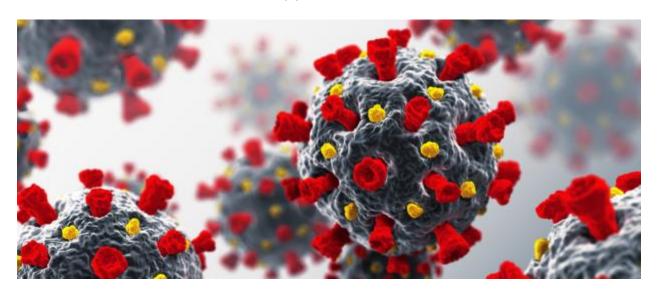
EH Scan



ENVIRONMENTAL HEALTH RESEARCH SCAN

WITH COVID-19 SECTIONS VOL 5 (2) FEBRUARY 2022



CONTENTS

- STAFF
- INDIGENOUS ENVIRONMENTAL HEALTH
- AGRICULTURAL OPERATIONS
- BIOLOGICAL AGENTS
- BUILT ENVIRONMENT
- CHEMICAL AGENTS METALS, GENERAL
- CHEMICAL AGENTS PESTICIDES
- CHEMICAL AGENTS SHALE GAS
- CHILDREN'S ENVIRONMENTAL HEALTH
- CLIMATE CHANGE
- COMMUNICABLE AND INFECTIOUS DISEASES
- DRINKING WATER
- EMERGENCY PREPAREDNESS
- ENVIRONMENTAL HEALTH SURVEILLANCE
- ENVIRONMENTAL PLANNING
- FOOD

- GENERAL
- HEALTH EQUITY
- HEALTH IMPACT ASSESSMENT
- INDOOR AIR
- NUISANCE CONTROL
- OUTDOOR AIR
- PERSONAL SERVICE ESTABLISHMENTS
- PEST CONTROL
- PHYSICAL AGENTS
- RADIATION
- RECREATIONAL AND SURFACE WATER
- RISK ASSESSMENT, COMMUNICATION
- SENIORS' ENVIRONMENTAL HEALTH
- TOBACCO
- WASTE
- ZOONOSES

Environmental Health (EH) Research Scan: Aims and Scope

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 This research scan is not peer reviewed; it does not cover all research, news, and information, and NCCEH is not responsible for the accuracy of the content from media or databases.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.

COVID-19 Publications are listed in the sections above and there are also COVID-19 Additional Topics.



EDITOR PICKS

(Raw) food for thought: antimicrobial resistance and BARF pet diets [blog]

Leah Rosencrantz, Knowledge Translation Scientist, National Collaborating Centre for Environmental Health

"There is growing popularity among pet owners choosing to feed their pets a raw meat-based diet (RMBD) in lieu of standard dried and canned pet foods. Due to the risk of contaminated raw meat and the close interactions between humans and their pets, this growth of RMBDs poses potential risks for human health."



Microplastics in the mix: considering dietary sources and human exposure [blog]

Juliette O'Keeffe, Knowledge Translation Scientist, National Collaborating Centre for Environmental Health

"In recent years, plastic pollution has gained an elevated public profile as a serious environmental issue, prompting calls for urgent action to address environment impacts. However, knowledge gaps exist on the effect of plastic pollution on human health. This blog explores one of the pathways of exposure - ingestion of microplastics via food and drink."



Cannabis cultivation facilities: a review of their air quality impacts from the occupational to community scale [journal article]

Davi de Ferreyro Monticelli, Sahil Bhandari, Angela Eykelbosh (right), Sarah B Henderson, Amanda Giang, Naomi Zimmerman

"This review addresses knowledge gaps in cannabis cultivation facility (CCF) air emissions by synthesizing the peer-reviewed and gray literature... Exploration and implementation of key suggestions may help regulators and the industry reduce the environmental footprint of CCF facilities." ...more



Extreme cold [topic page]

National Collaborating Centre for Environmental Health, February 2022 "The resources listed for this topic page are intended to assist environmental public health professionals with the management of extreme cold events, including health and safety precautions to take during cold weather, and considerations for issuing extreme cold alerts."



Antimicrobial resistance in the food chain [topic page]

National Collaborating Centre for Environmental Health, February 2022 "Antimicrobial resistance (AMR) is the ability of microorganisms to survive in the presence of drugs meant to inhibit or kill them. AMR poses a serious threat to human health, and risks the emergence of untreatable infections. This topic page provides resources on the issue of AMR in the food chain and how transmission of AMR can be reduced."





ENVIRONMENTAL HEALTH RESEARCH SCAN

SELECTED NCCEH PUBLICATIONS

- National Collaborating Centre for Environmental Health. NCCEH eNews (Jan 2022): NCCEH webinars to start the new year; COVID-19 resources... more... Vancouver, BC: NCCEH; 2021 Jan 20. Available from: https://tinyurl.com/2p82mk98.
- National Collaborating Centre for Environmental Health. January research scan with COVID-19 sections [blog]. Vancouver, BC: NCCEH; 2022 Jan 19. Available from: https://ncceh.ca/content/blog/january-research-scan-covid-19-sections-0.
- 3. National Collaborating Centre for Environmental Health. **Extreme cold [topic page]**. Vancouver, BC: National Collaborating Centre for Environmental Health; Feb 11. Available from: https://ncceh.ca/environmental-health-in-canada/health-agency-projects/extreme-cold.
- National Collaborating Centre for Environmental Health. Antimicrobial resistance in the food chain
 [topic page]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2022 Feb
 11. Available from: https://ncceh.ca/environmental-health-in-canada/health-agency-projects/antimicrobial-resistance-food-chain.
- 5. O'Keeffe J. Microplastics in the mix: considering dietary sources and human exposure [blog].

 Vancouver, BC: National Collaborating Centre for Environmental Health; 2022 Feb 11. Available from: https://ncceh.ca/content/blog/microplastics-mix-considering-dietary-sources-and-human-exposure.
- 6. Rosenkrantz L. (Raw) food for thought: antimicrobial resistance and BARF pet diets [blog].

 Vancouver, BC: National Collaborating Centre for Environmental Health; 2022 Feb 10. Available from: https://ncceh.ca/content/blog/raw-food-thought-antimicrobial-resistance-and-barf-pet-diets.

Webinars

- 1. Chebana F. **Quebec's health alert system for cold weather events [webinar]**. Vancouver, BC: National Collaborating Centre for Environmental Health, Environmental Health Seminar Series; 2022 Feb 17. Available from: https://ncceh.ca/content/ncceh-environmental-health-seminar-series.
- Généreux M. The COVID-19 pandemic and climate change: Two different, but equally important, crises having major psychosocial impacts [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health, Environmental Health Seminar Series; 2022 Feb 24. Available from: https://ncceh.ca/content/ncceh-environmental-health-seminar-series.
- 3. Lipscomb G. Freshwater science: stopping algal bloom toxins at the kitchen tap [webinar].

 Vancouver, BC: National Collaborating Centre for Environmental Health; 2022 Feb 22. Available from: https://ncceh.ca/events/freshwater-science-stopping-algal-bloom-toxins-kitchen-tap.
- 4. Rugel E. Assessing environments to support healthy aging and reduce social isolation [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health, Healthy Built Environment Seminar Series; 2022 Feb 9. Available from: https://ncceh.ca/hbe-forum.



INDIGENOUS ENVIRONMENTAL HEALTH

- 1. Andrade-Rivas F, Afshari R, Yassi A, Mardani A, Taft S, Guttmann M, et al. **Industrialization and food safety for the Tsleil-Waututh Nation: An analysis of chemical levels in shellfish in Burrard Inlet**. Environ Res. 2022;206:112575. Available from: https://doi.org/10.1016/j.envres.2021.112575.
- Cirtiu CM, Valcke M, Gagné M, Bourgault M-H, Narame C, Gadio S, et al. Biological monitoring of exposure to rare earth elements and selected metals in the Inuit population of Nunavik, Canada. Chemosphere. 2022;289. Available from: https://doi.org/10.1016/j.chemosphere.2021.133142.
- 3. Crawford T. Climate crisis will exacerbate health inequities of Indigenous communities: federal government report. Vancouver Sun. 2022 Feb 12. Available from:

 https://vancouversun.com/news/climate-crisis-will-exacerbate-health-inequities-of-indigenous-communities-federal-government-report.
- 4. Indigenous Services Canada. **Epidemiological summary of COVID-19 cases in First Nations communities**. Ottawa, ON: Government of Canada; 2022 Feb 8. Available from: https://www.sac-isc.qc.ca/eng/1589895506010/1589895527965.
- Kovesi T, Mallach G, Schreiber Y, McKay M, Lawlor G, Barrowman N, et al. Housing conditions and respiratory morbidity in Indigenous children in remote communities in Northwestern Ontario, Canada. Can Med Assoc J. 2022;194(3):E80-E8. Available from: https://www.cmaj.ca/content/cmaj/194/3/E80.full.pdf.
- 6. Lane K, Fuller M, Dyment T, Gagnon G. **Co-development of a risk assessment tool for use in First Nations water supply systems: A key step to water safety plan implementation**. Int J Hyg Environ Health. 2022;240:113916. Available from: https://doi.org/10.1016/j.ijheh.2021.113916.
- 7. Lebel L, Paquin V, Kenny T-A, Fletcher C, Nadeau L, Chachamovich E, et al. Climate change and Indigenous mental health in the Circumpolar North: A systematic review to inform clinical practice. Transcultural psychiatry. 2022:13634615211066698. Available from: https://doi.org/10.1177/13634615211066698.
- 8. National Collaborating Center for Indigenous Health. **Climate change and indigenous peoples in Canada: health impacts**. Prince George, BC: NCCIH; 2022 Feb. Available from: https://nccih.ca/Publications/lists/Publications/FS-Climate-Change-Health-Impacts-EN-Web-002.pdf.
- National Collaborating Centre for Indigenous Health. Visioning the future: First Nations, Inuit, &
 Métis population and public health. Prince George, BC: National Collaborating Centre for
 Indigenous Health; 2021 Dec. Available from:
 https://www.nccih.ca/495/Visioning the Future First Nations, Inuit, M%C3%A9tis Population and Public Health .nccih?id=10351.
- 10. Native Women's Association of Canada. **Policy Brief: COVID-19 in Indigenous Communities**. 2022. Available from: https://www.nwac.ca/policy-brief-covid-19-in-indigenous-communities/.
- 11. Redvers N, Celidwen Y, Schultz C, Horn O, Githaiga C, Vera M, et al. **The determinants of planetary health: an Indigenous consensus perspective**. The Lancet Planetary Health. 2022;6(2):e156-e63. Available from: https://doi.org/10.1016/S2542-5196(21)00354-5.
- 12. Wilson P. **Food Insecurity in Indigenous and Northern Communities**. J Grad Stud Educ. 2021;13(3):9-16. Available from: https://eric.ed.gov/?id=EJ1306820.
- 13. Wilton M, Cressman P. Indigenous Peoples, Food Safety and Security and Climate Change in Canada [webinar]. Prince George, BC: National Collaborating Centre for Indigenous Health; 2022 Feb 17. Available from: https://www.nccih.ca/en/#WColumn.



AGRICULTURAL OPERATIONS

BIOLOGICAL AGENTS

BUILT ENVIRONMENT

- Abraham Cottagiri S, Villeneuve PJ, Raina P, Griffith LE, Rainham D, Dales R, et al. Increased urban greenness associated with improved mental health among middle-aged and older adults of the Canadian Longitudinal Study on Aging (CLSA). Environ Res. 2022;206:112587. Available from: https://doi.org/10.1016/j.envres.2021.112587.
- 2. Bolouki A. Neurobiological effects of urban built and natural environment on mental health: systematic review. Rev Environ Health. 2022. Available from: https://doi.org/10.1515/reveh-2021-0137.
- 3. Broadbent AM, Declet-Barreto J, Krayenhoff ES, Harlan SL, Georgescu M. **Targeted implementation of cool roofs for equitable urban adaptation to extreme heat**. Sci Total Environ. 2022;811:151326. Available from: https://doi.org/10.1016/j.scitotenv.2021.151326.
- 4. Buttazzoni A, Doherty S, Minaker L. How do urban environments affect young people's mental health? A novel conceptual framework to bridge public health, planning, and neurourbanism. Public Health Rep. 2022;137(1):48-61. Available from: https://doi.org/10.1177/0033354920982088.
- Chen X, Lee C, Huang H. Neighborhood built environment associated with cognition and dementia risk among older adults: A systematic literature review. Soc Sci Med. 2022;292. Available from: https://doi.org/10.1016/j.socscimed.2021.114560.
- Penbrooke TL, Edwards MB, Bocarro JN, Henderson KA, Hipp JA. Applying Systems Thinking Approaches to Address Preventive Health Factors through Public Parks and Recreation Agencies. Journal of Park & Recreation Administration. 2022;40(1):98-114. Available from: https://www.sciencegate.app/document/10.18666/jpra-2021-11007.
- 7. Rider TR, van Bakergem M. **Building for Well-Being. Exploring Health-Focused Rating Systems for Design and Construction Professionals**. New York, NY: Routledge; 2021. Available from: https://www.routledge.com/Building-for-Well-Being-Exploring-Health-Focused-Rating-Systems-for-Design/Rider-Bakergem/p/book/9780367539986.
- 8. Rugel E. Assessing environments to support healthy aging and reduce social isolation [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health, Healthy Built Environment Seminar Series; 2022 02 09 Feb 9. Available from: https://ncceh.ca/hbe-forum.
- 9. Sharma A, Kumar K. **A Review of Barrier-Free Design in Built Environment**. 2022;2:33-7. Available from: https://www.researchgate.net/publication/358285102_A_Review_of_Barrier-Free Design in Built Environment.
- 10. Tharrey M, Darmon N. **Urban collective garden participation and health: a systematic literature review of potential benefits for free-living adults**. Nutr Rev. 2022;80(1):6-21. Available from: https://doi.org/10.1093/nutrit/nuaa147.
- 11. US Environmental Protection Agency. Environmental Resilience Tools Wizard. 2022. Available from: https://www.epa.gov/emergency-response-research/environmental-resilience-tools-wizard#:~:text=The%20Environmental%20Resilience%20Tools%20Wizard,resource%20to%20meet%20your%20needs.



- 12. Villeneuve PJ, Lam S, Tjepkema M, Pinault L, Crouse DL, Osornio-Vargas AR, et al. Residential proximity to greenness and adverse birth outcomes in urban areas: Findings from a national Canadian population-based study. Environ Res. 2022;204. Available from: https://doi.org/10.1016/j.envres.2021.112344.
- 13. Yu J. Epidemiology and geospatial analysis of built environment determinants of healthy and resilient cities [thesis]: University of British Columbia; 2021. Available from: https://open.library.ubc.ca/collections/24/items/1.0406073.

CHEMICAL AGENTS – GENERAL

 Sussman TJ, Baker BH, Wakhloo AJ, Gillet V, Abdelouahab N, Whittingstall K, et al. The relationship between persistent organic pollutants and Attention Deficit Hyperactivity Disorder phenotypes: Evidence from task-based neural activity in an observational study of a community sample of Canadian mother-child dyads. Environ Res. 2022;206:112593. Available from: https://doi.org/10.1016/j.envres.2021.112593.

CHEMICAL AGENTS – PESTICIDES CHEMICAL AGENTS – SHALE GAS

 Li L, Dominici F, Blomberg AJ, Bargagli-Stoffi FJ, Schwartz JD, Coull BA, et al. Exposure to unconventional oil and gas development and all-cause mortality in Medicare beneficiaries. Nature Energy. 2022. Available from: https://doi.org/10.1038/s41560-021-00970-y.

CHILDREN'S ENVIRONMENTAL HEALTH

- 1. Blanchette S, Larouche R, Tremblay MS, Faulkner G, Riazi NA, Trudeau F. **Associations Between**School Environments, Policies and Practices and Children's Physical Activity and Active
 Transportation. J Sch Health. 2022;92(1):31-41. Available from: https://doi.org/10.1111/josh.13102.
- Chase CJ, Mueller MK, Garvey C, Potter K. Family Dog Ownership and Youth Physical Activity
 Levels: A Scoping Review. Curr Sports Med Rep. 2022;21(1):18-27. Available from:
 https://doi.org/10.1249/jsr.00000000000000027.
- Luque-García L, Corrales A, Lertxundi A, Díaz S, Ibarluzea J. Does exposure to greenness improve children's neuropsychological development and mental health? A Navigation Guide systematic review of observational evidence for associations. Environ Res. 2022;206:112599. Available from: https://doi.org/10.1016/j.envres.2021.112599.
- Rothman L, Schwartz N, Cloutier M-S, Winters M, Macarthur C, Hagel BE, et al. Child pedestrian and cyclist injuries, and the built and social environment across Canadian cities: the Child Active Transportation Safety and the Environment Study (CHASE). Inj Prev. 2022. Available from: https://doi.org/10.1136/injuryprev-2021-044459.
- 5. Sakhvidi MJZ, Knobel P, Bauwelinck M, de Keijzer C, Boll LM, Spano G, et al. **Greenspace exposure** and children behavior: A systematic review. Sci Total Environ. 2022:153608. Available from: https://doi.org/10.1016/j.scitotenv.2022.153608.
- Swaringen BF, Gawlik E, Kamenov GD, McTigue NE, Cornwell DA, Bonzongo J-CJ. Children's exposure
 to environmental lead: A review of potential sources, blood levels, and methods used to
 reduce exposure. Environ Res. 2022;204(Pt B):112025. Available from:
 https://doi.org/10.1016/j.envres.2021.112025.



CLIMATE CHANGE

- 1. Bezgrebelna M, McKenzie K, Wells S, Ravindran A, Kral M, Christensen J, et al. **Climate Change, Weather, Housing Precarity, and Homelessness: A Systematic Review of Reviews**. Int J Environ Res Public Health. 2021;18(11):5812. Available from: https://www.mdpi.com/1660-4601/18/11/5812.
- Bratu A, Card KG, Closson K, Aran N, Marshall C, Clayton S, et al. The 2021 Western North America heat dome increased climate change anxiety among British Columbians: Results from a natural experiment. J Climate Change Health. 2022:100116. Available from: https://www.sciencedirect.com/science/article/pii/S2667278222000050.
- 3. British Columbia Parks Foundation. **PaRX A prescription for nature**. Vancouver, BC: BC Parks Foundation; 2022 Jan. Available from: https://www.parkprescriptions.ca/.
- 4. Buser JM, Lake K, Ginier E. Environmental risk factors for childhood cancer in an era of global climate change: A scoping review. J Pediatr Health Care. 2022;36(1):46-56. Available from: https://doi.org/10.1016/j.pedhc.2021.05.005.
- Chebana F. Quebec's health alert system for cold weather events [webinar]. Vancouver, BC:
 National Collaborating Centre for Environmental Health, Environmental Health Seminar Series;
 2022 02 17 Feb 17. Available from: https://ncceh.ca/content/ncceh-environmental-health-seminar-series.
- 6. Council of Canadian Academies. **Building a Resilient Canada**. Ottawa, ON: Expert Panel on Disaster Resilience in a Changing Climate, Council of Canadian Academies; 2022 Jan. Available from: https://cca-reports.ca/wp-content/uploads/2022/01/Building-a-Resilient-Canada-web-EN.pdf.
- 7. Généreux M. The COVID-19 pandemic and climate change: Two different, but equally important, crises having major psychosocial impacts [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health, Environmental Health Seminar Series; 2022 02 24 Feb 24. Available from: https://ncceh.ca/content/ncceh-environmental-health-seminar-series.
- Hürlimann AC, Nielsen J, Moosavi S, Bush J, Warren-Myers G, March A. Climate change preparedness across sectors of the built environment A review of literature. Environ Sci Pol. 2022;128:277-89. Available from:
 https://www.sciencedirect.com/science/article/pii/S1462901121003518.
- 9. Kidd SA, Greco S, McKenzie K. **Global Climate Implications for Homelessness: A Scoping Review**. J Urban Health. 2021;98(3):385-93. Available from: https://doi.org/10.1007/s11524-020-00483-1.
- 10. Kidd SA, Hajat S, Bezgrebelna M, McKenzie K. **The climate change-homelessness nexus**. Lancet. 2021;397(10286):1693-4. Available from: https://doi.org/10.1016/s0140-6736(21)00834-5.
- 11. Labbe S. **B.C. doctors can now prescribe a year-long pass to Canada's national parks**. Squamish Chief. 2022 Jan 30. Available from: https://www.squamishchief.com/bc-news/bc-doctors-can-now-prescribe-a-year-long-pass-to-canadas-national-parks-5011883.
- 12. Leffers JM. Climate Change and Health of Children: Our Borrowed Future. J Pediatr Health Care. 2022;36(1):12-9. Available from: https://www.jpedhc.org/article/S0891-5245(21)00213-3/fulltext.
- 13. Martin G, Reilly K, Everitt H, Gilliland JA. Review: The impact of climate change awareness on children's mental well-being and negative emotions a scoping review. Child and adolescent mental health. 2022;27(1):59-72. Available from: https://doi.org/10.1111/camh.12525.
- 14. Morris AD, Braune BM, Gamberg M, Stow J, O'Brien J, Letcher RJ. **Temporal change and the** influence of climate and weather factors on mercury concentrations in Hudson Bay polar



bears, caribou, and seabird eggs. Environ Res. 2022;207:112169. Available from: https://doi.org/10.1016/j.envres.2021.112169.

- 15. National Collaborating Centre for Environmental Health. **Extreme cold [topic page]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 20220211 Feb 11. Available from: https://ncceh.ca/environmental-health-in-canada/health-agency-projects/extreme-cold.
- 16. Orsetti E, Tollin N, Lehmann M, Valderrama VA, Morató J. **Building Resilient Cities: Climate Change** and Health Interlinkages in the Planning of Public Spaces. Int J Environ Res Public Health. 2022;19(3):1355. Available from: https://www.mdpi.com/1660-4601/19/3/1355.
- 17. Thomas A, Reddy KS, Alexander D, Prabhakaran P, editors. Climate Change and the Health Sector. Healing the World. New York, NY: Routledge; 2022. Available from:

 https://www.routledge.com/Climate-Change-and-the-Health-Sector-Healing-the-World/Thomas-Reddy-Alexander-Prabhakaran/p/book/9781032039992.

COMMUNICABLE AND INFECTIOUS DISEASES

See also Covid 19 subsections in this issue and in the COVID-19 Additional Topics and Guidance section at the end of this issue (e.g., Occupational Guidance, Transit, Transmission)

- Durrance-Bagale A, Marzouk M, Agarwal S, Ananthakrishnan A, Gan S, Hayashi M, et al.
 Operationalising Regional Cooperation for Infectious Disease Control: A Scoping Review of Regional Disease Control Bodies and Networks. Int J Health Policy Manag. 2021. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35042324.
- 2. Galindo-González J. Live animal markets: Identifying the origins of emerging infectious diseases. Current opinion in environmental science & health. 2022;25:100310. Available from: https://doi.org/10.1016/j.coesh.2021.100310.
- 3. National Academies of Sciences, Engineering, and Medicine. Systematizing the One Health
 Approach in Preparedness and Response Efforts for Infectious Disease Outbreaks: Proceedings
 of a Workshop. Biffl C, Liao J, Minicucci C, Nicholson A, editors. Washington, DC: The National
 Academies Press; 2022. Available from: https://www.nap.edu/catalog/26301/systematizing-the-one-health-approach-in-preparedness-and-response-efforts-for-infectious-disease-outbreaks.
- Ricciardi A, Cassey P, Leuko S, Woolnough AP. Planetary Biosecurity: Applying Invasion Science to Prevent Biological Contamination from Space Travel. Bioscience. 2021. Available from: https://doi.org/10.1093/biosci/biab115.

DRINKING WATER

- Curtiss E, Hils J, Kunz J. Water Management Programs Are Key to Managing Legionella Growth and Spread. J Environ Health. 2022;84(6):30-2. Available from: https://www.proquest.com/docview/2619128370?pq-origsite=gscholar&fromopenview=true.
- 2. Gleason JA, Cohn PD. A review of legionnaires' disease and public water systems Scientific considerations, uncertainties and recommendations. Int J Hyg Environ Health. 2022;240:113906. Available from: https://doi.org/10.1016/j.ijheh.2021.113906.
- 3. Pace C, Fencl A, Baehner L, Lukacs H, Cushing LJ, Morello-Frosch R. **The Drinking Water Tool: A Community-Driven Data Visualization Tool for Policy Implementation**. Int J Environ Res Public Health. 2022;19(3):1419. Available from: https://www.mdpi.com/1660-4601/19/3/1419.



- 4. Proctor C, Garner E, Hamilton KA, Ashbolt NJ, Caverly LJ, Falkinham Iii JO, et al. **Tenets of a holistic approach to drinking water-associated pathogen research, management, and communication**. Water Res. 2022;211. Available from: https://doi.org/10.1016/j.watres.2021.117997.
- 5. Roshani E, Kleiner Y, Colombo A, Salomons E. **Water Distribution Systems. Climate Change Risks and Opportunities**. Ottawa, ON: National Research Council Canada; 2021 Jan. Available from: https://www.naylornetwork.com/cww-nwl/pdf/WDS Under Climate Change-Signed (002).pdf.

EMERGENCY PREPAREDNESS

- Bessaha M, Hayward RA, Gatanas K. A scoping review of youth and young adults' roles in natural disaster mitigation and response: considerations for youth wellbeing during a global ecological crisis. Child & Adolescent Mental Health. 2022;27(1):14-21. Available from: https://doi.org/10.1111/camh.12517.
- 2. Leppold C, Gibbs L, Block K, Reifels L, Quinn P. **Public health implications of multiple disaster exposures**. The Lancet Public Health. Available from: https://doi.org/10.1016/S2468-2667(21)00255-3.
- 3. Mustafa S, Zhang Y, Zibwowa Z, Seifeldin R, Ako-Egbe L, McDarby G, et al. **COVID-19 Preparedness** and Response Plans from **106 countries**: a review from a health systems resilience perspective. Health Policy Plann. 2022;37(2):255-68. Available from: https://doi.org/10.1093/heapol/czab089.
- 4. Queiroga AC, Dunne C, Manino LA, van der Linden T, Mecrow T, Bierens J. **Resuscitation of Drowned Persons During the COVID-19 Pandemic: A Consensus Statement**. JAMA Netw Open. 2022;5(2):e2147078. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35133441.
- 5. Squires K, Hookway E, Márquez-Grant N. **Don't Forget the Children! A Review of the Consequences of Natural Disasters and Epidemics on Childhood Health and Mortality in the Past**. Childhood in the Past: An International Journal. 2022:1-22. Available from: https://doi.org/10.1080/17585716.2022.2036299.
- 6. US Environmental Protection Agency. **Environmental Resilience Tools Wizard**. 2022. Available from: https://www.epa.gov/emergency-response-research/environmental-resilience-tools-wizard#:~:text=The%20Environmental%20Resilience%20Tools%20Wizard,resource%20to%20meet%20your%20needs.

ENVIRONMENTAL HEALTH SURVEILLANCE

- Aboura S. The influence of climate factors and government interventions on the Covid-19
 pandemic: Evidence from 134 countries. Environ Res. 2022;208:112484. Available from:
 https://www.sciencedirect.com/science/article/pii/S0013935121017850.
- Long S, Loutfi D, Kaufman JS, Schuster T. Limitations of Canadian COVID-19 data reporting to the general public. J Public Health Policy. 2022. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35102238.
- 3. Sun S, Shaw M, Moodie EE, Ruths D. **The epidemiological impact of the Canadian COVID Alert App.** medRxiv. 2022. Available from: https://www.medrxiv.org/content/medrxiv/early/2022/01/05/2022.01.04.21268588.full.pdf.



ENVIRONMENTAL PLANNING

- 1. Han J, Chan EHW, Yung EHK, Qian QK, Lam PTI. **A Policy Framework for Producing Age-Friendly Communities from the Perspective of Production of Space**. Int J Environ Res Public Health. 2022;19(4):2031. Available from: https://www.mdpi.com/1660-4601/19/4/2031.
- Mirza NA, Hulko W. The complex nature of transportation as a key determinant of health in primary and community care restructuring initiatives in rural Canada. J Aging Studies. 2022;60:101002. Available from: https://www.sciencedirect.com/science/article/pii/S0890406522000056.

FOOD

Safety

- Donets MM, Tsygankov VY, Gumovskiy AN, Gumovskaya YP, Boyarova MD, Kulshova VI, et al. Fish as a risk source for human health: OCPs and PCBs in Pacific salmon. Food Control. 2022;134. Available from: https://doi.org/10.1016/j.foodcont.2021.108696.
- 2. Freeborn K. **Food safety measures for food delivery services**. 2022 [Feb]; Available from: https://www.foodsafetymarket.com/en-ca/blog/food-safety-measures-for-food-delivery-services.
- 3. Garba M, Dandago MA, Igwe EC, Salami KD. A review on microbiological safety of Ready-To-Eat Salads. Dutse J Pure Appl Sci. 2022;7(4). Available from: https://doi.org/10.4314/dujopas.v7i4a.4.
- 4. Garba M, Dandago MA, Igwe EC, Salami KD. Heavy metals safety of Ready-To-Eat (RTE) vegetables salads (a review). Dutse J Pure Appl Sci. 2022;7(4a). Available from: https://www.ajol.info/index.php/dujopas/article/view/220798.
- 5. John P, Varga C, Cooke M, Majowicz SE. Incidence, Demographic, and Seasonal Risk Factors of Infections Caused by Five Major Enteric Pathogens, Ontario, Canada, 2010-2017. Foodborne Pathog Dis. 2022. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35049363.
- Júnior JCdS, Meireles Mafaldo Í, de Lima Brito I, Tribuzy de Magalhães Cordeiro AM. Kombucha: Formulation, chemical composition, and therapeutic potentialities. Curr Res Food Sci. 2022;5:360-5. Available from: https://www.sciencedirect.com/science/article/pii/S2665927122000235.
- 7. Mathieu A-A, Robitaille É, Paquette M-C. Is Food Outlet Accessibility a Significant Factor of Fruit and Vegetable Intake? Evidence from a Cross-Sectional Province-Wide Study in Quebec, Canada. Obesities. 2022;2(1):35-50. Available from: https://www.mdpi.com/2673-4168/2/1/4.
- 8. McKinlay A, Mitchell G, Bertenshaw C. Review article: DINED (Delivery-related INjuries in the Emergency Department) part 1: A scoping review of risk factors and injuries affecting food delivery riders. Emerg Med Australas. 2022. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/1742-6723.13927.
- 9. TUV Sud. **Validating the quality of food delivery services**. 2022; Available from: https://www.tuvsud.com/en-us/e-ssentials-newsletter/food-and-health-essentials/e-ssentials-2-2018/validating-the-quality-of-food-delivery-services.

Microplastics

- Ebrahimi P, Abbasi S, Pashaei R, Bogusz A, Oleszczuk P. Investigating impact of physicochemical properties of microplastics on human health: A short bibliometric analysis and review. Chemosphere. 2022;289. Available from: https://doi.org/10.1016/j.chemosphere.2021.133146.
- 2. O'Keeffe J. Microplastics in the mix: considering dietary sources and human exposure [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 20220211 Feb 11.



Available from: https://ncceh.ca/content/blog/microplastics-mix-considering-dietary-sources-and-human-exposure.

- Sarkar B, Dissanayake PD, Bolan NS, Dar JY, Kumar M, Haque MN, et al. Challenges and opportunities in sustainable management of microplastics and nanoplastics in the environment. Environ Res. 2022;207:112179. Available from: https://doi.org/10.1016/j.envres.2021.112179.
- 4. Sripada K, Wierzbicka A, Abass K, Grimalt JO, Erbe A, Rollin HB, et al. **A Children's Health Perspective on Nano- and Microplastics**. Environ Health Perspect. 2022;130(1):15001. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35080434.
- 5. Yuan Z, Nag R, Cummins E. **Human health concerns regarding microplastics in the aquatic environment From marine to food systems**. Sci Total Environ. 2022:153730. Available from: https://www.sciencedirect.com/science/article/pii/S0048969722008221.

GENERAL

Health Policy

 Haber NA, Clarke-Deelder E, Feller A, Smith ER, Salomon JA, MacCormack-Gelles B, et al. Problems with evidence assessment in COVID-19 health policy impact evaluation: a systematic review of study design and evidence strength. BMJ Open. 2022;12(1):e053820. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35017250.

HEALTH EQUITY

- Alava JJ, Singh GG. Changing air pollution and CO 2 emissions during the COVID-19 pandemic: Lesson learned and future equity concerns of post-COVID recovery. Environ Sci Pol. 2022;130:1-8. Available from: https://doi.org/10.1016/j.envsci.2022.01.006.
- Anguelovski I, Connolly JJT. The Green City and Social Injustice. 21 Tales from North America and Europe. New York, NY: Routledge; 2021. Available from: https://www.routledge.com/The-Green-City-and-Social-Injustice-21-Tales-from-North-America-and-Europe/Anguelovski-Connolly/p/book/9781032024110.
- 3. Etienne CF. **COVID-19 has revealed a pandemic of inequality**. Nat Med. 2022;28:17. Available from: https://link.gale.com/apps/doc/A691164461/HRCA?u=ubcolumbia&sid=bookmark-HRCA&xid=3ce7e5a2.
- 4. Gauvin L, Barnett TA, Dea C, Dore I, Drouin O, Frohlich KL, et al. Quarantots, quarankids, and quaranteens: how research can contribute to mitigating the deleterious impacts of the COVID-19 pandemic on health behaviours and social inequalities while achieving sustainable change. Can J Public Health. 2022;113(1):53-60. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35089590.
- 5. Lei L, Guo S. **Beyond multiculturalism: revisioning a model of pandemic anti-racism education in post-Covid-19 Canada**. Int J Anthropol Ethnol. 2022;6(1):1. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35106365.
- Mishra S, Ma H, Moloney G, Yiu KCY, Darvin D, Landsman D, et al. Increasing concentration of COVID-19 by socioeconomic determinants and geography in Toronto, Canada: an observational study. Ann Epidemiol. 2022;65:84-92. Available from: https://www.sciencedirect.com/science/article/pii/S1047279721002167.



- 7. Wade M, Gooder H, Flook N. **Health, housing and ecological justice: Climate change and preventing homelessness deaths**: Council to Homeless Persons; 2021. Available from: https://search.informit.org/doi/10.3316/informit.071023218872576.
- 8. Yip SW, Jordan A, Kohler RJ, Holmes A, Bzdok D. **Multivariate, Transgenerational Associations of the COVID-19 Pandemic Across Minoritized and Marginalized Communities**. JAMA Psychiatry. 2022. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35138333.
- 9. Yoo PY, Movahed M, Rue I, Santos CDD, Majnemer A, Shikako K. Changes in Usage of a Leisure Activity Mobile App for Children with Disabilities During the COVID-19 Pandemic. JMIR Pediatr Parent. 2021. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35100129.

HEALTH IMPACT ASSESSMENT

1. Gamache S, Diallo T, Lebel A. The use of health impact assessments performed in Quebec City (Canada) – 2013–2019: Stakeholders and participants' appreciation. Environ Impact Assess Rev. 2022;92. Available from: https://doi.org/10.1016/j.eiar.2021.106693.

INDOOR AIR

- Caron-Beaudoin É, Whyte KP, Bouchard MF, Chevrier J, Haddad S, Copes R, et al. Volatile organic compounds (VOCs) in indoor air and tap water samples in residences of pregnant women living in an area of unconventional natural gas operations: Findings from the EXPERIVA study. Sci Total Environ. 2022;805. Available from: https://doi.org/10.1016/j.scitotenv.2021.150242.
- Ding E, Zhang D, Bluyssen PM. Ventilation regimes of school classrooms against airborne transmission of infectious respiratory droplets: A review. Build Environ. 2022;207:108484. Available from: https://www.sciencedirect.com/science/article/pii/S0360132321008805.
- 3. Nguyen TT, Johnson GR, Bell SC, Knibbs LD. A Systematic Literature Review of Indoor Air Disinfection Techniques for Airborne Bacterial Respiratory Pathogens. Int J Environ Res Public Health. 2022;19(3):1197. Available from: https://www.mdpi.com/1660-4601/19/3/1197.
- Querol X, Alastuey A, Moreno N, Minguillón MC, Moreno T, Karanasiou A, et al. How can ventilation be improved on public transportation buses? Insights from CO2 measurements. Environ Res. 2022;205:112451. Available from: https://www.sciencedirect.com/science/article/pii/S0013935121017527.
- Rackov A, Botelho D. Recommendations on the Use of Portable Air Filtration Systems in New Brunswick Classrooms: A COVID-19 Focus. Fredericton, NB: Prepared for New Brunswick Department of Education and Early Childhood Development; 2022 Jan. Available from: https://www2.gnb.ca/content/dam/gnb/Departments/ed/pdf/K12/recommendations-use-of-portable-air-filtration-systems.pdf.
- 6. Song L, Zhou J, Wang C, Meng G, Li Y, Jarin M, et al. **Airborne pathogenic microorganisms and air cleaning technology development: A review**. J Hazard Mater. 2022;424(Pt B):127429. Available from: https://doi.org/10.1016/j.jhazmat.2021.127429.
- 7. Tobisch A, Springsklee L, Schäfer L-F, Sussmann N, Lehmann MJ, Weis F, et al. **Reducing indoor** particle exposure using mobile air purifiers-Experimental and numerical analysis. AIP advances. 2021;11(12):125114-. Available from: https://pubmed.ncbi.nlm.nih.gov/35028193 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8730331/.



- 8. Vakalis DM. How energy-saving building designs influence the indoor environment and affect learning, comfort, and health: ProQuest Information & Learning; 2022. Available from: https://www.proquest.com/docview/2561932617?pq-origsite=gscholar&fromopenview=true.
- Viklund E, Kokelj S, Larsson P, Nordén R, Andersson M, Beck O, et al. Severe acute respiratory syndrome coronavirus 2 can be detected in exhaled aerosol sampled during a few minutes of breathing or coughing. Influenza Other Respi Viruses. 2022. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/irv.12964.

NUISANCE CONTROL OUTDOOR AIR

- 1. Areal AT, Zhao Q, Wigmann C, Schneider A, Schikowski T. **The effect of air pollution when modified by temperature on respiratory health outcomes: A systematic review and meta-analysis**. Sci Total Environ. 2022;811:152336. Available from: https://doi.org/10.1016/j.scitotenv.2021.152336.
- 2. Bai X, Chen H, Oliver BG. The health effects of traffic-related air pollution: A review focused the health effects of going green. Chemosphere. 2022;289. Available from: https://doi.org/10.1016/j.chemosphere.2021.133082.
- Gartland N, Aljofi HE, Dienes K, Munford LA, Theakston AL, van Tongeren M. The Effects of Traffic Air Pollution in and around Schools on Executive Function and Academic Performance in Children: A Rapid Review. Int J Environ Res Public Health. 2022;19(2). Available from: https://www.mdpi.com/1660-4601/19/2/749.
- Sheikhnejad Y, Aghamolaei R, Fallahpour M, Motamedi H, Moshfeghi M, Mirzaei PA, et al. Airborne and aerosol pathogen transmission modeling of respiratory events in buildings: An overview of computational fluid dynamics. Sustainable cities and society. 2022;79:103704. Available from: https://doi.org/10.1016/j.scs.2022.103704.
- 5. Stieb DM. **Strengthening the epidemiological evidence linking air pollution and COVID-19**. Am J Respir Crit Care Med. 2022. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35100515.
- Wang J, Huang JJ, Mulligan C. Seasonal source identification and source-specific health risk
 assessment of pollutants in road dust. Environmental science and pollution research
 international. 2022;29(7):10063-76. Available from: https://doi.org/10.1007/s11356-021-16326-8.
- 7. Wine O, Osornio Vargas A, Campbell SM, Hosseini V, Koch CR, Shahbakhti M. **Cold Climate Impact on Air-Pollution-Related Health Outcomes: A Scoping Review**. Int J Environ Res Public Health. 2022;19(3):1473. Available from: https://www.mdpi.com/1660-4601/19/3/1473.

PERSONAL SERVICE ESTABLISHMENTS PEST CONTROL

PHYSICAL AGENTS

- Radun J, Maula H, Saarinen P, Keränen J, Alakoivu R, Hongisto V. Health effects of wind turbine noise and road traffic noise on people living near wind turbines. Renew Sust Energ Rev. 2022;157. Available from: https://doi.org/10.1016/j.rser.2021.112040.
- 2. Thompson R, Smith RB, Bou Karim Y, Shen C, Drummond K, Teng C, et al. **Noise pollution and human cognition: An updated systematic review and meta-analysis of recent evidence**. Environ Int. 2022;158. Available from: https://doi.org/10.1016/j.envint.2021.106905.



RADIATION

- 1. American Association of Radon Scientists and Technologists (AARST). **Radon Report Card**. Hendersonville, NC: AARST; 2022. Available from: https://aarst.org/contact-us/.
- 2. Čeliković I, Pantelić G, Vukanac I, Krneta Nikolić J, Živanović M, Cinelli G, et al. **Outdoor Radon as a Tool to Estimate Radon Priority Areas—A Literature Overview**. Int J Environ Res Public Health. 2022;19(2):662. Available from: https://www.mdpi.com/1660-4601/19/2/662.
- 3. Liu C, Benotto M, Ungar K, Chen J. Environmental monitoring and external exposure to natural radiation in Canada. J Environ Radioact. 2022;243:106811. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35007922.

RECREATIONAL AND SURFACE WATER

- Fitzmorris-Brisolara K, Maal-Bared R, Worley-Morse T, Danley-Thomson A, Sobsey M. Monitoring coliphages to reduce waterborne infectious disease transmission in the One Water framework. Int J Hyg Environ Health. 2022;240:113921. Available from: https://doi.org/10.1016/j.ijheh.2022.113921.
- 2. Government of Canada. Consultation: Guidelines for Canadian Recreational Water Quality Understanding and Managing Risks in Recreational Waters. Ottawa, ON: Government of Canada; 2021 Dec. Available from: https://www.canada.ca/en/health-canada/programs/consultation-guidelines-recreational-water-quality-understanding-managing-risks-recreational-waters.html.

RISK ASSESSMENT, COMMUNICATION

- Capurro G, Jardine CG, Tustin J, Driedger M. Moral panic about "covidiots" in Canadian newspaper coverage of COVID-19. PLoS ONE. 2022;17(1):e0261942. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35041667.
- 2. Ciotti S, Moore SA, Connolly M, Newmeyer T. Super-Spreaders or Victims of Circumstance? Childhood in Canadian Media Reporting of the COVID-19 Pandemic: A Critical Content Analysis. Healthcare (Basel). 2022;10(1). Available from: https://www.ncbi.nlm.nih.gov/pubmed/35052319.
- Goldsmith LP, Rowland-Pomp M, Hanson K, Deal A, Crawshaw AF, Hayward SE, et al. The use of social media platforms by migrant and ethnic minority populations during the COVID-19 pandemic: a systematic review. medRxiv. 2022:Feb 7. Available from: https://www.medrxiv.org/content/medrxiv/early/2022/02/07/2022.02.07.22270579.full.pdf.
- 4. Janmohamed K, Walter N, Nyhan K, Khoshnood K, Tucker JD, Sangngam N, et al. Interventions to Mitigate COVID-19 Misinformation: A Systematic Review and Meta-Analysis. J Health Commun. 2022:1-12. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35001841.

SENIORS' ENVIRONMENTAL HEALTH

- 1. Gan DRY, Mahmood A, Routhier F, Mortenson WB. Walk/Wheelability: An Inclusive Instrument
 Pair for Participatory Age-Friendly Research and Practice. Gerontologist. 2022;62(1):e39-e47.
 Available from: https://doi.org/10.1093/geront/gnab079.
- Kim T, Lee S-D. Designing for Green and Grey: Insights from Single-Use Plastic Water Bottles. Int J Environ Res Public Health. 2022;19(3):1423. Available from: https://www.mdpi.com/1660-4601/19/3/1423.
- 3. Richardson JD, St Cyr K, Forchuk C, Liu JJW, Plouffe RA, Le T, et al. Well-being of Canadian Veterans during the COVID-19 pandemic: cross-sectional results from the COVID-19 Veteran well-being



study. Eur J Psychotraumatol. 2022;13(1):2012374. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35087643.

- 4. Rugel E. Assessing environments to support healthy aging and reduce social isolation [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health, Healthy Built Environment Seminar Series; 2022 02 09 Feb 9. Available from: https://ncceh.ca/hbe-forum.
- Woods T, Nies MA, Shirley AM. Social Networks in Retirement and Assisted Living Communities: A
 Literature Review. J Gerontol Nurs. 2022;48(1):42-6. Available from:
 https://doi.org/10.3928/00989134-20211207-01.

TOBACCO, CANNABIS, VAPING

- Baker MM, Procter TD, Belzak L, Ogunnaike-Cooke S. Vaping-associated lung illness (VALI) in Canada: a descriptive analysis of VALI cases reported from September 2019 to December 2020. Health Promot Chronic Dis Prev Can. 2022;42(1):37-44. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35044143.
- 2. Bechard M, Cloutier P, Lima I, Salamatmanesh M, Zemek R, Bhatt M, et al. **Cannabis-related**emergency department visits by youths and their outcomes in Ontario: a trend analysis. CMAJ
 Open. 2022;10(1):E100-E8. Available from: https://www.cmajopen.ca/content/cmajo/10/1/E100.full.pdf.
- Brubacher JR, Chan H, Erdelyi S, Staples JA, Asbridge M, Mann RE. Cannabis Legalization and Detection of Tetrahydrocannabinol in Injured Drivers. N Engl J Med. 2022;386(2):148-56.
 Available from: https://www.nejm.org/doi/full/10.1056/NEJMsa2109371.
- 4. Callard C, Gagne T, O'Loughlin JL. **Towards a Canadian evidence base to inform action to prevent and control vaping in Canada**. Health Promot Chronic Dis Prev Can. 2022;42(1):1-3. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35044138.
- de Ferreyro Monticelli D, Bhandari S, Eykelbosh A, Henderson SB, Giang A, Zimmerman N. Cannabis Cultivation Facilities: A Review of Their Air Quality Impacts from the Occupational to Community Scale. Environ Sci Tech. 2022. Available from: https://doi.org/10.1021/acs.est.1c06372.
- D'Mello K, Hammond D, Mahamad S, Wiggers D, East K. Nicotine content, labelling and flavours of e-liquids in Canada in 2020: a scan of the online retail market. Health Promot Chronic Dis Prev Can. 2022;42(1):4-11. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35044139.
- 7. Gagnon F. **The non-medical cannabis regime in Québec: A public health analysis**. Montreal, QC: Institut national de santé publique; 2021 Nov. Available from: https://www.inspq.qc.ca/en/publications/2829.
- 8. Hamid MA, Shaikh R, Gunaseelan L, Salim J, Arulchelvan A, Tulloch T. **Recreational Cannabis Legalization in Canada: A Pediatrics Perspective**. Subst Use Misuse. 2022;57(3):481-3. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35081853.
- MacCallum CA, Lo LA, Pistawka CA, Boivin M. A Clinical Framework for Evaluating Cannabis Product
 Quality and Safety. Cannabis and Cannabinoid Research. 2022. Available from:
 https://www.liebertpub.com/doi/abs/10.1089/can.2021.0137.
- 10. Tattan-Birch H, Jarvis MJ. Children's exposure to second-hand smoke 10 years on from smoke-free legislation in England: Cotinine data from the Health Survey for England 1998-2018. The Lancet Regional Health Europe. 2022;15. Available from: https://doi.org/10.1016/j.lanepe.2022.100315.



WASTE

- 1. Chaine C, Hursthouse AS, McLean B, McLellan I, McMahon B, McNulty J, et al. Recycling Plastics from WEEE: A Review of the Environmental and Human Health Challenges Associated with Brominated Flame Retardants. Int J Environ Res Public Health. 2022;19(2):766. Available from: https://www.mdpi.com/1660-4601/19/2/766.
- Environment and Climate Change Canada. Reducing methane emissions from Canada's municipal solid waste landfills. Discussion paper. Ottawa, ON: Government of Canada; 2022 Feb. Available from: https://www.canada.ca/content/dam/eccc/documents/pdf/cepa/2022reducingmethaneDD-eng.pdf.
- Molloy S, Varkey P, Walker TR. Opportunities for single-use plastic reduction in the food service sector during COVID-19. Sustain Prod Consum. 2022;30:1082-94. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35132385.
- 4. US Centers for Disease Control and Prevention. **Waterborne Disease & Outbreak Surveillance Reporting wastewater surveillance**. Atlanta, GA: US CDC; 2022. Available from:

 <a href="https://www.cdc.gov/healthywater/surveillance/wastewater-s
- 5. Wang Z, Yang W, Hua P, Zhang J, Krebs P. **Transmission risk of SARS-CoV-2 in the watershed triggered by domestic wastewater discharge**. Sci Total Environ. 2022;806. Available from: https://doi.org/10.1016/j.scitotenv.2021.150888.

ZOONOSES

- Chan JF-W, Yuan S, Zhang AJ, Poon VK-M, Chan CC-S, Lee AC-Y, et al. Surgical Mask Partition Reduces the Risk of Noncontact Transmission in a Golden Syrian Hamster Model for Coronavirus Disease 2019 (COVID-19). Clin Infect Dis. 2020;71(16):2139-49. Available from: https://pubmed.ncbi.nlm.nih.gov/32472679.
- Haydock LAJ, Abrams-Ogg ACG, Weese JS, Goldstein MR, Clifford AB, Sebastian A, et al. Diagnostic and public health investigation of Mycobacterium tuberculosis infection in a dog in Ontario, Canada. J Vet Diagn Invest. 2022:10406387221074706. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35075970.
- 3. Kanji JN, Isaac A, Gregson D, Mierzejewski M, Shpeley D, Tomlin P, et al. **Epidemiology of ticks** submitted from human hosts in Alberta, Canada (2000-2019). Emerging Microbes Infect. 2022;11(1):284-92. Available from: https://doi.org/10.1080/22221751.2022.2027217.
- 4. King T, Schindler R, Chavda S, Conly J. **Dimensions of poverty as risk factors for antimicrobial resistant organisms in Canada: a structured narrative review**. Antimicrob Resist Infect Control. 2022;11(1):18. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35074013.
- Kotwa JD, Massé A, Gagnier M, Aftanas P, Blais-Savoie J, Bowman J, et al. First detection of SARS-CoV-2 infection in Canadian wildlife identified in free-ranging white-tailed deer Odocoileus virginianus from southern Québec, Canada. bioRxiv. 2022. Available from: https://www.biorxiv.org/content/biorxiv/early/2022/01/20/2022.01.20.476458.full.pdf.
- Leung Z, Middleton D, Morrison K. One Health and EcoHealth in Ontario: a qualitative study exploring how holistic and integrative approaches are shaping public health practice in Ontario. BMC Public Health. 2012;12(1):358-72. Available from: https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-12-358.



- 7. Lyons LA, Mateus-Pinilla N, Smith RL. **Effects of tick surveillance education on knowledge, attitudes, and practices of local health department employees**. BMC Public Health. 2022;22(1):215. Available from: https://doi.org/10.1186/s12889-022-12667-2.
- 8. Mallapaty S. How sneezing hamsters sparked a COVID outbreak in Hong Kong. Nature. 2022. Available from: https://www.nature.com/articles/d41586-022-00322-0.
- National Collaborating Centre for Environmental Health. Antimicrobial resistance in the food chain [topic page]. Vancouver, BC: National Collaborating Centre for Environmental Health; 20220211 Feb 11. Available from: https://ncceh.ca/environmental-health-in-canada/health-agency-projects/antimicrobial-resistance-food-chain.
- Otto SJG, Haworth-Brockman M, Miazga-Rodriguez M, Wierzbowski A, Saxinger LM. Integrated surveillance of antimicrobial resistance and antimicrobial use: Evaluation of the status in Canada (2014-2019). Can J Public Health. 2022;113(1):11-22. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35099780.
- 11. Rosenkrantz L. (Raw) food for thought: antimicrobial resistance and BARF pet diets [blog].

 Vancouver, BC: National Collaborating Centre for Environmental Health; 20220210 Feb 10.

 Available from: https://ncceh.ca/content/blog/raw-food-thought-antimicrobial-resistance-and-barf-pet-diets.
- 12. Shah S. **Animals That Infect Humans Are Scary. It's Worse When We Infect Them Back.** New York Times. 2022 Jan 19; updated Jan 24. Available from: https://www.nytimes.com/2022/01/19/magazine/spillback-animal-disease.html.
- 13. Vandegrift KJ, Yon M, Surendran-Nair M, Gontu A, Amirthalingam S, Nissly RH, et al. **Detection of SARS-CoV-2 Omicron variant (B.1.1.529) infection of white-tailed deer**. bioRxiv. 2022. Available from: https://www.biorxiv.org/content/biorxiv/early/2022/02/07/2022.02.04.479189.full.pdf.
- 14. Yen H-L, Sit TH, Brackman CJ, Chuk SS, Cheng SMS, Gu H, et al. Transmission of SARS-CoV-2 (Variant Delta) from Pet Hamsters to Humans and Onward Human Propagation of the Adapted Strain:

 A Case Study. SSRN. 2022. Available from:

 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4017393.



COVID-19 ADDITIONAL TOPICS & GUIDANCE



CONTENTS

- GUIDANCE (cleaning, face masks, hand hygiene, more)
- HOMELESS, VULNERABLE POPULATIONS, HOUSING
- MENTAL HEALTH
- MULTI-UNIT BUILDINGS
- OCCUPATIONAL GUIDANCE, MISC
- PUBLIC FACILITIES
- SURVIVAL TIME
- TRANSIT, TRANSPORTATION
- TRANSMISSION



GUIDANCE (for 'Occupational Guidance' – see separate topic heading) Cleaning

- Biasin M, Strizzi S, Bianco A, Macchi A, Utyro O, Pareschi G, et al. UV and violet light can Neutralize SARS-CoV-2 Infectivity. J Photochem Photobiol. 2022:100107. Available from: https://www.sciencedirect.com/science/article/pii/S2666469021000920.
- Richter WR, Sunderman MM, Mera TO, O'Brien KA, Morgan K, Streams S. Evaluation of environmental conditions as a decontamination approach for SARS-CoV-2 when applied to common library, archive, and museum related materials. J Appl Microbiol. 2022. Available from: https://doi.org/10.1111/jam.15468.

Death

 Postill G, Murray R, Wilton AS, Wells RA, Sirbu R, Daley MJ, et al. The use of cremation data for timely mortality surveillance: the example of the COVID-19 pandemic in Ontario, Canada. JMIR Public Health Surveill. 2022. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35038302.

Face Masks, Distancing, etc

- Cortin V, Briand S, Bernier C, Ouhoummane N, Pelletier A, Poirot C, et al. COVID-19: Evaluation of Disinfection Options for N95 Filtering Facepiece Respirators in the Context of the Pandemic. Montreal, QC: Institut national de santé publique; 2022 Jan. Available from: https://www.inspq.qc.ca/en/publications/2971-disinfection-n95-covid19.
- Cortin V, Briand S, Bernier C, Pelletier A, Ouhoummane N, Poirot C, et al. COVID-19: Disinfection of N95 Single-Use Filtering Facepiece Respirators. Montreal, QC: Institut national de santé publique; 2022 Jan. Available from: https://www.inspq.qc.ca/en/publications/2966-disinfection-N95-single-use-facepiece-respirators-covid19.
- lezadi S, Gholipour K, Azami-Aghdash S, Ghiasi A, Rezapour A, Pourasghari H, et al. Effectiveness of non-pharmaceutical public health interventions against COVID-19: A systematic review and meta-analysis. PLoS ONE. 2021;16(11):e0260371. Available from: https://doi.org/10.1371/journal.pone.0260371.
- 4. Institut national de santé publique. **COVID-19 : Modes de transmission et efficacité du port de masque de type N95 et du masque médical**. Montreal, QC: INSPQ; 2022 Jan. Available from: https://www.inspq.qc.ca/publications/3193-transmission-efficacite-masque-covid.
- 5. Li H, Yuan K, Sun YK, Zheng YB, Xu YY, Su SZ, et al. Efficacy and practice of facemask use in general population: a systematic review and meta-analysis. Transl Psychiatry. 2022;12(1):49. Available from: https://doi.org/10.1038/s41398-022-01814-3.
- 6. Perski O, Szinay D, Corker E, Shahab L, West R, Michie S. Interventions to increase personal protective behaviours to limit the spread of respiratory viruses: A rapid evidence review and meta-analysis. Br J Health Psychol. 2022;27(1):215-64. Available from: https://doi.org/10.1111/bjhp.12542.
- Talic S, Shah S, Wild H, Gasevic D, Maharaj A, Ademi Z, et al. Effectiveness of public health measures in reducing the incidence of covid-19, SARS-CoV-2 transmission, and covid-19 mortality: systematic review and meta-analysis. BMJ. 2021;375:e068302. Available from: https://www.bmj.com/content/bmj/375/bmj-2021-068302.full.pdf.



Schools

 Lafreniere D, Stone T, Hildebrandt R, Sadler R, Madison M, Trepal D, et al. Schools as Vectors of Infectious Disease Transmission during the 1918 Influenza Pandemic. Cartographica. 2021;56:e20200025. Available from: https://utpjournals.press/doi/10.3138/cart-2020-0025.

HOMELESS, VULNERABLE POPULATIONS, HOUSING MENTAL, PHYSICAL HEALTH

- 1. Chadi N, Ryan NC, Geoffroy MC. **COVID-19** and the impacts on youth mental health: emerging evidence from longitudinal studies. Can J Public Health. 2022;113(1):44-52. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35089589.
- Hwang P, Ipekian L, Jaiswal N, Scott G, Amirali EL, Hechtman L. Family functioning and mental wellbeing impairment during initial quarantining for the COVID-19 pandemic: A study of Canadian families. Curr Psychol. 2022:1-13. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35035192.
- Stabler L, MacPhee M, Collins B, Carroll S, Davison K, Thakkar V, et al. A Rapid Realist Review of
 Effective Mental Health Interventions for Individuals with Chronic Physical Health Conditions
 during the COVID-19 Pandemic Using a Systems-Level Mental Health Promotion Framework.
 Int J Environ Res Public Health. 2021;18(23). Available from:
 https://doi.org/10.3390/ijerph182312292.

MULTI-UNIT BUILDINGS, CONGREGATE SETTINGS

 Hansford R, Ouellette-Kuntz H, Martin L. Short Report: The influence of congregate setting on positive COVID-19 tests among a high-risk sample of adults with intellectual and developmental disability in Ontario. Res Dev Disabil. 2022;122:104178. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35063714.

OCCUPATIONAL GUIDANCE

Occupational

 Moleman M, Macbeth F, Wieringa S, Forland F, Shaw B, Zuiderent-Jerak T. From "getting things right" to "getting things right now": Developing COVID-19 guidance under time pressure and knowledge uncertainty. J Eval Clin Pract. 2022;28(1):49-56. Available from: https://doi.org/10.1111/jep.13625.

PUBLIC FACILITIES

Transportation (see separate category, 'Transit, Transportation'

SURVIVAL TIME

1. Ghosh S, Chakraborty A, Bhattacharya S. **How surface and fomite infection affect contagion dynamics:** a **study with self-propelled particles**. Europ J Spec Topics. 2022:1-14. Available from: https://pubmed.ncbi.nlm.nih.gov/35035779

TRANSIT, TRANSPORTATION



TRANSMISSION

- Buonanno G, Robotto A, Brizio E, Morawska L, Civra A, Corino F, et al. Link between SARS-CoV-2
 emissions and airborne concentrations: Closing the gap in understanding. J Hazard Mater.
 2022;428:128279. Available from:
 - https://www.sciencedirect.com/science/article/pii/S030438942200067X.
- 2. Das SK, Alam J-e, Plumari S, Greco V. **Airborne virus transmission under different weather conditions**. AIP Advances. 2022;12(1):015019. Available from: https://aip.scitation.org/doi/abs/10.1063/5.0082017.
- 3. Heneghan CJ, Spencer EA, Brassey J, Pluddemann A, Onakpoya IJ, Evans DH, et al. **SARS-CoV-2 and the role of orofecal transmission: a systematic review**. F1000Res. 2021;10:231. Available from: https://www.ncbi.nlm.nih.gov/pubmed/35035883.
- Rowe BR, Canosa A, Meslem A, Rowe F. Increased airborne transmission of COVID-19 with new variants. Implications for health policies. medRxiv. 2022. Available from: https://www.medrxiv.org/content/medrxiv/early/2022/01/17/2022.01.13.22269234.full.pdf.
- 5. Toronto Public Health. **COVID-19: Transmission, Aerosols and Ventilation**. Toronto, ON: Toronto Public Health; 2022. Available from: https://www.toronto.ca/wp-content/uploads/2020/10/8de9-covID19-Transmission-Aerosols-Ventilation.pdf.
- 6. Tupper P, Colijn C. COVID-19's unfortunate events in schools: mitigating classroom clusters in the context of variable transmission. medRxiv. 2020. Available from: https://www.medrxiv.org/content/10.1101/2020.10.20.20216267v1.
- 7. Ward MP, Liu Y, Xiao S, Zhang Z. Challenges in the control of COVID-19 outbreaks caused by the delta variant during periods of low humidity: an observational study in Sydney, Australia.

 Infectious Diseases of Poverty. 2021;10(1):139. Available from: https://doi.org/10.1186/s40249-021-00926-0.
- 8. Weaver AK, Head JR, Gould CF, Carlton EJ, Remais JV. **Environmental Factors Influencing COVID-19 Incidence and Severity**. Annu Rev Public Health. 2022;43(1). Available from:
 https://www.annualreviews.org/doi/abs/10.1146/annurev-publhealth-052120-101420.
- 9. Zhu Y, Wang Y, Li C, Liu L, Qi C, Jia Y, et al. A Network Dynamics Model for the Transmission of COVID-19 in Diamond Princess and a Response to Reopen Large-Scale Public Facilities.

 Healthcare (Basel). 2022;10(1). Available from: https://www.ncbi.nlm.nih.gov/pubmed/35052302.

VARIANTS

- Bernstein L. There's a new version of omicron but so far it doesn't appear to be more dangerous.
 What to know about BA.2, a new version of the omicron variant. Washington Post. 2022 Jan
 24. Available from: https://www.washingtonpost.com/health/2022/01/24/covid-omicron-ba2/?utm-source=ActiveCampaign&utm-medium=email&utm-content=COVID+news%3A++COVID_LEAD_TITLE&utm-campaign=COVID+Weekly+Email+-+Outlook.
- 2. National Collaborating Centre for Infectious Diseases. **Updates on COVID-19 Variants of Concern (VOC)**. Winnipeg, MB: NCCID; 2022 Jan. Available from: https://nccid.ca/covid-19-variants/.
- Public Health Ontario. COVID-19 Omicron (B.1.1.529) Variant of Concern and
 Communicability...What We Know So Far. Toronto, ON: Public Health Ontario; 2022 Jan 17.
 Available from: <a href="https://www.publichealthontario.ca/-/media/documents/ncov/covid-wwksf/2022/01/wwksf-omicron-communicability.pdf?sc lang=en& cldee=bWljaGVsZS53aWVuc0BiY2NkYy5jYQ%3d%3d&recipientid=contac



 $\frac{t-c7ccc0a5b4a2e611837d0050569e0009-e714b017c83a419aa1c606f14cb17abb\&esid=4c00302f-8569-ec11-8ed8-0050569e118f.$

4. Wassenaar TM, Wanchai V, Buzard G, Ussery DW. The first three waves of the Covid-19 pandemic hint at a limited genetic repertoire for SARS-CoV-2. FEMS Microbiol Rev. 2022. Available from: https://doi.org/10.1093/femsre/fuac003.

MISSED the January scan?

January research scan with COVID-19 sections [blog]

National Collaborating Centre for Indigenous Health, January 2022 "The scan highlights environmental health publications by topic and provides easy access to article abstracts and report summaries to support public health professionals, researchers, planners, students, and others working in public health."



For more on environmental health information and evidence, visit NCCEH.ca

To provide feedback on this document, please visit www.ncceh.ca/en/document feedback

This document can be cited as: National Collaborating Centre for Environmental Health. Environmental health research scan. Vancouver, BC: NCCEH. 2021 December.

Permission is granted to reproduce this document in whole, but not in part. Production of this document has been made possible through a financial contribution from the Public Health Agency of Canada through the National Collaborating Centre for Environmental Health.