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New Research

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COVID-19

1. **Environmental justice and the COVID-19 pandemic: Evidence from New York State.** Zhang R, Li H, Khanna N. J Environ Econ Manage. 2021 Oct;110:102554. doi: 10.1016/j.jeem.2021.102554. Epub 2021 Oct 14.
   https://www.sciencedirect.com/science/article/pii/S0095069621001091
   The decline in human mobility and socioeconomic activities during the COVID-19 pandemic has been accompanied by reports of significant improvements in air quality. We evaluate whether there was a uniform improvement in air quality across neighborhoods, with a special attention on differences by race. We focus on the COVID-19 lockdown in New York State, an early epicenter of the pandemic in the United States. Using a triple difference-in-differences model, we find that, despite the seasonal decline in particulate matter pollution starting late March (concurrent with the lockdown period), the lockdown narrowed the disparity in air quality between census tracts with high and low shares of non-white population in rural New York, whereas the racial gap in air quality remained unchanged in urban New York.

2. **Climate change and infectious disease in Europe: Impact, projection and adaptation.** Semenza JC, Paz S. Lancet Reg Health Eur. 2021 Oct;9:100230. doi: 10.1016/j.lanepe.2021.100230. Epub 2021 Oct 7.
   https://www.sciencedirect.com/science/article/pii/S2666776221002167
   Europeans are not only exposed to direct effects from climate change, but also vulnerable to indirect effects from infectious disease, many of which are climate sensitive, which is of concern because of their epidemic potential. Climatic conditions have facilitated vector-borne disease outbreaks like chikungunya, dengue, and West Nile fever and have contributed to a geographic range expansion of tick vectors that transmit Lyme disease and tick-borne encephalitis. Extreme precipitation events have caused waterborne outbreaks and longer summer seasons have contributed to increases in foodborne diseases. Under the Green Deal, The European Union aims to support climate change health policy, in order to be better

prepared for the next health security threat, particularly in the aftermath of the traumatic COVID-19 experience. To bolster this policy process we discuss climate change-related hazards, exposures and vulnerabilities to infectious disease and describe observed impacts, projected risks, with policy entry points for adaptation to reduce these risks or avoid them altogether.

Health Impacts of Climate Change

3. **Respiratory function declines in children with asthma associated with chemical species of fine particulate matter (PM(2.5)) in Nagasaki, Japan.** Kim Y et al. Environ Health. 2021 Oct 21;20(1):110. doi: 10.1186/s12940-021-00796-x.
   https://ehjournal.biomedcentral.com/articles/10.1186/s12940-021-00796-x
   CONCLUSIONS: This study provides evidence of the differential effects of PM2.5 fractions on lung function among asthmatic children in urban areas, where the Japanese national standards of air quality have been nearly met. Continuous efforts to promote mitigation actions and public awareness of hazardous transboundary air pollution are needed to protect susceptible children with asthma.

4. **Association between exposure to air pollutants and the risk of inflammatory bowel diseases visits.** Ding S, Sun S, Ding R, Song S, Cao Y, Zhang L. Environ Sci Pollut Res Int. 2021 Oct 20. doi: 10.1007/s11356-021-17009-0. Online ahead of print.
   The results of this study suggest that air pollutants increase the risk of IBD patients in Hefei, China, providing a basis for developing countries to improve effective prevention of IBD, and a potential opportunity to avoid part of the risk of the onset or recurrence of IBD. This study contributes to the knowledge of the association between air pollution and IBD, but the associations need to be verified by further studies.

5. **Progress in understanding climate change's effects on children and youth.** Brodie N, Silberholz EA. Curr Opin Pediatr. 2021 Oct 19. doi: 10.1097/MOP.0000000000001078. Online ahead of print.
   https://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=ovft&AN=00008480-900000000-98613&PDF=y
   SUMMARY: Ongoing and emerging research suggests that children are particularly vulnerable to the effects of climate change. The primary care pediatrician is encouraged to see this irrefutable evidence as a call to action for advocacy on behalf of our patients and the planet.

6. **Linking climate and infectious disease trends in the Northern/Arctic Region.** Ma Y, Destouni G, Kalantari Z, Omazic A, Evengård B, Berggren C, Thierfelder T. Sci Rep. 2021 Oct 19;11(1):20678. doi: 10.1038/s41598-021-00167-z.
   https://www.nature.com/articles/s41598-021-00167-z
   Recognition of climate-sensitive infectious diseases is crucial for mitigating health threats from climate change. Recent studies have reasoned about potential climate sensitivity of diseases in the Northern/Arctic Region, where climate change is particularly pronounced. By linking disease and climate data for this region, we here comprehensively quantify empirical climate-disease relationships. Results show significant relationships of borreliosis, leptospirosis, tick-borne

encephalitis (TBE), Puumala virus infection, cryptosporidiosis, and Q fever with climate variables related to temperature and freshwater conditions. These data-driven results are consistent with previous reasoning-based propositions of climate-sensitive infections as increasing threats for humans, with notable exceptions for TBE and leptospirosis. For the latter, the data imply decrease with increasing temperature and precipitation experienced in, and projected for, the Northern/Arctic Region. This study provides significant data-based underpinning for simplified empirical assessments of the risks of several infectious diseases under future climate change.

7. **A nationwide study of air pollution from particulate matter and daily hospitalizations for respiratory diseases in Italy.** Renzi M et al. Sci Total Environ. 2021 Oct 16:151034. doi: 10.1016/j.scitotenv.2021.151034. Online ahead of print.
   RESULTS: A total of 4,154,887 respiratory admission were registered during 2006-2015, of which 29% for LRTI, 12% for COPD, 6% for URTI, and 3% for asthma. Daily mean PM10 and PM2.5 concentrations over the study period were 23.3 and 17 μg/m3, respectively. For each 10 μg/m3 increases in PM10 and PM2.5 at lag 0-5 days, we found excess risks of total respiratory diseases equal to 1.20% (95% confidence intervals, 0.92, 1.49) and 1.22% (0.76, 1.68), respectively. The effects for the specific diseases were similar, with the strongest ones for asthma and COPD. Higher effects were found in the elderly and in less urbanized areas.
   CONCLUSIONS: Short-term exposure to PM is harmful for the respiratory system throughout an entire country, especially in elderly patients. Strong effects can be found also in less urbanized areas.

8. **Plasma concentrations of perfluoroalkyl substances and risk of inflammatory bowel diseases in women: A nested case control analysis in the Nurses' Health Study cohorts.** Lochhead P et al. Environ Res. 2021 Oct 16:112222. doi: 10.1016/j.envres.2021.112222. Online ahead of print.
   DISCUSSION: Our results do not support the hypothesis that elevated PFAS exposure is associated with higher risk of UC. Contrary to expectation, our data suggest that circulating concentrations of some PFASs may be inversely associated with CD development.

9. **Air Pollution and Coronary Plaque Vulnerability and Instability: An Optical Coherence Tomography Study.** Montone RA et al. JACC Cardiovasc Imaging. 2021 Oct 7:S1936-878X(21)00692-6. doi: 10.1016/j.jcmg.2021.09.008. Online ahead of print.
   https://www.clinicalkey.com/#!/content/journal/1-s2.0-S1936878X21006926
   CONCLUSIONS: We provide novel insights into the missing link between air pollution and increased risk of coronary events. In particular, exposure to higher concentrations of air pollutants is associated with the presence of vulnerable plaque features and with plaque rupture as a mechanism of coronary instability. An enhanced systemic and plaque inflammatory activation may explain these findings.

10. **Air Pollution as a Determinant of Undernutrition Prevalence among Under-Five Children in India: An Exploratory Study.** Bora K. J Trop Pediatr. 2021 Oct 6;67(5):fmab089. doi: 10.1093/tropej/fmab089.

CONCLUSION: The burden of childhood undernutrition, particularly anaemia, in India may be linked to PM2.5 levels. To mitigate this burden, it may be necessary to complement the ongoing nutritional interventions with air pollution control measures.

11. **Examining the joint effects of heatwaves, air pollution, and green space on the risk of preterm birth in California.** Sun Y et al. Environ Res Lett. 2020 Oct;15(10):104099. doi: 10.1088/1748-9326/abb8a3. Epub 2020 Oct 9.
https://iopscience.iop.org/article/10.1088/1748-9326/abb8a3
CONCLUSION: This study found synergistic harmful effects for heatwaves with air pollution, and potential positive interactions with lack of green space on PTB. Implementing interventions, such as heat warning systems and behavioral changes, targeted toward pregnant women at risk for high air pollution and low green space exposures may optimize the benefits of reducing acute exposure to extreme heat before delivery.

WE ACT

12. **The Environment as a Patient: A Content Analysis of Canadian Nursing Organizations and Regulatory Bodies Policies on Environmental Health.** Mundie C, Donelle L. Can J Nurs Res. 2021 Oct 20:8445621211035913. doi: 10.1177/08445621211035913. Online ahead of print.
https://journals.sagepub.com/doi/10.1177/08445621211035913
CONCLUSION: There is a gap between nursing policies and competencies directing nursing action related to the health of the environment across Canada. There is an opportunity to improve eco-literacy within the nursing profession, undergraduate education and to produce nursing research on environmental health.

13. **Occupational therapy's contributions to combating climate change and lifestyle diseases.** Garcia Diaz LV, Richardson J. Scand J Occup Ther. 2021 Oct 18:1-8. doi: 10.1080/11038128.2021.1989484. Online ahead of print.
CONCLUSIONS AND SIGNIFICANCE: We argue that by framing the climate change discourse from a health perspective, occupational therapists can contribute to global efforts of combating climate change and lifestyle diseases by supporting individuals to engage in sustainable occupations and communities to facilitate this engagement.

Lancet Planetary Health – *open-access, interdisciplinary journal focused on sustainability*

News & Commentary

Cut particulate air pollution, save lives. Pereira G. BMJ. 2021 Oct 20;375:n2561. doi: 10.1136/bmj.n2561.

Decarbonizing the U.S. Health Sector - A Call to Action. Dzau VJ, Levine R, Barrett G, Witty A. N Engl J Med. 2021 Oct 13. doi: 10.1056/NEJMp2115675. Online ahead of print.

Why fossil fuel subsidies are so hard to kill. Timperley J. Nature. 2021 Oct;598(7881):403-405. doi: 10.1038/d41586-021-02847-2.

The broken $100-billion promise of climate finance - and how to fix it. Timperley J. Nature. 2021 Oct;598(7881):400-402. doi: 10.1038/d41586-021-02846-3.

Young people will be key to climate justice at COP26. Nature. 2021 Oct;598(7881):386. doi: 10.1038/d41586-021-02843-6.

Editorial: Understanding and Communicating Wildland Fire Smoke Risk. Hagler GSW et al. Front Public Health. 2021 Sep 29;9:721823. doi: 10.3389/fpubh.2021.721823. eCollection 2021.

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