Children’s Environmental Health International Initiatives

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

September/October 2023

Global Alliance to Eliminate Lead Paint
The Global Alliance to Eliminate Lead Paint (Lead Paint Alliance) is a voluntary partnership formed by the United Nations Environment Programme (UNEP) and the World Health Organization (WHO) to prevent exposure to lead through promoting the phase-out of paints containing lead. The Lead Paint Alliance is guided by an Advisory Council chaired by the US Environmental Protection Agency (US EPA) and consisting of Government representatives from Colombia, Republic of Moldova, Kenya, Thailand, the International Pollutants Elimination Network (IPEN), Health and Environmental Alliance (HEAL), the American Bar Association, Rule of Law Initiative (ABA ROLI) the World Coating Council (formerly IPPIC), AkzoNobel and Pacific Paint (Boysen) Philippines (paint companies). UN Environment Programme (October 2023)

JOURNAL ARTICLES

Air Pollution
In-utero exposure to multiple air pollutants and childhood undernutrition in India
This study explored the individual and community-level associations of both indoor (cooking fuel type) and ambient air pollution (PM_{2.5}, NO₂ and SO₂) during maternal gestation on child undernutrition. The authors analysed stunting, being underweight, and anaemia of children aged 0–59 months in India using the National Family Health Survey. In-utero exposures to ambient PM_{2.5}, NO₂, and SO₂ were measured using satellite data and self-reported fuel type was a marker of indoor pollution exposure. The results of multi-pollutant model show that a higher ambient PM_{2.5} exposure during pregnancy was linked to higher odds of stunting,

CHILDREN’S ENVIRONMENTAL HEALTH NEWS
International Lead Poisoning Prevention Week - End Childhood Lead Poisoning (22-28 October 2023)
The aim of International Lead Poisoning Prevention Week is to draw attention to the health impacts of lead exposure, highlight efforts by countries and partners to prevent childhood lead exposure, and accelerate efforts to phase out the use of lead in paint. Even though there is wide recognition of the harmful effects of lead and many countries have taken action, exposure to lead, particularly in childhood, remains of key concern to health care providers and public health officials worldwide. The focus of this year’s WHO campaign “End Childhood Lead Poisoning” reminds governments, civil society organizations, health partners, industry and others of the unacceptable risks of lead exposure and the need for action to protect children’s health. The campaign builds on the success in outlawing the use of lead in petrol and the progress achieved by many countries in establishing laws that limit the use of lead in paint, particularly those paints to which children are exposed in their homes, schools and playgrounds.
This webpage provides advocacy materials and technical guidance to support campaigners in organizing events during the week of action and an events registration page where campaigners can showcase their events during the week. WHO (10/2023)

Events
8th Annual Children’s Environmental Health Day
Hosted by the Children’s Environmental Health Network, Children’s Environmental Health (CEH) Day takes place on the second Thursday of
underweight, and anaemia in children. Weaker but similar associations were observed for NO₂, but not with SO₂. Indoor pollution exposure during in-utero periods was also significantly associated with childhood undernutrition and this association was modified by ambient PM₁₀ levels, where exposure to both indoor and ambient air pollution had even greater odds of being undernourished.  

**Journal of Exposure Science & Environmental Epidemiology**  

**Early life PM₂.₅ exposure, childhood cognitive ability and mortality between age 11 and 86: A record-linkage life-course study from Scotland**  

Living in areas with high air pollution concentrations is associated with all-cause and cause-specific mortality. Data were drawn from the Scottish Longitudinal Study Birth Cohort of 1936, a representative record-linkage study comprising 5% of the Scottish population born in 1936. Participants had valid age 11 cognitive ability test scores along with linked mortality data until age 86. Fine particle (PM₂.₅) concentrations were linked to participants' residential address derived from the National Identity Register in 1939 (age 3). The authors found higher early life PM₂.₅ exposure increased the risk of all-cause mortality, associations were stronger for mortality between age 65 and 86. PM₂.₅ increased the risk of cancer-related mortality, especially for lung cancer among females. Higher PM₂.₅ in early life (>50 µg m⁻³) was associated with lower childhood cognitive ability, which, in turn, increased the risk of all-cause mortality and mediated 25% of the total associations.  

**Environmental Research**  

**Exposure to Particulate Matter Air Pollution and Age of Menarche in a Nationwide Cohort of U.S. Girls**  

The aim of this study was to determine whether residential ambient particulate matter (PM) exposure in utero and during childhood is associated with age of menarche. Girls in the Growing Up Today Study who were 10–17 y of age at enrollment (47.7% premenarchal; 52.3% postmenarchal) were included. Exposure to three size fractions of PM₂.₅, PM₂.₅⁻¹₀ and PM₁₀ were studied. We estimated average PM exposure in utero, and time-varying windows: annual average exposure in the prior 1 and 2 y and cumulative average from birth. Age of menarche was self-reported surveys. The results show that among a large, nationwide, prospective cohort of U.S. girls, higher exposure to particulate matter October each year. Focused on action and equity, the goal of #CEHDay is to collectively increase the visibility of childrens’ environmental health issues while empowering individuals and organizations to take action on behalf of children nationwide. We believe that all children have the right to healthy environments in which to thrive. Environmental health for all kids means clean air, clean water, products free from harmful chemicals.  

**CEHN (10/2023)**

**Reports**  

**Children in 98% of African Countries at High or Extreme Risk from Climate Change – UNICEF**  

Children in Africa are among the most at risk of the impacts of climate change but are woefully neglected by the key climate financing flows required to help them adapt, survive and respond to the climate crisis. According to a UNICEF report, *Time to Act: African children in the climate change spotlight*, children in 48 out of 49 African countries assessed are categorized as at high or extremely high risk of the impacts of climate change. The analysis assesses countries based on children’s exposure to climate and environmental shocks, such as cyclones and heatwaves, as well as their vulnerability to those shocks, based on their access to essential services. Children living in the Central African Republic, Chad, Nigeria, Guinea, Somalia and Guinea-Bissau are the most at risk.  

UNICEF (01/09/2023)

**Fact Sheets**  

**Electronic Waste (e-waste)**  

Every year millions of electrical and electronic devices are discarded as products break or become obsolete and are thrown away. These discarded devices are considered e-waste and can become a threat to the environment and to human health if they are not treated, disposed of, and recycled appropriately. Common items in e-waste streams include computers, mobile phones, and large household appliances, as well as medical equipment. Every year, millions of tonnes of e-waste are recycled using environmentally unsound techniques and are likely stored in homes and warehouses, dumped, exported or recycled under inferior conditions. When e-waste is treated using inferior activities, it can release as many as 1000 different chemical substances into the environment, including
PM$_{2.5}$ and PM$_{10}$ in utero and throughout childhood was associated with an earlier age of menarche. Our results suggest that particulate matter PM$_{2.5}$ and PM$_{10}$ may have endocrine-disrupting properties that could lead to altered timing of menarche.

*Environmental Health Perspectives*

**Chemicals**

Assessment of dietary acrylamide exposure in children attending Spanish school canteens using the duplicate diet method

Acrylamide is a carcinogenic chemical contaminant formed in heat-treated foods. In this study, a duplicate diet method was used to evaluate the acrylamide content of foods/meals served at breakfast and lunch in two Spanish school canteens. The dietary acrylamide intake in students was estimated within lower bound (LB) and upper bound (UB) scenarios. Biscuits exhibited the highest acrylamide values, exceeding the benchmark level established by the European Regulation. In the LB scenario, breakfasts accounted for the major contributors to the daily acrylamide intake (73.3%). However, lunches were the main responsible in the UB scenario (65.4%). Margins of exposure for neoplastic effects ranged between 144 and 1026, which is below the reference of 10,000, indicating a health concern. The findings reveal that any diet, even one that contains foods low in acrylamide, involves an additive exposure to the contaminant that should be considered when conducting acrylamide exposure risk assessments.

*Food & Chemical Toxicology*

Prenatal dietary exposure to chemicals and allergy or respiratory diseases in children in the EDEN mother–child cohort

Maternal exposure to food chemicals may increase the risk of allergy and respiratory disorders in offspring. The authors assessed the association of prenatal dietary exposure to single chemicals and chemical mixtures with allergy or respiratory events reported before age 8 y in children. They included 1428 mother–child pairs enrolled in the EDEN mother–child cohort. Maternal dietary exposure to 209 chemicals and eight associated mixtures was investigated. Allergic and respiratory diseases (wheezing, asthma, allergic rhinitis, eczema and food allergy) were reported by parents between birth and age 8 y. Prenatal single exposure to 74 food harmful neurotoxicants such as lead. Pregnant women and children are particularly vulnerable due to their unique pathways of exposure and their developmental status.

WHO (18/10/2023)

**In the Media**

Half of children in poorer countries have lead poisoning, says study

Urgent action is needed to address the “staggering harm” caused by lead poisoning, mostly in low-income countries where more than half of children are exposed to dangerous levels of the pollutant. A year-long project, led by Washington-based thinktank the Center for Global Development (CGD), has concluded that lead poisoning constitutes a global health crisis that has been “extraordinarily neglected” by donors and political leaders. An estimated 815 million children – one in three worldwide – have lead poisoning, a condition linked to heart and kidney disorders, impaired intelligence, violent behaviour and premature death. Last month, a paper in Lancet Planetary Health estimated that, in 2019, 5.5 million people died because of cardiovascular disease caused by lead poisoning, about three times the number killed by lung cancer.

The Guardian (20/10/2023)

Revealed: almost everyone in Europe is breathing toxic air

Europe is facing a “severe public health crisis”, with almost everyone across the continent living in areas with dangerous levels of air pollution, an investigation by the Guardian has found. Analysis of data gathered using cutting-edge methodology – including detailed satellite images and measurements from more than 1,400 ground monitoring stations – reveals a dire picture of dirty air, with 98% of people living in areas with highly damaging fine particulate pollution that exceed World Health Organization guidelines. Almost two-thirds live in areas where air quality is more than double the WHO’s guidelines. The worst hit country in Europe is North Macedonia. Almost two-thirds of people across the country live in areas with more than four times the WHO guidelines for PM2.5, while four areas were found to have air pollution almost six times the figure, including in its capital, Skopje.

The Guardian (20/09/2023)

As the climate warms, dengue is spreading to new areas and cases are surging
chemicals was associated with higher risk of allergic rhinitis. Prenatal single exposure to 11 chemicals was associated with higher risk of wheezing. In the multi-exposure approach, risk of wheezing and allergic rhinitis were associated with several chemicals.

*Environment International*

**Volatile Organic Compounds in Disposable Diapers and Baby Wipes in the US: A Survey of Products and Health Risks**

Many thousands of diapers are worn by young children and the elderly, who have thin and sensitive skin that is highly vulnerable to chemicals, including volatile organic compounds (VOCs) that may be ingredients of these products or present as inadvertent or residual components. In this study, the authors collected 31 disposable hygiene products in the US market and analyzed 98 target VOCs. Adult diapers contained the highest total target VOC concentration, and the predominant VOCs were alkanes. Baby diapers contained several known or suspected carcinogens, including benzene and 1,4-dioxane, and the lifetime cancer risk from some diapers approached 1 per million. Store-brand products had higher levels of VOCs than generic brands, and products labeled “organic” or “for sensitive skin” did not necessarily have lower levels. Our results show that toxic VOCs were found in all tested disposable diapers and wipes at trace levels, and risks from using some diapers in high use exposure scenarios may warrant additional attention.

*Environmental Science & Technology*

** Metals**

*Human health risk assessment due to mercury use in gold mining areas in the Ecuadorian Andean region*

Illegal, and artisanal gold mining, which uses mercury (Hg), is a major source of global pollution. Hg is highly toxic and persistent in the environment, affecting human health and the ecosystem. The objective of this research is to analyze Hg concentrations in surface waters of the Andean region of Ecuador and evaluate the health risk of people exposed to waters with high Hg content. The results revealed worrying levels of Hg, especially in the provinces of Azuay and Loja. In addition, it was found that 45% of the samples did not meet the water quality criteria for the preservation of aquatic life. The risk analysis yielded values that exceeded the acceptable

A number of countries have seen a dramatic rise in dengue fever in 2023, and experts attribute its spread to the warming climate and the greater movement of people around the world. With an El Niño weather phase predicted over the coming months — when Pacific ocean temperatures are warmer for an extended period and much of the planet is expected to be warmer than usual – they worry the situation could get out of control. “We didn’t learn the lessons of the COVID pandemic,” said Christian Requena, regional head of the national medical association in Piura, the northern region of Peru that was hit hardest by the country’s worst dengue outbreak on record between March and July. “With the climate phenomena that are coming, it could be disastrous.” Dengue is now endemic in most countries in Latin America, but outbreaks have been spreading into new areas globally, and case numbers around the world have been rapidly increasing this year.

*The New Humanitarian (02/10/2023)*

**Weather-related disasters displace 43.1 million children in six years, UNICEF reports**

Weather-related disasters forcibly displaced a staggering 43.1 million children across 44 countries over the past six years, the UN Children’s Fund (UNICEF) said. That figure translates to an alarming average of 20,000 children uprooted every day. The findings are contained in UNICEF’s latest report, *Children Displaced in a Changing Climate*, the first ever global analysis of child displacements caused by floods, storms, droughts and wildfires. It also projects future trends for the next three decades. Catherine Russell, UNICEF Executive Director, emphasized the scale of the crisis. “It is terrifying for any child when a ferocious wildfire, storm or flood barrels into their community,” she said. The head of UNICEF called for urgent action to prepare communities, protect children at risk of displacement, and support those already uprooted.

*UNICEF (05/10/2023)*

** Why clean air is a luxury that many can’t afford**

Although almost everyone in the world now breathes air that is polluted in some way, the unfolding story of air pollution is one of environmental inequality. Every time Mithilesh turns on her stove to cook, her eyes begin to burn. The small home the 29-year-old housewife shares with her family in the slums of the Indian capital Delhi quickly fills up with smoke, making it hard for
exposure limit for adults and children in residential settings in Azuay and Loja. Children are especially vulnerable, and effective regulation is required to ensure the safety of the population. This study provides valuable information for decision makers regarding the risk associated with Hg exposure. 

Chemosphere

Reproductive Health

Associations between exposure to cadmium, lead, mercury and mixtures and women's infertility and long-term amenorrhea

Cadmium (Cd), lead (Pb), and mercury (Hg) have been shown to exhibit endocrine disrupting properties. Here, the authors investigated associations between blood concentrations of Pb, Cd, Hg, and their mixture on infertility and long-term amenorrhea in women aged 20–49 years using the US National Health and Nutrition Examination Survey (NHANES) 2013–2018 cross-sectional survey. A total of 1,990 women were included for the analysis of infertility and 1,919 women for long-term amenorrhea. The results suggest that exposure to heavy metals exhibit differential associations with history of infertility and amenorrhea, and Pb may adversely impact women's reproduction and heighten the risks of infertility and long-term amenorrhea.

Archives of Public Health

Water, Sanitation and Hygiene

Floods and Diarrhea Risk in Young Children in Low- and Middle-Income Countries

Climate change is associated with more frequent and intense floods. Current research on the association between flood exposure and diarrhea risk is limited mainly to short-term and event-specific analyses. The authors examined the association between flood exposure and diarrhea risk among children younger than 5 years. This cross-sectional study included 43 low- and middle-income countries during 2009 through 2019. The results suggest that floods, especially severe floods, long-duration floods, and floods preceded by drought, are associated with an increased risk of diarrhea among children younger than 5 years living in low- and middle-income countries. With the projected increasing frequency and intensity of floods and drought under climate change, greater collective anyone to see. Even when she steps outside her home, there is little respite. Delhi, the world's second largest megacity, has some of the worst outdoor air quality in the world. Although the authorities in India have been making strides to improve air quality in the city, levels of multiple pollutants regularly exceed World Health Organization (WHO) limits. Although almost everyone in the world now breathes air that is polluted in some way, those who are worst hit are also the least able to protect themselves or escape from it. The story of air pollution is one of environmental inequality.

BBC Future (17/10/2023)

Car Exhaust Could Harm a Woman's Pregnancy

Air pollution from heavy traffic may be driving pregnancy complications and health concerns for infants. Researchers who matched more than 60,000 birth records with air-monitoring data found that pregnant patients living in an urban area with elevated levels of nitrogen dioxide had higher rates of preterm birth. This included delivery before 28 weeks, according to the study from UT Southwestern Medical Center in Dallas. The researchers also saw increases in admission to the neonatal intensive care unit (NICU), infant respiratory issues and other adverse outcomes. Nitrogen dioxide is a major component of motor vehicle exhaust. “These findings suggest that air pollution from heavy traffic is a significant threat to pregnant individuals as well as to their child’s health after delivery,” lead researcher Dr. David Nelson, chief of obstetrics and gynecology, said.

HealthDay (16/10/2023)

Air pollution exposure can impact girls’ puberty, finds study

Researchers from Emory University and Harvard University in the US have found a connection between childhood exposure to air pollution and the age at which girls experienced their first periods. The study, published in the journal Environmental Health Perspectives, collected data from more than 5,200 girls across the US, that girls who had higher residential exposure to fine particulate matter air pollution throughout their childhoods tended to have their first periods sooner. Girls who have their first periods at an earlier age face increased risk for several diseases later during their lifetime, including cardiovascular disease, Type 2 diabetes and certain types of cancer. “The study highlights one potential environmental factor — particulate
efforts are needed to protect children’s health from these compounding events.
JAMA Pediatrics

Climate Change
Analysis of Heat Exposure During Pregnancy and Severe Maternal Morbidity
The rate of severe maternal morbidity (SMM) is continuously increasing in the US. Evidence regarding the associations of climate-related exposure, such as environmental heat, with SMM is lacking. The authors examined associations between long- and short-term maternal heat exposure and SMM. This retrospective population-based epidemiological cohort study took place at a large integrated health care organization in Southern California, between January 1, 2008, and December 31, 2018. There were 3446 SMM cases (0.9%) among 403,602 pregnancies. Significant associations between long- and short-term heat exposure during pregnancy were associated with higher risk of SMM. These results might have important implications for SMM prevention, particularly in a changing climate.
JAMA Network Open

Environmental Equity & Justice
Ambient NO₂ Air Pollution and Public Schools in the United States: Relationships with Urbanicity, Race–Ethnicity, and Income
The authors characterize ambient air quality at home and school locations in the United States using satellite-based empirical model estimates of outdoor annual nitrogen dioxide (NO₂). They found that average NO₂ levels at home and school for racial–ethnic minoritized students are 18–22% higher than average (and 37–39% higher than for non-Hispanic, white students). Minoritized students are less likely than their white peers to live and attend school in areas below the World Health Organization’s NO₂ guideline. Predominantly minoritized schools (i.e., >50% minoritized students) are less likely than predominantly white schools (0.43 times) to be in locations below the guideline. Income and race–ethnicity impacts are intertwined, yet in large cities, racial disparities persist after controlling for income.
Energy and Climate

matter air pollution — that may help explain the trend of earlier ages of menarche being observed over the past 50 years,” explained Audrey Gaskins, senior author and associate professor of epidemiology at Emory University.
The Shillong Times (22/10/2023)
Prenatal Exposure to Environmental Chemicals Linked to Childhood Growth Changes
A new study led by researchers from the Barcelona Institute for Global Health (ISGlobal), a centre supported by the “la Caixa Foundation” has shed light on the influence that Endocrine-Disrupting Chemicals (EDCs) can have on children's growth during their early years. The results, published in Environmental Health Perspectives, show that prenatal exposure to some of these environmental chemicals and their mixtures is linked to accelerated Body Mass Index (BMI) gain from birth to nine years old. The study, involving 1,911 mother-child pairs from the Project INMA birth cohort in Spain, focused on assessing exposure to a wide range of Endocrine-Disrupting Chemicals. These chemicals are found in our diet and in everyday products like plastics, personal care items, and pesticides and include Persistent Organic Pollutants (POPs), Perfluoroalkyl Substances (PFASs), Polychlorinated Biphenyls (PCBs), phthalates and phenols (including parabens and bisphenol A).
Technology Networks (19/10/2023)

Newsletters
CEHN Newsletter: The Patron
The Patron Newsletter features progress in children's Environmental Health Policy and Advocacy across the United States and is organized by the Children's Environmental Health Network (CEHN). September’s newsletter highlights efforts to impose stricter standards on removal of PFAS, which has been found in at least half of the U.S. tap water supply. The Environmental Protection Agency (EPA) approved stronger standards for the use of Restricted Use Pesticides (RUP) in accordance with the 2017 Certification of Pesticide Applicators Final Rule (CPA) in the states of Louisiana, Texas, and New Mexico. RUPs are a class of pesticides that the EPA has deemed acutely toxic. In addition, The Biden-Harris Administration, through the EPA and Department of Energy (DOE), announced that there would be $350 million in grants available for projects that reduce methane emissions from oil and gas extraction.
CEHN (28/09/2023)
EVENTS

UN Climate Change Conference 2022 (UNFCCC COP 27)
United Arab Emirates 30 Nov – 12 Dec 2023