH Biomonitoring Program, and colleagues with the Minnesota Pollution Control Agency. Senthilingam will give an overview of the "White Lies" series, how the Minnesota story fit into the larger series, and her thoughts on the impact of the story.

For more information, see:

CNN White Lies series (https://edition.cnn.com/world/africa/white-lies-skin-whitening)

Mercury in beauty creams believed to have caused vision loss in woman: Mother loses peripheral vision from apparent exposure to mercury in beauty creams. Toxic levels in her home put family at risk, say experts (https://www.cnn.com/2022/11/29/health/skin-whitening-beauty-creams-mercury-vision-loss-mother-families-as-equals-intl-cmd/index.html).

Skin Lightening Products and Urine Mercury Testing: Recommendations for Future Work

Speaker Biosketch

Dr. Erin Batdorff graduated from the University of Toledo College of Medicine in 2017 and then completed her residency in Internal Medicine at the University of Minnesota. During her residency, she also completed the Global Health course with a particular interest in working with underserved populations. After residency, she completed a fellowship in Medical Toxicology training at Region's Hospital and the Minnesota Poison Control System (Poison Control). During her fellowship, she worked extensively with various cases of mercury toxicity with a primary interest in inorganic mercury toxicity originating from skin care products. Currently she is working as a Hospitalist at the Southern Arizona VA Medical Center.

Background on Presentation

The MDH Biomonitoring Program has worked on the issue of urine mercury testing and skin lightening products for several years, receiving helpful guidance from the Advisory Panel along the way.

- **MDH MN FEET Study 2016-2018**
  This study found that women from some Minnesota communities had elevated urine mercury exposures as a result of using skin lightening products. We first offered a voluntary home visit to participants with elevated urine mercury in coordination with the Minnesota Pollution Control Agency (MPCA) and local public health partners.
- **Three clinic-based urine mercury screening projects**
  Led by University of Minnesota Doctor of Nursing Practice students, we followed up at community clinics serving populations MN FEET found to be at higher risk for the use of skin lightening products and inorganic mercury exposure. The screenings found additional cases of elevated urine mercury and again offered a voluntary home visit and urine re-testing advice to reduce exposures. The projects also assessed the effectiveness and process changes needed to routinely screen clinical patients for urine mercury.

The COVID-19 response and subsequent staff capacity limitations reduced our work in this area. We work as part of a collaborative team to respond to elevated urine mercury cases that are brought to MDH by health care providers, Minnesota Poison Control, or others. We coordinate urine testing by our MDH Public Health Laboratory, a home visit response in partnership with the MPCA and other organizations including Minnesota Poison Control and local public health, and guidance for interpreting urine mercury test results. We are also measuring urine mercury in all children who participate in our Healthy Kids Minnesota program and, so far, have responded to one elevated case in a child.

As staff capacity is increasing and we look ahead to expanding our work in urine mercury testing and its public health follow-up effectively and sustainably. Building on the strengths of past biomonitoring projects and partnerships, we want to align with and support other essential pieces of responding to the larger issue of mercury in skin lightening products,

including community engagement, product testing, and working with local businesses to remove products from their shelves.

In this presentation, Dr. Erin Batdorff will share lessons learned from her work on urine mercury testing and response and will offer recommendations for future work. As part of her Medical Toxicology Fellowship at Poison Control, Dr. Batdorff completed a rotation with MDH on mercury and skin lightening products, physician outreach, and elevated case systems improvement. She worked with MDH and MPCA on the home visit response for several elevated cases, speaking with the individuals about possible exposures and health outcomes, and collecting additional urine samples from people in the home (including children). She was also featured by CNN in the recent article Mother loses peripheral vision from apparent exposure to mercury in beauty creams. Toxic levels in her home put family at risk, say experts (https://www.cnn.com/2022/11/29/health/skin-whitening-beauty-creams-mercury-vision-loss-mother-families-as-equals-intl-cmd/index.html).

Questions for Advisory Panel

- Which recommendations from Dr. Batdorff should we prioritize for the work of our program, both in the short-term and as a long-term vision?
- Our efforts on urine mercury testing and response are a collaborative effort between MDH, MPCA, Minnesota Poison Control, and clinics. What is the panel's feedback on how we can all work together most effectively?
- What are the panel's suggestions about best strategies to engage health care providers on the issue and encourage them to identify patients who may be at risk of exposure?

Healthy Kids Minnesota 2021: Preliminary Results

This summary shares preliminary findings and a plan for future data analyses for Healthy Kids Minnesota 2021 results. For a full Healthy Kids Minnesota program update, see the following section.

As previously noted, urine samples were collected from 453 children during Healthy Kids Minnesota 2021 (the first cycle of the program). Children were recruited from two regions:

- Metro area: Minneapolis (one recruitment partner: Minneapolis Public Schools)
- Non-Metro area: Southeast Minnesota (two recruitment partners: Fillmore County Public Health, recruiting children from multiple school districts in the county, and Olmsted County Public Health, recruiting children from Rochester Public Schools)

This summary includes results for the three groups of chemicals for which analysis has been completed by the MDH Public Health Laboratory (PHL): metals, pesticides, and environmental phenols. In total, six groups of chemicals will be tested in all participants:

- Metals (12 analytes) found in drinking water, air pollution, some foods, and products
- Pesticides (8 analytes) used in agriculture, in and around home
- Environmental phenols (12 analytes) found in personal care products, toys, some foods
- Phthalates (12 analytes) found in personal care products, toys, some foods
- Flame retardants (12 analytes) found in household products, furniture, toys
- Air pollution markers (6 analytes) from traffic, industry

The metals results have been mailed to Healthy Kids Minnesota 2021 families. A second packet with results for environmental phenols and pesticides will be sent soon.

For more information about the chemicals measured and the information included in the mailing packet for families, can be found at: Healthy Kids Minnesota: Chemical Information and Resources (https://www.health.state.mn.us/communities/environment/biomonitoring/projects/healthykidscheminfo.html).

Population Demographics

Table 1: Demographics for children who participated in Healthy Kids MN 2021

	All Sites		Fillmore County		Rochester		Minneapolis	
Age	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
Age 3	139	31%	12	24%	34	32%	93	31%
Age 4	209	46%	23	47%	51	49%	135	45%
Age 5-6	105	23%	14	29%	20	19%	71	23%
Sex	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
Female	206	45%	26	53%	49	47%	131	44%
Male	244	54%	23	47%	54	51%	167	56%
Missing	3	1%	0	0%	2	2%	1	0%
Ethnicity	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
Hispanic	64	14%	1	2%	5	5%	58	19%
Non-Hispanic	383	85%	46	94%	99	94%	238	80%
Missing/Don't Know	6	1%	2	4%	1	1%	3	1%
Race[1]	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
American Indian	4	1%	0	0%	0	0%	4	1%
Asian	13	3%	0	0%	5	5%	8	3%
Black or African American	68	15%	0	0%	13	12%	55	18%
Native Hawaiian	0	0%	0	0%	0	0%	0	0%
White	293	65%	48	98%	74	70%	171	57%
Other	22	5%	0	0%	0	0%	22	7%

[1] These larger categories can be disaggregated into more specific cultural groups.

	All Sites		Fillmore County		Rochester		Minneapolis	
More than one race	42	9%	1	2%	12	11%	29	10%
Don't know/ Refused/ Missing	11	2%	0	0%	1	1%	10	3%
Language	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
English	365	81%	49	100%	99	94%	217	73%
Hmong	4	1%	0	0%	0	0%	4	1%
Somali	32	7%	0	0%	1	1%	31	10%
Spanish	36	8%	0	0%	0	0%	36	12%
Other	16	4%	0	0%	5	5%	11	4%
Parent born outside US	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
Yes	118	26%	1	2%	28	27%	89	30%
No	331	73%	48	98%	77	73%	206	69%
Don't know/ Refused/ Missing	4	1%	0	0%	0	0%	4	1%
Parent in US for five years (if not US born)	Overall N (118)	Overall %	N (1)	%	N (28)	%	N 89)	%
Yes	37	31%	0	0	8	29%	29	33%
No	78	66%	1	1	19	68%	58	65%
Don't know/ Refused/ Missing	3	3%	0	0	1	4%	2	2%
Maternal Education	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
None, English Language Learner, elementary/middle school, some high school	43	9%	0	0%	2	2%	41	14%
Graduated high school/General Education Development (GED)/Some College	69	15%	9	18%	17	16%	43	14%

	All Sites		Fillmore County		Rochester		Minneapolis	
Technical/Vocational Degree	25	6%	8	16%	5	5%	12	4%
College Degree	146	32%	21	43%	43	41%	82	27%
Professional/advanced degree	162	36%	11	22%	37	35%	114	38%
Don't know/ Refused/ Missing	8	2%	0	0%	1	1%	7	2%
Household Income	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
<$25,000	44	10%	3	6%	6	6%	35	12%
$25-50,000	51	11%	7	14%	8	8%	36	12%
$50-75,000	40	9%	9	18%	11	10%	20	7%
>$75,000	281	62%	30	61%	68	65%	183	61%
Refused/ Don't know	37	8%	0	0%	12	11%	25	8%
Interview/Recruitment month	Overall N (453)	Overall %	N (49)	%	N (105)	%	N (299)	%
August, 2021	5	1%	0	0%	0	0%	5	2%
September, 2021	13	3%	0	0%	0	0%	13	4%
October, 2021	43	9%	5	10%	0	0%	38	13%
November, 2021	130	29%	20	41%	7	7%	103	34%
December, 2021	46	10%	0	0%	11	10%	35	12%
January, 2022	102	23%	0	0%	26	25%	76	25%
February, 2022	66	15%	12	24%	25	24%	29	10%
March/April, 2022	48	10%	12	24%	36	34%	0	0%

Biomonitoring Results

Tables 2, 3, and 4 show the distribution of urinary analytes for metals, pesticides, and Environmental phenols, respectively. The three tables display results 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 2: Metals results in Healthy Kids MN 2021 population (n=453) with NHANES comparison

Metal	% Detect	Geometric mean (GM) (mg/L)	GM 95% Confidence Interval (CI)	95th percentile	NHANES GM* (mg/L)	NHANES GM 95% CI	NHANES 95th percentile
Arsenic	95.8	4.48	4.11- 4.89	24	4.55	3.92-5.27	22.1
Manganese	68.2	0.20	0.18 - 0.21	0.62	***	***	0.45
Mercury	4.0	***	***	0.71	***	***	0.39
Antimony	17.2	***	***	0.57	0.054	0.047-0.062	0.253
Cadmium	93.6	0.07	0.066 - 0.073	0.202	***	***	0.096
Chromium	81.5	0.20	0.18 - 0.22	1.01	***	***	0.51
Cobalt	99.3	0.35	0.32 - 0.38	1.38	0.472	0.410-0.542	1.64
Molybdenum	100	64.96	60.05 - 70.27	219	55.2	48.9-62.2	206
Nickel	95.8	1.41	1.30 - 1.52	5.69	1.36	1.17-1.56	5.59
Thallium	99.6	0.21	0.20 - 0.22	0.584	0.174	0.154-0.198	0.463
Tungsten	89.0	0.13	0.12 - 0.14	0.427	0.134	0.119-0.151	.614
Uranium	75.9	0.0035	0.0033 - 0.0038	0.011	0.004	0.003-0.005	0.019

* NHANES comparison population for children ages 3-5 varies by analyte: for arsenic, chromium, and nickel (n=399 from NHANES 2017-2018); for manganese, antimony, cadmium, cobalt, molybdenum, thallium, and tungsten (n= 403 from NHANES 2017-2018); for mercury (n=407 from NHANES 2017-2018); for uranium (n=486 from NHANES 2015-2016).

*** GM not calculated because detection frequency was less than 50%.

Table 3: Pesticides results in Healthy Kids MN 2021 population (n=448) with NHANES comparison

Pesticide	% Detect	Geometric mean (GM) (mg/L)	GM 95% Confidence Interval (CI)	95th percentile	NHANES GM* (mg/L)	NHANES GM 95% CI	NHANES 95th percentile
2,4-Dichlorophenoxyacetic acid (2,4-D)	97.3	0.61	0.56 - 0.66	2.77	0.463	0.368-0.583	2.16
Para-Nitrophenol (PNP)	97.1	0.80	0.80 - 0.73	5.27	0.839	0.717-0.983)	4.09
3,5,6-Trichloro-2-pyridinol (TCPY)	91.5	0.61	0.56 - 0.67	2.34	1.22	0.899-0.39	5.81
2-Isopropyl-4-methyl-6-hydroxypyrimidine (IMPY)	25.0	***	***	0.85	***	***	0.428
3-phenoxybenzoic acid (3-PBA)	89.7	0.46	0.41 - 0.52	4.31	0.549	0.389-0.774	8.51
4-Fluoro-3-phenoxybenzoic acid (4-F-3-PBA)	7.1	***	***	0.14	***	***	0.235
trans-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (trans-DCCA)	51.6	0.37	0.34 - 0.41	3.17	***	***	3.87
3-(2,2-dichlorovinyl)-2,2-dimethylycyclopropane carboxylic acid (cis-DCCA)	25.2	***	***	1.21	**	**	**

* NHANES comparison population for children ages 6-11 varies by analyte: for 2,4-D and 4-F-3-PBA (n=421 from NHANES 2013-2014); for TCPY and cis-DCCA (n= 386 from NHANES 2009-2010); for PNP (n=411 from NHANES 2013-2014); for trans-DCCA was not found in NHANES chemical tables

** Not found in NHANES tables

*** GM not calculated because detection frequency was less than 50%.

Table 4: Environmental phenols results in Healthy Kids MN 2021 population (n=448) with NHANES comparison

Environmental Phenol	% Detect	Geometric mean (GM) (mg/L)	GM 95% Confidence Interval (CI)	95th percentile	NHANES GM* (mg/L)	NHANES GM 95% CI	NHANES 95th percentile
2,4-Dichlorophenol (2,4-DCP)	94.0	0.40	0.37 - 0.44	1.73	0.493	0.381-0.636	7.8
2,5-Dichlorophenol (2,5-DCP)	96.2	0.80	0.69 - 0.93	18.70	2.53	1.45-4.43	262
Benzophenone-3 (BZP-3)	96.2	6.79	5.95 - 7.75	68.20	16.9	9.57-29.9	387
Bisphenol A(BPA)	88.2	0.67	0.63 - 0.72	2.52	1.21	0.986 - 1.49	7.4
Bisphenol F (BPF)	72.1	0.29	0.27 - 0.31	0.96	***	***	1.1
Bisphenol S (BPS)	85.9	0.43	0.39 - 0.47	3.53	0.401	0.314 - 0.513	2.9
Butyl paraben (BuPB)	10.3	***	***	0.32	***	***	1.10
Ethyl paraben (EtPB)	95.8	0.76	0.67 - 0.86	7.19	***	***	35.6
Methyl paraben (MePB)	99.6	9.40	8.18 -10.81	244.00	23.1	16.2-33.0	1090
Propyl paraben (PrPB)	85.7	0.82	0.70 - 0.96	31.70	3.24	2.28-4.60	226
Triclocarban (TCC)	0.5	***	***	0.45	***	***	1.2
Triclosan (TCS)	53.4	0.54	0.48 - 0.61	3.40	***	***	41.1

* NHANES (n=141) comparison population: children aged 3-5 from NHANES 2015-2016

*** GM not calculated because detection frequency was less than 50%.

Survey Variables

To shorten the length of this report, we did not include summary tables with survey variable results. The exposure survey variables are grouped into four broad categories:

1. Exposures through diet (e.g., rice, smoked meat, etc.)
2. Exposures outside the home (e.g., pesticides, live close to farm etc.)
3. Exposures inside the home (e.g., primary drinking water, candle use, etc.)
4. Exposures through personal care products (e.g., lip gloss, sunscreen, hand lotion, etc.,)

A summary of survey variables will be presented during the panel meeting.

Next Steps

Future analyses to be conducted include:

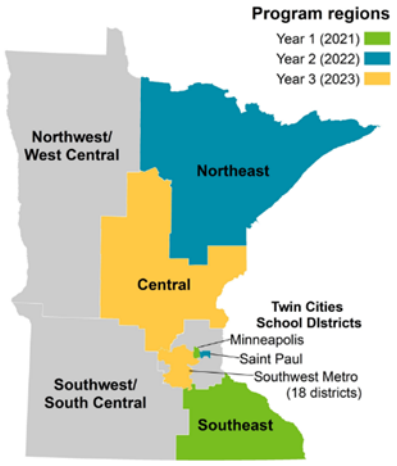
- Analysis of biomonitoring results for polycyclic aromatic hydrocarbons (PAHs), flame retardants, and phthalates when lab data becomes available
- Analyses of univariate and multivariate associations between survey variables and biomonitoring variables
- Equity analyses of biomonitoring and survey variables by demographic factors including race/ethnicity, family income, and maternal education
- Compare biomonitoring parameters by site and regions, including analysis of U.S. Census data to determine how well the sample of children reflects the larger site/region
- Relationship between GIS variables and biomonitoring/survey variables

Once analyses and results interpretation are complete, they will be summarized in a Community Report along with public health messaging about the chemicals included in the program. The Report will be mailed to all participants, shared with partners, and released more broadly to the communities and the public.

Question for Advisory Panel

- Are there additional analyses the Panel recommends?

Minnesota Biomonitoring Updates



Healthy Kids Minnesota Program Update

Healthy Kids Minnesota is a U.S. Centers for Disease Control and Prevention (CDC) funded program partnering with Early Childhood Screening (ECS) programs at local public health agencies and school districts to recruit preschool-age children for environmental chemical exposure screening. The 5-year program will rotate in 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 community in each program cycle.

The second program cycle – Healthy Kids Minnesota 2022 – launched in August 2022 and includes Northeast Minnesota and St. Paul. Despite delays in implementation discussed below, a total of 526 participants have been recruited.

Healthy Kids Minnesota 2022 Updates

Table 5 describes where each of our Healthy Kids Minnesota 2022 partners stand in the partnership and recruitment process.

Table 5: Healthy Kids Minnesota 2022 Partnership Progress

HKMN 2022 Partners	Financial Contract	Staff Trained	Target number	Recruitment Started	Total Number Recruited/Samples
Cloquet Public Schools/Carlton County	Complete	Yes	60	Yes	74/67
Cook County Public Schools/Cook County	Complete	Yes	40	Yes	24/24
St. Paul Public Schools	Complete	Yes	300	Yes	285/256
Duluth Public Schools/St. Louis County	Complete	Yes	150	Yes	134/109
Bois Forte Band of Chippewa Health and Human Services	Complete	Yes	40	Yes	9/2

Recruitment is ongoing at all sites except Cloquet Public Schools and will be concluded by the end of August 2023. Cloquet Public Schools wrapped up recruitment at the end of May 2023.

Free Private Well Testing

Free private well testing is offered to families in the Northeast region. We are grateful for the continuing partnership with Olmsted County's Southeastern Minnesota Water Analysis Laboratory (SEMWAL) and funding from MDH Environmental Health and the Clean Water Fund. So far, 68 families from Healthy Kids Minnesota 2022 have received free well water test kits.

Healthy Kids Minnesota 2023

As previously shared, the third program cycle will rotate to Central Minnesota (a 14-county region including the St. Cloud area) and the West/Southwest Metro (a region of 18 school districts including Bloomington, Minnetonka, and St. Louis Park). We have draft financial contracts with the Morrison-Todd-Wadena Community Health Board and Bloomington Public Schools and continue discussions with other potential partners in these areas.

Recent Articles/Presentations

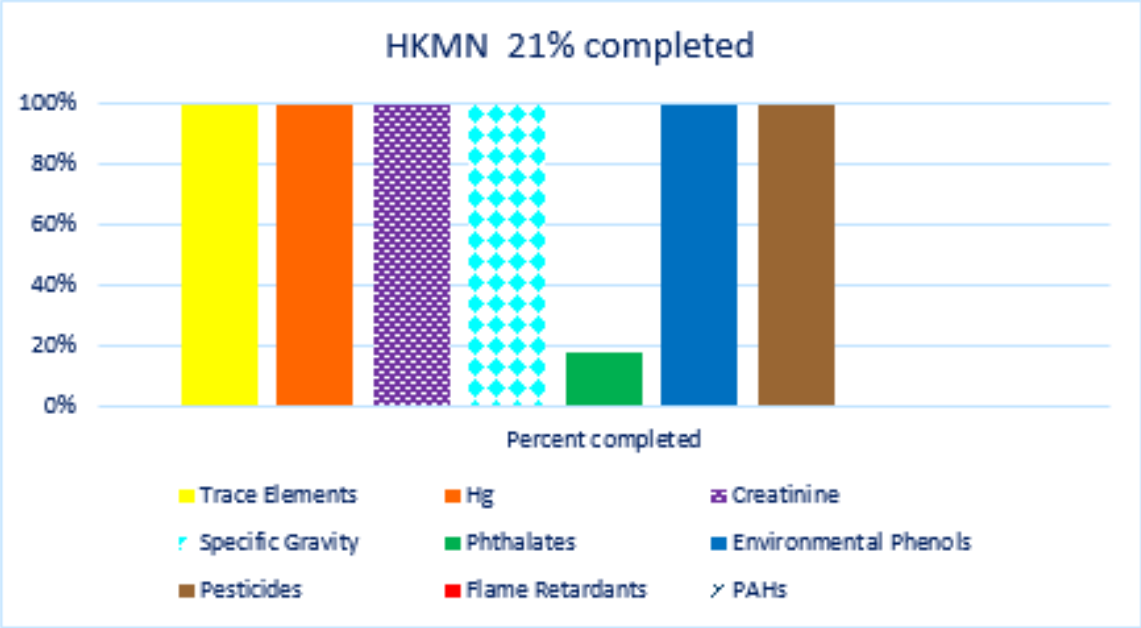
- "Biomonitoring with a Health Equity Lens." Association of Public Health Laboratories Lab Matters Summer 2023 issue. Authors: Kelly Chen, Jessica Nelson, Jennifer Liebreich. Available at: https://viewer.joomag.com/lab-matters-summer-2023/0555822001685977710/p20?short&
- "Healthy Kids Minnesota biomonitoring program available to Cook County kids." North Shore Community Radio, May 22, 2023. Available at: https://wtip.org/healthy-kids-minnesota-biomonitoring-program-available-to-cook-county-kids/
- Jessica Nelson and Fathi Ahmed presented at the MDH Speaks event May 12, 2023. Their TED-style talk was titled "Healthy Kids Minnesota: A New Statewide Program to Measure Environmental Exposures in Minnesota Preschoolers."

Healthy Kids Minnesota Laboratory Update

Laboratory analysis for Healthy Kids Minnesota 2021

- 453 samples have been collected and received by the PHL for Healthy Kids Minnesota 2021.
- Creatinine and specific gravity analyses have been completed for all samples.
- Pesticides analysis has been completed for all samples.
- Environmental phenols analysis has been completed.
- The analysis of phthalate and plasticizer metabolites has begun. We anticipate completion by 8/1/2023.
- The analysis of PAH metabolites will begin by 7/1/2023.
- The method for flame retardant metabolites is in development on an alternative instrument to speed up analysis. Our goal is to have this method validated and analysis underway by end of July 2023.

Figure 1 Percent of 453 samples analyzed for each method in Healthy Kids MN



Laboratory analysis for Healthy Kids Minnesota 2022

We have collected 287 samples for HKMN22, and completed analyses for trace elements and urine mercury for 241 and 279 of them, respectively. Creatinine and specific gravity have been completed for 33 samples. As speciation has been ordered and completed for 46 samples.

Analysis for pesticides will begin this summer.

Staffing

Three research scientists traveled to the CDC in March for training on methods. Tim Richmond trained on the method flame retardant metabolites, Danielle Timp trained on the trace elements method and Rosie Rushing trained on the method for phthalate and plasticizer metabolites. A new research scientist, Paul Fiesel, recently started and has been training on the method for PAH metabolites.

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 2023:

- October 10, 2023

Unless otherwise announced, these meetings will take place from 1 - 4 p.m.

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 June 2023

Panel Member	Panel Member
Jay Desai, Ph.D., MPH Chronic Disease and Environmental Epidemiology Minnesota Department of Health 85 E. 7th Place St. Paul, MN 55164 651-201-5882 Jay.Desai@state.mn.us MDH appointee	Ruby Nguyen, Ph.D. Univ. of MN, School of Public Health Div of Epidemiology & Community Health 7525A 1300 S. 2nd St, Suite 300 WBOB Minneapolis, MN 55454 612-626-7559 nguyen@umn.edu University of Minnesota representative
Thomas Hawkinson, M.S., CIH, CSP Stantec Consulting Services Inc. 7500 Olson Memorial Highway Suite 300 Golden Valley, MN 55427 763-252-6987 tom.hawkinson@stantec.com Statewide business organization representative	Sona Psarska, M.S. Minnesota Pollution Control Agency Water Assessment Section 520 Layfette Road St Paul, MN 55155-4194 651-757-2781 Sona.Psarska@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 Statewide business organization representative	Cathy Villas-Horns, M.S., PG Minnesota Dept. of Agriculture Pesticide & Fertilizer Management Division 625 Robert St. N. St Paul, MN 55155-2538 651-201-6697 Cathy.villas-horns@state.mn.us MDA appointee
Jenni Lansing, M.S., REHS City of Minneapolis Health Department – Environmental Programs 505 4th Ave. S. Room 520 Minneapolis, MN 55415 612-709-9977 Jenni.Lansing@minneapolismn.gov At-large representative	Eileen Weber, DNP, J.D., PHN, BSN, RN Univ of MN, School of Nursing (active retiree) 10623 Nyberg Ave. S. Hastings, MN 55033 651-276-1730 eileenokeefeweber@gmail.com Nongovernmental organization representative

Panel Member	Panel Member
Zeke J. McKinney, M.D., MHI, MPH, FACOEM 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 At-large representative	Lisa Yost, MPH, DABT Ramboll Environ Local office 479 Iglehart Ave. St Paul, MN 55101 651-470-9284 lyost@ramboll.com National business organization 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 Nongovernmental organization representative	

Vacant Seats

- Minnesota Senate appointee (In progress)
- Minnesota House of Representatives appointee

Biographical Sketches of Advisory Panel Members

Jay Desai is manager of the Chronic Disease and Environmental Epidemiology section within the division of Health Promotion and Chronic Disease at MDH. The section includes 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 (HPI), and Minnesota Department of Health since 1993. Desai 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 Desai spent 16 years as the epidemiologist for the Minnesota Diabetes Program. At HPI he worked on primary care clinical decision support; using EMRs for diabetes, cardiovascular disease, and obesity surveillance; diabetes prevention in low income individuals, and HPV vaccination in underserved communities. He is also a standing member of the NIH Healthcare and Health Disparities study section.

Tom Hawkinson is the senor industrial hygienist for Stantec Consulting Services Inc. (formerly Wenck Associates) in Golden Valley, Minnesota. Hawkinson completed his MS in Public Health at the University of Minnesota, with a specialization in industrial hygiene. He is certified in the comprehensive practice of industrial hygiene and a certified safety professional. He has worked in EHS management at several Twin Cities based companies, conducting industrial hygiene investigations of workplace contaminants, and has done environmental investigations of subsurface contamination in the United States and Europe. He taught statistics and mathematics at both graduate and undergraduate levels as an adjunct and is on faculty at the Midwest Center for Occupational Health and Safety, which is a NIOSH-sponsored education and resource center at the University of Minnesota School of Public Health.

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, Del., 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 senior 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. 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.

Zeke McKinney is a board-certified Occupational and Environmental Medicine (OEM) physician at the HealthPartners Clinic in St. Louis Park, Minn. He is additionally board-certified in Public Health & General Preventive Medicine, Clinical Informatics, and Lifestyle Medicine. McKinney completed all of his medical training 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. McKinney 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 Ph.D. 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, Nguyen is conducting a longitudinal study examining the role of endocrine disrupting chemicals in child development. From 2016-2017, she was co-principal investigator of a statewide prevalence study investigating violence against Asian women and children.

Sona Psarska is a research scientist at the Minnesota Pollution Control Agency predominantly working on human health risk assessment projects. Among her responsibilities are maintaining various risk-based values and providing human health risk assessment support to remediation and other agency programs. She has a Master of Science in Land and Atmospheric Science from the University of Minnesota. Prior to joining the MPCA, Psarska worked in environmental consulting where, among other projects, she worked on complex pollutant fate and transport evaluations and risk assessments for industrial clients.

Cathy Villas Horns is the hydrologist supervisor of the Incident Response Unit (IRU) within the Pesticide and Fertilizer Management Unit of the Minnesota Department of Agriculture. She holds a Master of Science in Geology from the University of Delaware and a Bachelor of Science in Geology from Carleton College and is a licensed professional geologist in Minnesota. The IRU oversees or conducts the investigation and cleanup of point source releases of agricultural chemicals (fertilizers and pesticides including herbicides, insecticides, fungicides, etc., as well as wood treatment chemicals) through several different programs. She has worked on complex sites with Minnesota Department of Health and MPCA staff and continues to work with interagency committees on contaminant issues. She previously worked as a senior hydrogeologist within the IRU, and as a hydrogeologist at the Minnesota Pollution Control Agency and an environmental consulting firm.

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. Weber 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, Penn., her BSN summa cum laude from the University of Minnesota, and her J.D. 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 works in their Health Sciences Group, and is based in St. Paul, Minnesota. Yost completed her training at the University of Michigan 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, pentachlorphenol (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 School of Public Health.

Biographical Sketches of Staff

Fathi Ahmed is the MN Biomonitoring program manager. 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.

Sheila Amenumey is currently the Biomonitoring Epidemiologist. Sheila collaborates with the Biomonitoring Program Director and key stakeholders leading 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 Ph.D. in Water Resources Science (Water Quality Hydrology Emphasis) at the University of Minnesota. Prior to her work with the biomonitoring program, Sheila worked as an epidemiologist in Maternal and Child Health Section at MDH, leading and collaborating with external partners in conducting program evaluation across multiple federal adolescent health grants and monitoring program outcomes and achievement of the 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.

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.

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 Ph.D. 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 Ph.D. 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 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.

Lynn Treadwell, Minnesota Public Health Data Portal Coordinator, is an experienced digital communications leader with a solid understanding of websites and application development, social media and digital marketing communications in the health and government sectors. Lynn brings over 10 years of experience in developing optimized online user experiences and digital communications to the position. She will provide stewardship to Minnesota's public health data portal focusing on audience understanding and interactive development best practices. Lynn has an AAS in graphic design, attended the School of Journalism at University of Minnesota and has a mini-Master's in Marketing from St. Thomas University.