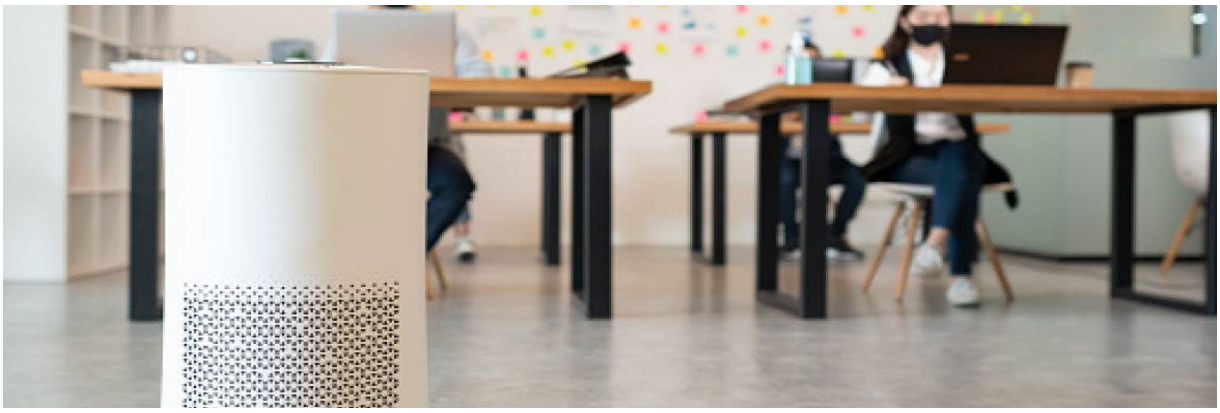
2023
EH Scan

National Collaborating Centre for Environmental Health
Centre de collaboration nationale en santé environnementale

# ENVIRONMENTAL HEALTH RESEARCH SCAN

VOL 7 (12) DECEMBER 2023



| | | |
|---|---|---|
| **AIR QUALITY**<br>• Indoor air<br>• Outdoor air<br>• Radon, Other | **CLIMATE CHANGE**<br>• Extreme weather<br>• Flooding<br>• Sea level rise<br>• Wildfires, Other | **DISEASES, VECTORS, PESTS**<br>• COVID-19<br>• Animal vectors<br>• Insect vectors<br>• Pests, Other |
| **FOOD**<br>• Food safety<br>• Food security<br>• Growing food, Other | **BUILT ENVIRONMENT**<br>• Green& blue spaces<br>• Housing<br>• Noise<br>• Planning & design<br>• Transportation, Other | **PUBLIC HEALTH FUNDAMENTALS**<br>• Communication<br>• Health promotion<br>• Health impact assessment<br>• Health equity<br>• One Health, Other |
| **WATER**<br>• Drinking water<br>• Recreational water<br>• Small water systems<br>• Wastewater, Other | **NON-CLIMATE RELATED DISASTERS**<br>• Earthquakes<br>• Marine<br>• Terrestrial, Other | **OTHER TOPICS**<br>• Cannabis products<br>• Tobacco, nicotine products<br>• Ionizing, non-ionizing radiation<br>• Personal services establishments, Other |
| **SPECIFIC POPULATIONS** (children, Indigenous Peoples, older adults, other) | | |

*Environmental Health (EH) Research Scan: Aims and dcope*

NCCEH's EH Research Scan aims to expand awareness of topics in environmental health, in line with NCCEH's vision to be the indispensable online resource for environmental health practitioners and policy-makers across Canada. This research scan is not peer reviewed; it does not cover all research, news, and information, and NCCEH is not responsible for the accuracy of the content from media or databases. Not all links are open access; some are abstract links where paid journal subscription is required.

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# EDITOR PICKS

## Bed bugs back in view [blog].

Juliette O'Keeffe, Knowledge Translation Scientist, NCCEH

*''This blog provides some context to this issue and highlights recent information and resources for environmental public health professionals (EPHPs), including an updated NCCEH subject guide on bed bugs."*

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## Monitoring temperature variability inside a healthcare facility during an extreme heat event using low-cost sensors [journal article].

Sarah B Henderson, Scientific Director, Environmental Health Services, BCCDC and NCCEH, with co-authors

*"These findings demonstrate how temperatures may vary considerably across a single healthcare facility during periods of extreme heat. Our findings illustrate the benefits of actively monitoring temperatures throughout such facilities to understand heat..."*

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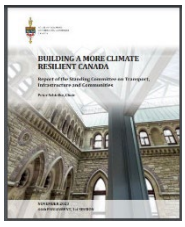
## Building a more climate resilient Canada. Report of the Standing Committee on Transport, Infrastructure and Communities.

House of Commons Canada




*"On 7 March 2023, the House of Commons Standing Committee on Transport, Infrastructure and Communities (the Committee) agreed to undertake a study on the resilience of Canadian communities to climate change…"*

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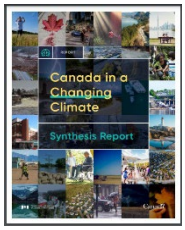
## Canada in a changing climate: synthesis report.

Lulham N, Warren FJ, Walsh KA, Szwarc J.




*"It is our hope that this Synthesis Report, and the other reports produced through this Assessment process, will help inform the decisions and actions that are urgently needed today to help ensure that we and future generations can survive and thrive..."*

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## Fermented foods safety guidance: a new resource for public health practitioners.

Kelsey James

*"The guidance website is a tool that can be used by PHIs, food safety staff, and owners and operators of food processing facilities."*

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# ENVIRONMENTAL HEALTH RESEARCH SCAN

## SELECTED NCCEH RESOURCES

1. James K. **Fermented foods safety guidance: A new resource for public health practitioners [blog]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2023 Dec 11. Available from: https://ncceh.ca/resources/blog/fermented-foods-safety-guidance-new-resource-public-health-practitioners.
2. Khoury C, Werry K. **Human biomonitoring of environmental chemicals: Current use and future directions [webinar]**. Vancouver, BC: National Collaborating Centre for Environmental Health (NCCEH); 2024 Jan 25. Available from: https://ncceh.ca/events/upcoming-webinars/human-biomonitoring-environmental-chemicals-current-use-and-future.
3. National Collaborating Centre for Environmental Health. **NCCEH eNews (November 2023): Radon, energy retrofits, and impacts on indoor air quality; more...** Vancouver, BC: NCCEH; 2023 Nov 16. Available from: https://app.cyberimpact.com/newsletter-view-online?ct=M4y29sqQ2dIiFCTYBmLiG_J-TetrWBjOKNZgi8tEhpBhPff_XsALHqCI2ehNE88WT6Uwfh3eoDFWrEuStMomnA~~.
4. National Collaborating Centre for Environmental Health. **November research scan**. Vancouver, BC: NCCEH; 2023 Nov 16. Available from: https://ncceh.ca/sites/default/files/2023-11/NCCEH%20Research%20Scan%20-202311.pdf.
5. O'Keeffe J. **Bed bugs back in view [blog]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2023 Nov 29. Available from: https://ncceh.ca/resources/blog/bed-bugs-back-view.

## 1. AIR QUALITY

### INDOOR AIR

1. Australia Department of Health and Aged Care. **Biotoxins (indoor damp and mould) Clinical Pathway**. Australia: Government of Australia; 2023 Nov. Available from: https://www.health.gov.au/sites/default/files/2023-11/biotoxins-indoor-damp-and-mould-clinical-pathway.pdf.
2. Dimitroulopoulou S, Dudzińska MR, Gunnarsen L, Hägerhed L, Maula H, Singh R, et al. **Indoor air quality guidelines from across the world: An appraisal considering energy saving, health, productivity, and comfort**. Environ Int. 2023;178:108127. Available from: https://www.sciencedirect.com/science/article/pii/S0160412023004002.
3. Duffield G, Bunn S. **Indoor air quality [POSTbrief 54]**. London: UK Parliamentary Office of Science and Technology; 2023 Sep. Available from: https://researchbriefings.files.parliament.uk/documents/POST-PB-0054/POST-PB-0054.pdf.

4. Janssen H, Ford K, Gascoyne B, Hill R, Roberts M, Bellis MA, Azam S. **Cold indoor temperatures and their association with health and well-being: a systematic literature review**. Public Health (Elsevier). 2023;224:185-94. Available from: https://doi.org/10.1016/j.puhe.2023.09.006.
5. Laquatra J. **Healthy residential indoor air quality**. International Journal on Engineering Technologies and Informatics. 2023;4(2). Available from: https://skeenapublishers.com/journal/ijeti/IJETI-04-00052.pdf.
6. Mora R. **Ventilation effectiveness for satisfactory indoor air quality in multi-unit residential buildings**. Burnaby, BC: British Columbia Institute of Technology and British Columbia Housing; 2023 Jan. Available from: https://www.bchousing.org/sites/default/files/rcg-documents/2023-01/Ventilation-Effectiveness-for-Satisfactory-Indoor-Air-Quality-in-Multi-unit-Residential-Buildings.pdf.
7. Sankhyan S, Clements N, Heckman A, Hollo AK, Gonzalez-Beltran D, Aumann J, et al. **Optimization of a Do-It-Yourself air cleaner design to reduce residential air pollution exposure for a community experiencing environmental injustices.** Atmosphere. 2023;14(12):1734. Available from: https://www.mdpi.com/2073-4433/14/12/1734.
8. Shanahan KH, James P, Rifas-Shiman SL, Gold DR, Oken E, Aris IM. **Neighborhood conditions and resources in mid-childhood and dampness and pests at home in adolescence**. The Journal of Pediatrics. 2023;262:113625. Available from: https://www.sciencedirect.com/science/article/pii/S0022347623004882.
9. Zhao J, Uhde E, Salthammer T, Antretter F, Shaw D, Carslaw N, Schieweck A. **Long-term prediction of the effects of climate change on indoor climate and air quality**. Environ Res. 2024;243:117804. Available from: https://www.sciencedirect.com/science/article/pii/S0013935123026087.
10. Zuazua-Ros A, de Brito Andrade L, Dorregaray-Oyaregui S, Martín-Gómez C, Ramos González JC, Manzueta R, et al. **Crosscutting of the pollutants and building ventilation systems: a literature review**. Environ Sci Poll Res. 2023;30(25):66538-58. Available from: https://doi.org/10.1007/s11356-023-27148-1.

OUTDOOR AIR

1. Boogaard H, Atkinson RW, Brook JR, Chang HH, Hoek G, Hoffmann B, et al. **Evidence Synthesis of Observational Studies in Environmental Health: Lessons Learned from a Systematic Review on Traffic-Related Air Pollution.** Environ Health Perspect. 2023;131(11):115002. Available from: https://ehp.niehs.nih.gov/doi/abs/10.1289/EHP11532.
2. Chen J, Braun D, Christidis T, Cork M, Rodopoulou S, Samoli E, et al. **Long-Term Exposure to Low-Level PM2.5 and Mortality: Investigation of Heterogeneity by Harmonizing Analyses in Large Cohort Studies in Canada, United States, and Europe**. Environ Health Perspect. 2023;131(12):127003. Available from: https://ehp.niehs.nih.gov/doi/abs/10.1289/EHP12141.

RADON, OTHER

1. Health Canada. **Radon - Reduction Guide for Canadians. Information for Canadians on how to reduce exposure to radon**. Ottawa, ON: Health Canada; 2023 [updated Jun 22]; Available from: https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/radon-reduction-guide-canadians-health-canada.html.
2. Martell M, Perko T, Navrátilová Rovenská K, Fojtíková I, Geysmans R. **Evaluation of Radon Action Plans: Searching for a Systematic and Standardised Method**. Int J Environ Res Public Health. 2023;20(23):7128. Available from: https://www.mdpi.com/1660-4601/20/23/7128.

## 2. FOOD

FOOD SAFETY

1. Allwood JG, Wakeling LT, Post LS, Bean DC. **Food safety considerations in the production of traditional fermented products: Japanese rice koji and miso**. Journal of Food Safety. 2023;43(4):e13048. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/jfs.13048.
2. Fellner A, Hamminger C, Fefer M, Liu J, Plaetzer K. **Towards Microbial Food Safety of Sprouts: Photodynamic Decontamination of Seeds**. Photonics. 2023;10(3):239. Available from: https://www.mdpi.com/2304-6732/10/3/239.
3. Goodman RE. **Chapter 12 - Food safety assessment and methodologies for GMOs and new or novel foods**. In: Haugabrooks E, Hayes AW, editors. History of Food and Nutrition Toxicology: Academic Press; 2023. p. 275-99. Available from: https://www.sciencedirect.com/science/article/pii/B978012821261500012X.
4. James K. **Fermented foods safety guidance: A new resource for public health practitioners [blog]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2023 12 11 Dec 11. Available from: https://ncceh.ca/resources/blog/fermented-foods-safety-guidance-new-resource-public-health-practitioners.
5. Langsrud S, Veflen N, Allison R, Crawford B, Izsó T, Kasza G, et al. **A trans disciplinary and multi actor approach to develop high impact food safety messages to consumers: Time for a revision of the WHO - Five keys to safer food?** Trends Food Sci Technol. 2023;133:87-98. Available from: https://www.sciencedirect.com/science/article/pii/S0924224423000183.
6. Liberda E, Sly T. **Risk Assessment in Food Safety and Foodborne Illness**. Assessment and Communication of Risk: A Pocket Text for Health and Safety Professionals. Cham: Springer International Publishing; 2023. p. 175-90. Available from: https://doi.org/10.1007/978-3-031-28905-7_5.
7. Liu C, Moy GG. **Chapter 50 - Climate Change and Food Safety**. In: Andersen V, Lelieveld H, Motarjemi Y, editors. Food Safety Management (Second Edition). San Diego: Academic Press; 2023. p. 1041-52. Available from: https://www.sciencedirect.com/science/article/pii/B9780128200131000449.

8. Ma S, Li Y, Peng Y, Wang W. **Toward commercial applications of LED and laser-induced fluorescence techniques for food identity, quality, and safety monitoring: A review**. Compr Rev Food Sci Food Saf. 2023;22(5):3620-46. Available from: https://ift.onlinelibrary.wiley.com/doi/abs/10.1111/1541-4337.13196.
9. Paquin V, Falardeau M. **The complex impacts of climate change on ecosystems, food (in)security, and mental health**. ArXiv. 2023. Available from: https://doi.org/10.31234/osf.io/dqjf6.
10. Seed B, Kurrein M, Hasdell R. **A Food Security Indicator Framework for British Columbia, Canada**. Health Promot Pract. 2023;24(3):471-80. Available from: https://journals.sagepub.com/doi/abs/10.1177/15248399211073801.
11. Suneeta C. **Climate Change and Food Safety**. In: Rabia Shabir A, editor. Food Safety. Rijeka: IntechOpen; 2023. p. Ch. 4. Available from: https://doi.org/10.5772/intechopen.112575.
12. US Food and Drug Administration. **Investigation of Elevated Lead Levels: Cinnamon Applesauce Pouches (November 2023)**. Silver Spring, MD: US FDA; 2023 Dec 5. Available from: https://www.fda.gov/food/outbreaks-foodborne-illness/investigation-elevated-lead-levels-cinnamon-applesauce-pouches-november-2023?fbclid=PAAaZ3uEPKEiwWIoR-3a5ir4v0NW_zZs4dyRNSZVlPIbdXA25oRcd75O5L5fI_aem_Aa5OmVgv03rqytbdCOcGgOU7sjAh_GrNm0Wu9idlY33zIH4Uofw3MrAtmLY3F-sM5HI.
13. World Health Organization FaAOotUN. **Food safety aspects of cell-based food**. 2023 Mar. Available from: https://www.who.int/publications/i/item/9789240070943.
14. Zhou Y-H, Mujumdar AS, Vidyarthi SK, Zielinska M, Liu H, Deng L-Z, Xiao H-W. **Nanotechnology for Food Safety and Security: A Comprehensive Review**. Food Reviews International. 2023;39(7):3858-78. Available from: https://doi.org/10.1080/87559129.2021.2013872.

FOOD SECURITY

1. Kelly S. **Healthy environments for food security and climate change in northern Canada: - Case studies of food system initiatives within the Northwest Territories**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2023. Available from: https://policycommons.net/artifacts/3815242/healthy-environments-for-food-security-and-climate-change-in-northern-canada/.

GROWING FOOD, OTHER

1. Akpan GE, Ndukwu MC, Etim PJ, Ekop IE, Udoh IE. **Food Safety and Agrochemicals: Risk Assessment and Food Security Implications**. In: Ogwu MC, Chibueze Izah S, editors. One Health Implications of Agrochemicals and their Sustainable Alternatives. Singapore: Springer Nature Singapore; 2023. p. 301-33. Available from: https://doi.org/10.1007/978-981-99-3439-3_11.
2. Davie JCS, Falloon PD, Pain DLA, Sharp TJ, Housden M, Warne TC, et al. **2022 UK heatwave impacts on agrifood: implications for a climate-resilient food system**. Frontiers in Environmental

Science. 2023;11. Available from: https://www.frontiersin.org/articles/10.3389/fenvs.2023.1282284.
3. Hofmann T, Ghoshal S, Tufenkji N, Adamowski JF, Bayen S, Chen Q, et al. **Plastics can be used more sustainably in agriculture**. Communications Earth & Environment. 2023;4(1):332. Available from: https://doi.org/10.1038/s43247-023-00982-4.
4. Mapfumo E, Chanasyk DS, Puurveen D, Elton S, Acharya S. **Historic climate change trends and impacts on crop yields in key agricultural areas of the prairie provinces in Canada: a literature review.** Canadian Journal of Plant Science. 2023;103(3):243-58. Available from: https://cdnsciencepub.com/doi/abs/10.1139/cjps-2022-0215.
5. Sun R, Marmanilo MM, Kulshreshtha S. **Co-benefits of climate change mitigation from innovative agricultural water management: a case study of corn agroecosystem in eastern Canada**. Mitig Adapt Strat Glob Change. 2023;28(8):1-20. Available from: https://link.springer.com/article/10.1007/s11027-023-10080-7.

## 3. WATER

DRINKING WATER

1. Anderson LE, DeMont I, Dunnington DD, Bjorndahl P, Redden DJ, Brophy MJ, Gagnon GA. **A review of long-term change in surface water natural organic matter concentration in the northern hemisphere and the implications for drinking water treatment.** Sci Total Environ. 2023;858(Pt 1):159699. Available from: https://doi.org/10.1016/j.scitotenv.2022.159699.
2. Delpla I, Bouchard C, Dorea C, Rodriguez MJ. **Assessment of rain event effects on source water quality degradation and subsequent water treatment operations**. Sci Total Environ. 2023;866:161085. Available from: https://doi.org/10.1016/j.scitotenv.2022.161085.
3. Government of Quebec. **Drinking water contamination or shortage**. Quebec: Government of Quebec; 2023 [cited Sep 26]; Available from: https://www.quebec.ca/en/public-safety-emergencies/emergency-situations-disasters-and-natural-hazards/what-to-do-before-during-after-emergency-disaster/drinking-water-contamination-or-shortage#:~:text=It%20is%20important%20to%20be,Bursting%20or%20freezing%20water%20main.
4. Health Canada. **Guidance on Monitoring the Biological Stability of Drinking Water in Distribution Systems**. Ottawa, ON: Government of Canada; 2022 Feb 25. Available from: https://www.canada.ca/en/health-canada/services/publications/healthy-living/guidance-monitoring-biological-stability-drinking-water-distribution-systems.html.
5. Lane K, Kumpel E. **A Critical Review of the Global Use and Context of Trucked Water as a Potable Water Supply**. ACS ES&T Water. 2023;3(5):1260-74. Available from: https://doi.org/10.1021/acsestwater.2c00323.
6. Munné A, Solà C, Ejarque E, Sanchís J, Serra P, Corbella I, et al. **Indirect potable water reuse to face drought events in Barcelona city. Setting a monitoring procedure to protect aquatic**

**ecosystems and to ensure a safe drinking water supply.** Sci Total Environ. 2023;866:161339. Available from: https://doi.org/10.1016/j.scitotenv.2022.161339.

7. Nemani KS, Peldszus S, Huck PM. **Practical Framework for Evaluation and Improvement of Drinking Water Treatment Robustness in Preparation for Extreme-Weather-Related Adverse Water Quality Events**. ACS ES&T water. 2023;3(5):1305-13. Available from: https://pubs.acs.org/doi/full/10.1021/acsestwater.2c00627.
8. Quon H, Jiang S. **Decision making for implementing non-traditional water sources: a review of challenges and potential solutions**. npj Clean Water. 2023;6(1):56. Available from: https://doi.org/10.1038/s41545-023-00273-7.
9. Szabo J, Witt S, Sojda N, Schupp D, Magnuson M. **Flushing Home Plumbing Pipes Contaminated with Aqueous Film-Forming Foam Containing Per- and Polyfluoroalkyl Substances**. Journal of Environmental Engineering. 2023;149(9):05023007. Available from: https://ascelibrary.org/doi/abs/10.1061/JOEEDU.EEENG-7315.
10. van der Wielen PWJJ, Dignum M, Donocik A, Prest EI. **Influence of Temperature on Growth of Four Different Opportunistic Pathogens in Drinking Water Biofilms**. Microorganisms. 2023;11(6). Available from: https://www.mdpi.com/2076-2607/11/6/1574.
11. Wiebe AJ, McKenzie JM, Hamel E, Rudolph DL, Mulligan B, de Grandpré I. **Groundwater vulnerability in the Yukon and Northwest Territories, Canada**. Hydrogeology Journal. 2023:1-6. Available from: https://link.springer.com/article/10.1007/s10040-023-02720-8.
12. Woolf AD, Stierman BD, Barnett ED, Byron LG. **Drinking Water From Private Wells and Risks to Children**. Pediatrics. 2023;151(2). Available from: https://doi.org/10.1542/peds.2009-0752.
13. Zheng S, Li J, Ye C, Xian X, Feng M, Yu X. **Microbiological risks increased by ammonia-oxidizing bacteria under global warming: The neglected issue in chloraminated drinking water distribution system.** Sci Total Environ. 2023;874:162353. Available from: https://www.sciencedirect.com/science/article/pii/S0048969723009695.

RECREATIONAL WATER

1. Erratt KJ, Creed IF, Lobb DA, Smol JP, Trick CG. **Climate change amplifies the risk of potentially toxigenic cyanobacteria**. Global Change Biology. 2023;29(18):5240-9. Available from: https://doi.org/10.1111/gcb.16838.
2. Olson NE, Boaggio KL, Rice RB, Foley KM, LeDuc SD. **Wildfires in the western United States are mobilizing PM 2.5 -associated nutrients and may be contributing to downwind cyanobacteria blooms**. Environmental science Processes & impacts. 2023;25(6):1049-66. Available from: https://doi.org/10.1039/D3EM00042G.

SMALL WATER SYSTEMS

1. Grossmann N, Milne C, Martinez M, Relucio K, Sadegh B, Wiley EN, et al. **Large Community Outbreak of Legionnaires Disease Potentially Associated with a Cooling Tower — Napa**

**County, California, 2022**. MMWR Morb Mortal Wkly Rep. 2023;72:1315–20. Available from: http://dx.doi.org/10.15585/mmwr.mm7249a1.

WASTEWATER, OTHER

## 4. CLIMATE CHANGE

EXTREME WEATHER

1. Beugin D, Clark D, Miller S, Ness R, Pelai R, Wale J. **The case for adapting to extreme heat. costs of the 2021 B.C. heat wave**. Ottawa, ON: Canadian Climate Institute; 2023 Jun. Available from: https://climateinstitute.ca/wp-content/uploads/2023/06/The-case-for-adapting-to-extreme-heat-costs-of-the-BC-heat-wave.pdf.
2. Bolan S, Padhye LP, Jasemizad T, Govarthanan M, Karmegam N, Wijesekara H, et al. **Impacts of climate change on the fate of contaminants through extreme weather events**. Sci Total Environ. 2024;909:168388. Available from: https://www.sciencedirect.com/science/article/pii/S004896972307016X.
3. Hebbern C, Gosselin P, Chen K, Chen H, Cakmak S, MacDonald M, et al. **Future temperature-related excess mortality under climate change and population aging scenarios in Canada**. Can J Public Health. 2023;114(5):726-36. Available from: https://link.springer.com/article/10.17269/s41997-023-00782-5#:~:text=Our%20study%20shows%20that%20Canada,important%20differences%20in%20mortality%20projections.
4. House of Commons Canada. **Building a more climate resilient Canada.** Report of the Standing Committee on Transport, Infrastructure and Communities [Peter Schiefke, Chair]. Ottawa, ON: Government of Canada; 2023 Nov. Available from: https://www.ourcommons.ca/Content/Committee/441/TRAN/Reports/RP12645038/tranrp15/tranrp15-e.pdf.
5. Kaiser D, Roy M, Tétreault L-F. **Optimizing the Public Health Response to Heat Waves to Minimize Cardiovascular Risk**. Can J Cardiol. 2023;39(9):1219-21. Available from: https://doi.org/10.1016/j.cjca.2023.04.001.
6. Lulham N, Warren FJ, Walsh KA, Szwarc J. **Canada in a changing climate: synthesis report**. Ottawa, ON: Government of Canada; 2023. Available from: https://changingclimate.ca/site/assets/uploads/sites/6/2023/11/SynthesisReport_EN.pdf.
7. Signer K, Formosa S, Seal-Jones T. **Building community resilience: The City of Victoria's approach to climate change adaptation and extreme heat response**. Journal of Business Continuity & Emergency Planning. 2023;17(2):116-29. Available from: https://pubmed.ncbi.nlm.nih.gov/37968782/.

FLOODING

1. Raikes J, Henstra D, Thistlethwaite J. **Public Attitudes Toward Policy Instruments for Flood Risk Management**. Environ Manage. 2023;72(5):1050-60. Available from: https://doi.org/10.1007/s00267-023-01848-3.
2. Yasui E, Kayes BA. **Community-driven disaster risk reduction: a case study of flood risk management in Brandon, MB, Canada**. Int J Water Resour Dev. 2023;39(6):1016-38. Available from: https://doi.org/10.1080/07900627.2021.1999216.

SEA LEVEL RISE

1. Dau QV, Wang X, Shah MAR, Kinay P, Basheer S. **Assessing the Potential Impacts of Climate Change on Current Coastal Ecosystems—A Canadian Case Study**. Remote Sensing. 2023;15(19):4742. Available from: https://doi.org/10.3390/rs15194742.
2. Threndyle RE, Jamieson RC, Kennedy G, Lake CB, Kurylyk BL. **Future inundation of coastal on-site wastewater treatment systems in a region with pronounced sea-level rise**. J Hydrol. 2022;614. Available from: https://doi.org/10.1016/j.jhydrol.2022.128548.

WILDFIRES, OTHER

1. Chu L, Grafton RQ, Nelson H. **Accounting for forest fire risks: global insights for climate change mitigation**. Mitig Adapt Strat Glob Change. 2023;28(8):1-41. Available from: https://link.springer.com/article/10.1007/s11027-023-10087-0#:~:text=Our%20results%20show%20the%20following,and%20inter%2Dtemporal%20heterogeneity%20of.
2. Oseh C. **How mobile clinics are helping those affected by Canada's wildfires**. BMJ. 2023;382:2007. Available from: https://doi.org/10.1136/bmj.p2007.
3. Seale H, Trent M, Marks GB, Shah S, Chughtai AA, MacIntyre CR. **Exploring the use of masks for protection against the effects of wildfire smoke among people with preexisting respiratory conditions.** BMC Public Health. 2023;23(1):2330. Available from: https://doi.org/10.1186/s12889-023-17274-3.
4. Wei J, Wang J, Li Z, Kondragunta S, Anenberg S, Wang Y, et al. **Long-term mortality burden trends attributed to black carbon and PM2.5 from wildfire emissions across the continental USA from 2000 to 2020: a deep learning modelling study.** The Lancet Planetary Health. 2023;7(12):e963-e75. Available from: https://doi.org/10.1016/S2542-5196(23)00235-8.
5. Zhang Y, Tingting Y, Huang W, Yu P, Chen G, Xu R, et al. **Health Impacts of Wildfire Smoke on Children and Adolescents: A Systematic Review and Meta-analysis**. Curr Environ Health Rep. 2023. Available from: https://doi.org/10.1007/s40572-023-00420-9.

## 5. BUILT ENVIRONMENT

### GREEN & BLUE SPACES

1. Ogletree SS, Huang J-H, Reif D, Yang L, Dunstan C, Osakwe N, et al. **The relationship between greenspace exposure and telomere length in the National Health and Nutrition Examination Survey**. Sci Total Environ. 2023;905:167452. Available from: https://www.sciencedirect.com/science/article/pii/S0048969723060795.

### HOUSING

### NOISE

1. American Academy of Pediatrics. **American Academy of Pediatrics Sounds the Alarm on Excessive Noise and Risks to Children's Hearing in Updated Policy Statement**. AAP; 2023. Available from: https://www.aap.org/en/news-room/news-releases/aap/2023/american-academy-of-pediatrics-sounds-the-alarm-on-excessive-noise-and-risks-to-childrens-hearing-in-updated-policy-statement/.

### PLANNING & DESIGN

1. HealthyDesign City. **Is your neighbourhood good for your health?** Toronto, ON: HealthyDesign.City; 2023. Available from: https://healthydesign.city/.
2. Nissanka S, Malalgoda C, Amaratunga D, Haigh R, editors. **A Review of Climate Change Impact on the Built Environment in Coastal Regions**. Proceedings of the 2nd International Symposium on Disaster Resilience and Sustainable Development; 2023; Singapore: Springer Nature Singapore. Available from: https://link.springer.com/chapter/10.1007/978-981-19-4715-5_9.
3. Sultana SR, Kamali M, Rana A, Hussain SA, Hewage K, Alam MS, Sadiq R. **Indigenous Architectural Practices for Resource Efficiency in Residential Buildings: A Critical Review**. Journal of Architectural Engineering. 2023;29(3):03123004. Available from: https://ascelibrary.org/doi/abs/10.1061/JAEIED.AEENG-1595.

### TRANSPORTATION, OTHER

1. Agyeman S, Alimo PK, Donkoh V, Cheng L. **Toward cleaner production of walking school buses and bicycle trains: A systematic review**. Journal of Cleaner Production. 2023;426. Available from: https://doi.org/10.1016/j.jclepro.2023.139031.

## 6. NON-CLIMATE RELATED DISASTERS

### EARTHQUAKES

### MARINE

1. Pang T, Penney HD, Wang X. **Effective Communication of Coastal Flood Warnings: Challenges and Recommendations**. Sustainability. 2023;15(24):16693. Available from: https://www.mdpi.com/2071-1050/15/24/16693.

### TERRESTRIAL, OTHER

1. British Columbia Ministry of Emergency Management and Climate Readiness. **Community Post-Disaster Needs Assessment (PDNA) Template and Guide**. Victoria, BC: Government of British Columbia; 2023. Available from: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/local-government/recovery/community_pdna.docx.
2. Environment and Climate Change Canada. **A field guide to oil spill response on freshwater shorelines**. Ottawa, ON: Environment and Climate Change Canada; 2023 Mar 6. Available from: https://www.canada.ca/en/environment-climate-change/services/water-overview/protecting-freshwater/field-guide-oil-spill-response-freshwater-shorelines.html.
3. Health Emergency Management BC. **Disaster Recovery Toolkit for Community Mental Health and Wellness**. Vancouver, BC: Provincial Health Services Association; 2023 Sep. Available from: http://www.phsa.ca/health-emergency-management-bc-site/Documents/Toolkit%20Community%20Recovery%20Sept%202023.pdf.
4. Keya TA, Leela A, Habib N, Rashid M, Bakthavatchalam P. **Mental Health Disorders Due to Disaster Exposure: A Systematic Review and Meta-Analysis**. Cureus. 2023. Available from: https://www.cureus.com/articles/138431-mental-health-disorders-due-to-disaster-exposure-a-systematic-review-and-meta-analysis#!/metrics.
5. Rural Health Information Hub. **Rural Emergency Preparedness and Response Toolkit**. Washington, DC: US Department of Health and Human Services; 2023. Available from: https://www.ruralhealthinfo.org/toolkits/emergency-preparedness.
6. Siegfried A, Melnick M. **Toolkit: Supporting ermergency preparedness and disaster response and recovery in rural communities**. J Public Health Manag Pract. 2023. Available from: https://jphmpdirect.com/2023/12/05/toolkit-supporting-emergency-preparedness-and-disaster-response-and-recovery-in-rural-communities/.
7. Walika M, Moitinho De Almeida M, Castro Delgado R, Arcos González P. **Outbreaks Following Natural Disasters: A Review of the Literature**. Disaster Med Public Health Prep. 2023;17:e444.

Available from: https://www.cambridge.org/core/article/outbreaks-following-natural-disasters-a-review-of-the-literature/B363DA3A00EF8D8E24A0A1D92D67FCAE.

## 7. DISEASES, VECTORS, PESTS

### COVID-19

1. Biro S, Scott K, Nagy E, Slipp N, Beck K, Catley C, Hart E. **Tracking emergency response actions during COVID-19 leads to development of an innovative public health evaluation tool**. Canadian journal of public health = Revue canadienne de sante publique. 2023;114(5):737-44. Available from: https://doi.org/10.17269/s41997-023-00811-3.
2. Gabet S, Thierry B, Wasfi R, Simonelli G, Hudon C, Lessard L, et al. **How is the COVID-19 pandemic impacting our life, mental health, and well-being? Design and preliminary findings of the pan-Canadian longitudinal COHESION study.** BMC Public Health. 2023;23:NA. Available from: https://link.gale.com/apps/doc/A775287684/HRCA?u=ubcolumbia&sid=bookmark-HRCA&xid=25c472f7.
3. Ijaz MK, Sattar SA, Nims RW, Boone SA, McKinney J, Gerba CP. **Environmental dissemination of respiratory viruses: dynamic interdependencies of respiratory droplets, aerosols, aerial particulates, environmental surfaces, and contribution of viral re-aerosolization**. PeerJ. 2023;11:e16420. Available from: https://doi.org/10.7717%2Fpeerj.16420.
4. Zhang M, Meng N, Duo H, Yang Y, Dong Q, Gu J. **Efficacy of mouthwash on reducing salivary SARS-CoV-2 viral load and clinical symptoms: a systematic review and meta-analysis**. BMC Infect Dis. 2023;23(1):678. Available from: https://doi.org/10.1186/s12879-023-08669-z.

### ANIMAL VECTORS

1. Bastille-Rousseau G, Gorman NT, McClure KM, Nituch L, Buchanan T, Chipman RB, et al. **Assessing the Efficiency of Local Rabies Vaccination Strategies for Raccoons (Procyon lotor) in an Urban Setting**. J Wildl Dis. 2023. Available from: https://doi.org/10.7589/jwd-d-23-00059.

### INSECT VECTORS

1. Anis H, Basha Shaik A, Karabulut E, Uzun M, Tiwari A, Nazir A, et al. **Upsurge of Powassan virus disease in northeastern United States: a public health concern-a short communication**. Annals of medicine and surgery (2012). 2023;85(11):5823-6. Available from: https://journals.lww.com/annals-of-medicine-and-surgery/fulltext/2023/11000/upsurge_of_powassan_virus_disease_in_northeastern.92.aspx.
2. Bowser N, Bouchard C, Sautié Castellanos M, Baron G, Carabin H, Chuard P, et al. **Self-reported tick exposure as an indicator of Lyme disease risk in an endemic region of Quebec, Canada**. Ticks

Tick Borne Dis. 2024;15(1):102271. Available from: https://www.sciencedirect.com/science/article/pii/S1877959X23001528.

3. Crandall KE, Millien V, Kerr JT. **Historical associations and spatiotemporal changes of pathogen presence in ticks in Canada: A systematic review**. Zoonoses and Public Health. 2023. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/zph.13093.
4. Day CA, Byrd BD, Trout Fryxell RT. **La Crosse virus neuroinvasive disease: the kids are not alright**. J Med Entomol. 2023;60(6):1165-82. Available from: https://doi.org/10.1093/jme/tjad090.
5. Uelmen JA, Clark A, Palmer J, Kohler J, Van Dyke LC, Low R, et al. **Global mosquito observations dashboard (GMOD): creating a user-friendly web interface fueled by citizen science to monitor invasive and vector mosquitoes.** Int J Health Geogr. 2023;22(1):28. Available from: https://doi.org/10.1186/s12942-023-00350-7.

PESTS, OTHER

1. Dupke S, Buchholz U, Fastner J, Förster C, Frank C, Lewin A, et al. **Impact of climate change on waterborne infections and intoxications**. Journal of health monitoring. 2023;8(Suppl 3):62-77. Available from: https://doi.org/10.25646%2F11402.

## 8. PUBLIC HEALTH FUNDAMENTALS

COMMUNICATION

1. Tetzlaff EJ, Goulet N, Gorman M, Richardson GRA, Enright PM, Meade RD, Kenny GP. **Hot Topic: A Systematic Review and Content Analysis of Heat-Related Messages During the 2021 Heat Dome in Canada**. J Public Health Manag Pract. 2023. Available from: https://journals.lww.com/jphmp/fulltext/9900/hot_topic__a_systematic_review_and_content.202.aspx.

HEALTH PROMOTION

HEALTH IMPACT ASSESSMENT

HEALTH EQUITY

1. Anthonj C, Mingoti Poague KIH, Fleming L, Stanglow S. **Invisible struggles: WASH insecurity and implications of extreme weather among urban homeless in high-income countries - A**

**systematic scoping review**. Int J Hyg Environ Health. 2023;255:114285. Available from: https://doi.org/10.1016/j.ijheh.2023.114285.

2. Perrotta K. **Climate change, population health and health equity: Public health strategies and five local climate solutions that produce health and health equity benefits**. Ottawa, ON: Canadian Public Health Association (CPHA), Canadian Health Association for Sustainability and Equity (CHASE), Ontario Public Health Association (OPHA); 2023 Nov. Available from: https://www.cpha.ca/sites/default/files/uploads/resources/climateaction/2023-11-net-zero-final-report_e_final.pdf.
3. Policy Horizons Canada. **Future lives: Basic needs at risk**. Policy Horizons Canada. 2023. Available from: https://horizons.gc.ca/en/2023/05/15/future-lives-basic-needs-at-risk/.
4. Seyedrezaei M, Becerik-Gerber B, Awada M, Contreras S, Boeing G. **Equity in the built environment: A systematic review**. Build Environ. 2023;245. Available from: https://doi.org/10.1016/j.buildenv.2023.110827.

ONE HEALTH, OTHER

1. Canadian Climate Institute. **Damage control. Reducing the costs of climate impacts in Canada**. Vancouver, BC: Canadian Climate Institute; 2022 Sep. Available from: https://climateinstitute.ca/wp-content/uploads/2022/09/Damage-Control_-EN_0927.pdf.
2. Gagnon M, Goodyear T, Riley S, Sedgemore K-o, Leyland H. **Addressing overdose risks and fatalities in public bathrooms: insights from the development of a Safer Bathroom Toolkit in British Columbia, Canada.** Can J Public Health. 2023;114(6):934-42. Available from: https://doi.org/10.17269/s41997-023-00810-4.
3. Regional Laboratory on Urban Governance and Well-being. **Urban policy toolkits**. Bankok, Thailand: World Health Organization – Regional Office for South-East Asia (WHO-SEARO); Available from: https://ughw.org/relevant-literature/urban-policy-tool-kits/.

## 9. OTHER TOPICS

CANNABIS PRODUCTS

1. DiCasmirro J, Tranmer J, Davison C, Woo K, Ross-White A, Hubeny M, Goldie C. **Public health interventions to prevent adolescent vaping: a scoping review protocol**. JBI evidence synthesis. 2023;21(11):2272-8. Available from: https://doi.org/10.11124/jbies-23-00055.
2. Hall W, Stjepanović D, Dawson D, Leung J. **The implementation and public health impacts of cannabis legalization in Canada: a systematic review**. Addiction (Abingdon, England). 2023;118(11):2062-72. Available from: https://doi.org/10.1111/add.16274.

3. Tobin T, Xie J, George K. **Unintentional Pediatric Ingestion of Cannabis-Addressing a Growing Public Health Risk**. JAMA pediatrics. 2023;177(10):993-4. Available from: https://jamanetwork.com/journals/jamapediatrics/article-abstract/2808591.

TOBACCO, NICOTINE PRODUCTS

IONIZING, NON-IONIZING RADIATION

1. Boz S, Kwiatkowski M, Zwahlen M, Bochud M, Bulliard J-L, Konzelmann I, et al. **A cohort analysis of residential radon exposure and melanoma incidence in Switzerland**. Environ Res. 2024;243:117822. Available from: https://www.sciencedirect.com/science/article/pii/S0013935123026269.
2. Gonzalez E, Maqbool M. **Microwaves and Radiofrequency Radiation: Benefits, Risks and Protection, An Introduction to Non-Ionizing Radiation**. In: Maqbool M, editor. An Introduction to Non-Ionizing Radiation. UAE: Bentham Science; 2023. p. 242-91. Available from: https://doi.org/10.2174/9789815136890123010012.

PERSONAL SERVICES ESTABLISHMENTS, OTHER

## 10. SPECIFIC POPULATIONS

CHILDREN

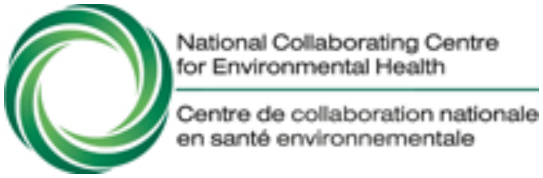
1. Clayton S, Manning CM, Hill AN, Speiser M. **Mental Health and Our Changing Climate: Children and Youth Report 2023**. Washington, D.C.: American Psychological Association and ecoAmerica; 2023. Available from: https://www.apa.org/news/press/releases/2023/10/mental-health-youth-report-2023.pdf.
2. European Environment Agency. **Air pollution and children's health**. European Environment Agency; 2023. Available from: https://www.eea.europa.eu/publications/air-pollution-and-childrens-health.
3. Picetti R, Juel R, Milner J, Bonell A, Karakas F, Dangour AD, et al. **Effects on child and adolescent health of climate change mitigation policies: A systematic review of modelling studies**. Environ Res. 2023;238(Pt 1):117102. Available from: https://doi.org/10.1016/j.envres.2023.117102.
4. US Environmental Protection Agency. **Climate change and children's health and well-being in the United States**. Washington, DC: US EPA, Office of Atmospheric Protection; 2023 Apr. Available from: https://www.epa.gov/system/files/documents/2023-04/CLiME_Final%20Report.pdf.

INDIGENOUS PEOPLES

1. First Peoples Law for Anishinabek Nation, Campeau B, Porter A. **Final Report: Anishinabek Nation Climate Change and Food Security Study**. Anishinabek First Nation; 2022 Oct. Available from: https://www.anishinabek.ca/wp-content/uploads/2022/10/FINAL-FINAL-Report-RE-Anishinabek-Nation-imate-Change-and-Food-Security-Study-With-Appendices-Oct-14-2022-LM-Final-Edits-DOCX.pdf.
2. Furgal CM, Boyd AD, Mayeda AM, Jardine CG, Driedger SM. **Risk communication and perceptions about lead ammunition and Inuit health in Nunavik, Canada**. Int J Circumpolar Health. 2023;82(1):2218014. Available from: https://doi.org/10.1080/22423982.2023.2218014.
3. Mallach G, Sun L, McKay M, Kovesi T, Lawlor G, Kulka R, Miller JD. **Indoor air quality in remote first nations communities in Ontario, Canada**. PLoS ONE. 2023;18(11):e0294040. Available from: https://doi.org/10.1371/journal.pone.0294040.
4. Spring A, Neyelle M, Bezha W, Simmons D, Blay-Palmer A. **Learning from the past to deal with the future: Using different knowledges to ensure food security in the Tsá Tué biosphere reserve (Northwest Territories, Canada).** Frontiers in Sustainable Food Systems. 2023;6. Available from: https://www.frontiersin.org/articles/10.3389/fsufs.2022.984290.
5. Stalwick JA, Ratelle M, Gurney KEB, Drysdale M, Lazarescu C, Comte J, et al. **Sources of exposure to lead in Arctic and subarctic regions: a scoping review**. Int J Circumpolar Health. 2023;82(1):2208810. Available from: https://doi.org/10.1080/22423982.2023.2208810.
6. Tsleil-Waututh Nation, City of Vancouver. **Restoring a Healthy Inlet. Let's reduce pollution from stormwater runoff in səlilwət (Burrard Inlet)**. Vancouver, BC: Tsleil-Waututh Nation and the City of Vancouver; 2023. Available from: https://twnation.ca/restoring-a-healthy-inlet/.
7. Tsleil-Waututh Nation (TWN). **Climate Change and Community Health Action Plan**. Tsleil-Waututh Nation; 2023 Jul. Available from: https://twnation.ca/wp-content/uploads/2023/07/TWN_CCC-Health-Plan-Summary-Report_July-17-2023-PP.pdf.

OLDER ADULTS

1. Phraknoi N, Sutanto J, Hu Y, Goh YS, Lee CEC. **Older people's needs in urban disaster response: A systematic literature review**. International Journal of Disaster Risk Reduction. 2023;96:103809. Available from: https://www.sciencedirect.com/science/article/pii/S2212420923002893.
2. Weldrick R, Dunn JR, Andrews GJ, Ploeg J. **Friendly Visiting Programs for Older People Experiencing Social Isolation: A Realist Review of what Works, for whom, and under what Conditions**. Canadian journal on aging. 2023;42(4):538-50. Available from: https://doi.org/10.1017/s0714980823000302.

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