Children’s Environmental Health International Initiatives

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

March/April 2022

**WHO Air Quality Database Update**

The WHO air quality database compiles data on ground measurements of annual mean concentrations of nitrogen dioxide (NO₂), particulate matter of a diameter equal or smaller than 10 µm (PM₁₀) or equal or smaller than 2.5 µm (PM₂.5) which aim at representing an average for the city or town as a whole, rather than for individual stations. Both groups of pollutants originate mainly from human activities related to fossil fuel combustion. The database was released in April 2022 and currently hosts data on air quality for over 6000 human settlements in more than 100 countries. The database is updated regularly every 2-3 years since 2011 and this is the fifth update. The data compiled in this database is used as input to derive the Sustainable Development Goal Indicator 11.6.2, Air quality in cities, for which WHO is custodial agency.

WHO (04/04/2022)

**Journal Articles**

Children growing up in conflict zones in Ukraine and beyond need urgent mental health support

It is with great sorrow that we write to express our solidarity with the people of Ukraine, particularly the children. In violation of international law and human rights, the ongoing military operations are threatening both the physical health and mental wellbeing of Ukrainian children. The exposure of children to crude military violence can have lifelong ramifications. Similar to the children growing up amid a humanitarian crisis in Afghanistan, the consequences of the conflict in

**CHILDREN’S ENVIRONMENTAL HEALTH NEWS**

**Press Releases**

WHO World Health Day “Our Planet Our Health”

Are we able to reimagine a world where clean air, water and food are available to all?

Where economies are focused on health and well-being?

Where cities are liveable and people have control over their health and the health of the planet?

In the midst of a pandemic, a polluted planet, increasing diseases like cancer, asthma, heart disease, on World Health Day 2022, WHO will focus global attention on urgent actions needed to keep humans and the planet healthy and foster a movement to create societies focused on well-being. WHO estimates that more than 13 million deaths around the world each year are due to avoidable environmental causes. This includes the climate crisis which is the single biggest health threat facing humanity. The climate crisis is also a health crisis.

WHO (07/04/2022)

**Reports / Annual Publications**

Local action for health: a repository of WHO resources

Over 55% of the world’s population live in urban areas – a proportion that is expected to increase to 68% by 2050. This trend calls for strengthened support to address health at the urban level. To this end, WHO’s new repository on urban health gives access to a broad range of WHO-generated
Ukraine could be detrimental to the future wellbeing of Ukrainian children within family, professional, and social settings. If the conflict is prolonged and engulfs all of the country, a whole generation of Ukrainians could face mental health trauma, anxiety, and depression, with long-term implications for physical health and social wellbeing. *The Lancet*

**Air Pollution**

**Neighborhood environmental exposures and incidence of attention deficit/hyperactivity disorder: A population-based cohort study**

The authors investigated associations of ADHD incidence with greenspace, air pollution, and noise in a population-based birth cohort (N ~ 37,000) in Metro Vancouver, Canada. Greenspace was estimated using vegetation percentage derived from linear spectral unmixing of Landsat imagery. Fine particulate matter (PM$_{2.5}$) and nitrogen dioxide (NO$_2$) were estimated using land use regression models; noise was estimated using a deterministic model. Evidence suggests that environmental inequalities where children living in greener neighborhoods with low air pollution had substantially lower risk of ADHD compared to those with higher air pollution and lower greenspace exposure. *Environment International*

**Associations between household air pollution and early child development among children aged 36–59 months in Bangladesh**

Household air pollution (HAP) from solid fuel use (SFU) may impact child health in low-resources countries. This study examined the associations between HAP and early childhood development outcomes among children under 5 years of age in Bangladesh. Children exposed to SFU were 1.47 times more likely to have developmental delays compared with children with no SFU exposure. Children moderately exposed and highly exposed to HAP had higher prevalence of developmental delays than unexposed children. *Journal of Epidemiology & Community Health*

**Pre- and Postnatal Fine Particulate Matter Exposure and Childhood Cognitive and Adaptive Function**

The association between PM$_{2.5}$ and adaptive and cognitive function remains poorly understood. Participants included children with ASD, with a

resources to enhance local action for health. The repository reflects WHO's renewed commitment to promoting urban health worldwide and includes resources that provide technical support and build capacity, strategic reports and guidelines, health impact assessment tools, and other products relevant to urban health and cities. WHO (07/03/2022)

**Press Releases**

**FDA Takes Steps to Limit Lead in Juice to Further Reduce Exposure to Toxic Elements in Foods**

The U.S. Food and Drug Administration today issued draft action levels for lead in single-strength (ready to drink) apple juice and other single-strength juices and juice blends. This action is intended to reduce the potential for negative health effects from dietary exposure to lead, and supports the agency’s Closer to Zero action plan that sets forth the FDA’s science-based approach to reducing exposure to toxic elements in foods. “Exposure of our most vulnerable populations, especially children, to elevated levels of toxic elements from foods is unacceptable,” said FDA Commissioner Robert M. Califf, M.D. The draft guidance outlines action levels, which are recommended limits of lead in juice that can be achieved by industry and progressively lowered as appropriate. US Food & Drug Administration (27/04/2022)

**In the Media**

**'They draw bombs, tanks and wishes for peace': Ukraine’s child mental health crisis**

Two days after Russian forces entered Ukraine, on 26 February, the country’s public military administration requested that a psychological support system be put in place at Lviv train station. Mental health workers and doctors in Lviv report that thousands of Ukrainian refugee children displaced by the war are showing severe symptoms of trauma. “I have seen children here with catatonic symptoms, where they kind of freeze and don’t react to any outside stimulation,” says Dr Viktor Balandin, psychologist for the Ukrainian NGO Osonnya. “Many of them have stopped speaking, others cannot move their hands or fingers. They just freeze.” The Guardian (15/03/2022)

**WHO says 99 percent of world’s population breathes poor-quality air**

The U.N. health agency says nearly everybody in the world breathes air that doesn’t meet its standards for air quality, calling for more action to
non-ASD developmental disorder, and controls from the Study to Explore Early Development. Adaptive functioning was assessed in ASD cases and cognitive functioning was assessed in all groups. The data suggest that early life PM$_{2.5}$ exposure is associated with specific aspects of cognitive and adaptive functioning in children with and without ASD.

*International Journal of Environmental Research and Public Health*

**Chemicals/Pesticides**

Association between serum per- and polyfluoroalkyl substances concentrations and common cold among children and adolescents in the United States

Few epidemiologic studies investigated PFAS exposure and immune-related clinical outcomes such as common cold, especially during childhood when the immune system is developing. This study used data from the National Health and Nutrition Examination Survey in the United States and included children and adolescents. Serum concentrations of several types of PFAS were quantified. Among children, serum concentrations of PFAS mixtures, were associated with higher odds of common cold. Among adolescents, PFAS was associated with increased common cold in the last month. This study contributes to evidence supporting the immunotoxicity of PFAS in childhood and adolescence.

*Environment International*

**Maternal pesticides exposure in pregnancy and the risk of wheezing in infancy: A prospective cohort study**

Pesticide exposure in pregnancy may have health effects in the offspring. We studied whether maternal pesticides exposure during pregnancy is associated with infant wheezing. The study involved children from the Italian NINFEA birth cohort. Questionnaires completed during pregnancy and 6 months after delivery measured: i) Self-reported pesticide use during the first and the third trimester of pregnancy; (ii) Agricultural activities during the same trimesters. Agricultural activities during pregnancy were not associated with infant wheezing. Some evidence of association for maternal pesticide use in pregnancy and residential proximity to fruit trees cultivations with infant wheezing.

*Environment International*

reduce fossil-fuel use, which generates pollutants that cause respiratory and blood-flow problems and lead to millions of preventable deaths each year. WHO said 99 percent of the global population breathes air that exceeds its air-quality limits and is often rife with particles that can penetrate deep into the lungs, enter the veins and arteries, and cause disease. Air quality is poorest in WHO’s Eastern Mediterranean and Southeast Asia regions, followed by Africa, it said.

NBC News (04/04/2022)

**How dividing US cities along racial lines led to an air pollution crisis 100 years on**

A new study has found that neighborhoods in which the federal government discouraged investment nearly 100 years ago – via a racist practice known as redlining – face higher levels of air pollution today. Looking at more than 200 cities across the nation, researchers from the University of California, Berkeley, found that people who live in neighborhoods that were once categorized as “hazardous”, based on racist factors such as how many Black or “foreign-born” people lived there, now breathe 56% more of the freeway pollutant nitrogen dioxide than those in top-rated areas. Those formerly redlined neighborhoods also suffer from higher levels of the sooty particle known as PM 2.5, the study found. And both pollutants are associated with health effects, including higher rates of asthma, cardiovascular disease and even Covid-19.

The Guardian (08/03/2022)

**EPA moves to ban asbestos after decades of failures**

EPA proposed banning nearly all remaining uses of asbestos, a material known to cause lung cancer when inhaled and that still lingers in millions of U.S. homes and schools. The proposal is a landmark moment in the decades long effort to end the use of asbestos, a naturally occurring fiber whose heat-resistant features made it a popular choice in products like insulation, drywall, pipe coatings, roofing shingles and vehicle brakes. It is also the first time EPA has flexed its regulatory muscles under the revamped Toxic Substances Control Act, which Congress updated in 2016 to strengthen the agency’s ability to restrict or ban chemicals used in commerce that pose serious health risks.

Politico (05/04/2022)

**Moradabad 2nd most noise polluted city globally, says UNEP**
Pesticide Poisoning Among Children in India: The Need for an Urgent Solution

Pesticides have been increasingly recognized as a significant source of morbidity and mortality, especially in the developing world. Young children are commonly poisoned by accidental ingestion, unintentional dermal or inhalational exposure, whereas adolescents are more severely poisoned if attempting self-harm through intentional ingestion. This paper highlights the problem of pesticide poisoning in the pediatric population of India, and to recommend policy options to address this global problem.

Global Pediatric Health

Heavy Metals/Trace Elements

Estimating the Effects of Soil Remediation on Children’s Blood Lead near a Former Lead Smelter in Omaha, Nebraska, USA

Lead exposures from legacy sources threaten children’s health. Soil in Omaha, Nebraska, was contaminated by emissions from a lead smelter and refinery. The U.S. EPA excavated and replaced contaminated soil at the site 1999 and 2016. This study assessed the association of soil lead level (SLL) and soil remediation status with blood lead levels (BLLs) in children living near or on the site. Elevated BLL (EBLL) (>5μg/dL) was associated with both residential SLL and neighborhood SLL before remediation but only with neighborhood SLL after remediation. Residential and neighborhood SLLs were important predictors of EBLLs in children residing near or on this Superfund site.

Environmental Health Perspectives

Gender differences in trace element exposures with cognitive abilities of school-aged children: a cohort study in Wujiang city, China

Trace elements persist in the environment, and their early exposure may adversely affect children’s intellectual development. To clarify the influence of blood trace element levels in newborns and school-aged children, the authors explored intellectual development level of school-aged children. Prenatal exposure to Pb, As and Cu may weaken children’s cognitive abilities at school age. Se exposure may have opposite effects on cognitive abilities affected by dose and gender.

Environmental Science & Pollution Research

Social Determinants of Health

The city of Moradabad in Uttar Pradesh is the second-most noise polluted city globally (max 114 dB), according to a recent report by the United Nations Environment Programme (UNEP). The report identifies 13 noise polluted cities in south Asia. Five of these, including Moradabad, are in India (all over 80 dB). The World Health Organization (WHO) had recommended a 55 dB standard for residential areas in the 1999 guidelines, while for traffic and business sectors, the limit was 70 db. The WHO set the limit of noise pollution on the road at 53 db in 2018, taking into account health safety.

DownToEarth (25/03/2022)

Microplastics found in human blood for first time

Microplastic pollution has been detected in human blood for the first time, with scientists finding the tiny particles in almost 80% of the people tested. The discovery shows the particles can travel around the body and may lodge in organs. The impact on health is as yet unknown. But researchers are concerned as microplastics cause damage to human cells in the laboratory and air pollution particles are already known to enter the body and cause millions of early deaths a year.

The Guardian (24/03/2022)

Higher levels of PFAS exposure may increase chance of Covid, studies say

Higher levels of exposure to toxic PFAS “forever chemicals” may increase the likelihood of Covid-19 infection, more serious symptoms and death, a group of recent studies have found. Public health advocates and researchers have feared since the coronavirus pandemic's onset that PFAS, which are known to be immunotoxic, could hinder the body’s ability to fight Covid-19, and the studies represent the first research supporting the theory.

The Guardian (10/05/2022)

Millions suffering in deadly pollution ‘sacrifice zones’, warns UN expert

A UN expert has warned of the creation of pollution “sacrifice zones” across the world, where tens of millions of people are suffering strokes, cancers, respiratory problems and heart disease as a result of toxic contamination of the environment. Boyd, the special rapporteur on human rights and the environment, cited physical health issues, including cancer, heart disease, respiratory illness, strokes and reproductive health problems, as well as “incredible mental health problems associated with living in these places.
Socioeconomic disparities and household crowding in association with the fecal microbiome of school-age children

The development of the gut microbiome occurs mainly during the first years of life; however, little is known on the role of environmental and socioeconomic exposures, particularly within the household, in shaping the microbial ecology through childhood. We characterized differences in the gut microbiome of school-age healthy children, in association with socioeconomic disparities and household crowding. In summary, residential SES is a strong determinant of the gut microbiome in healthy school-age children, mediated by household crowding and characterized by increased bacterial richness and substantial taxonomic and metabolic differences. Further research is necessary to explore possible implications of SES-related microbiome differences on children’s health and development. Biofilms and Microbiomes

Moving beyond medication: Assessment and interventions on environmental and social determinants are needed to reduce severe asthma

Asthma remains the most common chronic lung disease in children, significantly affecting children and their families and contributing to unacceptable mortality. The majority of children with asthma have mild or moderate disease and respond to treatment with medications and appropriate environmental interventions. Most of the attention in asthma treatment plans is directed at maximizing therapy with medications, with less emphasis on reducing modifiable environmental and other social determinants of asthma exacerbations and control (i.e., factors that contribute to asthma exacerbations and control). This is a missed opportunity to reduce morbidity and mortality due to childhood asthma by intervening on environmental and social determinants. Additionally, higher drug doses and higher-frequency use of oral corticosteroids cause short- and long-term adverse effects. The Journal of Allergy & Clinical Immunology

Reproductive Health

Associations between the Maternal Exposome and Metabolome during Pregnancy

The authors investigated the relationship between the urinary exposome and metabolome during pregnancy using urine samples from pregnant women recruited in Jiangsu Province, China. This because people feel exploited, they feel stigmatised.”

The Guardian (10/03/2022)

This high school is contaminated with lead. It blames the recycling plant next door

As the closing bell rings at Jordan high school, a cacophony of adolescent chatter nearly overpowers the mechanical noises that emanate from the metal recycling plant next door. Students hardly register the lustrous dust – laced with lead, chromium and other contaminants – that settles into the blacktop as they rush out the front gates. For generations of students, the mounds of scrap metal behind campus are a familiar sight. The high school opened in the Los Angeles neighborhood of Watts in 1923, while the plant, owned by S&W Atlas Iron & Metal Co has been there since 1949. It’s only in recent years that local authorities started to grow concerned – linking toxic contamination on school grounds to the piles of metal detritus next door. Test results reviewed by the Guardian revealed concentrations several times higher than what the US government considers safe for children. The Guardian (25/04/2022)

Microplastics are in our bodies. How much do they harm us?

As plastic waste proliferates around the world, an essential question remains unanswered: What harm, if any, does it cause to human health? A few years ago, as microplastics began turning up in the guts of fish and shellfish, the concern was focused on the safety of seafood. A team at the U.K.’s University of Plymouth decided to compare the threat from eating contaminated wild mussels in Scotland to that of breathing air in a typical home. Their conclusion: People will take in more plastic during a mussels dinner by inhaling or ingesting tiny, invisible plastic fibers floating in the air around them, fibers shed by their own clothes, carpets, and upholstery, than they will by eating the mussels. Dick Vethaak, a professor emeritus of ecotoxicology at the Vrije Universiteit Amsterdam and co-author of the blood study, doesn’t consider his results alarming, exactly—“but, yes, we should be concerned. Plastics should not be in your blood.” National Geographic (25/04/2022)

Tools

Food Compass by Tufts University
The analysis of urinary exposome and metabolome identified many associations between chemical exposures and maternal metabolism during pregnancy. Review of the literature suggests that environmental modulation of the maternal metabolome may play a role in the association between prenatal exposure on pregnancy and child health outcomes.

*Environmental Health Perspectives*

**Climate Change**

*Climate variability, water supply, sanitation and diarrhea among children under five in Sub-Saharan Africa: a multilevel analysis*

Climate variability is expected to increase the risk of diarrhea diseases, a leading cause of child mortality and morbidity in Sub-Saharan Africa (SSA). The risk of diarrhea is more acute when populations have poor access to improved water and sanitation. This study evaluated individual and joint effects of climate variation, water supply and sanitation on the occurrence of diarrhea among children under five in SSA. The results indicate that 77.7% of the variation in the occurrence of diarrhea in Sub-Saharan households is due to climatic differences between clusters. In addition, when average temperature and rainfall increase, households using unimproved sanitation or unimproved water have more cases of diarrhea.

*Water & Health*

**Climate crisis and child health inequity**

The climate crisis, that is, global heating and its multiple consequences, is one of the greatest threats to the future of the world’s children. At the same time, the causal chains that connect climate change and children’s health are long and complex. Climate change could be described as a ‘creeping crisis’ as it evolves over time, reveals itself in different ways and resists adequate responses. As such, the adverse impact on child health through mediated factors can be challenging to pinpoint, although the occurrence of ‘climate shocks’ and its direct effects are making these causal chains less uncertain.

*BMJ Pediatrics Open*

**EVENTS**

*International Society for Children’s Health and the Environment (iscie) Retreat*
Translation & Communication: Protecting Children from Toxic Chemicals
Hardingasete, Norway
June, 2022

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