Children’s Environmental Health International Initiatives

This is an international mailing list provided by WHO and UNEP dedicated to promoting healthy environments for children

January/February 2023

State of the World’s Sanitation: An urgent call to transform sanitation for better health, environments, economies and societies

For the first time WHO and UNICEF bring together the data on sanitation coverage and investment, and how it impacts health, economies, and the environment. Citing evidence on what works from successful countries and global guidelines, WHO and UNICEF call for strong government leadership and investment in resilient sanitation services. The report charts an ambitious way forward following the SDG6 global acceleration framework themes of governance, financing, capacity development, data and information, and innovation to achieve universal access to safe sanitation.

WHO (06/2021)

Journal Articles

Outdoor artificial light at night, air pollution, and risk of childhood acute lymphoblastic leukemia in the California Linkage Study of Early-Onset Cancers

Acute lymphoblastic leukemia (ALL) is the most common type of cancer in children however, the etiology remains incompletely understood. Closely related to air pollution and human development is artificial light at night (ALAN), which is believed to disrupt circadian rhythm and impact health. The authors sought to evaluate outdoor ALAN and air pollution on risk of childhood ALL in a cohort with early cancer diagnoses compared to controls. The highest tertile of ALAN was associated with an increased risk of ALL in Hispanic children. There also appeared to be a borderline association between PM_{2.5} level and risk of ALL among non-Hispanic White children. There was an elevated risk of ALL

Reports

Observations from COP27: Health Care Is Becoming a Bigger Part of the Climate Change Solution

The resort town of Sharm El-Sheikh provided a striking natural setting for the 27th annual
in Hispanic children residing in areas of greater ALAN. Scientific Reports

Environmental and Behavioral Factors in Association with Lung Function Impairment in Children Living in Wuhan, China

This study aims to identify the prevalence of impaired lung function in children and the potential influencing factors in elementary school children (age 6-12) of Wuhan, China. Information on personal behavior patterns and household characteristics, as well as parental factors, was collected. Spirometry was used to measure lung function. Overall, breastfeeding, opening windows long-term in summer and winter, higher socioeconomics, and an urban living environment were protective factors for impaired lung function. However, opening windows long-term and using air conditioning short-term in autumn, as well as home renovations, doing physical exercise for more than 30 min per day, preterm birth, height stunting, and air pollution exposure during commuting were regarded as significant risk factors for impaired lung function.

Environmental Research and Public Health

Air Pollution

Emission of Industrial Air Pollution and Mortality Due to Respiratory Diseases: A Birth Cohort Study in Poland

Air pollution is a major risk factor for public health worldwide, but evidence linking this environmental problem with the mortality of children in Central Europe is limited. The authors investigated the relationship between air pollution due to the emission of industry-related particulate matter and mortality due to respiratory diseases under one year of age using a retrospective Polish birth cohort. Harmful emission was described as total particle pollution (TPP) from industries. The study found that infants born in areas with extremely high emission of TPP had a significantly higher risk of mortality due to respiratory diseases compared with those born in areas with the lowest emission levels.

Environmental Research and Public Health

Indoor air pollution from coal combustion and tobacco smoke during the periconceptional period and risk for neural tube defects in offspring in five rural counties of Shanxi Province, China, 2010–2016

Conference of Parties (COP27) global negotiations on climate change. This year’s meeting followed a watershed meeting for climate change and health considerations in Glasgow, where the first official U.S. delegation from the Department of Health and Human Services (DHHS) pledged U.S. participation in the COP26 Health Programme alongside 51 other countries. Although this year’s meeting disappointed by not featuring health as one of its 11 themes, the momentum established in Glasgow continued, and this year’s discussions foreshadowed increasingly meaningful engagement of health ministries, systems, professionals, corporations, and philanthropic groups in addressing the health implications of the climate crisis.

Environmental Health Perspectives (15/12/2022)

Press Releases

War in Ukraine pushes generation of children to the brink, warns UNICEF

Almost one year since the escalation of the war in Ukraine on February 24, 2022, a generation of children has experienced 12 months of violence, fear, loss and tragedy. There is not a single aspect of children’s lives that the conflict has not impacted, with children killed, injured, forced from their homes, missing out on critical education and denied the benefits of a safe and secure environment. “Children in Ukraine have experienced a year of horror,” said UNICEF Executive Director Catherine Russell. “Millions of children are going to sleep cold and scared and waking up hoping for an end to this brutal war.” The war is also having a devastating impact on the mental health and well-being of children. An estimated 1.5 million children are at risk of depression, anxiety, post-traumatic stress disorder and other mental health issues, with potential long-term effects and implications.

UNICEF (21/02/2023)

To reduce superbugs, world must cut down pollution

Curtailing pollution created by pharmaceuticals, agricultural and healthcare sectors is essential to reduce the emergence, transmission, and spread of superbugs – strains of bacteria that have become resistant to every known antibiotic – and other instances of antimicrobial resistance, known as AMR. This is the key message of a report released today by the UN Environment Programme (UNEP) on the environmental dimensions of AMR, which already is taking a
Indoor air pollution may increase the risk for neural tube defects (NTDs) in Chinese rural populations. We conducted a population-based case-control study of NTD and control mothers recruited between 2010 and 2016 in five rural areas in northern China. An indoor air pollution exposure evaluation index (IAPEEI) was used to evaluate mothers’ exposure to tobacco-sourced and coal-sourced indoor air pollution. We found that exposure to indoor air pollution (IAPEEI ≥ 1) can lead to 3.41 times the risk of conceiving NTD fetuses compared with the no-exposure group (IAPEEI = 0). The risk increased with increasing IAPEEI score. Using a coal stove for heating (especially in the bedroom) and passive smoking are significantly associated with an increased likelihood of NTD occurrence. *Environment International*

**Chemicals/Pesticides**

**Maternal plasma perfluoroalkyl substances concentrations in early pregnancy and cardiovascular development in offspring: a prospective cohort study**

This study aimed to assess the potential association between maternal plasma perfluoroalkyl substances (PFAS) concentrations during early pregnancy and cardiovascular development in offspring. Cardiovascular development was assessed through blood pressure measurement, echocardiography and carotid ultrasound examinations among 957 children from the Shanghai Birth Cohort aged at 4 years old. Maternal plasma concentrations of PFAS were measured at mean gestational age of 14.4 (SD:1.8) weeks. The results indicate that maternal plasma PFAS concentrations during early pregnancy was adversely associated with cardiovascular development in offspring, including thinner cardiac wall thickness and carotid intima media thickness (cIMT). *Environment International*

**Prenatal paraben exposures and birth size: Sex-specific associations in a healthy population - A study from the Odense Child Cohort**

The authors investigated the sex-specific associations between maternal paraben concentrations and birth size of the offspring using prospective cohort study of 529 mother-child pairs within the Odense Child Cohort. Pregnant women provided urine samples in the second trimester (median 28.7 weeks). Concentrations of methylparaben (MeP), serious toll on the health of humans, animals, and plants, as well as the economy. The report, *Bracing for Superbugs: strengthening environmental action in the One Health response to antimicrobial resistance* calls for a multisectoral One Health response. This is in line with the work of the Quadripartite Alliance, including UNEP, the Food and Agriculture Organization (FAO), the World Health Organization (WHO) and the World Organisation for Animal Health (WOAH). UNEP (07/02/2023)

**In the Media**

**One in eight cases of asthma in US kids caused by gas stove pollution – study**

About one in eight cases of asthma in children in the US is due to the pollution given off by cooking on gas stoves, new research has found, amid moves by Joe Biden's administration to consider the regulation, or even banning, of gas cookers sales to Americans. Around a third of US households have gas stoves in their kitchens. However, research has repeatedly found the emission of toxic chemicals and carcinogens from gas stoves, even when they are turned off, is creating indoor pollution that can be several times worse than the pollution experienced outdoors from car traffic and heavy industry. A new study shows the risk being posed to children from pollutants such as nitrogen dioxide that spew from the stoves, finding that 12.7% of all current cases of childhood asthma in the US are due to the use of gas stoves. The Guardian (06/01/2023)

**Heatwaves are among the most deadly natural disasters, says the World Health Organization**

The South African Weather Service (SAWS) has issued a heatwave warning as several provinces experience temperatures as high as 40°C. According to the United States Environmental Protection on Climate Change Indicators, excessive heat might raise the risk of dying from a heart attack, other cardiac disorders, or respiratory illnesses like pneumonia. The World Health Organization says heatwaves are among the most deadliest natural disasters, yet they rarely attract enough attention because the death toll and destruction are not often immediately apparent. IOL (20/01/2023)
ethyiparaben (EtP), iso-propylparaben (i-PrP), n-propylparaben (n-PrP), n-butylparaben (n-BuP) and benzylparaben (BzP) were analyzed. Higher maternal exposure to n-butylparaben was associated with lower birth size in female but not male offspring.

*Science of the Total Environment*

**Heavy Metals/Trace Elements**

*Airborne levels of cadmium are correlated with urinary cadmium concentrations among young children living in the New York state city of Syracuse, USA*

Air pollution is a serious public health issue with early childhood exposure being of high concern because of the greater risk that children might experience negative health outcomes. We compare estimated ambient air concentrations of Cadmium (Cd) to a cohort (n = 281) of 9 to 11-year old children during their early childhood years (0–5 years of age) in a mid-size city in Upstate New York. Levels of Cd air pollution are compared to children's urine-Cd levels. Urine has been shown to be a superior biomarker to blood for Cd exposure particularly for longer-term exposures. We find that participants who reside in households that faced greater Cd air pollution during the child's early years have higher urine-Cd levels. This association is stable and stronger than previously presented associations for blood-Cd.

*Environmental Research*

**Water, Sanitation & Hygiene**

*Brief status of contamination in surface water of rivers of India by heavy metals: a review with pollution indices and health risk assessment*

The significance and novelty of this study is that it focuses on assessment of heavy metals (HMs) in the surface water of Indian rivers only from 1991 to 2021. The average concentrations of Fe, Cr, Pb, Ni, Cd, Mn, Hg, Co, and As in surface water of rivers were found to far exceed the permitted limits established by both World Health Organisation and Bureau of Indian Standards. In this study, values investigated for Cancer index were higher for Cr, Pb, Ni, Cd, and As indicating a high risk of cancer development in adults and children via the ingestion pathway than the cutaneous pathway. Moreover, children are more prone to be exposed to both non-carcinogenic and carcinogenic effects of HMs than adults.

*Environmental Geochemistry and Health*

**Long-term exposure to dirtier air can increase your risk of depression or anxiety, study finds**

People who live in a highly polluted area have a higher risk of depression and anxiety than those who live with cleaner air, a new study says. The study, published Wednesday in the journal *JAMA Psychiatry*, found that people who were exposed to higher amounts of multiple air pollutants for a long period -- including particle pollution, nitrogen dioxide and nitrogen oxides -- had an increased risk of depression and anxiety. The risk was noted even when the pollution levels were below UK air quality standards. The risk of anxiety linked to PM2.5 pollution was stronger in men than in women. The study can't pinpoint the reason for the overall link, but others have found that exposure to air pollution may affect the central nervous system, causing inflammation and damaging the body's cells.

*CNN Health (01/02/2023)*

**Thousands of Nigerians seek justice for devastating impacts of Shell oil spills**

Nearly 14,000 people from two Nigerian communities are seeking justice in the high court in London against the fossil fuel giant Shell, claiming it is responsible for devastating pollution of their water sources and destruction of their way of life. The individuals from the Niger delta area of Ogale, a farming community, joined more than 2,000 people from the Bille area, a large fishing community. Shell recently announced that they will be ceasing all operations. The oil company made record-breaking profits in 2022, generating over $32bn in the first three quarters. The oil giant are arguing that they are not responsible for a clean-up of Nigerian communities for spills that they say were caused by criminal gangs over five years ago. *Watch video here.*

*The Guardian (02/02/2023)*

**Study Finds Most U.S. Children UsePotentially Toxic Makeup Products, Often During Play**

A study by scientists at Columbia University Mailman School of Public Health and Earthjustice found that most children in the United States use products that may contain carcinogens and other toxic chemicals. Results are published in the peer-reviewed *International Journal of Environmental Research and Public Health*. The study found that 79 percent of parents say their children 12 or younger use makeup and body products marketed to children, like glitter, face paint, and lip gloss. These products often have toxic chemicals, like lead, asbestos, PFAS,
Environmental Health Education

Critical Competencies in Children's Environmental Health

Competency in children’s environmental health allows for the development of interventions that can prevent the long-term and irreversible health outcomes that result from early environmental toxic exposures. Health effects that are thought to be at least partially influenced by early exposures include cardiovascular disease, diabetes, cancer, autism, attention-deficit/hyperactivity disorder (ADHD), lower IQ, Parkinson's disease, and Alzheimer’s disease. There are still gaps in workforce training for those interested in children’s environmental health. Our work focused on creating a set of competencies for public health professionals interested in children’s environmental health careers as a way to meet the demand for children’s environmental health specialists. We identified 12 competencies that individuals can adopt to build their capacity as children’s environmental health professionals.

Journal of Environmental Health

Racial and Ethnic Composition of Students, Graduates, and Faculty in Environmental Health Sciences, 2011 to 2021

The lack of diversity among the environmental health sciences (EHS) workforce has been an ongoing concern. We analyzed 2011 and 2021 data on EHS students, graduates, and faculty to compare changes in the racial and ethnic composition among Association of Schools and Programs of Public Health-member institutions. We observed significant proportion increases among Hispanic enrolled students, Multiracial enrolled students and graduates, and Asian tenured professors. Despite these findings, no substantial change existed among the other racial and ethnic groups. More efforts are needed to recruit, train, and promote racial and ethnic minorities who can leverage their lived experiences to provide novel solutions to environmental challenges.

Environmental Health Insights

Climate Change

The Role of Extreme Heat Exposure on Premature Rupture of Membranes in Southern California: A study from a Large Pregnancy Cohort

Cutting air pollution improves children’s lung development, study shows

Reducing air pollution could improve lung function development in children and cut the numbers of young people with significant pulmonary impairments, research suggests. The impact of air pollution on health has become a topic of intense concern in recent years, with research suggesting...
Significant mortality and morbidity in pregnant women and their offspring are linked to premature rupture of membranes (PROM). We investigated associations between acute heatwave exposure and spontaneous PROM. In total, we included 190,767 subjects with 16,490 (8.6%) spontaneous PROMs. We identified a 9–14% increase in PROM risks associated with less intense heatwaves. The heat-related PROM risks were greater among mothers exposed to a higher level of PM$_{2.5}$ during pregnancy, under 25 years old, with lower education and household income level, and who smoked. Mothers living with lower green space or lower AC penetration were at consistently higher heat-related PROM risks compared to their counterparts.

It can affect every organ in the body and the World Health Organization noting children’s developing organs and nervous systems are more susceptible to long-term damage. The issue was thrown into the spotlight in 2020 after nine-year-old Ella Kissi-Debrah became the first person in the UK to have air pollution listed as the cause of death on their death certificate.

The Guardian (23/02/2023)

Newsletters

Children’s Environmental Health Network (CEHN) Newsletter
The January CEHN Weekly E-digest offered helpful advice for protecting children from climate change. Check their website for more information and sign up for webinars, virtual events and more. CEHN (18/01/23)

Webinars
Public health practices to support psychosocial and mental health response and recovery post-flooding
March 30, 2023 @ 12 - 1pm Pacific Time (PT)
Maxine Myre, PhD and Nicole Glenn, PhD
PolicyWise
Register Here