

ENVIRONMENTAL HEALTH RESEARCH SCAN

WITH COVID-19 SECTIONS

VOL 7 (1) JANUARY 2023



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 This research scan is not peer reviewed; it does not cover all research, news, and information, and NCCEH is not responsible for the accuracy of the content from media or databases.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

Do-it-yourself (DIY) air cleaners: evidence on effectiveness and considerations for safe operation [evidence review]

Angela Eykelbosh, Knowledge Translation Scientist, NCCEH

“The purpose of this document is to review the evidence regarding DIY air cleaner effectiveness, cost effectiveness, energy efficiency and noise compared with commercially available units. It also gathers resources to assist in building and implementing DIY air cleaners and describes other considerations that might be relevant to deploying these devices in real-world settings.” ...more



Lowering workplace and community risks through proactive engagement with the cannabis industry [blog]

Kimiko Banati, Occupational Hygiene Officer, WorkSafeBC, and Angela Eykelbosh, Knowledge Translation Scientist, NCCEH

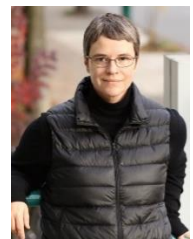
“The blog provides a rapid overview of the hazards observed in cannabis processing and extraction facilities, and discusses measures that can be put in place to reduce the risks.” ...more



Life with fire Episode 42: Paradoxes and solutions in wildfire smoke exposure [podcast]

Sarah B Henderson, Scientific Director, Environmental Health Services, BCCDC; Scientific Director, NCCEH,

“This podcast provides insights into our perceptions of wildfire smoke, some common paradoxes that come up in the ways we talk and think about smoke, as well as some legitimate, scalable solutions for reducing the impacts of wildfire smoke, especially on susceptible populations like those experiencing homelessness, those who don't have the financial means of improving indoor air quality and those with preexisting health conditions that make them particularly vulnerable to smoke's impacts.” ... more.



Where the public meets health: Libraries as key partners for advancing public health goals [blog]

Angela Eykelbosh and Anne-Marie Nicol (right), Knowledge Translation Scientists, NCCEH

“Given our common goals – to make our communities healthier and promote wellbeing – public health and public libraries have a natural partnership. Public health organizations benefit by being able to better disseminate information, awareness, and resources to local populations that may not be...” ...more



NCCEH eNews (Dec 2022): Radon action month; Focus on health in the balance of energy retrofits and indoor air quality; more...

National Collaborating Centre for Environmental Health



December research scan with COVID-19 sections [blog]

National Collaborating Centre for Environmental Health



ENVIRONMENTAL HEALTH RESEARCH SCAN

SELECTED PUBLICATIONS

1. Andrade-Rivas F, Paul N, Spiegel J, Henderson S, Parrott L, Delgado-Ron J, et al., editors. **Mapping potential population-level pesticide exposures using a modular and scalable geospatial strategy [research poster]**. 2022 Planetary Health Annual Meeting; 2022 Oct 31 - Nov 2; Boston, MA. Available from: <https://www.planetaryhealthannualmeeting.com/2022-abstracts>.
2. Banati K, Eykelbosh A. **Lowering workplace and community risks through proactive engagement with the cannabis industry [blog]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2022 Dec 13. Available from: <https://ncceh.ca/content/blog/lowering-workplace-and-community-risks-through-proactive-engagement-cannabis-industry>.
3. Eykelbosh A. **Do-it-yourself (DIY) air cleaners: evidence on effectiveness and considerations for safe operation [evidence review]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2023 Jan. Available from: <https://ncceh.ca/documents/evidence-review/do-it-yourself-diy-air-cleaners-evidence-effectiveness-and-considerations>.
4. Eykelbosh A. **Do-it-yourself (DIY) air cleaners: evidence on effectiveness and considerations for safe operation [webinar]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2023 Jan 26. Available from: <https://ncceh.ca/content/ncceh-environmental-health-seminar-series>.
5. Eykelbosh A, Nicol A-M. **Where the public meets health: Libraries as key partners for advancing public health goals [blog]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2023 01 12 Jan 12. Available from: <https://ncceh.ca/content/blog/where-public-meets-health-libraries-key-partners-advancing-public-health-goals>.
6. Henderson SB. **Life with fire Episode 42: paradoxes and solutions in wildfire smoke exposure [podcast]**. Colville, WA: Northern Rockies Fire Science Network; 2022 Nov 2. Available from: <https://www.nrfirescience.org/resource/25115>.
7. Henderson SB, McLean KE, Lee MJ, Kosatsky T. **Analysis of community deaths during the catastrophic 2021 heat dome: Early evidence to inform the public health response during subsequent events in greater Vancouver, Canada** [from “Environmental Epidemiology - Most Popular Articles” category]. Environmental Epidemiology. 2022;6(1). Available from:

- https://journals.lww.com/environepidem/Fulltext/2022/02000/Analysis_of_community_deaths_during_the.8.aspx.
8. Hernández D, Swope C. **Housing as a determinant of health equity (webinar)**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2022 Nov 30. Available from: <https://ncceh.ca/content/webinar-recording-housing-determinant-health-equity>.
 9. National Collaborating Centre for Environmental Health. **Dec research scan with COVID-19 sections [blog]**. Vancouver, BC: NCCEH; 2022 Dec 14. Available from: <https://ncceh.ca/content/blog/december-research-scan-covid-19-sections-1>.
 10. National Collaborating Centre for Environmental Health. **NCCEH eNews (Dec 2022) : Sea level rise and public health implications; more...** Vancouver, BC: NCCEH; 2022 Dec 15. Available from: <https://tinyurl.com/33rve553>.
 11. Rosencrantz L. **A renewed attention on environmental equity and justice [blog]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2022 Dec 13. Available from: <https://ncceh.ca/content/blog/renewed-attention-environmental-equity-and-justice>.
 12. Skinner K. **Healthy environments for food security and climate change in northern Canada: Case studies of food system initiatives within the Northwest Territories [webinar]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2023 Jan 19. Available from: <https://us06web.zoom.us/meeting/register/tZMrdeuqgT8pEtDaBctdMzbcYP2NAj1f5ieH>.
 13. Wyatt LH, Cleland SE, Wei L, Paul N, Patil A, Ward-Caviness C, et al. **Long-term exposure to ambient O₃ and PM_{2.5} is associated with reduced cognitive performance in young adults: A retrospective longitudinal repeated measures study in adults aged 18–90 years**. Environ Pollut. 2023;121085. Available from: <https://www.sciencedirect.com/science/article/pii/S0269749123000878>.
 14. Zicha W, Nicol A-M. **Air quality sensor lending libraries: bringing home public health [webinar]**. Vancouver, BC: National Collaborating Centre for Environmental Health; 2022 Dec 7. Available from: <https://ncceh.ca/content/webinar-recording-air-quality-sensor-lending-libraries-bringing-home-public-health>.

INDIGENOUS ENVIRONMENTAL HEALTH

1. Baena PA, Brunel A, Fernández-de-Larrinoa Y, Martínez-Cruz TE, Milbank C, Way M. **In Brief: The White/Wiphala Paper on Indigenous Peoples' Food Systems**. In: von Braun J, Afsana K, Fresco LO, Hassan MHA, editors. Science and Innovations for Food Systems Transformation. Cham: Springer International Publishing; 2023. p. 229-59. Available from: https://doi.org/10.1007/978-3-031-15703-5_13.
2. Dubeau C, Aker A, Caron-Beaudoin É, Ayotte P, Blanchette C, McHugh NG-L, et al. **Perfluoroalkyl acid and bisphenol-A exposure via food sources in four First Nation communities in Quebec, Canada**. Public Health Nutr. 2023;26(1):106-21. Available from: <https://www.cambridge.org/core/article/perfluoroalkyl-acid-and-bisphenola-exposure-via-food-sources-in-four-first-nation-communities-in-quebec-canada/40D94CF34AE31993A4218436C10C4E8A>.

3. Kobzik J, Krawchenko T. **“What do we want and how do we get there”: A comparative content analysis of First Nations Comprehensive Community Plans in British Columbia.** Can Public Adm.n/a(n/a). Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/capa.12507>.
4. Martinez-Morata I, Bostick BC, Conroy-Ben O, Duncan DT, Jones MR, Spaur M, et al. **Nationwide geospatial analysis of county racial and ethnic composition and public drinking water arsenic and uranium.** Nature Communications. 2022;13(1):7461. Available from: <https://doi.org/10.1038/s41467-022-35185-6>.
4. Pike M, Cunsolo A, Papadopoulos A, Harper S. **Natural Resource Development and Well-Being in Inuit Nunangat: A Scoping Review.** Northern Review. 2023(54). Available from: <https://thenorthernreview.ca/index.php/nr/article/view/949>.
5. Shafiee M, Keshavarz P, Lane G, Pahwa P, Szafron M, Jennings D, et al. **Food Security Status of Indigenous Peoples in Canada According to the 4 Pillars of Food Security: A Scoping Review.** Advances in Nutrition. 2022;13(6):2537-58. Available from: <https://doi.org/10.1093/advances/nmac081>.

AGRICULTURAL OPERATIONS

1. Fantini A. **Urban and peri-urban agriculture as a strategy for creating more sustainable and resilient urban food systems and facing socio-environmental emergencies.** Agroecology & Sustainable Food Systems. 2023;47(1):47-71. Available from: <https://doi.org/10.1080/21683565.2022.2127044>.

BIOLOGICAL AGENTS

BUILT ENVIRONMENT

1. Baba FM, Ge H, Wang L, Zmeureanu R. **Assessing and mitigating overheating risk in existing Canadian school buildings under extreme current and future climates.** Energy & Buildings. 2023;279:N.PAG-N.PAG. Available from: <https://doi.org/10.1016/j.enbuild.2022.112710>.
2. Barron S, Rugel EJ. **Tolerant greenspaces: Designing urban nature-based solutions that foster social ties and support mental health among young adults.** Environ Sci Pol. 2023;139:1-10. Available from: <https://www.sciencedirect.com/science/article/pii/S1462901122003148>.
3. Boakye K, Bovbjerg M, Schuna J, Branscum A, Mat-Nasir N, Bahonar A, et al. **Perceived built environment characteristics associated with walking and cycling across 355 communities in 21 countries.** Cities. 2023;132:104102. Available from: <https://www.sciencedirect.com/science/article/pii/S0264275122005418>.
4. Broadbent AM, Deplet-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>.

5. Chen X, He B-J, editors. **Development of a framework for urban heat adaptation in 15-minute city.** IOP Conference Series: Earth and Environmental Science; 2022: IOP Publishing. Available from: <https://iopscience.iop.org/article/10.1088/1755-1315/1122/1/012005/meta>.
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7. Hopkins LP, January-Beyers DJ, Caton EK, Campos LA. **A simple tree planting framework to improve climate, air pollution, health, and urban heat in vulnerable locations using non-traditional partners.** Plants, People, Planet. 2022;4(3):243-57. Available from: <https://doi.org/10.1002/ppp3.10245>.
8. Huang Z, Dong J, Chen Z, Zhao Y, Huang S, Xu W, et al. **Spatiotemporal Characteristics of Public Recreational Activity in Urban Green Space under Summer Heat.** Forests. 2022;13(8):1268. Available from: <https://doi.org/10.3390/f13081268>.
9. Larsen L, Gronlund CJ, Ketenci KC, Harlan SL, Hondula DM, Stone Jr B, et al. **Safe at Home? A Comparison of Factors Influencing Indoor Residential Temperatures During Warm Weather Among Three Cities.** J Am Plann Assoc. 2022:1-13. Available from: <https://doi.org/10.1080/01944363.2022.2087724>.
10. Liu D, Kwan M-P. **Integrated analysis of doubly disadvantaged neighborhoods by considering both green space and blue space accessibility and COVID-19 infection risk.** PLoS ONE. 2022 11 02;17(11):e0273125. Available from: <https://doi.org/10.1371/journal.pone.0273125>.
11. Martín Y, Paneque P. **Moving from adaptation capacities to implementing adaptation to extreme heat events in urban areas of the European Union: Introducing the U-ADAPT! research approach.** J Environ Manage. 2022;310:114773. Available from: <https://doi.org/10.1016/j.jenvman.2022.114773>.
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13. Redondo Bermúdez MdC, Chakraborty R, Cameron RW, Inkson BJ, Val Martin M. **A Practical Green Infrastructure Intervention to Mitigate Air Pollution in a UK School Playground.** Sustainability. 2023;15(2):1075. Available from: <https://www.mdpi.com/2071-1050/15/2/1075>.
14. Rutgers J-S. **Can natural infrastructure help revitalize Winnipeg's downtown?** The Narwhal. 2023 Jan 4. Available from: <https://thenarwhal.ca/downtown-winnipeg-natural-infrastructure/>.
15. Senkler B, Freymueller J, Lopez Lumby S, Hornberg C, Schmid H-L, Hennig-Fast K, et al. **Urbanicity: Perspectives from Neuroscience and Public Health: A Scoping Review.** Int J Environ Res Public Health. 2023;20(1):688. Available from: <https://www.mdpi.com/1660-4601/20/1/688>.
16. Smith IA, Lusk K, Hutyrá LR. **On the use of 'cool roofs' to reduce residential heat exposure disparities in Boston, MA.** 2022. Available from: <https://open.bu.edu/handle/2144/45322>.
17. Wang K, Sun Z, Cai M, Liu L, Wu H, Peng Z. **Impacts of Urban Blue-Green Space on Residents' Health: A Bibliometric Review.** Int J Environ Res Public Health. 2022;19(23):16192. Available from: <https://www.mdpi.com/1660-4601/19/23/16192>.

18. Zhang F. **Not all extreme weather events are equal: Impacts on risk perception and adaptation in public transit agencies.** *Clim Change*. 2022;171(1):1-21. Available from: <https://link.springer.com/article/10.1007/s10584-022-03323-0>.
19. Zhang Y, Liu N, Li Y, Long Y, Baumgartner J, Adamkiewicz G, et al. **Neighborhood infrastructure-related risk factors and non-communicable diseases: a systematic meta-review.** *Environ Health*. 2023;22(1):2. Available from: <https://doi.org/10.1186/s12940-022-00955-8>.

CHEMICAL AGENTS – METALS, GENERAL

General

1. Angrand RC, Collins G, Landrigan PJ, Thomas VM. **Relation of blood lead levels and lead in gasoline: an updated systematic review.** *Environ Health*. 2022;21(1):138. Available from: <https://doi.org/10.1186/s12940-022-00936-x>.
2. Knight MA, Ioannidis MA, Salim F, Górecki T, Pivin D. **Health Risks Assessment from Cured-in-Place Pipe Lining Fugitive Styrene Emissions in Laterals.** *Journal of Pipeline Systems Engineering and Practice*. 2023;14(1):04022056. Available from: <https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29PS.1949-1204.0000690>.
3. Malits J, Naidu M, Trasande L. **Exposure to Endocrine Disrupting Chemicals in Canada: Population-Based Estimates of Disease Burden and Economic Costs.** *Toxics*. 2022;10(3):146. Available from: <https://www.mdpi.com/2305-6304/10/3/146>.

CHEMICAL AGENTS – PESTICIDES

1. FitzGerald J. **New York approves composting of human bodies.** *BBC News*. 2023 Jan 1. Available from: <https://www.bbc.com/news/world-us-canada-64140571>.

CHEMICAL AGENTS – SHALE GAS

CHILDREN'S ENVIRONMENTAL HEALTH

1. Cherian NC, Subasinghe C. **Sun-Safe Zones: Investigating Integrated Shading Strategies for Children's Play Areas in Urban Parks.** *Int J Environ Res Public Health*. 2023;20(1):114. Available from: <https://www.mdpi.com/1660-4601/20/1/114>.
2. National Academy of Sciences Engineering Medicine. **Future Planning for the Public Health Emergency Preparedness Enterprise: Lessons Learned from the COVID-19 Pandemic- A Workshop.** *National Academy of Sciences Engineering Medicine*. 2022;115(37):9193-7. Available from: <https://www.nationalacademies.org/our-work/future-planning-for-the-public-health-emergency-preparedness-enterprise-lessons-learned-from-the-covid-19-pandemic-a-workshop>.

CLIMATE CHANGE

1. Arsad FS, Hod R, Ahmad N, Ismail R, Mohamed N, Baharom M, et al. **The Impact of Heatwaves on Mortality and Morbidity and the Associated Vulnerability Factors: A Systematic Review.** *Int J*

- Environ Res Public Health. 2022;19(23). Available from:
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2. Black-Ingersoll F, de Lange J, Heidari L, Negassa A, Botana P, Fabian MP, et al. **A Literature Review of Cooling Center, Misting Station, Cool Pavement, and Cool Roof Intervention Evaluations.** Atmosphere. 2022;13(7):1103. Available from: <https://www.mdpi.com/2073-4433/13/7/1103>.
 3. Burrows K, Fussell E. **A life course epidemiology approach to climate extremes and human health.** The Lancet Planetary Health. 2022;6(7):e549-e50. Available from:
[https://doi.org/10.1016/S2542-5196\(22\)00146-2](https://doi.org/10.1016/S2542-5196(22)00146-2).
 4. Chaston TB, Broome RA, Cooper N, Duck G, Geromboux C, Guo Y, et al. **Mortality Burden of Heatwaves in Sydney, Australia Is Exacerbated by the Urban Heat Island and Climate Change: Can Tree Cover Help Mitigate the Health Impacts?** Atmosphere. 2022;13(5):714. Available from: <https://doi.org/10.3390/atmos13050714>.
 5. Derakhshan S, Bautista TN, Bouwman M, Huang L, Lee L, Tarczynski J, et al. **Smartphone locations reveal patterns of cooling center use as a heat mitigation strategy.** Appl Geog. 2023;150:102821. Available from: <https://doi.org/10.1016/j.apgeog.2022.102821>.
 6. Dwyer IJ, Barry SJE, Megiddo I, White CJ. **Evaluations of heat action plans for reducing the health impacts of extreme heat: methodological developments (2012–2021) and remaining challenges.** Int J Biometeorol. 2022;66(9):1915-27. Available from:
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<https://www.sciencedirect.com/science/article/pii/S2212095522003108>.
 10. Keith L, Meerow S, Berke P, DeAngelis J, Jensen L, Trego S, et al. **Plan Integration for Resilience Scorecard™(PIRS™) for Heat: Spatially evaluating networks of plans to mitigate heat (Version 1.0).** 2022. Available from: <https://www.planning.org/publications/document/9257652/>.
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14. Philip SY, Kew SF, van Oldenborgh GJ, Anslow FS, Seneviratne SI, Vautard R, et al. **Rapid attribution analysis of the extraordinary heat wave on the Pacific coast of the US and Canada in June 2021**. Earth Syst Dynam. 2022;13(4):1689-713. Available from: <https://esd.copernicus.org/articles/13/1689/2022/>.
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16. Salvador Costa MJ, Leitão A, Silva R, Monteiro V, Melo P. **Climate Change Prevention through Community Actions and Empowerment: A Scoping Review**. Int J Environ Res Public Health. 2022;19(22):14645. Available from: <https://www.mdpi.com/1660-4601/19/22/14645>.
17. Stevens KM. Coping with heat: community perceptions and experiences of urban forests in Metro Vancouver, Canada: University of British Columbia; 2022.
18. Yoon S, Woo S, Kim J, Hwang SW, Kweon SJ. **The location routing problem for cooling shelters during heat waves**. Urban Climate. 2022;44:101138. Available from: <https://doi.org/10.1016/j.uclim.2022.101138>.

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. Latchmore T, Hynds PD, Brown RS, McDermott K, Majury A. Assessing the risk of acute gastrointestinal illness attributable to three enteric pathogens from contaminated private water wells in Ontario. Int J Hyg Environ Health. 2023;248:114077. Available from: <https://www.sciencedirect.com/science/article/pii/S1438463922001602>.
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EMERGENCY PREPAREDNESS

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2. Ghosh AK, Demetres MR, Geisler BP, Ssebyala SN, Yang T, Shapiro MF, et al. **Impact of Hurricanes and Associated Extreme Weather Events on Cardiovascular Health: A Scoping Review**. Environ Health Perspect. 2022;130(11):116003. Available from: <https://doi.org/10.1289/EHP11252>.

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4. Humphreys A, Walker EG, Bratman GN, Errett NA. **What can we do when the smoke rolls in? An exploratory qualitative analysis of the impacts of rural wildfire smoke on mental health and wellbeing, and opportunities for adaptation.** BMC Public Health. 2022;22(1):41. Available from: <https://doi.org/10.1186/s12889-021-12411-2>.
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ENVIRONMENTAL HEALTH SURVEILLANCE

1. Andrade-Rivas F, Paul N, Spiegel J, Henderson S, Parrott L, Delgado-Ron J, et al., editors. **Mapping potential population-level pesticide exposures using a modular and scalable geospatial strategy [research poster].** 2022 Planetary Health Annual Meeting; 2022 Oct 31 - Nov 2; Boston, MA. Available from: <https://www.planetaryhealthannualmeeting.com/2022-abstracts>.
2. Henderson SB, McLean KE, Lee MJ, Kosatsky T. **Analysis of community deaths during the catastrophic 2021 heat dome: Early evidence to inform the public health response during subsequent events in greater Vancouver, Canada** [from “Environmental Epidemiology - Most Popular Articles” category]. Environmental Epidemiology. 2022;6(1). Available from: https://journals.lww.com/environepidem/Fulltext/2022/02000/Analysis_of_community_deaths_during_the.8.aspx.
3. Pires IM. **Smart Objects and Technologies for Social Good.** 2022;14(12):370. Available from: <https://link.springer.com/book/10.1007/978-3-319-61949-1>.
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ENVIRONMENTAL PLANNING

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COVID-19 ADDITIONAL TOPICS & GUIDANCE



CONTENTS

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- [MENTAL HEALTH](#)
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- [SURVIVAL TIME](#)
- [TRANSIT, TRANSPORTATION](#)
- [TRANSMISSION](#)

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