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COVID-19

1. **Association between short-term exposure to air pollution and COVID-19 hospital admission/mortality during warm seasons.** Khorsandi B, Farzad K, Tahriri H, Maknoon R. Environ Monit Assess. 2021 Jun 18;193(7):426. doi: 10.1007/s10661-021-09210-y. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8211536/
COVID-19 is a new viral infection that is usually accompanied by respiratory complications. Air pollution has been linked to cardiorespiratory-related diseases and even premature mortality. The short-term exposure to air pollution may aggravate pulmonary symptoms in COVID-19 patients. The relationship between the short-term exposure to air pollution and hospital admission and mortality resulting from COVID-19 will be examined in Tehran, Iran, during the spring and summer of 2020. The statistics of PM2.5, PM10, and 8-h maximum ozone (O3) concentrations, meteorological conditions, and COVID-19 hospital admissions/mortality were analyzed. The cross-correlation and temporal relationship between the daily concentration of the aforementioned pollutants (as well as the meteorological conditions) and the COVID-19 hospital admissions/mortality rate was calculated for each month. The concentration of PM2.5, PM10, and 8-h maximum O3, along with temperature, increased in the summer. The hospital admissions and mortality associated with COVID-19 decreased from the first peak in the spring and then increased to its second peak in the summer. The short-term exposure to ambient PM2.5, PM10, O3, and elevated temperatures is associated with higher rates of COVID-19-related hospital admissions/mortality throughout the summer. Among these variables, the correlation with O3 was statistically significant in more summer months. The short-term exposure to air pollution (especially O3) may increase the susceptibility of the population infected with COVID-19 and, therefore, increases the rate of hospital admissions and mortality even during the warm seasons.

2. **Association between air pollution in Lima and the high incidence of COVID-19: findings from a post hoc analysis.** Vasquez-Apestegui BV, Parras-Garrido E, Tapia V, Paz-Aparicio VM, Rojas JP,

Sanchez-Ccoyllo OR, Gonzales GF. BMC Public Health. 2021 Jun 16;21(1):1161. doi: 10.1186/s12889-021-11232-7.

https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-11232-7

BACKGROUND: Coronavirus disease 2019 (COVID-19) originated in the People's Republic of China in December 2019. Thereafter, a global logarithmic expansion of cases occurred. Some countries have a higher rate of infections despite the early implementation of quarantine. Air pollution might be related to high susceptibility to the virus and associated case fatality rates (deaths/cases*100). Lima, Peru, has the second highest incidence of COVID-19 in Latin America and also has one the highest levels of air pollution in the region.

METHODS: This study investigated the association of levels of PM2.5 exposure in previous years (2010-2016) in 24 districts of Lima with cases, deaths and case fatality rates for COVID-19. Multiple linear regression was used to evaluate this association controlled by age, sex, population density and number of food markets per district. The study period was from March 6 to June 12, 2020.

RESULTS: There were 128,700 cases in Lima and 2382 deaths due to COVID-19. The case fatality rate was 1.93%. Previous exposure to PM2.5 (2010-2016) was associated with the number of COVID-19- cases ($\beta = 0.07$; 95% CI: 0.034-0.107) and deaths ($\beta = 0.0014$; 95% CI: 0.0006-0.0.0023) but not with the case fatality rate.

CONCLUSIONS: After adjusting for age, sex and number of food markets, the higher rates of COVID-19 in Metropolitan Lima are attributable to the increased PM2.5 exposure in the previous years, among other reasons. Reduction in air pollution from a long-term perspective and social distancing are needed to prevent the spread of virus outbreaks.

Health Impacts of Climate Change

3. **The impacts of pollution and its associated spatial spillover effects on ill-health in China.** Peng Z, Ma X, Chen X, Coyte PC. Environ Sci Pollut Res Int. 2021 Jun 18. doi: 10.1007/s11356-021-14813-6. Online head of print.

   While the adverse health effects of air pollution and its associated spatial spillovers have been extensively explored, there are a paucity of studies examining and comparing the effects of air pollution, water pollution, and their associated spatial spillover consequences for health. This study aims to evaluate and compare the impacts of water pollution, air pollution, and their associated spillover effects on ill-health. This study combined individual-level health data acquired from three waves of the China Health and Retirement Longitudinal Study (CHARLS) for 25,504 residents from 28 Chinese provinces with provincial-level pollution data for 2011, 2013 and 2015. We used Moran's I statistic to examine the existence and direction of the spatial spillover effects of pollution. The Spatial Durbin Model was then employed to assess the impacts of pollution and its associated spatial spillover effects on ill-health. A province's ill-health score increased by 6.649 for every 1 ton per capita per annum increase in the average amount of soot/dust discharged by its adjacent provinces. For every 1 ton per capita per annum increase in wastewater discharged, a province's ill-health score increased by 0.004. Targeted actions through the construction of cooperative action with adjacent provinces are suggested by our study to improve the efficiency of policy interventions.

4. **Increased duration of pollen and mold exposure are linked to climate change.** Paudel B, Chu T, Chen M, Sampath V, Prunicki M, Nadeau KC. Sci Rep. 2021 Jun 17;11(1):12816. doi: 10.1038/s41598-021-92178-z.
https://www.nature.com/articles/s41598-021-92178-z
Pollen and molds are environmental allergens that are affected by climate change. As pollen and molds exhibit geographical variations, we sought to understand the impact of climate change (temperature, carbon dioxide (CO_2), precipitation, smoke exposure) on common pollen and molds in the San Francisco Bay Area, one of the largest urban areas in the United States. When using time-series regression models between 2002 and 2019, the annual average number of weeks with pollen concentrations higher than zero increased over time. For tree pollens, the average increase in this duration was 0.47 weeks and 0.51 weeks for mold spores. Associations between mold, pollen and meteorological data (e.g., precipitation, temperature, atmospheric CO_2, and area covered by wildfire smoke) were analyzed using the autoregressive integrated moving average model. We found that peak concentrations of weed and tree pollens were positively associated with temperature ($p < 0.05$ at lag 0-1, 0-4, and 0-12 weeks) and precipitation ($p < 0.05$ at lag 0-4, 0-12, and 0-24 weeks) changes, respectively. We did not find clear associations between pollen concentrations and CO_2 levels or wildfire smoke exposure. This study's findings suggest that spore and pollen activities are related to changes in observed climate change variables.

5. **Climate Change and Extreme Weather: a Review Focusing on the Continental United States.** Robinson WA. J Air Waste Manag Assoc. 2021 Jun 15. doi:10.1080/10962247.2021.1942319. Online ahead of print.
Anthropogenic emissions of greenhouse gases are warming the Earth. It is likely that the greatest impacts of climate change on human and natural systems will come from increasingly frequent and severe extreme weather and climate events. Some increases in such extremes are already being detected, and this trend is projected to continue as Earth warms. Here we review the overarching climate drivers of increases in extreme weather and address the context in which extremes occur and the challenges of projecting future changes. The observational evidence for climate-driven increases in extremes and the implications of model projections are reviewed for heat and drought and several types of storms: tropical cyclones, midlatitude storms, and severe local weather, focusing on those changes most relevant to the continental United States. We emphasize the overall observed and modeled trends in extreme weather in which we have the greatest confidence, because they are consistent with our fundamental understanding of weather and climate. Despite remaining uncertainty about many details, especially in model-based projections, the signal of increasing extremes is sufficiently clear that it demands a robust human response, in limiting future emissions of greenhouse gases and in making our human systems more resilient to further changes that are inevitable as Earth continues to warm.

6. **Environmental Risk Factors for Childhood Cancer in an Era of Global Climate Change: A Scoping Review.** Buser JM, Lake K, Ginier E. J Pediatr Health Care. 2021 Jun 13:S0891-5245(21)00102-4. doi: 10.1016/j.pedhc.2021.05.005. Online ahead of print.
https://www.clinicalkey.com/#!/content/journal/1-s2.0-S0891524521001024

INTRODUCTION: Contemporary research about environmental risk factors in an era of global climate change to inform childhood cancer prevention efforts is disjointed. Planetary pediatric providers need to establish a better understanding of how the postnatal environment influences childhood cancer. Authors conducted a scoping review of recent scientific literature with the aim of understanding the environmental risk factors for childhood cancer.
METHOD: Ovid Medline, CINAHL, and Scopus databases were searched with results limited to the English language with publication years 2010-2021. Two independent reviewers screened 771 abstracts and excluded 659 abstracts and 65 full-text articles on the basis of predefined criteria.
RESULTS: The scoping review identified 47 studies about environmental risk factors for childhood cancer with mixed results and limited consensus in four main categories, including air pollution, chemical exposures, radiation, and residential location.
DISCUSSION: Research by collaborative international groups of planetary health researchers about environmental risk factors is needed to inform global health policy for childhood cancer prevention efforts.

7. **Climate change and neurodegenerative diseases.** Bongioanni P, Del Carratore R, Corbianco S, Diana A, Cavallini G, Masciandaro SM, Dini M, Buizza R. Environ Res. 2021 Jun 12;201:111511. doi: 10.1016/j.envres.2021.111511. Online ahead of print.
The climate change induced global warming, and in particular the increased frequency and intensity of heat waves, have been linked to health problems. Among them, scientific works have been reporting an increased incidence of neurological diseases, encompassing also neurodegenerative ones, such as Dementia of Alzheimer's type, Parkinson's Disease, and Motor Neuron Diseases. Although the increase in prevalence of neurodegenerative diseases is well documented by literature reports, the link between global warming and the enhanced prevalence of such diseases remains elusive. This is the main theme of our work, which aims to examine the connection between high temperature exposure and neurodegenerative diseases. Firstly, we evaluate the influence of high temperatures exposure on the pathophysiology of these disorders. Secondly, we discuss its effects on the thermoregulation, already compromised in affected patients, and its interference with processes of excitotoxicity, oxidative stress and neuroinflammation, all of them related with neurodegeneration. Finally, we investigate chronic versus acute stressors on body warming, and put forward a possible interpretation of the beneficial or detrimental effects on the brain, which is responsible for the incidence or progression of neurological disorders.

8. **Exploring rural hospital admissions for diarrhoeal disease, malaria, pneumonia, and asthma in relation to temperature, rainfall and air pollution using wavelet transform analysis.** Kapwata T, Wright CY, du Preez DJ, Kunene Z, Mathee A, Ikeda T, Landman W, Maharaj R, Sweijd N, Minakawa N, Blesic S. Sci Total Environ. 2021 Jun 8;791:148307. doi: 10.1016/j.scitotenv.2021.148307. Online ahead of print.
BACKGROUND: Climate variables impact human health and in an era of climate change, there is a pressing need to understand these relationships to best inform how such impacts are likely to change.

OBJECTIVES: This study sought to investigate time series of daily admissions from two public hospitals in Limpopo province in South Africa with climate variability and air quality.
METHODS: We used wavelet transform cross-correlation analysis to monitor coincidences in changes of meteorological (temperature and rainfall) and air quality (concentrations of PM2.5 and NO2) variables with admissions to hospitals for gastrointestinal illnesses including diarrhoea, pneumonia-related diagnosis, malaria and asthma cases. We were interested to disentangle meteorological or environmental variables that might be associated with underlying temporal variations of disease prevalence measured through visits to hospitals.
RESULTS: We found preconditioning of prevalence of pneumonia by changes in air quality and showed that malaria in South Africa is a multivariate event, initiated by co-occurrence of heat and rainfall. We provided new statistical estimates of time delays between the change of weather or air pollution and increase of hospital admissions for pneumonia and malaria that are addition to already known seasonal variations. We found that increase of prevalence of pneumonia follows changes in air quality after a time period of 10 to 15 days, while the increase of incidence of malaria follows the co-occurrence of high temperature and rainfall after a 30-day interval.
DISCUSSION: Our findings have relevance for early warning system development and climate change adaptation planning to protect human health and well-being.

9. **Air pollutants and outpatient visits for influenza-like illness in Beijing, China.** Li X, Xu J, Wang W, Liang JJ, Deng ZH, Du J, Xie MZ, Wang XR, Liu Y, Cui F, Lu QB. PeerJ. 2021 Jun 2;9:e11397. doi: 10.7717/peerj.11397. eCollection 2021.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8179240/

BACKGROUND: Air pollution leads to many adverse health conditions, mainly manifested by respiratory or cardiac symptoms. Previous studies are limited as to whether air pollutants were associated to influenza-like illness (ILI). This study aimed to explore the association between air pollutants and outpatient visits for ILI, especially during an outbreak of influenza.
METHODS: Daily counts of hospital visits for ILI were obtained from Peking University Third Hospital between January 1, 2015, and March 31, 2018. A generalized additive Poisson model was applied to examine the associations between air pollutants concentrations and daily outpatient visits for ILI when adjusted for the meteorological parameters.
RESULTS: There were 35862 outpatient visits at the fever clinic for ILI cases. Air quality index (AQI), PM2.5, PM10, CO and O3 on lag0 days, as well as nitrogen dioxide (NO2) and sulfur dioxide (SO2) on lag1 days, were significantly associated with an increased risk of outpatient visits for ILI from January 2015 to November 2017. From December 2017 to March 2018, on lag0 days, air pollutants PM2.5 [risk ratio (RR) = 0.971, 95% CI: 0.963-0.979], SO2 (RR = 0.892, 95% CI: 0.840-0.948) and CO (RR = 0.306, 95% CI: 0.153-0.612) were significantly associated with a decreased risk of outpatient visits for ILI. Interestingly, on the lag2 days, all the pollutants were significantly associated with a reduced risk of outpatient visits for ILI except for O3. We did not observe the linear correlations between the outpatient visits for ILI and any of air pollutants, which were instead associated via a curvilinear relationship.
CONCLUSIONS: We found that the air pollutants may be associated with an increased risk of outpatient visits for ILI during the non-outbreak period and with a decreased risk during the outbreak period, which may be linked with the use of disposable face masks and the change of

outdoor activities. These findings expand the current knowledge of ILI outpatient visits correlated with air pollutants during an influenza pandemic.

10. **An impact of air pollution on moderate to severe relapses among multiple sclerosis patients.**
Elgabsi M, Novack L, Yarza S, Elgabsi M, Shtein A, Ifergane G. Mult Scler Relat Disord. 2021 May 25;53:103043. doi: 10.1016/j.msard.2021.103043. Online ahead of print.
https://www.clinicalkey.com/#!/content/journal/1-s2.0-S2211034821003102
BACKGROUND: Multiple Sclerosis (MS) is a chronic inflammatory disease of the central nervous system with both a genetic and environmental component.OBJECTIVE: In the current study, we examined an association between incidence of MS moderate to severe relapses and exposure to air pollutants and meteorological exposures.
METHODS: We enrolled MS patients in Southern Israel during 2000-2017. Exposure assessment relied on satellite-based model of exposure to particulate matter of size <2.5 and 10 microns (PM2.5, PM10) and temperature at a spatial resolution of 1 km (Kloog et al., 2015). The information on exposure to nitrogen dioxide (NO2), sulfur dioxide (SO2) and ozone (O3) levels was completed from the database of the monitoring stations. We analyzed the data using a semi-ecological approach. The monthly incidence of MS-related relapses requiring hospitalization as a function of environmental factors was analyzed by time-series technique, adjusting to sex, age and smoking. We also used a case-crossover approach to compare environmental exposure of a patient on the day of the relapse with the exposure on the relapse-free days. All estimates were adjusted to the heat index and were divided by IQR.
RESULTS: There were 287 MS patients in the study, with an average age of 52.8 ± 16.7 years, 37% of them (107) being under 40. Mostly female (66.2%), and 13.6% of the patients smoking (47% non-smoking and 39.4% unknown). PM2.5 was independently associated with MS relapses within the non-smoking population [Relative Risk (RR)=1.28, 95%CI:1.01-1.62]. O3 was found adversely associated with MS relapses among patients younger than 40 [RR=1.58, 95%CI 1.03-4.43]. Based on the case-crossover approach, relapses were associated with elevated levels of PM10 and NO2 in all subjects [Odds Ratio (OR)=1.05, 95%CI:1.00-1.11; OR=1.85, 95%CI: 1.28-2.68, respectively]. An adverse association with PM2.5 was observed in non-smokers [OR 1.12, 95%CI 1.00-1.25].
CONCLUSIONS: The findings show that MS relapses are adversely associated with an ambient exposure to PM and NO2.

11. **The influence of air pollution by PM2.5, PM10 and associated heavy metals on the parameters of out-of-hospital cardiac arrest.** Sielski J, Kaziród-Wolski K, Jóźwiak MA, Jóźwiak M. Sci Total Environ. 2021 Sep 20;788:147541. doi: 10.1016/j.scitotenv.2021.147541. Epub 2021 May 7.
Out-of-hospital cardiac arrest (OHCA), defined as abrupt cessation of mechanical activity of the heart, is one of the most common causes of death in high-income countries. Cardiac arrest is most often a result of severe cardiovascular disease. New evidence shows that air pollutants such as heavy metals and atmospheric particulate matter have an impact on the pathophysiology of many cardiovascular diseases as well on incidences of OHCA. This retrospective analysis includes all OHCA cases that occurred in central Poland covering the area of 11.711 km2 with the population density of 108 people per square kilometer. Among 2878

EMS-treated OHCA cases between 2013 and 2016, cardiopulmonary resuscitation (CPR) was attempted in 2076 (72%) patients. Concentrations of air pollutants were compared with temperature, humidity and clinical factors affecting the CPR. The study shows seasonal variation of PM 2.5 ($p < 0.001$), PM 10 ($p < 0.001$), As ($p < 0.001$) and Cd ($p < 0.001$) over the years. Air pollution has a significant effect on the parameters of pre-hospital evaluation in OHCA patients, especially with respect to the content of PM2.5/PM10 and heavy metals. Nickel exposure affects the incidence of initial shockable rhythm (IRR 0.92; $p = 0.01$) and effectiveness of CPR (IRR 0.94; $p = 0.003$). Arsenic has an impact on overall mortality (IRR 1.07; $p = 0.01$) and death upon the arrival of EMS team (IRR 1.15; $p < 0.001$). Overall mortality was also related to ambient levels of PM10 (IRR 1.004; $p < 0.047$).

WE ACT

12. **How the hospital context influences nurses' environmentally responsible practice: A focused ethnography.** Kalogirou MR, Dahlke S, Davidson S, Yamamoto S. J Adv Nurs. 2021 Jun 17. doi: 10.1111/jan.14936. Online ahead of print.
https://onlinelibrary.wiley.com/doi/10.1111/jan.14936
AIM: To describe ways in which a hospital context, physically and culturally, influences nurses' abilities to promote and engage with environmentally responsible practice.
DESIGN: A focused ethnographic study.
METHODS: Data were collected during May and August, 2019. Nurses (n = 22) working in the emergency room and three medicine units within a large Western Canadian hospital were invited to participate. Semi-structured interviews were conducted, and observations were collected. Reporting is in accordance with the consolidated criteria for reporting qualitative research.
RESULTS: Three themes were identified: patient care not environmental care, organizational role and operational efficiency. Overall, participants indicated patient care was their primary priority, and due to their workload, they were unable to simultaneously consider the environmental impact of their work. Participants stated they had difficulties practicing in environmentally responsible ways because they felt unsupported by their hospital organization. Regardless, there was a desire for the organization to support environmentally responsible practices.
CONCLUSION: Climate change is a major health concern, and partnership between hospitals and nurses is necessary to ensure environmentally responsible healthcare is delivered. We suggest both a top-down and bottom-up approach to help develop hospital contexts that are relevant and environmentally responsible.
IMPACT: Nurses have a professional responsibility to address climate change, yet this study identified that nurses found it challenging to practice in environmentally responsible ways within the hospital context. Challenges they faced are related to their workload, their misaligned nursing priorities and, more importantly, because they felt unsupported by their hospital. Findings are important to both the nursing profession as well as other hospital leaders so that a culture of environmentally responsible healthcare can be developed within hospitals.

13. **Diabetes Technology and Waste: A Complex Story.** Heinemann L, Klonoff DC. J Diabetes Sci Technol. 2021 Jun 17:19322968211022321. doi: 10.1177/19322968211022321. Online ahead of print.
    https://journals.sagepub.com/doi/full/10.1177/19322968211022321
    Medical products are used increasingly by patients with diabetes as they make diabetes therapy more safe and efficient; subsequently such products are produced and used millions of times each day. This in turn means that the products themselves and the packaging adds up to a huge amount of waste, mainly plastic waste. Not only patients are well aware of this and start to complain about this, in view of the climate change the political pressure to change the situation is high and will increase further. A better balance between performance of the products and their environmental impact has to be found; however, diabetes technology and waste is a complex story with many different aspects.

14. **Sustainable healthcare - Time for 'Green Podiatry'.** Evans AM. J Foot Ankle Res. 2021 Jun 15;14(1):45. doi: 10.1186/s13047-021-00483-7.
    https://jfootankleres.biomedcentral.com/articles/10.1186/s13047-021-00483-7
    BACKGROUND: Healthcare aims to promote good health and yet demonstrably contributes to climate change, which is purported to be 'the biggest global health threat of the 21st century'. This is happening now, with healthcare as an industry representing 4.4% of global carbon dioxide emissions.
    MAIN BODY: Climate change promotes health deficits from many angles; however, primarily it is the use of fossil fuels which increases atmospheric carbon dioxide (also nitrous oxide, and methane). These greenhouse gases prevent the earth from cooling, resulting in the higher temperatures and rising sea levels, which then cause 'wild weather' patterns, including floods, storms, and droughts. Particular vulnerability is afforded to those already health compromised (older people, pregnant women, children, wider health co-morbidities) as well as populations closer to equatorial zones, which encompasses many low-and-middle-income-countries. The paradox here, is that poorer nations by spending less on healthcare, have lower carbon emissions from health-related activity, and yet will suffer most from global warming effects, with scant resources to off-set the increasing health care needs. Global recognition has forged the Paris agreement, the United Nations sustainable developments goals, and the World Health Organisation climate change action plan. It is agreed that most healthcare impact comes from consumption of energy and resources, and the production of greenhouse gases into the environment. Many professional associations of medicine and allied health professionals are advocating for their members to lead on environmental sustainability; the Australian Podiatry Association is incorporating climate change into its strategic direction.
    CONCLUSION: Podiatrists, as allied health professionals, have wide community engagement, and hence, can model positive environmental practices, which may be effective in changing wider community behaviours, as occurred last century when doctors stopped smoking. As foot health consumers, our patients are increasingly likely to expect more sustainable practices and products, including 'green footwear' options. Green Podiatry, as a part of sustainable healthcare, directs us to be responsible energy and product consumers, and reduce our workplace emissions.

15. **On building sustainable communities: A perspective for HFE practitioners.** Sinclair MA, Henshaw MJD, Henshaw SL. Appl Ergon. 2021 Jun 14;96:103476. doi: 10.1016/j.apergo.2021.103476. Online ahead of print.
This paper is aimed mainly at Human Factors and Ergonomics (HFE) practitioners. It addresses the sustainability of communities, since without them there is no real human future. It also fits current concerns about climate change and general sustainability. However, our understanding of the characteristics of sustainable communities is still insufficient, as is evidenced by the different perspectives extant in the HFE literature. This paper provides a further perspective based on systems ergonomics, intended both to extend our socio-technical understanding and to assist HFE practitioners in contributing to a broad approach by which to contribute to the never-ending renewal process for these communities. Without such an approach many communities will become unsustainable, with collapse as their end, as Tainter originally, icily, explained (Tainter 1988). The paper begins with a definition of a 'sustainable community', including its legal basis. Its sustainability goals are outlined, based mainly on principles of social justice, since without people there is no community. Then there is a discussion of the characteristics of sustainable communities, the classes of resources available to maintain sustainability, and some of the complexities and hindrances to this maintenance. The last sections link this conceptual landscape to HFE practice by outlining approaches and processes that move from the conceptual landscape in this paper to current practice.

16. **Collective climate action: When do people turn into collective environmental agents?** Fritsche I, Masson T. Curr Opin Psychol. 2021 May 15;42:114-119. doi: 10.1016/j.copsyc.2021.05.001. Online ahead of print.
Effectively protecting the climate requires the action of groups. In the present review article, we aim to understand when individuals turn into collective climate actors. We first discuss pertinent models of group-based action and their relevance for explaining climate action. Then, we review recent research on how collective climate action is driven by ingroup identification, social norms, group-based emotions, and collective efficacy. Finally, we focus on when and why people feel a sense of collective agency aiming at inspiring a novel research agenda on collective climate action.

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News & Commentary

Physicians to be better trained on effects of air pollution on health, says college. Rimmer A. BMJ. 2021 Jun 16;373:n1558. doi: 10.1136/bmj.n1558.

Empowering health-care learners to take action towards embedding environmental sustainability into health-care systems. Luo OD, Carson JJK, Sanderson V, Wu K, Vincent R. Lancet Planet Health. 2021 Jun;5(6):e325-e326. doi: 10.1016/S2542-5196(21)00059-0.

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