

Prenatal Environmental Health Education in Canada

Filling the Gaps: Environmental Health Knowledge-Mobilization Resources & Strategies for Prenatal Care

March 4, 2026

Webinar 3 in the PEHE-CCC *Setting the Stage for Action* webinar series



Prenatal Environmental Health Education - Collaborating for Clinical and Community Action (PEHE-CCC)

A joint initiative of the **Canadian Partnership for Children's Health and Environment (CPCHE)** and the **Prenatal Environmental Health Education (PEHE) Collaboration**

PEHE-CCC is funded by the federal Chemicals Management Plan via a contribution to the **Canadian Association of Nurses for the Environment (CANE)** as lead partner.

Financial contribution:
Contribution financière :



The views expressed herein do not necessarily represent the views of Health Canada

Prenatal Environmental Health Education in Canada

Environmental Scan of Prenatal Health Education Resources

March 4, 2026



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Objectives & Methods

Anglena Sarwar, MScPH

PEHE-CCC Webinar: Filling the Gaps: Environmental Health Knowledge-Mobilization Resources & Strategies for Prenatal Care

Research Objectives

- Identify health education resources that prenatal healthcare providers can use to incorporate environmental health education into prenatal care and encourage the development of novel resources where suitable resources are not yet available.
- Identify authoritative preconception and prenatal environmental health educational resources;
- Review and assess resources based on themes covered, and accessibility, understandability and actionability; and,
- Document any identified educational resource gaps.
- The focus of the environmental scan was on materials produced in Canada by relevant governmental (municipal, provincial, and federal) and non-governmental organizations.

Qualitative Assessment

Researchers employed a dual-layered evaluation strategy to assess the identified prenatal health resources.

Quantitative Tool: PEMAT-P

- Resources were first evaluated using a modified version of the Patient Education Materials Assessment Tool for Printable Materials (PEMAT).
- **Understandability:** Assessed whether consumers of diverse backgrounds and health literacy levels could process and explain key messages.
- **Actionability:** Evaluated if users could identify specific actions to take based on the information provided.

Qualitative Review: Practitioner Insights

- To address the lack of pragmatic, applied insight in standard tools, a practitioner review was conducted to ensure clinical relevance.
- **Assessment Criteria:** Practitioners reviewed materials based on **effectiveness, accuracy of information, and clinical suitability.**
- The review included perspectives from across the maternal health spectrum:
 - Obstetrician-gynaecologists and Family physicians.
 - Midwives and Nurse practitioners.
 - Registered Nurses and Licensed Practical Nurses.
 - Public health professionals.
- **Methodology:** 2–3 reviewers per professional practice evaluated a selection of 20–25 resources using a brief rating form.

Results

**Dr. Rukhsana Ahmed (University at Albany,
SUNY/University of Ottawa)**

PEHE-CCC Webinar: Filling the Gaps: Environmental Health Knowledge-Mobilization Resources & Strategies for Prenatal Care

PEMAT Quality Appraisal

- Main topics for health education resources: lead, mercury, smoke, pesticides, and VOCs
- Suggests potential educational gaps regarding current concerns and emerging issues related to prenatal environmental health
- Majority of resources provide a mix of toxic specific information and practical information to encourage behavioral change

PEMAT: Summary of Understandability and Actionability

Domain	Overall Pattern	High-Scoring Characteristics	Common Gaps
Understandability	Generally moderate to high across materials	Plain language; short sections; logical flow; clear headers; defined terms; supportive visuals	Dense text; outdated links; limited visuals; inconsistent labeling; higher literacy level in some materials
Actionability	More variable and often lower than understandability	Clear steps; checklists; concrete examples; tangible tools	Vague recommendations; missing “how-to” guidance; limited pregnancy-specific steps
Format Trends	Webpages most common format	Easy navigation; collapsible sections; embedded links	Some webpages lacked visuals; broken links; static formats only (no dynamic content reviewed)
Audience Fit	Many materials mention pregnancy but are not pregnancy-specific	Pregnancy-focused materials scored higher on actionability	General-audience materials require readers to infer relevance to pregnancy

PEMAT: Literacy, Language, and Cultural Accessibility

Domain	Strengths	Gaps Identified
Literacy Level	Many materials used plain language and clear formatting	Several were text-dense or written at a higher reading level
Visual Support	Some used effective visuals, icons, or checklists	Many webpages lacked visuals; some PDFs visually cluttered
Language Availability	A few materials available in French (Canada-based)	Very few multilingual versions; limited access for non-English speakers
Cultural Relevance	Some community-specific materials (e.g., First Nations guide)	Most lacked cultural tailoring or examples relevant to diverse populations

Practitioner Qualitative Assessment

Key Findings from Practitioner Review

- **Accuracy and Overall Quality:**
 - Generally accurate, with room to improve clarity and usefulness.
- **What Practitioners Liked Most:**
 - Practical relevance
 - Important content/topic area
- **How Practitioners Would Use the Resources:**
 - Providing a link on their organization's or professional website
 - Showing the resource to patients on a shared screen
 - Printing the material when needed
 - Sending links through clinicians for e-consults

Implications

Cutting Across Clinical and Community Domains

- Opportunities exist to improve consistency, clarity, and updating of materials.
- Healthcare providers need reliable, concise, and actionable resources to support environmental health conversations in prenatal care.
- Strategic development and adaptation of materials can help ensure that information is evidence-informed, culturally relevant, and accessible to diverse communities.

CPCHE's Top Tips for Creating Healthy Home Environments for Kids

Prenatal Environmental Health Education – Collaborating
for Clinical and Community Action (PEHE-CCC)

Webinar 3, March 4, 2026



Erica Phipps, MPH, PhD

Executive Director, Canadian Partnership for Children's Health & Environment (CPCHE)

Co-lead, Prenatal Environmental Health Education (PEHE) Collaboration



About CPCHE (“kip-chee”)

- National collaboration of organizations working together since 2001 towards healthy environments for all children in Canada
- Partners/Affiliates share diverse expertise in public and clinical health, environmental protection, child care, disability advocacy, law and policy, and health equity



CPCHE Partner Organizations:

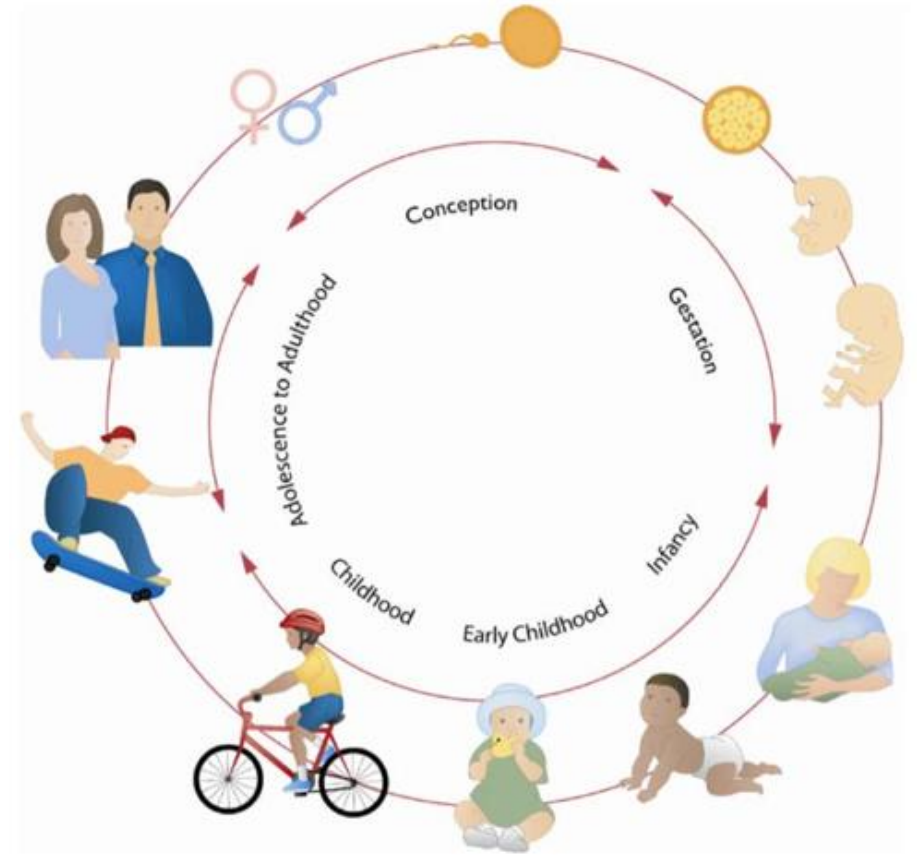


CPCHE Affiliate Organizations:



Focus on prevention and precaution

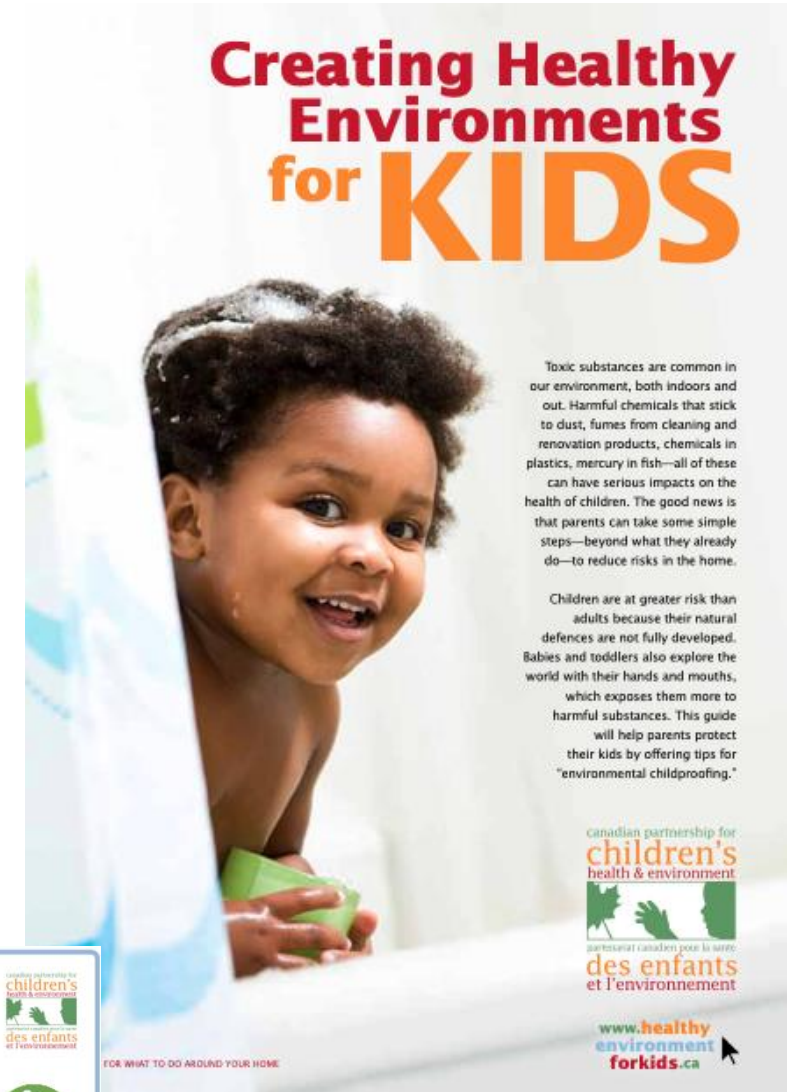
- Ongoing exposure to complex mixtures over multiple windows of vulnerability from preconception through fetal and child development
- Early exposures -> lifelong implications
- Precaution in the face of uncertainty
- Prevention is key



Source: CPCHE (2005). *Child Health and the Environment – A Primer*

CPCHE's Top 5 Tips Initiative

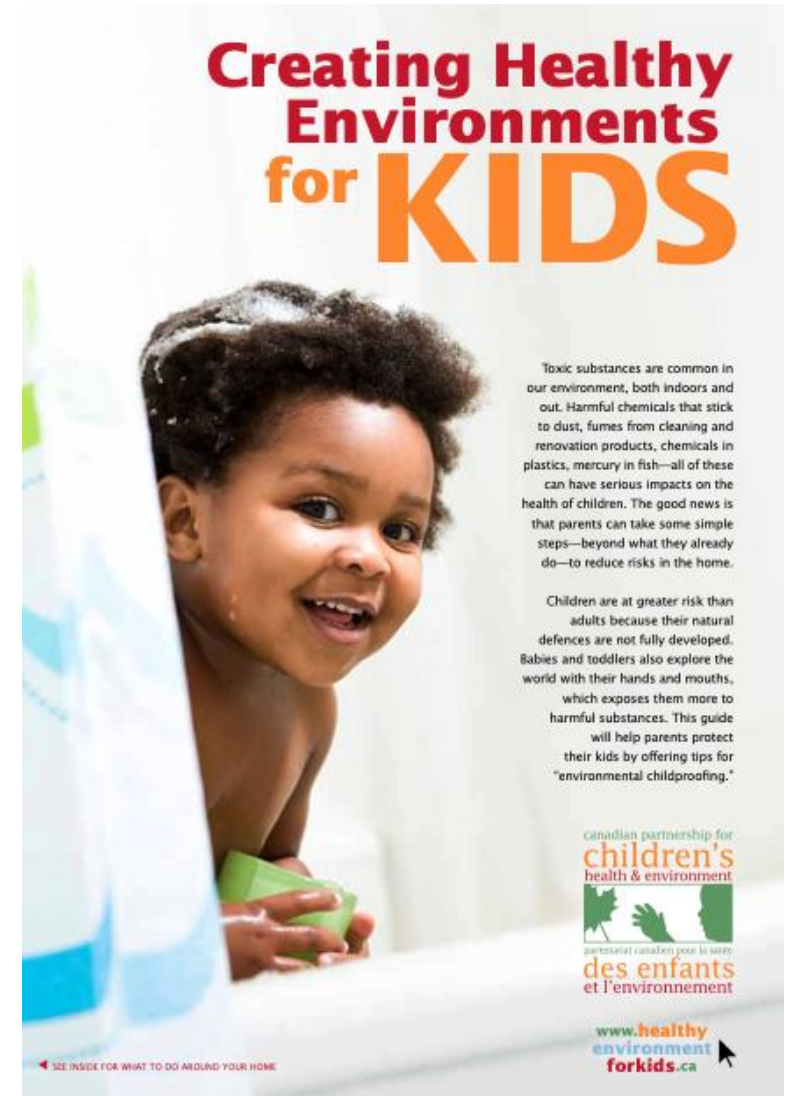
- **Parents:** Desire for simple, non-ambiguous advice
- **Service providers:** Increasing interest, questions from clients; not always equipped with training/knowledge on children's environmental health issues
- **Our goal** was to create a simple, informative plug-in for service providers to use in regular programming with prospective/new parents



www.healthyenvironmentforkids.ca

Creation of the Top Tips

- Co-created with public health and other frontline service providers
- Intended to:
 - support preconception/prenatal education
 - increase public awareness/literacy on toxics and health
- Piloted in Ontario
- Emphasis on practical and accessible measures rather than specific chemicals of concern



CPCHE's Top 5 Tips + Radon

Bust that Dust

Reducing dust in your home ... for your children's health.



House dust contains small amounts of toxic chemicals, much of which comes from products such as furniture and electronics. These chemicals can harm children's health.

You can help protect your children by getting rid of as much dust as possible.

- Clean floors often with a damp mop or good quality vacuum.
- Use a damp cloth when dusting.
- Take off shoes at the door.

www.bustthatdust.ca



www.healthyenvironmentforkids.ca

Get Drastic with Plastic

Reducing exposures to chemicals in plastic ... for your children's health.



Harmful chemicals can move into food or drinks that are heated or stored in plastic.

Reducing the use of plastic when making, serving and storing food can protect your family's health.

- Use glass, ceramic or stainless steel for hot food or drinks.
- Avoid using plastic in the microwave, even if the label says "microwave safe".
- Store food in glass or ceramic containers, rather than plastic.
- Choose fresh or frozen foods when possible to avoid BPA, a chemical used in the lining of most food and drink cans.

www.getdrasticwithplastic.ca



www.healthyenvironmentforkids.ca

Go Green when you Clean

Reducing toxic chemicals in your home ... for your children's health.



Many cleaning products contain chemicals that can be harmful to babies, children, and the developing fetus in the womb.

You can avoid harmful chemicals by using safe and low-cost items you may already have in your home, and by choosing products without fragrances or strong fumes.

- Choose fragrance-free laundry and cleaning products.
- Scrub sinks and tubs with baking soda.
- Mix one cup vinegar in a bucket of warm water and use to mop floors, wipe counters and wash windows.
- Avoid "plug-ins" and other types of air "fresheners."

www.go-green-when-you-clean.ca



www.healthyenvironmentforkids.ca

Renovate Right

Preventing toxic exposures during renovations ... for your children's health.



Strong fumes and toxic chemicals in dust – during and after home renovations – can put children's health at risk.

Pregnant women, women planning to become pregnant, and families with young children need to take extra care.

- Paint used in older homes likely contains lead, which can harm the developing brain. Cover old painted surfaces with new paint instead of sanding or scraping.
- Avoid being around renovations if you are pregnant. Keep children away too.
- Clean up dust completely after the work is done.
- Keep windows open until all chemical smells are gone.

www.renovate-right.ca



www.healthyenvironmentforkids.ca

Dish Safer Fish

Serving low-mercury fish ... for your children's health.



Fish is a healthy food choice. But some fish contain mercury, a metal that can harm the developing brain.

Choose low-mercury fish to protect your children's health.

- Especially when pregnant, avoid fish that are high in mercury, such as fresh tuna, shark and swordfish.
- If you eat canned tuna, choose "light" over "white" (albacore). Light tuna contains less mercury.
- If you fish in local waters, check fish advisories to make sure it is safe to eat. Questions? Ask your public health department.
- Look for low-mercury fish, such as Atlantic mackerel, herring, rainbow trout, wild or canned salmon, and tilapia.

www.dishsaferfish.ca



www.healthyenvironmentforkids.ca

Reduce Radon

Reducing radon levels in your home ... for your children's health.



Radon is a harmful gas that comes from uranium in the ground. Radon gas can move into your home through cracks or gaps in the foundation. You can't see it, taste it or smell it. Almost all homes have some radon.

High levels of radon increase the risk of developing lung cancer. If you and your children are exposed to cigarette smoke and elevated radon, the risk of lung cancer is even higher.

- Use a simple, three-month radon test kit to find out the radon level in your home. You can buy a test kit at some hardware stores or online.
- If the test shows you have a high radon level, visit reduceradon.ca to find out what you or your landlord can do.
- Do not allow anyone to smoke inside your home.

www.reduce-radon.ca



www.healthyenvironmentforkids.ca

Suite of Top Tips resources

Video in English, French and Anishinaabemowin



Plain-language tip cards in 7 languages



Brochure in English and French





The current opportunity

PEHE Collaboration research findings: Prenatal period is an opportunity for prevention

Strong agreement across the two surveys* that:

- Day-to-day exposures can interfere with child development
- Pregnant persons can reduce risk by reducing exposures

	Women % (#)	Prenatal care providers % (#)
Day-to-day exposures can interfere with child development		
Agree to strongly agree	91.9 (1704)	95.4 (438)
Strongly disagree to neutral	8.1 (151)	4.6 (21)
Pregnant persons can reduce risk by reducing exposures		
Agree to strongly agree	90.6 (1661)	93.9 (429)
Strongly disagree to neutral	9.4 (178)	6.1 (28)

PEHE Collaboration national survey of women of reproductive age (2021); national survey of prenatal care providers (2022).
Learn more: Webinar 1 and research brief: <https://healthyenvironmentforkids.ca/prenatal-environmental-health/>



Women and providers see value in action but face barriers

- While most women (91%) agreed that risks can be reduced during pregnancy by taking protective actions, only about half (56%) reported doing so
 - Cited barriers included costs (52%) and **limited awareness of safer options (40%)**
- Most providers (94%) similarly agreed that risks can be reduced during pregnancy, yet
 - **38% reported not providing informational resources** to patients who asked about environmental health issues
 - **96% cited (a) lack of appropriate informational resources and (b) inadequate knowledge/training** as significant or moderate barriers to talking about environmental health issues with patients/clients



Revitalizing the Top Tips

Current efforts underway to:

- Support providers in using the Tips:
 - Create a backgrounder including updated evidence for each tip
- Move beyond individual to collective action
 - Co-create equity-focused strategies and resources
 - Align environmental health protection with social justice (e.g., right to a healthy environment; environmental justice)
 - Highlight pathways for policy engagement, access to decision-making, and ways for community members to make their voices heard



→ **Fill identified gaps and support knowledge sharing and action within prenatal education and beyond**

Thank you | Merci | Miigwetch

Contact:

erica@healthyenvironmentforkids.ca

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- PEHE Collaboration partners and collaborators
- CPCHE secretariat team
- Health Canada
- Canadian Institutes of Health Research (CIHR) – PEHE Collaboration research
- Government of Ontario (2010-11 funding for CPCHE Top Tips initiative)
- ... and the many people and organizations who have been and continue to be part of this collective effort

[www.healthy
environment
forkids.ca](http://www.healthyenvironmentforkids.ca) 



Université de
Saint-Boniface



PeriPHAT

Jacqueline/Jack Avanthay Strus, RN, PHD
Université de Saint-Boniface, CANE-ACIIE

*Financial contribution from
Avec le financement de*



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Problem area

Role of Healthcare Providers

- Crucial in supporting perinatal families amid planetary health crises.

Current Tools:

- Few practical tools exist for frontline HCPs to assess these impacts with an equity focus.
- In Canada, most perinatal tools lack considerations for climate change, pollution, and toxins (Jones et al., 2024).

Need for Expansion

- Expanding healthcare to include ecological determinants of health is essential [?] Practical tools for HCPs at the point of care remain critically needed.

RESEARCH

Open

What tools are available to assess climate and environmental health impacts on perinatal families with an equity lens? A rapid review of the Canadian context

Alysha T. Jones^{1*}, Émilie Tremblay², Anne-Lise Costeux³, Jacqueline Avanthay Strus³  and Adrienne Ba

Abstract

Objectives This rapid review is designed to identify existing tools in the Canadian literature that assess the impact of climate change on the health of perinatal families, particularly those who are equity-denied. Addressing the health of equity-denied perinatal populations in the face of climate change is crucial to promoting equitable and inclusive perinatal care in Canada.

Methods Rapid review methodology was selected to provide evidence in a timely and cost-effective manner. PubMed/MEDLINE and gray literature (Google and Google Scholar) were searched for English and French papers published from 2013 onward. The original research question, focused on climate change and health, yielded very few relevant results. Therefore, the search was broadened to include environmental health. Garrity et al.'s (J Clin Epidemiol 130:13–22, 2021) nine-stage process was used to identify 11 relevant papers, extract the relevant data, and conduct the narrative synthesis.

Synthesis.

This review revealed a significant lack of tools for comprehensively assessing climate-health impacts on perinatal families and equity-denied perinatal families. While Canadian perinatal health screenings focus on equity via inclusion of several social determinants of health (e.g., income, social support), they largely omit climate considerations. Environmental health factors are more commonly included but remain minimal.

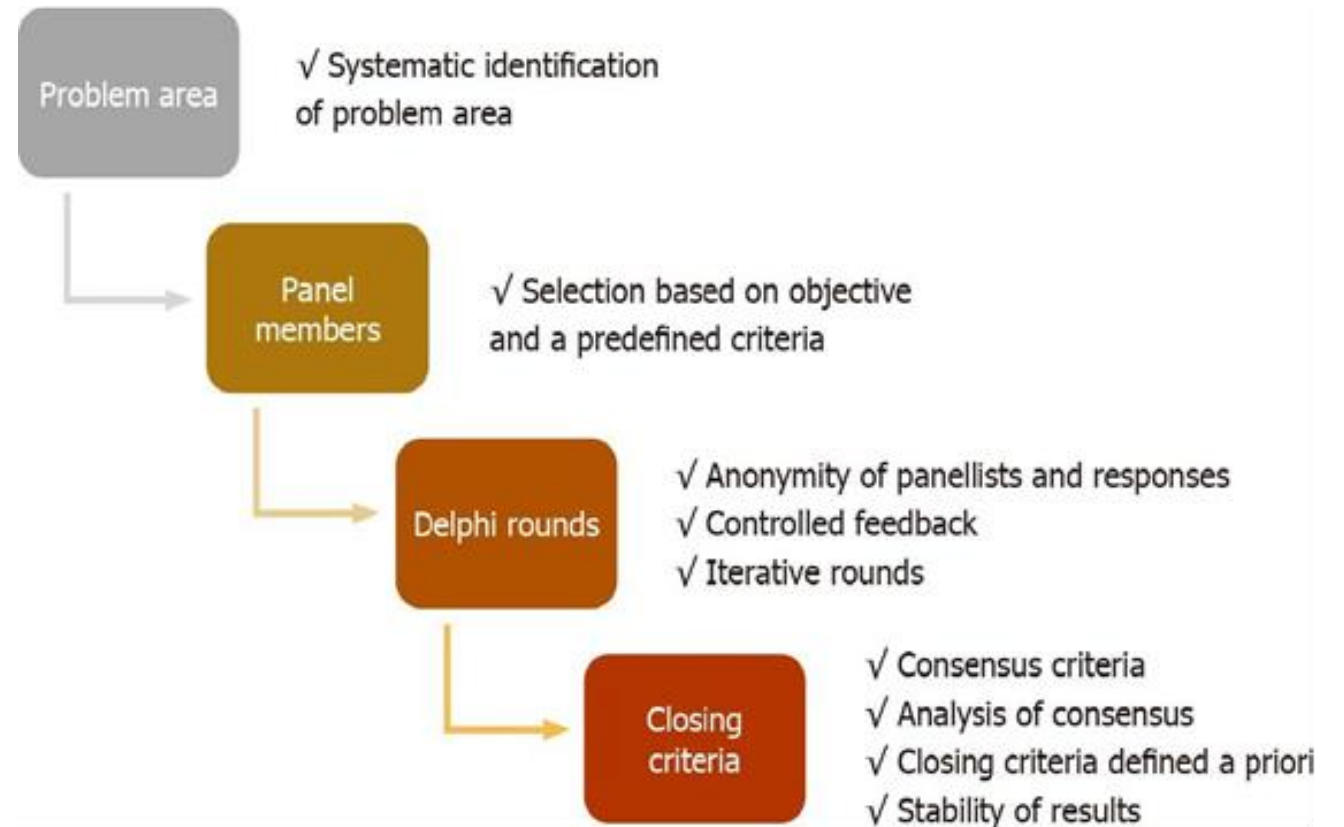
Conclusion Climate-health screening tools are lacking yet needed in routine perinatal healthcare. Given the urgency of climate change, urgent engagement of health systems and healthcare workers is essential to help mitigate and adapt to climate-health challenges, particularly for perinatal families experiencing health inequities.

Keywords Perinatal health, Equity, Climate change, Screening tool, Canada

Delphi Study

2 Delphi Rounds

1 Option focus group

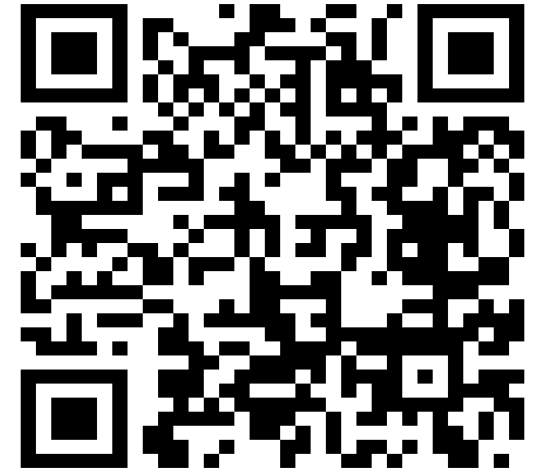


What is the PeriPHAT

Point-of-care Assessment tool

- **Health equity social justice**
- Healthcare provider **resources** to use with the tool.
- **Educational interventions** tailored for perinatal families about air and water quality topics and actions to protect their health, emphasizing health equity.

To Access PeriPHAT



Here is a link to the **PeriPHAT toolkit** documentation.

You will find all the PeriPHAT questionnaires and resources here to help you navigate an abundance of information for you and your family

**Heat
Extremes
Questionnaire**

**Air
Quality
Questionnaire**

**Vector
Borne
Questionnaire**

**Climate Change and
Disaster Preparedness
Questionnaire**

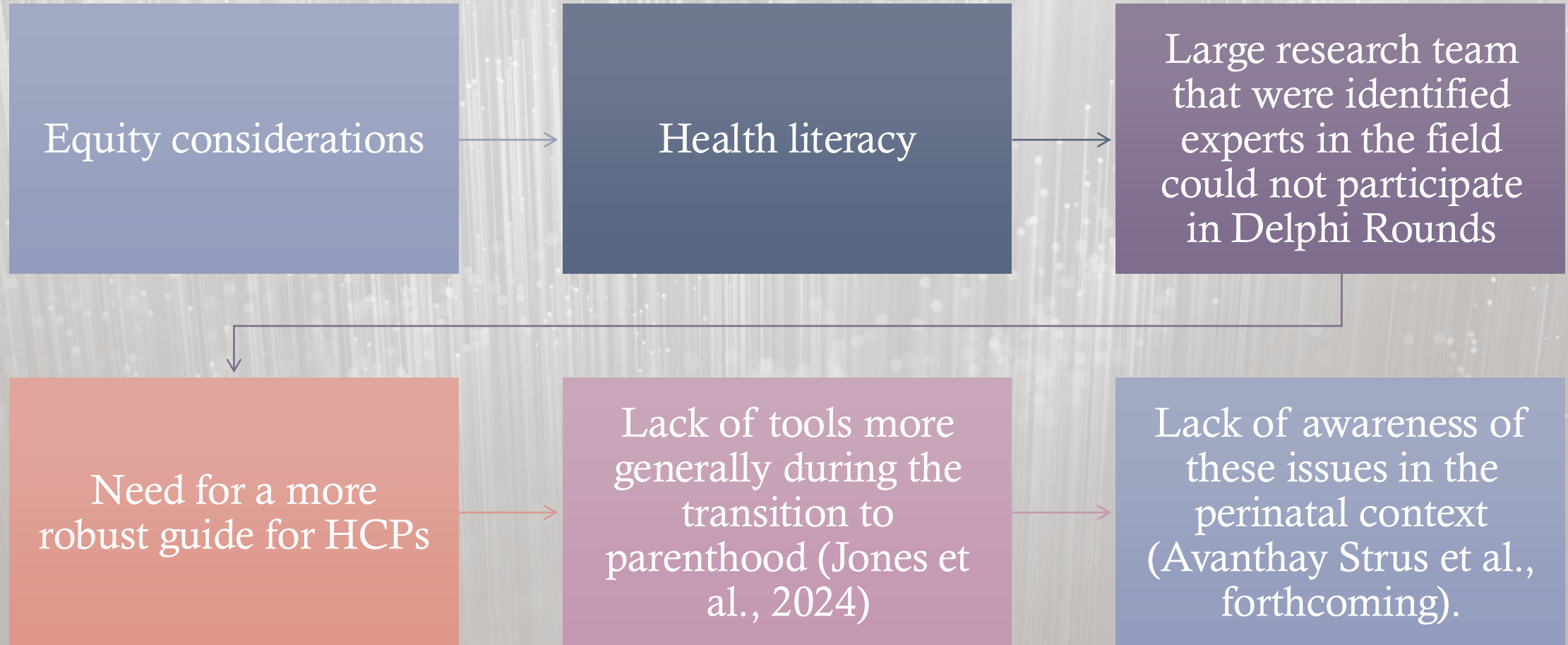
**Food and Water
Security
Questionnaire**

**Mental
Health
Questionnaire**

**Toxins and
Pollution
Questionnaire**



Discussion





“MERCURY SCREENING IN PREGNANCY: A PRACTICAL PATHWAY FOR NORTHERN AND FISH-RELIANT COMMUNITIES”

Dr. Miranda Bevilacqua, BScN, RN, MN, PhD
Professor of Nursing: Confederation College
Rylan Copeman, BScN, RN, MN (c)

Presentation Sponsored by The PEHE-CCC Project (CPCHE)
Prenatal Environmental Health Education-Filling the Gaps
March 4th, 2026, 12pm-1pm EST

The Clinical Tension: Fish Is Both Beneficial and Risk-Associated



Screening for Mercury

Screening Pathway

Does the patient consume fish or live in an area where mercury exposure is common?

NO! → Ask about consumption next visit.

YES! ↓

Are they consuming a safe amount of fish?

YES! → Ask about consumption next visit.

Guide to eating fish for reference, treat unknown as a no.

NO! ↓

Obtain a baseline mercury level

If the patient is vulnerable (pregnant, breastfeeding, young child/infant, autoimmune, CKD, etc.). They should consider refraining from fish consumption until Hg results are obtained.

Is the mercury level under 20 µg/mL (or under 8 µg/mL for vulnerable populations)?

YES! → Ask about consumption next visit.

NO! ↓

Advise patient to refrain from fish for 1 month and obtain new Hg Level

→ If within normal range, re-introduce safe consumption.

→ If still elevated, explore other potential sources of exposure.



Authors: Dr. Miranda Bevilacqua and Nolan Cozeman, 2023
Unpermitted
mbevil@confederationalcology.ca
<https://doi.org/10.1016/j.nurpra.2024.105180>

Questions?



Additional Resources



- The Health Effects of Mercury in Fish: <https://healthyenvironmentforkids.ca/wp-content/uploads/2026/03/health-effects-mercury-fish.pdf>
- Managing mercury exposure in northern Canadian communities (CMAJ): <https://healthyenvironmentforkids.ca/wp-content/uploads/2026/03/Hg-Rural-Communities-2016-Equation.pdf>
- Human Health Risk Assessment of Mercury in Fish and Health Benefits of Fish Consumption: https://healthyenvironmentforkids.ca/wp-content/uploads/2026/03/merc_fish_poisson-eng.pdf
- Information on Mercury Exposure: <https://healthyenvironmentforkids.ca/wp-content/uploads/2026/03/Mercury-Exposure-Information-Resource.pdf>
- Mercury in Canadians: <https://healthyenvironmentforkids.ca/wp-content/uploads/2026/03/mercury-eng.pdf>
- Screening for Mercury Pathway: <https://healthyenvironmentforkids.ca/wp-content/uploads/2026/03/Screening-for-Hg-Pathway-Bevilacqua.pdf>

References

- Arnarson, A. (2017). Is Eating Raw Fish Safe and Healthy? Healthline: nutrition. https://www.healthline.com/nutrition/eating-raw-fish?utm_source=ReadNext#TOC_TITLE_HDR_2
- Baldewsingh GK, Wickliffe JK, van Eer ED, Shankar A, Hindori-Mohangoo AD, Harville EW, Covert HH, Shi L, Lichtveld MY, Zijlmans WCWR. Prenatal Mercury Exposure in Pregnant Women from Suriname's Interior and Its Effects on Birth Outcomes. *International Journal of Environmental Research and Public Health*. 2020; 17(11):4032. <https://doi.org/10.3390/ijerph17114032>
- Bevilacqua, M. & Copeman, R. (April 2024). Screening for Mercury in the Perinatal Population, presentation. NPAC-Nurse Practitioner Association of Canada Inaugural National Conference.
- Bhavsar, S. P., Awad, E., Mahon, C. G., & Petro, S. (2011). Great Lakes fish consumption advisories: is mercury a concern? *Ecotoxicology*, 20(7), 1588-98. <https://doi.org/10.1007/s10646-011-0731-0>
- Biron Health Group. (2023). Prenatal Mercury Screening. <https://www.biron.com/en/glossary/mercury/>
- Bonyata, K. (2018). Breastfeeding and Mercury Exposure. Kelly Mom. <https://kellymom.com/bf/can-i-breastfeed/chemicals/mercury/>
- Brown, M. (2018). Should You Avoid Fish Because of Mercury? Healthline: nutrition. <https://www.healthline.com/nutrition/mercury-content-of-fish>
- Cecco, L. (2023, July 20). Mercury exposure linked to high youth suicides in Canada First Nation. *The Guardian*. <https://www.theguardian.com/world/2023/jul/20/canada-mercury-poisoning-first-nations-indigenous-youth-suicides>
- Centers for Disease Control and Prevention. (2017). National Biomonitoring Program: mercury factsheet. https://www.cdc.gov/biomonitoring/Mercury_FactSheet.html
- College of Nurses of Ontario (CNO). (2023). Nurse Practitioners. <https://www.cno.org/en/learn-about-standards-guidelines/educational-tools/nurse-practitioners/>
- College of Nurses of Ontario (CNO). (2021). Practice Standard : Nurse Practitioner. https://www.cno.org/globalassets/docs/prac/41038_strdrnec.pdf
- Dack K, Fell M, Taylor CM, Havdahl A, Lewis SJ. Mercury and Prenatal Growth: A Systematic Review. *International Journal of Environmental Research and Public Health*. 2021; 18(13):7140. <https://doi.org/10.3390/ijerph18137140>
- DeFlaviis, S. (2023, July 19). "we're in an emergency": Mercury exposure linked to high youth suicide attempt rate in Grassy Narrows First Nation. *CTVNews*. <https://www.ctvnews.ca/health/we-re-in-an-emergency-mercury-exposure-linked-to-high-youth-suicide-attempt-rate-in-grassy-narrows-first-nation-1.6486120>
- Driscoll, C. T., Mason, R. P., Chan, H. M., Jacob, D. J., & Pirrone, N. (2013). Mercury as a global pollutant: sources, pathways, and effects. *Environmental Science & Technology*, 47(10), 4967–4983. <https://doi.org/10.1021/es305071v>
- Food and Drug Administration. (2021). ADVICE ABOUT EATING FISH. U.S. Food and Drug Administration. <https://www.fda.gov/media/102331/download>
- Food Guide Canada. (2020). Canada's Food Guide. <https://food-guide.canada.ca/en/>
- Fournier, B., Karachiwalla, F., & Shah, C. P. (2021). Shah's public health and Preventive Health Care in Canada. Elsevier Canada.
- Greger, M. (2012). Mercury Testing recommended Before Pregnancy. *Nutrition Facts*. <https://nutritionfacts.org/2012/07/27/mercury-testing-recommended-before-pregnancy/>
- Health Canada. (2007). Bureau of Chemical Safety Food Directorate Health Products and Food Branch Human Health Risk Assessment of Mercury in Fish and Health Benefits of Fish Consumption. Government of Canada.
- Health effects of exposures to mercury | US EPA. (2024, March 15). US EPA. [https://www.epa.gov/mercury/health-effects-exposures-mercury#:~:text=Metall%20mercury%20mainly%20causes%20health,irritability%2C%20nervousness%2C%20excessive%20shyness\)%3B](https://www.epa.gov/mercury/health-effects-exposures-mercury#:~:text=Metall%20mercury%20mainly%20causes%20health,irritability%2C%20nervousness%2C%20excessive%20shyness)%3B)
- Health risk feared in high fish mercury levels. (1985, September 20). *Globe & Mail [Toronto, Canada]*, 16. <https://link.gale.com/apps/doc/A165571598/OVIC?u=minn4020&sid=ebsco&xid=4cce213b>
- Hibbeln, J., Gregory, S., Iles-Caven, Y., Taylor, C. M., Emond, A., & Golding, J. (2018). Total mercury exposure in early pregnancy has no adverse association with scholastic ability of the offspring particularly if the mother eats fish. *Environment International*, 116, 108–115. <https://doi.org/10.1016/j.envint.2018.03.024>
- Holland, K. (2019). Mercury Detox: Separating Fact from Fiction. Healthline: toxicity. <https://www.healthline.com/health/mercury-detox>
- Hopkins, J. (2021). Sault angler says you shouldn't eat smelts from Lake Superior. Here's why. *Sootoday*. <https://www.sootoday.com/local-news/sault-angler-says-you-shouldnt-eat-smelts-from-lake-superior-heres-why-3581088>
- Komenda, P., Lavallee, B., Ferguson, T. W., Tangri, N., Chartrand, C., McLeod, L., Gordon, A., Dart, A., & Rigatto, C. (2016). The Prevalence of CKD in Rural Canadian Indigenous Peoples: Results From the First Nations Community Based Screening to Improve Kidney Health and Prevent Dialysis (FINISHED) Screen, Triage, and Treat Program. *American Journal of Kidney Diseases*, 68(4), 582–590. <https://doi.org/10.1053/j.ajkd.2016.04.014>
- Law, S. (2024, May 24). Mercury poisoning near Grassy Narrows First Nation worsened by industrial pollution, study suggests. *CBC*. <https://www.cbc.ca/news/canada/thunder-bay/grassy-narrows-first-nation-methylmercury-study-1.7211750>
- Mahmoudi, N., Jonidi Jafari, A., Moradi, Y., & Esrafil, A. (2020). The mercury level in hair and breast milk of lactating mothers in Iran: a systematic review and meta-analysis. *Journal of environmental health science & engineering*, 18(1), 355–366. <https://doi.org/10.1007/s40201-020-00460-5>
- Mattison, C. A., Lavis, J. N., Hutton, E. K., Dion, M. L., & Wilson, M. G. (2020). Understanding the conditions that influence the roles of midwives in Ontario, Canada's health system: an embedded single-case study. *BMC Health Services Research*, 20. <https://doi.org/10.1186/s12913-020-5033-x>
- Nawrocka, A., Durkalec, M., Szkoda, J., Filipek, A., Kmiecik, M., Żmudzki, J., & Posyniak, A. (2020). Total mercury levels in the muscle and liver of livestock and game animals in Poland, 2009–2018. *Chemosphere*, 258, 127311. <https://doi.org/10.1016/j.chemosphere.2020.127311>
- New York State Health Department. (2018). Understanding Mercury Exposure Levels. https://www.health.ny.gov/environmental/chemicals/mercury/docs/exposure_levels.htm
- Oken, E. (2022). Fish consumption and marine omega-3 fatty acid supplementation in pregnancy. *Up to Date*.
- Ontario. (2023). Guide to eating fish Ontario. <https://www.ontario.ca/page/guide-eating-ontario-fish>
- Patel, N., Xu, Y., McCandless, L. et al. Very low-level prenatal mercury exposure and behaviors in children: the HOME Study. *Environment Health* 18, 4 (2019). <https://doi.org/10.1186/s12940-018-0443-5>
- Ramirez GB, Cruz MC, Pagulayan O, Ostrea E, Dalisay C. (2000). The Tagum study I: analysis and clinical correlates of mercury in maternal and cord blood, breast milk, meconium, and infants' hair. *Pediatrics*. 2000 Oct;106(4):774-81. doi: 10.1542/peds.106.4.774. PMID: 11015522.
- Niño-Rodríguez, N.; Manrique Andrade, M.M.; Perez-Castiblanco, D.M.; Geney, C.A.; Castro Aguilar, D.P.; Ruiz, A.; Téllez, A.M.; Hernández-Florez, L.J.; Bociga, O.A.; Groot de Restrepo, H.; Narváez, D.M. Prenatal Mercury Exposure and Postnatal Outcome: A Case Series in Bogotá, Colombia. *Preprints* 2019, 2019090081 (doi: 10.20944/preprints201909.0081.v1).
- Stuart Wuttke, Elsa LaCorte, Diego Garcia, and Maria Ooi. First Nations Biomonitoring Initiative: National Results (2011). Assembly of First Nations, 2013. Print.
- Taylor, C. M., Golding, J., & Emond, A. M. (2016). Blood mercury levels and fish consumption in pregnancy: Risks and benefits for birth outcomes in a prospective observational birth cohort. *INTERNATIONAL JOURNAL OF HYGIENE AND ENVIRONMENTAL HEALTH*, 219(6), 513–520. <https://doi.org/10.1016/j.ijheh.2016.05.004>
- Ye et al. *Annals of Occupational and Environmental Medicine* (2016) 28:5 DOI 10.1186/s40557-015-0086-8

Looking ahead

Stay connected, get involved:

- Visit the PEHE-CCC project page and sign up for project news:
<https://healthyenvironmentforkids.ca/prenatal-environmental-health/>
- Get in touch with questions, ideas, interest to collaborate:
 - Erica Phipps, erica@healthyenvironmentforkids.ca
 - Tim Ellis, tim@healthyenvironmentforkids.ca



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