

ENVIRONMENTAL HEALTH RESEARCH SCAN

WITH COVID-19 SECTIONS

VOL 5 (6) JUNE 2021



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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. “We focus on health risks associated with the physical environment and identify evidence-based interventions to mitigate those risks.” This review is not official or 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. How to access the items? Click on the link related to each entry and it should take you to the item. 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** at the end of this issue.

EDITOR PICKS

Unregulated cannabis: Risky production practices raise concern for consumers [blog].

Angela Eykelbosh, Knowledge Translation Scientist, NCCEH

“...This blog describes [a recent pilot study](#) carried out by BC’s Cannabis Legalization and Regulation Secretariat (Ministry of Public Safety and the Solicitor General) with assistance from the BC Centre for Disease Control and the National Collaborating Centre for Environmental Health....” more



Transitioning from COVID-19 restrictions to new norms: Innovating strategies to restore trust and transit ridership [blog].

Tina Chen, Knowledge Translation Scientist, NCCEH

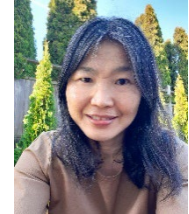
“...Given that there is limited evidence linking SARS-CoV-2 transmission to enclosed public transit spaces, there is an immediate need for public transit authorities to consider innovative strategies to restore public confidence in order to increase ridership as cities transition out of pandemic restrictions....” more



Growing resilience and promoting health through urban agriculture [blog].

Anna Chow, Knowledge Translation Scientist, NCCEH

“[...] Despite health benefits, urban agriculture may present certain environmental health challenges. The following discusses potential public health considerations applicable to urban food gardening....” more



Masking and unmasking during the COVID-19 pandemic and beyond [blog].

Juliette O’Keeffe, Knowledge Translation Scientist, NCCEH

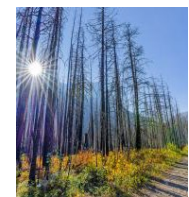
“[...] What does the literature say about the comparative efficacy of different mask types, new materials such as nano-materials and mask modifications....” more, plus: [An update of the evidence: Masking during the Covid-19 pandemic](#)



Two approaches, one shared learning journey to support climate-health adaptation planning [blog].

Ronal Macfarlane, Sarah Warren, Kerry Ann Charles-Norris

“[...] Indigenous world views need to be actively sought out and meaningfully incorporated so that climate adaptation plans reflect on-the-ground realities holistically...” more



ENVIRONMENTAL HEALTH RESEARCH SCAN

SELECTED STAFF PUBLICATIONS

NCCEH

1. Chen T. Transitioning from COVID-19 restrictions to new norms: Innovating strategies to restore trust and transit ridership [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 06 11 Jun 11. Available from: <https://ncceh.ca/content/blog/transitioning-covid-19-restrictions-new-norms-innovating-strategies-restore-trust-and>.
2. Chow A. Growing resilience and promoting health through urban agriculture [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 Jun 16. Available from: <https://ncceh.ca/content/blog/growing-resilience-and-promoting-health-through-urban-agriculture>.
3. Eykelbosh A. Unregulated cannabis: Risky production practices raise concern for consumers [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 Jun 8. Available from: <https://ncceh.ca/content/blog/unregulated-cannabis-risky-production-practices-raise-concern-consumers>.
4. National Collaborating Centre for Environmental Health. NCCEH eNews (May 2021) : Indoor CO2 sensors for COVID-19 risk mitigation: current guidance and limitations; Recalls highlight importance of hand sanitizer safety; more... Vancouver, BC: NCCEH; 2021 05 25 Apr 22. Available from: <https://tinyurl.com/ybykvr9d>.
5. National Collaborating Centre for Environmental Health. May research scan with COVID-19 sections [blog]. Vancouver, BC: NCCEH; 2021 05 18 May 18. Available from: <https://ncceh.ca/content/blog/may-research-scan-covid-19-sections>.
6. Macfarlane R, Warren S, Charles-Norris KA. Two approaches, one shared learning journey to support climate-health adaptation planning [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 06 11 Jun 11. Available from: <https://ncceh.ca/content/blog/two-approaches-one-shared-learning-journey-support-climate-health-adaptation-planning>.
7. O’Keeffe J. Masking and unmasking during the COVID-19 pandemic and beyond [blog]. Vancouver, BC: NCCEH; 2020 06 16 Jun 16. Available from: <https://ncceh.ca/content/blog/masking-and-unmasking-during-covid-19-pandemic-and-beyond>.
8. O’Keeffe J. Masking during the COVID-19 pandemic – An update of the evidence [guidance document]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 06 16 Jun 16. Available from: <https://ncceh.ca/documents/guide/masking-during-covid-19-pandemic-update-evidence>.
9. Shergill S, Forsman-Phillips L, Nicol A-M. Radon in Schools: A Review of Radon Testing Efforts in Canadian Schools. Int J Environ Res Public Health. 2021;18(10):5469. Available from: <https://www.mdpi.com/1660-4601/18/10/5469>.

Webinars

1. Eykelbosh A. Indoor CO2 sensors for COVID-19 risk mitigation: current guidance and limitations [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 May

26. Available from: <https://virt.com/event/indoor-co2-sensors-for-covid-19-risk-mitigation-current-guidance-and-limitations/>.
2. Fox E, Corrales C, Frank L. Integrating health into scenario planning for transportation & land use applications [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 05 12 May 12. Available from: <https://ncceh.ca/content/hbe-forum-webinar-recording-integrating-health-scenario-planning-transportation-land-use>.
 3. Fumerton R, Western S. Visual tools and processes for engaging intersectoral partners on the health impacts of resource development [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 04 29 Apr 29. Available from: https://ncceh.ca/sites/default/files/Apr29.2021_NHPresentation_NCCEH_v8_FINAL.pdf.
 4. Sanchez J, Tustin J. Environmental factors associated with freshwater recreational water quality in Toronto and Niagara [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 04 09. Available from: <https://ncceh.ca/content/webinar-recording-environmental-factors-associated-freshwater-recreational-water-quality>.
 5. Standing Committee on the Use of Emerging Science for Environmental Health Decisions. Pivotal interfaces of environmental health and infectious disease research to inform responses to outbreaks, epidemics, and pandemics - a workshop [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 Jun 8. Available from: <https://ncceh.ca/events/pivotal-interfaces-environmental-health-and-infectious-disease-research>.
 6. Warren S, Charles-Norris KA. Climate-health adaptation planning: Two approaches, one shared learning journey [webinar]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 06 24 Jun 24. Available from: https://ncceh.ca/content/ncceh-environmental-health-seminar-series?_ga=2.149545584.75857847.1623800674-1954772642.1612110344.

INDIGENOUS ENVIRONMENTAL HEALTH

1. Assuah A, Sinclair AJ. Solid waste management in western Canadian First Nations. *Waste Management*. 2021 Jun;129:54-61. Available from: <https://www.sciencedirect.com/science/article/pii/S0956053X21002671>.
2. forthcoming. Experience of Wisahkotewinowak—an urban Indigenous garden collective based in the Waterloo-Wellington region of Southwestern Ontario [case study]. Canadian Institute for Climate Choices; 2021 [updated MayApr]; Available from: <https://climatechoices.ca/green-is-the-new-grey/>.
3. Frost K. Climate Change Is Melting Arctic Ice Cellars. *Civil Eats*. 2021 Jun 1. Available from: https://civileats.com/2021/06/01/climate-change-is-melting-arctic-ice-cellars/?ct=t%28RSS_EMAIL_CAMPAIGN%29.
4. Hillier SA, Taleb A, Chaccour E, Aenishaenslin C. Examining the concept of One Health for indigenous communities: A systematic review. *One Health*. 2021 Jun;12:100248. Available from: <https://www.sciencedirect.com/science/article/pii/S2352771421000380>.
5. Howard-Bobiwash HA, Joe JR, Lobo S. Concrete Lessons: Policies and Practices Affecting the Impact of COVID-19 for Urban Indigenous Communities in the United States and Canada. *Frontiers in sociology*. 2021;6:612029-. Available from: <https://pubmed.ncbi.nlm.nih.gov/33969048>.
6. Merriam A. Indigenous Food Sovereignty in Canada: Exploring Practices, Intersections, and Lessons for Policy. Victoria, BC: University of Victoria; 2021. Available from: <http://dspace.library.uvic.ca/handle/1828/12834>.

7. Natcher D, Owens-Beek N, Bogdan A-M, Lu X, Li M, Ingram S, et al. Scenario planning tools for mitigating industrial impacts on First Nations subsistence economies in British Columbia, Canada. *Sustainability Science*. 2021 May. Available from: <https://doi.org/10.1007/s11625-021-00969-0>.
8. National Collaborating Centre for Healthy Public Policy, Leason J. What is reconciliation? And what does it mean for public health in Canada? Montreal, QC: NCCCHPP; 2020 Oct 6. Available from: <https://www.youtube.com/watch?v=TSMNQ4caWsw>.
9. Nelson SE, Rosenberg MW. Age-Friendly Cities and Older Indigenous People: An Exploratory Study in Prince George, Canada. *Canadian Journal on Aging / La Revue canadienne du vieillissement*. 2021;1-10. Available from: <https://www.cambridge.org/core/article/agefriendly-cities-and-older-indigenous-people-an-exploratory-study-in-prince-george-canada/201E945C4FA44C4D6129DF82736DA726>.
10. O’Gorman M. Mental and physical health impacts of water/sanitation infrastructure in First Nations communities in Canada: An analysis of the Regional Health Survey. *World Development*. 2021 Sep;145:105517. Available from: <https://www.sciencedirect.com/science/article/pii/S0305750X21001297>.
11. Ratelle M, Garcia-Barrios J. Toxic, long-lasting contaminants detected in people living in northern Canada. *The Conversation*. 2021 Jun 13. Available from: [https://theconversation.com/toxic-long-lasting-contaminants-detected-in-people-living-in-northern-canada-141256?ct=t\(RSS_EMAIL_CAMPAIGN\)](https://theconversation.com/toxic-long-lasting-contaminants-detected-in-people-living-in-northern-canada-141256?ct=t(RSS_EMAIL_CAMPAIGN)).
12. Richmond C, Kerr RB, Neufeld H, Steckley M, Wilson K, Dokis B. Supporting food security for Indigenous families through the restoration of Indigenous foodways. *The Canadian Geographer / Le Géographe canadien*. 2021;65(1):97-109. Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/cag.12677>.
13. Sehlin MacNeil K, Daniels-Mayes S, Akbar S, Marsh J, Wik-Karlsson J, Össbo Å. Social Life Cycle Assessment Used in Indigenous Contexts: A Critical Analysis. *Sustainability*. 2021;13(9):5158. Available from: <https://www.mdpi.com/2071-1050/13/9/5158>.
14. Tengö M, Austin BJ, Danielsen F, Fernández-Llamazares Á. Creating Synergies between Citizen Science and Indigenous and Local Knowledge. *Bioscience*. 2021;71(5):503-18. Available from: <https://doi.org/10.1093/biosci/biab023>.
15. United Nations. UN research roadmap for the COVID-19 recovery: UN; 2020 Apr. Available from: <https://cihr-irsc.gc.ca/e/52101.html>.

AGRICULTURAL OPERATIONS

1. Buscaroli E, Braschi I, Cirillo C, Fargue-Lelièvre A, Modarelli GC, Pennisi G, et al. Reviewing chemical and biological risks in urban agriculture: A comprehensive framework for a food safety assessment of city region food systems. *Food Control*. 2021;126. Available from: <https://doi.org/10.1016/j.foodcont.2021.108085>.
2. Chow A. Growing resilience and promoting health through urban agriculture [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 Jun 16. Available from: <https://ncceh.ca/content/blog/growing-resilience-and-promoting-health-through-urban-agriculture>.
3. Soma T, Kozhikode R, Krishnan R. Tilling food under: Barriers and opportunities to address the loss of edible food at the farm-level in British Columbia, Canada. *Resources, Conservation & Recycling*. 2021;170. Available from: <https://doi.org/10.1016/j.resconrec.2021.105571>.

4. Wang Y-C, Han M-F, Jia T-P, Hu X-R, Zhu H-Q, Tong Z, et al. Emissions, measurement, and control of odor in livestock farms: A review. *Sci Total Environ.* 2021;776:145735. Available from: <https://doi.org/10.1016/j.scitotenv.2021.145735>.

BIOLOGICAL AGENTS

BUILT ENVIRONMENT

1. Anderson V, Gough WA, Agic B. Nature-Based Equity: An Assessment of the Public Health Impacts of Green Infrastructure in Ontario Canada. *Int J Environ Res Public Health.* 2021;18(11):5763. Available from: <https://www.mdpi.com/1660-4601/18/11/5763>.
2. Arning K, Offermann-van Heek J, Ziefle M. What drives public acceptance of sustainable CO₂-derived building materials? A conjoint-analysis of eco-benefits vs. health concerns. *Renew Sust Energ Rev.* 2021;144. Available from: <https://doi.org/10.1016/j.rser.2021.110873>.
3. Bliss L. Lyft's New E-Bike Aims to Conquer the Post-Pandemic City. Bloomberg Citylab. 2021 Jun 2. Available from: <https://www.bloomberg.com/news/articles/2021-06-02/lyft-launches-an-e-bike-for-the-post-covid-commute?srnd=citylab>.
4. Bourque J, Olmsted P, Patel O, Samson R. Green is the new grey. Natural infrastructure provides big value with multiple climate, environmental and social benefits. Canadian Institute for Climate Choices; 2021 [updated May]; Available from: <https://climatechoices.ca/green-is-the-new-grey/>.
5. Bourque J, Samson R, Arnold J, Clark D, Phillips PW. Growing forests in a city [case study]. Canadian Institute for Climate Choices; 2021 [May]; Available from: https://climatechoices.ca/wp-content/uploads/2021/05/Urban-Trees-study_May11b.pdf.
6. European Commission. Urban Observatory for Multi-participatory Enhancement of Health and Wellbeing [Urbanome]: European Commission; 2021. Available from: <https://cordis.europa.eu/project/id/945391>.
7. Firth CL, Stephens ZP, Cantinotti M, Fuller D, Kestens Y, Winters M. Successes and failures of built environment interventions: Using concept mapping to assess stakeholder perspectives in four Canadian cities. *Soc Sci Med.* 2021 Jan;268:113383. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32980679>.
8. Firth CL, Thierry B, Fuller D, Winters M, Kestens Y. Gentrification, Urban Interventions and Equity (GENUINE): A map-based gentrification tool for Canadian metropolitan areas. *Health Rep.* 2021 May 19. Available from: <https://www150.statcan.gc.ca/n1/pub/82-003-x/2021005/article/00002-eng.htm>.
9. Frehlich L, Christie C, Ronksley P, Turin TC, Doyle-Baker P, McCormack G. The association between neighborhood built environment and health-related fitness: a systematic review protocol. *JBI Evid Synth.* 2021 May 14. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33993146>.
10. Gan DRY, Chaudhury H, Mann J, Wister AV. Dementia-friendly neighbourhood and the built environment: A scoping review. *Gerontologist.* 2021 Feb 10. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33564829>.
11. Glover TD. Healthy Garden Plots? Harvesting Stories of Social Connectedness from Community Gardens. *Int J Environ Res Public Health.* 2021;18(11):5747. Available from: <https://www.mdpi.com/1660-4601/18/11/5747>.

12. Grazuleviciene R, Andrusaityte S, Dédélé A, Grazulevicius T, Valius L, Rapalavicius A, et al. Urban Environment and Health: A Cross-Sectional Study of the Influence of Environmental Quality and Physical Activity on Blood Pressure. *Int J Environ Res Public Health*. 2021;18(11):6126. Available from: <https://www.mdpi.com/1660-4601/18/11/6126>.
13. Harper NJ, Fernee CR, Gabrielsen LE. Nature's Role in Outdoor Therapies: An Umbrella Review. *Int J Environ Res Public Health*. 2021;18(10):5117. Available from: <https://www.mdpi.com/1660-4601/18/10/5117>.
14. Jones RH. In Search of Slowness : a study slowness in relation to the built environment. Vancouver, BC: University of British Columbia; 2021. Available from: <https://open.library.ubc.ca/cIRcle/collections/graduateresearch/42591/items/1.0397287>.
15. Kakderi C, Oikonomaki E, Papadaki I. Building Smart and Resilient Urban Futures by Setting a Mission for Sustainability in the Post COVID-19 Era. Preprints. 2021 May. Available from: <https://www.preprints.org/manuscript/202105.0184/v1>.
16. Lee C. Making Space for Physical Distancing in Canada's Urban Centers: A Case Study of Vancouver's Slow Streets. Kingston, ON: Queen's University; 2021. Available from: <https://qspace.library.queensu.ca/handle/1974/28855>.
17. Lotoski L, Fuller D, Stanley KG, Rainham D, Muhajarine N. The Effect of Season and Neighbourhood-Built Environment on Home Area Sedentary Behaviour in 9-14 Year Old Children. *Int J Environ Res Public Health*. 2021 Feb 18;18(4). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33670599>.
18. Morawska L, Miller W, Riley M, Vardoulakis S, Zhu Y-G, Marks GB, et al. Towards Urbanome the genome of the city to enhance the form and function of future cities. *Nature Communications*. 2019 Sep;10(1):4014. Available from: <https://doi.org/10.1038/s41467-019-11972-6>.
19. Münzel T, Sørensen M, Lelieveld J, Hahad O, Al-Kindi S, Nieuwenhuijsen M, et al. Heart healthy cities: genetics loads the gun but the environment pulls the trigger. *Eur Heart J*. 2021. Available from: <https://doi.org/10.1093/eurheartj/ehab235>.
20. Nguemeni Tiako MJ, Stokes DC. Who is Biking for? Urban Bikeshare Networks' Responses to the COVID-19 Pandemic, Disparities in Bikeshare Access, and a Way Forward. *The Yale journal of biology and medicine*. 2021;94(1):159-64. Available from: <https://pubmed.ncbi.nlm.nih.gov/33795993>.
21. Patel S, Monahan K, Samson R, Arnold J, Bourque J, Phillips PW, et al. Can green roofs help cities respond to climate change? [case study]. Canadian Institute for Climate Choices; 2021 [updated MayApr]; Available from: https://climatechoices.ca/wp-content/uploads/2021/04/GreenRoofs-study_April26_EN_Final.pdf.
22. Pinault L, Christidis T, Toyib O, Crouse DL. Ethnocultural and socioeconomic disparities in exposure to residential greenness within urban Canada. *Health Rep*. 2021 May 19. Available from: <https://www150.statcan.gc.ca/n1/pub/82-003-x/2021005/article/00001-eng.htm>.
23. Rothman L, Hagel B, Howard A, Cloutier MS, Macpherson A, Aguirre AN, et al. Active school transportation and the built environment across Canadian cities: Findings from the child active transportation safety and the environment (CHASE) study. *Prev Med*. 2021 May;146:106470. Available from: <https://www.sciencedirect.com/science/article/pii/S0091743521000542>.
24. Samson R, Arnold J, Ness R, Clark D. Enhancing community resilience as wildfire risk increases [case study]. Canadian Institute for Climate Choices; 2020 [updated May]; Available from: <https://climatechoices.ca/wp-content/uploads/2020/03/CICC-Enhancing-Community-Resilience-Wildfire-Risk.pdf>.

25. Smolova D, Friedman A. Potential Use of Indoor Living Walls in Canadian Dwellings. *J.* 2021;4(2):116-30. Available from: <https://www.mdpi.com/2571-8800/4/2/10>.

CHEMICAL AGENTS – METALS, GENERAL

General

- González N, Esplugas R, Marquès M, Domingo JL. Concentrations of arsenic and vanadium in environmental and biological samples collected in the neighborhood of petrochemical industries: A review of the scientific literature. *Sci Total Environ.* 2021;771:145149. Available from: <https://doi.org/10.1016/j.scitotenv.2021.145149>.
- Hillyer M, Matiz LA, Robbins-Milne L, Friedman S. Who to Test? A Retrospective Study of Lead Testing in High-Risk Children. *Clin Pediatr (Phila).* 2021;60(6-7):267-72. Available from: <https://doi.org/10.1177%2F00099228211008286>.
- Office of the Prime Minister's Chief Science Advisor. Fluoridation: an update on evidence. NZ: Government of New Zealand; 2021 Jun. Available from: <https://www.pmcsa.ac.nz/topics/fluoridation-an-update-on-evidence/>.
- Pawlak F, Koziol K, Polkowska Z. Chemical hazard in glacial melt? The glacial system as a secondary source of POPs (in the Northern Hemisphere). A systematic review. *Sci Total Environ.* 2021;778:145244. Available from: <https://doi.org/10.1016/j.scitotenv.2021.145244>.
- Valcke M, Bourgault M-H, Gagné M, Levallois P. A probabilistic toxicokinetic modeling approach to the assessment of the impact of daily variations of lead concentrations in tap water from schools and daycares on blood lead levels in children. *Sci Total Environ.* 2021;775. Available from: <https://doi.org/10.1016/j.scitotenv.2021.145866>.
- Wright ME, Ginsberg C, Parkison AM, Dubose M, Shores E. Outcomes of mothers and newborns to prenatal exposure to kratom: a systematic review. *J Perinatol.* 2021 Feb. Available from: <https://doi.org/10.1038/s41372-021-00952-8>.

BPA

- Barile FA, Berry SC, Blaauboer B, Boobis A, Bolt H, Borgert CJ, et al. Corrigendum to “Critique of the “Comment” entitled “Pyrethroid exposure: not so harmless after all” by Demeneix et al. (2020) published in the *lancet diabetes endocrinology*”. *Toxicology letters.* 2021;346:57. Available from: <https://doi.org/10.1016/j.toxlet.2021.03.008>.
- Garcia-Barrios J, Drysdale M, Ratelle M, Gaudreau É, LeBlanc A, Gamberg M, et al. Biomarkers of poly- and perfluoroalkyl substances (PFAS) in Sub-Arctic and Arctic communities in Canada. *Int J Hyg Environ Health.* 2021 Jun;235:113754. Available from: <https://www.sciencedirect.com/science/article/pii/S1438463921000699>.
- Hou R, Lin L, Li H, Liu S, Xu X, Xu Y, et al. Occurrence, bioaccumulation, fate, and risk assessment of novel brominated flame retardants (NBFRs) in aquatic environments - A critical review. *Water Res.* 2021;198:117168. Available from: <https://doi.org/10.1016/j.watres.2021.117168>.
- Huang S, Qi Z, Ma S, Li G, Long C, Yu Y. A critical review on human internal exposure of phthalate metabolites and the associated health risks. *Environmental pollution (Barking, Essex : 1987).* 2021;279:116941. Available from: <https://doi.org/10.1016/j.envpol.2021.116941>.
- Rodgers KM, Bennett D, Moran R, Knox K, Stoiber T, Gill R, et al. Do flame retardant concentrations change in dust after older upholstered furniture is replaced? *Environ Int.* 2021;153. Available from: <https://doi.org/10.1016/j.envint.2021.106513>.

6. Strakova J, Schneider J, Cingotti N, Bennett A, den Boer A, Brabcová K, et al. Throwing away packaging, forever chemicals. European-wide survey of PFAS in disposable food packaging and tableware. Czech Republic: Arnika with Health and Environment Alliance (HEAL), CHEM Trust, BUND, IPEN, Tegengif, Client Earth, Forbruggeradet Taenk, and Generations Futures; 2021 May. Available from: https://www.env-health.org/wp-content/uploads/2021/05/FINAL_pfas_fcm_study_web.pdf.

Crumb Rubber

1. Celeiro M, Armada D, Dagnac T, de Boer J, Llompart M. Hazardous compounds in recreational and urban recycled surfaces made from crumb rubber. Compliance with current regulation and future perspectives. *Sci Total Environ*. 2021 Feb 10;755(Pt 1):142566. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33039888>.
2. Celeiro M, Armada D, Ratola N, Dagnac T, de Boer J, Llompart M. Evaluation of chemicals of environmental concern in crumb rubber and water leachates from several types of synthetic turf football pitches. *Chemosphere*. 2021 May;270:128610. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33121811>.
3. Gomes FO, Rocha MR, Alves A, Ratola N. A review of potentially harmful chemicals in crumb rubber used in synthetic football pitches. *J Hazard Mater*. 2021 May 5;409:124998. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33513533>.
4. LaPlaca SB, van den Hurk P. Toxicological effects of micronized tire crumb rubber on mummichog (*Fundulus heteroclitus*) and fathead minnow (*Pimephales promelas*). *Ecotoxicology*. 2020 Jul;29(5):524-34. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32342294>.

CHEMICAL AGENTS – PESTICIDES

1. Castiello F, Freire C. Exposure to non-persistent pesticides and puberty timing: a systematic review of the epidemiological evidence. *Eur J Endocrinol*. 2021;184(6):733-49. Available from: <https://doi.org/10.1530/EJE-20-1038>.
2. Craven CB, Birjandi AP, Simons B, Jiang P, Li X-F. Determination of eighty-two pesticides and application to screening pesticides in cannabis growing facilities. *Journal of Environmental Sciences (Elsevier)*. 2021;104:11-6. Available from: <https://doi.org/10.1016/j.jes.2020.11.004>.

CHEMICAL AGENTS – SHALE GAS

CHILDREN'S ENVIRONMENTAL HEALTH

1. Sordillo JE, Cardenas A, Qi C, Rifas-Shiman SL, Coull B, Luttmann-Gibson H, et al. Residential PM2.5 exposure and the nasal methylome in children. *Environ Int*. 2021;153. Available from: <https://doi.org/10.1016/j.envint.2021.106505>.
2. Donato S, Carla C. The Role of Neighbourhood Landscape Characteristics in Facilitating Outdoor Play During the COVID-19 Outbreak. Guelph, ON: University of Guelph, School of Environmental Design and Rural Development; 2021. Available from: <https://atrium.lib.uoguelph.ca/xmlui/handle/10214/25780>.
3. Rothman L, Hagel B, Howard A, Cloutier MS, Macpherson A, Aguirre AN, et al. Active school transportation and the built environment across Canadian cities: Findings from the child active transportation safety and the environment (CHASE) study. *Prev Med*. 2021

2021/05/01/;146:106470. Available from:

<https://www.sciencedirect.com/science/article/pii/S0091743521000542>.

4. van de Weijer MP, Baselmans BML, Hottenga J-J, Dolan CV, Willemsen G, Bartels M. Expanding the environmental scope: an environment-wide association study for mental well-being. *J Expo Sci Environ Epidemiol*. 2021 2021/06/14. Available from: <https://doi.org/10.1038/s41370-021-00346-0>.

CLIMATE CHANGE

1. Alessio HM, Bassett DR, Bopp MJ, Parr BB, Patch GS, Rankin JW, et al. Climate Change, Air Pollution, and Physical Inactivity: Is Active Transportation Part of the Solution? *Med Sci Sports*. 2021;53(6):1170-8. Available from: <https://doi.org/10.1249/mss.0000000000002569>.
2. Anderson V, Gough WA. Nature-based cooling potential: a multi-type green infrastructure evaluation in Toronto, Ontario, Canada. *Int J Biometeorol*. 2021 Mar 30. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33783637>.
3. Birchall SJ, Bonnett N. Climate change adaptation policy and practice: The role of agents, institutions and systems. *Cities*. 2021;108. Available from: <https://doi.org/10.1016/j.cities.2020.103001>.
4. Choi C, Berry P, Smith A. The climate benefits, co-benefits, and trade-offs of green infrastructure: A systematic literature review. *J Environ Manage*. 2021 Aug 1;291:112583. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33932834>.
5. Clark DG, Ness R, Coffman D, Beugin D. The health costs of climate change. How Canada can adapt, prepare, and save lives: Canadian Institute for Climate Choices; 2021 Jun. Available from: <https://climatechoices.ca/reports/the-health-costs-of-climate-change/>.
6. Clark DG, Ness R, Coffman D, Beugin D. Executive summary: The health costs of climate change. How Canada can adapt, prepare, and save lives: Canadian Institute for Climate Choices; 2021 Jun. Available from: https://climatechoices.ca/wp-content/uploads/2021/06/ClimateChoices_Health-Report_-_Summary_June2021.pdf.
7. Dion J, A, Kanduth A, Moorhouse J, Beugin D. Canada's Net Zero Future: Finding our way in the global transition: Canadian Institute for Climate Choices; 2021 Feb. Available from: https://climatechoices.ca/wp-content/uploads/2021/02/Canadas-Net-Zero-Future_FINAL-2.pdf.
8. Environment and Climate Change Canada. \$54.9 million in climate action funding for 58 community-based climate action projects. Ottawa, ON: Government of Canada; 2021 Jun 4. Available from: <https://www.canada.ca/en/environment-climate-change/news/2021/06/549-million-in-climate-action-funding-for-58-community-based-climate-action-projects.html>.
9. Environmental Health and Equity Collaborative. Climate effects and environmental health. Washington, DC: American Public Health Association; 2021 May. Available from: https://apha.org/-/media/Files/PDF/topics/environment/Partners/EHC_Fact_Sheet_Climate_Change.ashx.
10. Gislason MK, Galway L, Buse C, Parkes M, Rees E. Place-based Climate Change Communication and Engagement in Canada's Provincial North: Lessons Learned from Climate Champions. *Environmental Communication*. 2021;15(4):530-45. Available from: <https://doi.org/10.1080/17524032.2020.1869576>.
11. Harper SL, Cunsolo A, Babujee A, Coggins S, Aguilar MD, Wright CJ. Climate change and health in North America: literature review protocol. *Syst Rev*. 2021 Jan 4;10(1):3. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33390178>.
12. Harper SL, Cunsolo A, Babujee A, Coggins S, De Jongh E, Rusnak T, et al. Trends and gaps in climate change and health research in North America. *Environ Res*. 2021 May 4;199:111205. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33961824>.

13. Liu J, Varghese BM, Hansen A, Xiang J, Zhang Y, Dear K, et al. Is there an association between hot weather and poor mental health outcomes? A systematic review and meta-analysis. *Environ Int.* 2021;153. Available from: <https://doi.org/10.1016/j.envint.2021.106533>.
14. Macfarlane R, Warren S, Charles-Norris KA. Two approaches, one shared learning journey to support climate-health adaptation planning [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 06 11 Jun 11. Available from: <https://nceh.ca/content/blog/two-approaches-one-shared-learning-journey-support-climate-health-adaptation-planning>.
15. Marazziti D, Cianconi P, Mucci F, Foresi L, Chiarantini I, Della Vecchia A. Climate change, environment pollution, COVID-19 pandemic and mental health. *Sci Total Environ.* 2021;773:145182. Available from: <https://doi.org/10.1016/j.scitotenv.2021.145182>.
16. Middleton J, Cunsolo A, Pollock N, Jones-Bitton A, Wood M, Shiwak I, et al. Temperature and place associations with Inuit mental health in the context of climate change. *Environ Res.* 2021 Jul;198:111166. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33857460>.
17. National Collaborating Centre for Determinants of Health, Muzumdar P. Climate change resilience part 1: COVID-19 underscores the need to address inequity and transform systems. Halifax, NS: NCCDH, St Xavier University,; 2021 Apr 30. Available from: <https://nccdh.ca/blog/entry/climate-change-resilience-part-1>.
18. Parsa MS, Golab L, Keshav S. Climate Action During COVID-19 Recovery and Beyond: A Twitter Text Mining Study. *SBP-BRiMS2021*. Available from: <https://arxiv.org/abs/2105.12190>.
19. Sarigiannis D. Climate change and environmental degradation “give birth” to new pandemics. Athina. 2021 [Jun 5]; Available from: <https://www.athina984.gr/en/2021/06/05/d-sarigiannis-i-klimatiki-allagi-kai-i-ypovathmisi-toy-perivallontos-gennoy-n-ees-pandimies/>.
20. Sawyer D, Ness R, Clark DG, Beugin D. Tip of the iceberg: Navigating the known and unknown costs of climate change for Canada: Canadian Institute for Climate Choices; 2020 Dec. Available from: <https://climatechoices.ca/reports/tip-of-the-iceberg/>.
21. Shim GW. Future of Canadian Air Quality and Related Health Benefits from Climate Change Mitigation. Waterloo, ON: University of Waterloo; 2021. Available from: <https://uwspace.uwaterloo.ca/handle/10012/17011>.
22. Teotónio I, Silva CM, Cruz CO. Economics of green roofs and green walls: A literature review. *Sustainable Cities and Society.* 2021 Jun;69:102781. Available from: <https://www.sciencedirect.com/science/article/pii/S2210670721000731>.
23. Tolsma K. Advancing Nature-based Solutions and Green Infrastructure: The Case of Metropolitan Vancouver Burnaby, BC: Simon Fraser University; 2021. Available from: http://rem-main.rem.sfu.ca/theses/TolsmaKacia_2021_MRM.pdf.
24. Zisis E, Hakimi S, Lee EY. Climate change, 24-hour movement behaviors, and health: a mini umbrella review. *Glob Health Res Policy.* 2021 Apr 29;6(1):15. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33926579>.

COMMUNICABLE AND INFECTIOUS DISEASES

See **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)

DRINKING WATER

1. Yuan J, Chen Z, Ding S, Zhang Q, Jia Y. Application of an Environmental Multimedia Modeling System for Health Risk Assessment: Key Influencing Factors and Uncertainties Research. *Integr Environ Assess Manag*. 2021 Jan 6. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33410257>.
2. Zhang Y, Husk BR, Duy SV, Dinh QT, Sanchez JS, Sauvé S, et al. Quantitative screening for cyanotoxins in soil and groundwater of agricultural watersheds in Quebec, Canada. *Chemosphere*. 2021;274. Available from: <https://doi.org/10.1016/j.chemosphere.2021.129781>.

EMERGENCY PREPAREDNESS

1. Tan C, Fraser T. COVID-19 To Go? The Role of Disasters and Evacuation in the COVID-19 Pandemic. SSRN. 2021 Apr 29. Available from: <http://dx.doi.org/10.2139/ssrn.3836258>.
2. US Federal Emergency Management Association. Recommended Options for Improving the Built Environment for Post-Earthquake Reoccupancy and Functional Recovery Time. Washington, DC: FEMA; 2021 Jan. Available from: https://www.fema.gov/sites/default/files/documents/fema_p-2090_nist_sp-1254_functional-recovery_01-01-2021.pdf.

ENVIRONMENTAL HEALTH SURVEILLANCE

1. Drysdale M, Ratelle M, Skinner K, Garcia-Barríos J, Gamberg M, Williams M, et al. Human biomonitoring results of contaminant and nutrient biomarkers in Old Crow, Yukon, Canada. *Sci Total Environ*. 2021 Mar;760:143339. Available from: <https://www.sciencedirect.com/science/article/pii/S0048969720368704>.
2. Genome Canada Canadian C-GN, the Canadian Public Health Laboratory Network Can CWG. Canadian national COVID-19 genomics surveillance priorities for existing and emerging variants of concern. *Can Commun Dis Rep*. 2021 Mar 31;47(3):139-41. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34012337>.

ENVIRONMENTAL PLANNING

1. Donato S, Carla C. The Role of Neighbourhood Landscape Characteristics in Facilitating Outdoor Play During the COVID-19 Outbreak. Guelph, ON: University of Guelph, School of Environmental Design and Rural Development; 2021. Available from: <https://atrium.lib.uoguelph.ca/xmlui/handle/10214/25780>.
2. Kehoe LJ, Lund J, Chalifour L, Asadian Y, Balke E, Boyd S, et al. Conservation in heavily urbanized biodiverse regions requires urgent management action and attention to governance. *Conservation Science and Practice*. 2021;3(2):e310. Available from: <https://conbio.onlinelibrary.wiley.com/doi/abs/10.1111/csp2.310>.
3. Mueller N, Daher C, Rojas-Rueda D, Delgado L, Vicioso H, Gascon M, et al. Integrating health indicators into urban and transport planning: A narrative literature review and participatory process. *Int J Hyg Environ Health*. 2021 Jun;235:113772. Available from: <https://www.sciencedirect.com/science/article/pii/S1438463921000870>.

FOOD

Safety

1. Bonaccorsi G, Garamella G, Cavallo G, Lorini C. A Systematic Review of Risk Assessment Associated with Jellyfish Consumption as a Potential Novel Food. *Foods*. 2020;9(7):935. Available from: <https://www.mdpi.com/2304-8158/9/7/935>.
2. Charlebois S, Music J, Faires S. The Impact of COVID-19 on Canada's Food Literacy: Results of a Cross-National Survey. *Int J Environ Res Public Health*. 2021;18(10):5485. Available from: <https://www.mdpi.com/1660-4601/18/10/5485>.
3. La Vieille S, Gillespie Z, Bonvalot Y, Benkhedda K, Grinberg N, Rotstein J, et al. Caffeinated Energy Drinks in the Canadian Context: Health Risk Assessment with a Focus on Cardiovascular Effects. *Appl Physiol Nutr Metab*. 2021 May 17. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34000209>.
4. Mukherjee K, Rowan M, Fattori V. How is climate change affecting the safety of our food? *Food Safety*. 2021 June-July. Available from: https://digitaledition.food-safety.com/june-july-2021/feature-climate/?oly_enc_id=5390A5397667E0Z.
5. Singh H, Bhardwaj SK, Khatri M, Kim K-H, Bhardwaj N. UVC radiation for food safety: An emerging technology for the microbial disinfection of food products. *Chemical Engineering Journal*. 2021;417. Available from: <https://doi.org/10.1016/j.cej.2020.128084>.
6. US Food and Drug Administration. Technical report: FDA report on the occurrence of foodborne illness risk factors in retail food store deli departments 2015-2016. White Oaks, MD: FDA, U.S. Department of Health and Human Services; 2021 May. Available from: https://www.fda.gov/media/148247/download?utm_medium=email&utm_source=govdelivery.
7. Zwietering MH, Garre A, Wiedmann M, Buchanan RL. All food processes have a residual risk, some are small, some very small and some are extremely small: zero risk does not exist. *Current Opinion in Food Science*. 2021 Jun;39:83-92. Available from: <https://www.sciencedirect.com/science/article/pii/S2214799320301739>.

GENERAL

1. Carpenter JE, Murray BP, Moran TP, Dunkley CA, Layer MR, Geller RJ. Poisonings due to storage in a secondary container reported to the National Poison Data System, 2007–2017. *Clin Toxicol*. 2021;59(6):521-7. Available from: <https://doi.org/10.1080/15563650.2020.1833026>.
2. Cheung PY, Alshaikh B, Yang C. COVID-19 Pandemic: Different Associative Relationships of City Lockdown With Preterm Births in Three Cities - An Ecological Study. *Front Pediatr*. 2021;9:644771. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33937150>.
3. Ho J, Hussain S, Sparagano O. Did the COVID-19 Pandemic Spark a Public Interest in Pet Adoption? *Front Vet Sci*. 2021;8:647308. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34046443>.
4. Khorram-Manesh A, Dulebenets MA, Goniewicz K. Implementing Public Health Strategies—The Need for Educational Initiatives: A Systematic Review. *Int J Environ Res Public Health*. 2021;18(11):5888. Available from: <https://www.mdpi.com/1660-4601/18/11/5888>.
5. Matthews M, Rice F, Quan T. Responsible innovation in Canada and beyond. Understanding and improving the social impacts of technology. Ottawa, ON: Information and Communications Technology Council; 2021. Available from: https://www.ictc-ctic.ca/wp-content/uploads/2021/01/ICTC_Report_SocialImpact_Print.pdf.

6. Schäffer B, Pieren R, Heutschi K, Wunderli JM, Becker S. Drone Noise Emission Characteristics and Noise Effects on Humans—A Systematic Review. *Int J Environ Res Public Health*. 2021;18(11):5940. Available from: <https://www.mdpi.com/1660-4601/18/11/5940>.

HEALTH EQUITY

1. Ahmed J, Jaman MH, Saha G, Ghosh P. Effect of environmental and socio-economic factors on the spreading of COVID-19 at 70 cities/provinces. *Heliyon*. 2021 May;7(5):e06979. Available from: <https://doi.org/10.1016/j.heliyon.2021.e06979>.
2. Choi KH, Denice P, Haan M, Zajacova A. Studying the social determinants of COVID-19 in a data vacuum. *Can Rev Sociol*. 2021 May 4. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33942533>.
3. Larios L, Paterson S. Fear of the other: vulnerabilization, social empathy, and the COVID-19 pandemic in Canada. *Critical Policy Studies*. 2021:1-9. Available from: <https://doi.org/10.1080/19460171.2021.1927777>.
4. Marcus ML, Flores FP, Roberts MJ, Johnson A. Why Attention to Complete Streets Implementation Is So Important in Serving Historically Disadvantaged Communities. *Institute of Transportation Engineers ITE Journal*. 2021 May 2021 ;91(5):38-43. Available from: <https://www.proquest.com/docview/2524974903?pq-origsite=gscholar&fromopenview=true>.
5. McKenzie K. Race and ethnicity data collection during COVID-19 in Canada: If you are not counted you cannot count on the pandemic response Royal Society of Canada; 2020 Nov 12. Available from: <https://rsc-src.ca/en/race-and-ethnicity-data-collection-during-covid-19-in-canada-if-you-are-not-counted-you-cannot-count>.
6. National Collaborating Centre for Determinants of Health. Learning together: Living health equity values in public health organizations: A review and dialogue-based tool. Antigonish, NS: NCCDH, St Xavier University,; 2021 Apr 30. Available from: <https://nccdh.ca/blog/entry/climate-change-resilience-part-1>.
7. Valenzuela-Levi N, Echiburu T, Correa J, Hurtubia R, Muñoz JC. Housing and accessibility after the COVID19 pandemic: rebuilding for resilience, equity and sustainable mobility. *Transport Policy*. 2021 May. Available from: <https://www.sciencedirect.com/science/article/pii/S0967070X2100144X>.

HEALTH IMPACT ASSESSMENT

INDOOR AIR

1. Agarwal N, Meena CS, Raj BP, Saini L, Kumar A, Gopalakrishnan N, et al. Indoor air quality improvement in COVID-19 pandemic: Review. *Sustainable cities and society*. 2021;70:102942. Available from: <https://doi.org/10.1016/j.scs.2021.102942>.
2. Al-Harbi M, Alhajri I, Whalen JK. Characteristics and health risk assessment of heavy metal contamination from dust collected on household HVAC air filters. *Chemosphere*. 2021 Aug;277:130276. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33773312>.
3. Aviv D, Chen KW, Teitelbaum E, Sheppard D, Pantelic J, Rysanek A, et al. A fresh (air) look at ventilation for COVID-19: Estimating the global energy savings potential of coupling natural ventilation with novel radiant cooling strategies. *Applied Energy*. 2021;292. Available from: <https://doi.org/10.1016/j.apenergy.2021.116848>.

4. Wang J, Huang J, Feng Z, Cao S-J, Haghghat F. Occupant-density-detection based energy efficient ventilation system: Prevention of infection transmission. *Energy and buildings*. 2021;240:110883. Available from: <https://doi.org/10.1016/j.enbuild.2021.110883>.
5. Yang H, Balakuntala MV, Moser AE, Quiñones JJ, Doosttalab A, Esquivel-Puentes A, et al. Enhancing Safety of Students with Mobile Air Filtration during School Reopening from COVID-19. *ArXiv*. 2021 May. Available from: https://arxiv.org/abs/2104.14418?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+arxiv%2FQ5Xk+%28ExcitingAds%21+cs+updates+on+arXiv.org%29.

NUISANCE CONTROL

OUTDOOR AIR

1. Cowie CT, Wheeler AJ, Tripovich JS, Porta-Cubas A, Dennekamp M, Vardoulakis S, et al. Policy Implications for Protecting Health from the Hazards of Fire Smoke. A Panel Discussion Report from the Workshop Landscape Fire Smoke: Protecting Health in an Era of Escalating Fire Risk. *Int J Environ Res Public Health*. 2021;18(11):5702. Available from: <https://www.mdpi.com/1660-4601/18/11/5702>.
2. Huang J, Jones P, Zhang A, Hou SS, Hang J, Spengler JD. Outdoor Airborne Transmission of Coronavirus Among Apartments in High-Density Cities. *Frontiers in Built Environment*. 2021 May;7(48). Available from: <https://www.frontiersin.org/article/10.3389/fbuil.2021.666923>.
3. Ji B, Zhao Y, Esteve-Núñez A, Liu R, Yang Y, Nzihou A, et al. Where do we stand to oversee the coronaviruses in aqueous and aerosol environment? Characteristics of transmission and possible curb strategies. *Chemical Engineering Journal*. 2021;413. Available from: <https://dx.doi.org/10.1016%2Fj.cej.2020.127522>.
4. Joshua A, Sarah S, Sarah C, Melanie H, Veronica S, Susan A, et al. Air Inequality: Global Divergence in Urban Fine Particulate Matter Trends. *Chem Arxiv*. 2021. Available from: [https://chemrxiv.org/articles/preprint/Air Inequality Global Divergence in Urban Fine Particulate Matter Trends/14671908](https://chemrxiv.org/articles/preprint/Air%20Inequality%20Global%20Divergence%20in%20Urban%20Fine%20Particulate%20Matter%20Trends/14671908).
5. Manzello SL, Suzuki S, McAllister S, Lattimer B, Gorham D, Filkov A, et al. Large Outdoor Fires and the Built Environment (LOF&BE): Summary of Virtual Workshop. Gaithersburg, MD: National Institute of Standards and Technology; 2020 Nov. Available from: <https://www.nist.gov/publications/large-outdoor-fires-and-built-environment-lof&be-summary-virtual-workshop>.
6. Pollack RJ. Discussion: Community evidence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission through air. *Atmospheric Environment* 2020, 118083. *Atmospheric environment (Oxford, England : 1994)*. 2021;254:118336. Available from: <https://doi.org/10.1016/j.atmosenv.2021.118336>.
7. Singh D, Dahiya M, Kumar R, Nanda C. Sensors and systems for air quality assessment monitoring and management: A review. *J Environ Manage*. 2021;289:112510. Available from: <https://doi.org/10.1016/j.jenvman.2021.112510>.
8. Yin H, Brauer M, Zhang J, Cai W, Navrud S, Burnett R, et al. Population ageing and deaths attributable to ambient PM2.5 pollution: a global analysis of economic cost. *The Lancet*

Planetary Health. 2021;5(6):e356-e67. Available from: [https://doi.org/10.1016/S2542-5196\(21\)00131-5](https://doi.org/10.1016/S2542-5196(21)00131-5).

PERSONAL SERVICE ESTABLISHMENTS

PEST CONTROL

PHYSICAL AGENTS

1. Steele D, Guastavino C. Quieted City Sounds during the COVID-19 Pandemic in Montreal. *Int J Environ Res Public Health*. 2021;18(11):5877. Available from: <https://www.mdpi.com/1660-4601/18/11/5877>.

RADIATION

1. Chen J. A discussion on the potential impact of residential radon exposure on the quality of exposure and risk assessment for former uranium miners. *Radiat Environ Biophys*. 2021 Mar;60(1):1-7. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33030687>.
2. Simms JA, Pearson DD, Cholowsky NL, Irvine JL, Nielsen ME, Jacques WR, et al. Younger North Americans are exposed to more radon gas due to occupancy biases within the residential built environment. *Scientific Reports*. 2021 Mar;11(1):6724. Available from: <https://doi.org/10.1038/s41598-021-86096-3>.

RECREATIONAL AND SURFACE WATER

1. Anderson DM, Fensin E, Gobler CJ, Hoeglund AE, Hubbard KA, Kulis DM, et al. Marine harmful algal blooms (HABs) in the United States: History, current status and future trends. *Harmful Algae*. 2021 Feb;102:101975. Available from: <https://www.sciencedirect.com/science/article/pii/S1568988321000020>.
2. Bates SS, Beach DG, Comeau LA, Haigh N, Lewis NI, Locke A, et al. Marine harmful algal blooms and phycotoxins of concern to Canada. Moncton, NB: Fisheries and Oceans Canada; 2020. Available from: <https://waves-vagues.dfo-mpo.gc.ca/Library/4088319x.pdf>.
3. Hallegraeff G, Enevoldsen H, Zingone A. Global harmful algal bloom status reporting. *Harmful Algae*. 2021 Feb;102:101992. Available from: <https://www.sciencedirect.com/science/article/pii/S1568988321000196>.
4. McKenzie CH, Bates SS, Martin JL, Haigh N, Howland KL, Lewis NI, et al. Three decades of Canadian marine harmful algal events: Phytoplankton and phycotoxins of concern to human and ecosystem health. *Harmful Algae*. 2021 Feb;102:101852. Available from: <https://www.sciencedirect.com/science/article/pii/S1568988320301311>.
5. Metcalf JS, Souza NR. Potential risks from cyanobacterial and algal blooms. In: Lemery J, Knowlton K, Sorensen C, editors. *Global Climate Change and Human Health: From Science to Practice* (2nd ed): Jossey Bass; 2021. Available from: <https://www.wiley.com/en->

[ca/Global+Climate+Change+and+Human+Health%3A+From+Science+to+Practice%2C+2nd+Edition-p-9781119667957.](https://doi.org/10.1177/11786302211014401)

6. Petterson S, Li Q, Ashbolt N. Screening Level Risk Assessment (SLRA) of human health risks from faecal pathogens associated with a Natural Swimming Pond (NSP). *Water Res.* 2021 Jan 1;188:116501. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33091804>.
7. Rashidi H, Baulch H, Gill A, Bharadwaj L, Bradford L. Monitoring, Managing, and Communicating Risk of Harmful Algal Blooms (HABs) in Recreational Resources across Canada. *Environmental Health Insights.* 2021;15:11786302211014401. Available from: <https://journals.sagepub.com/doi/abs/10.1177/11786302211014401>.

RISK ASSESSMENT, COMMUNICATION

1. De Coninck D, Frissen T, Matthijs K, d'Haenens L, Lits G, Champagne-Poirier O, et al. Beliefs in Conspiracy Theories and Misinformation About COVID-19: Comparative Perspectives on the Role of Anxiety, Depression and Exposure to and Trust in Information Sources. *Front Psychol.* 2021;12:646394. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33935904>.
2. Munroe-Lynds C-L. Public Perceptions of the Canadian Government's Initial Response to Coronavirus: A Canadian Broadcasting Company Content Analysis. *Dalhousie Journal of Interdisciplinary Management.* 2021;16. Available from: <https://ojs.library.dal.ca/djim/article/view/10882>.
3. Wu X, Nazari N, Griffiths MD. Using Fear and Anxiety Related to COVID-19 to Predict Cyberchondria: Cross-sectional Survey Study. *J Med Internet Res.* 2021 2021/6/9;23(6):e26285. Available from: <https://doi.org/10.2196/26285>.
4. Yousefinaghani S, Dara R, Mubareka S, Sharif S. Prediction of COVID-19 Waves Using Social Media and Google Search: A Case Study of the US and Canada. *Front Public Health.* 2021;9:656635. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33937179>.

SENIORS' ENVIRONMENTAL HEALTH

1. Chu CH, Wang J, Fukui C, Staudacher S, P AW, Wu B. The Impact of COVID-19 on Social Isolation in Long-term Care Homes: Perspectives of Policies and Strategies from Six Countries. *J Aging Soc Policy.* 2021 May 9:1-15. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33969815>.
2. Clarke J. Impacts of the COVID-19 pandemic in nursing and residential care facilities in Canada. Ottawa, ON: Statistics Canada; 2021 Jun. Available from: <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2021001/article/00025-eng.htm>.
3. Costa AP, Manis DR, Jones A, Stall NM, Brown KA, Boscart VR, et al. Risk factors for outbreaks of SARS-CoV-2 infection at retirement homes in Ontario, Canada: a population-level cohort study. *Can Med Assoc J.* 2021 May;193(19):E672-E80. Available from: <https://www.cmaj.ca/content/cmaj/193/19/E672.full.pdf>.
4. Gan DRY, Chaudhury H, Mann J, Wister AV. Dementia-Friendly Neighborhood and the Built Environment: A Scoping Review. *The Gerontologist.* 2021. Available from: <https://doi.org/10.1093/geront/gnab019>.
5. Rapoport MJ, Chee JN, Aljenabi N, Byrne PA, Naglie G, Ilari F, et al. Impact of COVID-19 on motor vehicle injuries and fatalities in older adults in Ontario, Canada. *Accid Anal Prev.* 2021 Jul;157:106195. Available from: <https://www.sciencedirect.com/science/article/pii/S0001457521002268>.

6. Shapira S, Yeshua-Katz D, Cohn-Schwartz E, Aharonson-Daniel L, Sarid O, Clarfield AM. A pilot randomized controlled trial of a group intervention via Zoom to relieve loneliness and depressive symptoms among older persons during the COVID-19 outbreak. *Internet Interv.* 2021 Apr;24:100368. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33527072>.
7. Shapira S, Yeshua-Katz D, Goren G, Aharonson-Daniel L, Clarfield AM, Sarid O. Evaluation of a Short-Term Digital Group Intervention to Relieve Mental Distress and Promote Well-Being Among Community-Dwelling Older Individuals During the COVID-19 Outbreak: A Study Protocol. *Front Public Health.* 2021;9:577079. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33898369>.
8. Wang Q, Liu JKK, Walsh CA. Identities: experiences and impacts of the COVID-19 pandemic from the perspectives of older Chinese immigrants in Canada. *China Journal of Social Work.* 2021:1-19. Available from: <https://doi.org/10.1080/17525098.2021.1923544>.

TOBACCO, CANNABIS

1. Canadian Public Health Association. Tobacco and Vaping Use in Canada: Moving Forward. Ottawa, ON: CPHA; 2021 May 31. Available from: https://www.cpha.ca/tobacco-and-vaping-use-canada-moving-forward?utm_source=CPHA+Weekly+Update&utm_campaign=36e3cfd5d4-EMAIL_CAMPAGN_2019_12_12_04_17_COPY_01&utm_medium=email&utm_term=0_5a537eba78-36e3cfd5d4-164529259.
2. Craven CB, Birjandi AP, Simons B, Jiang P, Li X-F. Determination of eighty-two pesticides and application to screening pesticides in cannabis growing facilities. *Journal of Environmental Sciences (Elsevier).* 2021;104:11-6. Available from: <https://doi.org/10.1016/j.jes.2020.11.004>.
3. Eykelbosh A. Unregulated cannabis: Risky production practices raise concern for consumers [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 Jun 8. Available from: <https://ncceh.ca/content/blog/unregulated-cannabis-risky-production-practices-raise-concern-consumers>.
4. Fletcher T. Illegal cannabis often contaminated with pesticides, B.C. study finds. *Revelstoke Review.* 2021 Jun 9. Available from: <https://www.revelstokereview.com/news/illegal-cannabis-often-contaminated-with-pesticides-b-c-study-finds/>.

WASTE

1. Ali W, Zhang H, Wang Z, Chang C, Javed A, Ali K, et al. Occurrence of various viruses and recent evidence of SARS-CoV-2 in wastewater systems. *J Hazard Mater.* 2021;414:125439. Available from: <https://doi.org/10.1016/j.jhazmat.2021.125439>.
2. Das AK, Islam MN, Billah MM, Sarker A. COVID-19 pandemic and healthcare solid waste management strategy - A mini-review. *Sci Total Environ.* 2021;778:146220. Available from: <https://doi.org/10.1016/j.scitotenv.2021.146220>.

ZOOSES

1. Burrows H, Talbot B, McKay R, Slatculescu A, Logan J, Thickstun C, et al. A multi-year assessment of blacklegged tick (*Ixodes scapularis*) population establishment and Lyme disease risk areas in Ottawa, Canada, 2017-2019. *PLoS ONE.* 2021;16(2):e0246484. Available from:

<http://ezproxy.library.ubc.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=mnh&AN=33539458&site=ehost-live&scope=site>.

2. Cameron L, Rocque R, Penner K, Mauro I. Public perceptions of Lyme disease and climate change in southern Manitoba, Canada: making a case for strategic decoupling of climate and health messages. *BMC Public Health*. 2021;21(1):1-21.
3. Kahl O, Kammer D, Bulling I, Komorek M, von Eiff C, Malerczyk C. Ticks on the turf: investigating the presence of ixodid ticks on and around football fields in Germany. *Exp Appl Acarol*. 2021 Jun 9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34109509>.
4. Lyons LA, Brand ME, Gronemeyer P, Mateus-Pinilla N, Ruiz MO, Stone CM, et al. Comparing Contributions of Passive and Active Tick Collection Methods to Determine Establishment of Ticks of Public Health Concern Within Illinois. *J Med Entomol*. 2021 Apr 15. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33855433>.
5. Morshed MG, Lee MK, Boyd E, Mak S, Fraser E, Nguyen J, et al. Passive Tick Surveillance and Detection of *Borrelia* Species in Ticks from British Columbia, Canada: 2002-2018. *Vector Borne Zoonotic Dis*. 2021 Apr 7. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33826423>.
6. Pomorska-Mól M, Włodarek J, Gogulski M, Rybska M. Review: SARS-CoV-2 infection in farmed minks – an overview of current knowledge on occurrence, disease and epidemiology. *Animal*. 2021 Jul;15(7):100272. Available from: <https://www.sciencedirect.com/science/article/pii/S1751731121001142>.
7. Rhouma M, Tessier M, Aenishaenslin C, Sanders P, Carabin H. Should the Increased Awareness of the One Health Approach Brought by the COVID-19 Pandemic Be Used to Further Tackle the Challenge of Antimicrobial Resistance? *Antibiotics (Basel)*. 2021 Apr 20;10(4). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33923886>.
8. Soare C, McNeilly TN, Seguino A. A review of potential risk factors linked to shiga toxin-producing *Escherichia coli* (STEC) in wild deer populations and the practices affecting the microbial contamination of wild deer carcasses with enteric bacteria. *Food Control*. 2021;127. Available from: <https://doi.org/10.1016/j.foodcont.2021.108128>.

COVID-19 ADDITIONAL TOPICS & GUIDANCE



CONTENTS

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GUIDANCE (for ‘Occupational Guidance’ – see separate topic heading)

Cleaning

1. Sojitra RG, Chotaliya UJ. Saltwater as a Disinfectant and Cleaning agent for Environmental Surfaces in the context of SARS-COV-II. *Asian Journal of Research in Pharmaceutical Sciences*. 2021;11(2). Available from: <https://doi.org/10.52711/2231-5659.2021-11-2-13>.

Death Services

1. Durand-Moreau Q, Galarneau JM. Mental Health Status of Canadian Funeral Service Workers at the Beginning of the COVID-19 Pandemic. *J Occup Environ Med*. 2021 Jun 1;63(6):e330-e4. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33950042>.
2. Public Health England. Guidance. COVID-19: guidance for care of the deceased. London, UK: PHE; 2021 Apr 22. Available from: <https://www.gov.uk/government/publications/covid-19-guidance-for-care-of-the-deceased>.
3. Public Health England. COVID-19: guidance for arranging or attending a funeral during the coronavirus pandemic. London, UK: PHE; 2021 Jun 4. Available from: <https://www.gov.uk/government/publications/covid-19-guidance-for-managing-a-funeral-during-the-coronavirus-pandemic>.

Face Masks

1. Damiani G, Gironi LC, Pacifico A, Cristaudo A, Malagoli P, Allocco F, et al. Masks use and facial dermatitis during COVID-19 outbreak: is there a difference between CE and non-CE approved masks? Multi-center, real-life data from a large Italian cohort. *Ital J Dermatol Venerol*. 2021 Apr;156(2):220-5. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33960753>.
2. Lehrer S, Rheinstein P. Eyeglasses Reduce Risk of COVID-19 Infection. *In Vivo*. 2021;35(3):1581-2. Available from: <https://iv.iiarjournals.org/content/invivo/35/3/1581.full.pdf>.
3. Li L, Zhao X, Li Z, Song K. COVID-19: Performance study of microplastic inhalation risk posed by wearing masks. *J Hazard Mater*. 2021;411:124955. Available from: <https://doi.org/10.1016/j.jhazmat.2020.124955>.
4. Noone C, Warner NZ, Byrne M, Durand H, Lavoie KL, McGuire BE, et al. A scoping review of research on the determinants of adherence to social distancing measures during the COVID-19 pandemic. *Health Psychol Rev*. 2021 May 24:1-168. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34027798>.
5. O’Hearn K, Gertsman S, Webster R, Tsampalieros A, Ng R, Gibson J, et al. Efficacy and safety of disinfectants for decontamination of N95 and SN95 filtering facepiece respirators: a systematic review. *J Hosp Infect*. 2020 Nov;106(3):504-21. Available from: <https://www.sciencedirect.com/science/article/pii/S0195670120303832>.
6. O’Keeffe J. Masking and un-masking during the COVID-19 pandemic and beyond [blog]. Vancouver, BC: NCCEH; 2020 06 16 Jun 16. Available from: <https://ncceh.ca/content/blog/masking-and-un-masking-during-covid-19-pandemic-and-beyond>.
7. O’Keeffe J. Masking during the COVID-19 pandemic – An update of the evidence [guidance document]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 06 16 Jun 16. Available from: <https://ncceh.ca/documents/guide/masking-during-covid-19-pandemic-update-evidence>.

8. Rowan NJ, Moral RA. Disposable face masks and reusable face coverings as non-pharmaceutical interventions (NPIs) to prevent transmission of SARS-CoV-2 variants that cause coronavirus disease (COVID-19): Role of new sustainable NPI design innovations and predictive mathematical modelling. *Sci Total Environ.* 2021;772:145530. Available from: <https://dx.doi.org/10.1016%2Fj.scitotenv.2021.145530>.
9. Taylor S, Asmundson GJG. Negative attitudes about facemasks during the COVID-19 pandemic: The dual importance of perceived ineffectiveness and psychological reactance. *PLoS ONE.* 2021;16(2):e0246317. Available from: <https://doi.org/10.1371/journal.pone.0246317>.

Policy

1. Anderson SC, Mulberry N, Edwards AM, Stockdale JE, Iyaniwura SA, Falcao RC, et al. How much leeway is there to relax COVID-19 control measures? *Epidemics.* 2021 Mar 18;35:100453. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33971429>.
2. Badker R, Miller K, Pardee C, Oppenheim B, Stephenson N, Ash B, et al. Challenges in reported COVID-19 data: best practices and recommendations for future epidemics. *BMJ Glob Health.* 2021 May;6(5). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33958393>.
3. Bellefleur O, Jacques M. The National Collaborating Centre for Healthy Public Policy in times of COVID-19: Building skills to “Build Back Better”. *Canada communicable disease report = Relevé des maladies transmissibles au Canada.* 2021;47(4):232-6. Available from: <https://pubmed.ncbi.nlm.nih.gov/34035671>.
4. Bloom JD, Chan YA, Baric RS, Bjorkman PJ, Cobey S, Deverman BE, et al. Investigate the origins of COVID-19. *Science.* 2021 May 14;372(6543):694. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33986172>.
5. Bostick TP. Ten Strategies for Leadership During COVID-19: A Plan of Action for Decision Makers in Times of Critical Change. In: Linkov I, editor. *COVID-19: Systemic Risk and Resilience.* New York, NY: Springer; 2021. Available from: <https://www.springer.com/gp/book/9783030715861>.
6. Brankston G, Merkley E, Fisman DN, Tuite AR, Poljak Z, Loewen PJ, et al. Socio-demographic disparities in knowledge, practices, and ability to comply with COVID-19 public health measures in Canada. *Can J Public Health.* 2021;112(3):363-75. Available from: <https://doi.org/10.17269/s41997-021-00501-y>.
7. Bubela T, Caulfield T, Kimmelman J, Ravitsky V. *Let’s Do Better: Public Representations of COVID-19 Science.* Ottawa, ON: Royal Society of Canada; 2020 Oct. Available from: https://rsc-src.ca/sites/default/files/pdf/RoS%20PB_EN_1.pdf.
8. Dix-Cooper L, Dawes M, Park M. Vancouver Coastal Health informed COVID-19 response by applying rapid review methodology: reply to Tricco. *J Clin Epidemiol.* 2021;134:167-71. Available from: <https://doi.org/10.1016/j.jclinepi.2021.02.027>.
9. Goel V, Stalteri R, Ritchie LP, Muhajarine N, Horton S, Milaney K, et al. Commentary. Covid-19 mitigation strategies and considerations: CanCovid; 2021. Available from: <https://cancovid.ca/wp-content/uploads/2021/05/COVID-19-commentary-mitigation-considerations-2021May14-FINAL.pdf>.
10. Grépin KA, Ho T-L, Liu Z, Marion S, Piper J, Worsnop CZ, et al. Evidence of the effectiveness of travel-related measures during the early phase of the COVID-19 pandemic: a rapid systematic review. *BMJ Global Health.* 2021;6(3):e004537. Available from: <https://gh.bmj.com/content/bmjgh/6/3/e004537.full.pdf>.
11. Lavoie KL, Gosselin-Boucher V, Stojanovic J, Voisard B, Szczepanik G, Boyle JA, et al. Determinants of adherence to COVID-19 preventive behaviours in Canada: Results from the iCARE Study.

- medRxiv. 2021. Available from:
<https://www.medrxiv.org/content/medrxiv/early/2021/06/13/2021.06.09.21258634.full.pdf>.
12. Lee J-K, Bullen C, Ben Amor Y, Bush SR, Colombo F, Gaviria A, et al. Institutional and behaviour-change interventions to support COVID-19 public health measures: a review by the Lancet Commission Task Force on public health measures to suppress the pandemic. *International Health*. 2021. Available from: <https://doi.org/10.1093/inthealth/ihab022>.
 13. Lima de Miranda K, Snower D, The Societal Responses to Covid-19: Evidence from the G7 Countries. *he Societal Responses to Covid-19: Evidence from the G7 Countries*. SSRN. 2021 May. Available from: <https://ssrn.com/abstract=3846249>.
 14. Mahase E. Covid-19: Public health response should be “local by default,” say leaders. *BMJ*. 2021;373:n1161. Available from: <https://www.bmj.com/content/bmj/373/bmj.n1161.full.pdf>.
 15. Maxmen A, Mallapaty S. The covid lab-leak hypothesis: What scientists do and don’t know. *Nature*. 2021 Jun 8. Available from: <https://media.nature.com/original/magazine-assets/d41586-021-01529-3/d41586-021-01529-3.pdf>.
 16. Molteni M. The 60-Year-Old Scientific Screwup That Helped Covid Kill. *Wired*. 2021 May 13. Available from: <https://www.wired.com/story/the-teeny-tiny-scientific-screwup-that-helped-covid-kill/>.
 17. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Checklist: daily camp operations: COVID-19 preparedness and prevention for overnight camps. Toronto, ON: Queen’s Printer; 2021 Jun. Available from: <https://www.publichealthontario.ca/-/media/documents/ncov/sch/2021/06/covid-19-overnight-camps-operations-preparedness-prevention.pdf?la=en>.
 18. Perri M, Metheny N, Matheson FI, Potvin K, O’Campo P. Finding opportunity in the COVID-19 crisis: prioritizing gender in the design of social protection policies. *Health Promot Int*. 2021 May 16. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33993289>.
 19. Snider B, Phillips P, McBean EA, Gadsden SA, Yawney J. Influence of Opening Up Daycare and Day Camps on Resurgence Potential of COVID-19 Pandemic: Assessing Infectivity Potential from Youth in Ontario, Canada. *IEEE Transactions on Computational Social Systems*. 2021:1-9. Available from: <https://ieeexplore.ieee.org/document/9425838>.
 20. Voigt K, Nahimana E, Rosenthal A. Flashing red lights: the global implications of COVID-19 vaccination passports. *BMJ Glob Health*. 2021 May;6(5). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34016580>.
 21. Wade N. The origin of COVID: Did people or nature open Pandora’s box at Wuhan? *Bulletin of the Atomic Scientists*. 2021 May 5. Available from: <https://thebulletin.org/2021/05/the-origin-of-covid-did-people-or-nature-open-pandoras-box-at-wuhan/>.
 22. Xiang Y, Jia Y, Chen L, Guo L, Shu B, Long E. COVID-19 epidemic prediction and the impact of public health interventions: A review of COVID-19 epidemic models. *Infectious Disease Modelling*. 2021 Jan;6:324-42. Available from: <https://www.sciencedirect.com/science/article/pii/S2468042721000038>.

HOMELESS, VULNERABLE POPULATIONS, HOUSING

1. Price TRV, Barua SK. Identifying vulnerable populations and transmission pathways by geographic correlation of the environment to human health. *Sci Total Environ*. 2021;779:146426. Available from: <https://doi.org/10.1016/j.scitotenv.2021.146426>.

MENTAL, PHYSICAL HEALTH

General

1. Ghram A, Bragazzi NL, Briki W, Jenab Y, Khaled M, Haddad M, et al. COVID-19 Pandemic and Physical Exercise: Lessons Learnt for Confined Communities. *Front Psychol.* 2021;12:618585. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34025498>.
2. Gierc M, Riazi NA, Fagan MJ, Di Sebastiano KM, Kandola M, Priebe CS, et al. Strange Days: Adult Physical Activity and Mental Health in the First Two Months of the COVID-19 Pandemic. *Front Public Health.* 2021;9:567552. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33937160>.
3. Kerman N, Ecker J, Gaetz S, Tiderington E, S AK. Mental Health and Wellness of Service Providers Working with People Experiencing Homelessness in Canada: A National Survey from the Second Wave of the COVID-19 Pandemic: Sante Mentale et Bien-Etre Des Prestataires de Services Qui Travaillent Avec Des Personnes en Situation D'itinérance au Canada : un Sondage National sur la Deuxieme Vague de la Pandemie COVID-19. *Can J Psychiatry.* 2021 May 20. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34013774>.
4. Nejati N, Crocker C, Kolajova M, Morrison J, Simon P, Sridharan S, et al. Examination of the impact of COVID-19 public health quarantine measures on acute mental health care services: A retrospective observational study. *Psychiatry Res.* 2021 May 13;302:113999. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34038806>.

MULTI-UNIT BUILDINGS

1. Chandler J. What's driving apartment-building outbreaks? *TVO.* 2021 May 17. Available from: <https://www.tvo.org/article/whats-driving-apartment-building-outbreaks>.
2. Grey Bruce Health Unit. Covid-19. Guidelines for Multi-Unit Dwellings. ON: Grey Bruce Health Unit; 2021 Jun 10. Available from: https://www1.publichealthgreybruce.on.ca/Portals/0/Topics/InfectiousDiseases/COVID19/Multi-Unit%20Dwellings_COVID-19.pdf.
3. Leung W. COVID-19 in high-rise buildings raises transmission fears for residents. *Globe and Mail.* 2021 May 25. Available from: <https://www.theglobeandmail.com/canada/article-covid-19-in-high-rise-buildings-raises-transmission-fears-for/>.
4. Rotenberg S, Downer MB, Lunskey Y. A forgotten high-risk setting: COVID-19 testing in Canadian group homes. *Can Fam Physician.* 2021 May 14. Available from: <https://www.cfp.ca/news/2021/05/14/514>.

OCCUPATIONAL GUIDANCE

Occupational

1. Cote D, Durant S, MacEachen E, Majowicz S, Meyer S, Huynh AT, et al. A rapid scoping review of COVID-19 and vulnerable workers: Intersecting occupational and public health issues. *Am J Ind Med.* 2021 May 18. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34003502>.
2. Macpherson RA, Yousefi M, McLeod CB. Determining hazard management changes in workplaces following workplace safety inspections by WorkSafeBC in British Columbia, Canada. *Saf Sci.* 2021;140. Available from: <https://doi.org/10.1016/j.ssci.2021.105298>.

PUBLIC FACILITIES

Schools

1. Malboeuf-Hurtubise C, Leger-Goodes T, Mageau GA, Taylor G, Herba CM, Chadi N, et al. Online art therapy in elementary schools during COVID-19: results from a randomized cluster pilot and feasibility study and impact on mental health. *Child Adolesc Psychiatry Ment Health*. 2021 Mar 6;15(1):15. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33676537>.
2. Weijer C, Hemming K, Phillips Hey S, Fernandez Lynch H. Reopening schools safely in the face of COVID-19: Can cluster randomized trials help? *Clin Trials*. 2021 Jun;18(3):371-6. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/33472432>.

Transportation (see separate category, 'Transit, Transportation')

SURVIVAL TIME

1. Ghasemi H, Yazdani H, Fini EH, Mansourpanah Y. Interactions of SARS-CoV-2 with inanimate surfaces in built and transportation environments. *Sustainable Cities and Society*. 2021 Sep;72:103031. Available from: <https://www.sciencedirect.com/science/article/pii/S2210670721003152>.

TRANSIT, TRANSPORTATION

1. Chen T. Transitioning from COVID-19 restrictions to new norms: Innovating strategies to restore trust and transit ridership [blog]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2021 06 11 Jun 11. Available from: <https://ncceh.ca/content/blog/transitioning-covid-19-restrictions-new-norms-innovating-strategies-restore-trust-and>.
2. Ding H, Loukaitou-Sideris A, Wasserman JL. Homelessness on public transit: A review of problems and responses. *Transport Reviews*. 2021:1-23. Available from: <https://doi.org/10.1080/01441647.2021.1923583>.
3. Howland RE, Cowan NR, Wang SS, Moss ML, Glied S. Public transportation and transmission of viral respiratory disease: Evidence from influenza deaths in 121 cities in the United States. *PLoS ONE*. 2020;15(12):e0242990. Available from: <https://doi.org/10.1371/journal.pone.0242990>.
4. Marsden G, Anable J, Docherty I, Brown L. Report: At a crossroads – Travel adaptations during Covid-19 restrictions and where next? Oxford, UK: Centre for Research into Energy Demand Solutions; 2021. Available from: <https://www.creds.ac.uk/wp-content/uploads/covid-transport-report.pdf>.
5. Nunes A, Hernandez KD. Autonomous taxis & public health: High cost or high opportunity cost? *Transportation Research Part A: Policy & Practice*. 2020;138:28-36. Available from: <https://doi.org/10.1016/j.tra.2020.05.011>.
6. Stavroulakis PJ, Tzora VA, Riza E, Papadimitriou S. Transportation, the pathogen vector to rule them all: Evidence from the recent coronavirus pandemic. *Journal of Transport & Health*. 2021 May:101087. Available from: <https://www.sciencedirect.com/science/article/pii/S2214140521001171>.

TRANSMISSION

General

1. Addleman S, Leung V, Asadi L, Sharkawy A, McDonald J. Mitigating airborne transmission of SARS-CoV-2. *Can Med Assoc J.* 2021;cmaj.210830. Available from: <https://www.cmaj.ca/content/cmaj/early/2021/06/08/cmaj.210830.full.pdf>.
2. Akaishi T, Kushimoto S, Katori Y, Kure S, Igarashi K, Takayama S, et al. COVID-19 transmission in group living environments and households. *Sci Rep.* 2021 Jun 2;11(1):11616. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34079047>.
3. Conway J, Lipner SR. Head to Toe: Recommendations for Physician Head and Shoe Coverings to Limit COVID-19 Transmission. *Cutis.* 2021 Apr;107(4):E27-E9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34096857>.
4. Danon L, Lacasa L, Brooks-Pollock E. Household bubbles and COVID-19 transmission: insights from percolation theory. *Philos Trans R Soc Lond B Biol Sci.* 2021 Jul 19;376(1829):20200284. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34053262>.
5. Grydaki N, Colbeck I, Mendes L, Eleftheriadis K, Whitby C. Bioaerosols in the Athens Metro: Metagenetic insights into the PM10 microbiome in a naturally ventilated subway station. *Environ Int.* 2021;146. Available from: <https://doi.org/10.1016/j.envint.2020.106186>.
6. Herstein J, Degarege A, Stover D, Austin C, Schwedhelm M, Lawler J, et al. Characteristics of SARS-CoV-2 Transmission among Meat Processing Workers in Nebraska, USA, and Effectiveness of Risk Mitigation Measures. *Emerging Infectious Disease journal.* 2021;27(4):1032. Available from: https://wwwnc.cdc.gov/eid/article/27/4/20-4800_article.
7. Kaiser SV, Watson A, Dogan B, Karmur A, Warren K, Wang P, et al. Preventing COVID-19 Transmission in Education Settings. *Pediatrics.* 2021 Jun 10. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34112660>.
8. Ku MS, Huang LM, Chiu SY, Wang WC, Jeng YC, Yen MY, et al. Continental transmission of emerging COVID-19 on the 38 degrees north latitude. *J Formos Med Assoc.* 2021 Jun 1. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34112588>.
9. Lagace-Wiens P, Bullard J, Cole R, Van Caesele P. Seasonality of coronaviruses and other respiratory viruses in Canada: Implications for COVID-19. *Can Commun Dis Rep.* 2021 Mar 31;47(3):132-8. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34012336>.
10. Li X, Wang Q, Ding P, Cha Ye, Mao Y, Ding C, et al. Risk factors and on-site simulation of environmental transmission of SARS-CoV-2 in the largest wholesale market of Beijing, China. *Sci Total Environ.* 2021;778:146040. Available from: <https://doi.org/10.1016/j.scitotenv.2021.146040>.
11. Maestre JP, Jarma D, Yu J-RF, Siegel JA, Horner SD, Kinney KA. Distribution of SARS-CoV-2 RNA signal in a home with COVID-19 positive occupants. *Sci Total Environ.* 2021;778. Available from: <https://www.medrxiv.org/content/10.1101/2020.11.30.20234393v1>.
12. Marsalek J. Reframing the problem of the fomite transmission of Covid-19. *J Hosp Infect.* 2021 Jun 9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34118345>.
13. Metelmann S, Pattni K, Brierley L, Cavalerie L, Caminade C, Blagrove MSC, et al. Impact of climatic, demographic and disease control factors on the transmission dynamics of COVID-19 in large cities worldwide. *One health (Amsterdam, Netherlands).* 2021;12:100221. Available from: <https://doi.org/10.1016/j.onehlt.2021.100221>.

14. Moschovis PP, Yonker LM, Shah J, Singh D, Demokritou P, Kinane TB. Aerosol transmission of SARS-CoV-2 by children and adults during the COVID-19 pandemic. *Pediatr Pulmonol.* 2021;56(6):1389-94. Available from: <https://doi.org/10.1002/ppul.25330>.
15. Ontario Agency for Health Protection and Promotion (Public Health Ontario). COVID-19 Transmission Through Large Respiratory Droplets and Aerosols... What We Know So Far. Toronto, ON: Queen's Printer for Ontario; 2021 May 20. Available from: https://www.publichealthontario.ca/-/media/documents/ncov/covid-wwksf/2021/05/wwksf-transmission-respiratory-aerosols.pdf?la=en&_cldee=bWlJaGVsZS53aWVuc0BiY2NkYy5jYQ%3d%3d&recipientid=contact-c7ccc0a5b4a2e611837d0050569e0009-9e72d1ce82604e828f44056a75c46fef&esid=bbaf4300-3abe-eb11-a8af-0050569e118f.
16. Palmer BS. Covid-19 eradication: stopping transmission between countries. *BMJ.* 2021 Jun 7;373:n1425. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34099495>.
17. Pease LF, Wang N, Salsbury TI, Underhill RM, Flaherty JE, Vlachokostas A, et al. Investigation of potential aerosol transmission and infectivity of SARS-CoV-2 through central ventilation systems. *Build Environ.* 2021;197:107633. Available from: <https://doi.org/10.1016/j.buildenv.2021.107633>.
18. Robertson-More C, Wu T. A knowledge gap unmasked: viral transmission in surgical smoke: a systematic review. *Surg Endosc.* 2021;35(6):2428-39. Available from: <https://doi.org/10.1007/s00464-020-08261-5>.
19. Saadaoui M, Kumar M, Al Khodor S. COVID-19 Infection during Pregnancy: Risk of Vertical Transmission, Fetal, and Neonatal Outcomes. *J Pers Med.* 2021 May 28;11(6). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34071251>.
20. Salz AK, Acharya M, Hofmann N, Wittmershaus I, Sangwan V, Börgel M, et al. Risk of SARS-CoV-2 virus transmission from donor corneal tissue: A review. *Indian J Ophthalmol.* 2021;69(6):1592-7. Available from: https://doi.org/10.4103/ijo.ijo_3249_20.
21. Shahhosseini N, Wong G, Kobinger GP, Chinikar S. SARS-CoV-2 spillover transmission due to recombination event. *Gene reports.* 2021;23:101045. Available from: <https://dx.doi.org/10.1016%2Fj.genrep.2021.101045>.
22. Sosnowski TR. Inhaled aerosols: Their role in COVID-19 transmission, including biophysical interactions in the lungs. *Current opinion in colloid & interface science.* 2021;54:101451. Available from: <https://doi.org/10.1016/j.cocis.2021.101451>.
23. Spielberger BD, Goerne T, Geweniger A, Henneke P, Elling R. Intra-Household and Close-Contact SARS-CoV-2 Transmission Among Children – a Systematic Review. *Frontiers in Pediatrics.* 2021 2021-April-09;9(95). Available from: <https://www.frontiersin.org/article/10.3389/fped.2021.613292>.
24. Torjesen I. Covid-19: PPE guidance is upgraded as evidence of airborne transmission grows. *BMJ.* 2021 Jun 2;373:n1422. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34078639>.
25. Toronto Public Health. COVID-19: Transmission, Aerosols and Ventilation. Toronto, ON: TPH; 2021 May 13. Available from: <https://www.toronto.ca/wp-content/uploads/2020/10/8de9-COVID19-Transmission-Aerosols-Ventilation.pdf>.
26. van der Valk JPM, in 't Veen JCCM. SARS-Cov-2: The Relevance and Prevention of Aerosol Transmission. *J Occup Environ Med.* 2021;63(6). Available from: https://journals.lww.com/joem/Fulltext/2021/06000/SARS_Cov_2_The_Relevance_and_Prevention_of.25.aspx.
27. Vincent K. A Case of Vertical Transmission of COVID-19. *Neonatal Netw.* 2021 May 1;40(3):146-54. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34088860>.

28. Wade N. The origin of COVID: Did people or nature open Pandora's box at Wuhan? *The Bulletin*. 2021 [May 5]; Available from: <https://thebulletin.org/2021/05/the-origin-of-covid-did-people-or-nature-open-pandoras-box-at-wuhan/>.
29. Zhang N, Chen X, Jia W, Jin T, Xiao S, Chen W, et al. Evidence for lack of transmission by close contact and surface touch in a restaurant outbreak of COVID-19. *J Infect*. 2021 May 29. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34062182>.

Outbreaks

1. Had COVID? You'll probably make antibodies for a lifetime. *Nature*. 2021 May. Available from: <https://www.nature.com/articles/d41586-021-01442-9>.
2. Jantzen R, Noisel N, Camilleri-Broët S, Labbé C, Malliard Td, Payette Y, et al. Epidemiological characteristics of the COVID-19 spring outbreak in Quebec, Canada: a population-based study. *BMC Infect Dis*. 2021 May;21(1):435. Available from: <https://doi.org/10.1186/s12879-021-06002-0>.
3. Soto JC, Barakat M, Hutter JA, Kiely M, Moreira S, Shapiro BJ, et al. Outbreak investigation of SARS-CoV-2 transmission in an emergency childcare centre. *Can J Public Health*. 2021 May 28. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/34047966>.

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