**Children’s Environmental Health International Initiatives**

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

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**WHO and partners launch global dashboard on child health**

Shedding light on issues ranging from childhood survival to educational attainment and exposure to violence, a global dashboard will help policymakers, the health community and the public track progress on some of the critical factors influencing children’s health and their futures. Currently, 4.9 million children aged under 5 years die every year, with nearly half of these babies in their very first month of life. Based on current trends, 59 countries will miss the United Nations’ Sustainable Development Goal (SDG) target for under-5 deaths. During the 77th World Health Assembly, noting these statistics, countries committed to accelerate actions to improve maternal and child health and survival (Resolution WHA 77/5). Data is critical for these efforts, helping countries monitor impacts of programmes and policies and guiding interventions to address gaps.

WHO (28/06/2024)

**JOURNAL ARTICLES**

**Air Pollution**

**The influence of pre- and postnatal exposure to air pollution and green spaces on infant’s gut microbiota: Results from the MAMI birth cohort study**

Animal and human studies indicate that exposure to air pollution and natural environments might modulate the gut microbiota, but epidemiological evidence is very scarce. The authors assessed the potential impact of pre- and postnatal exposure to air pollution and green spaces on infant gut microbiota assembly during the first year of life. They used the MAMI (“MAternal MiCrobes”) birth cohort (Valencia, Spain, N = 162). At 7 days and at 1, 6 and 12 months,

**CHILDREN’S ENVIRONMENTAL HEALTH NEWS**

**Experts warn of serious health impacts from climate change for pregnant women, children, and older people**

Pregnant women, newborns, children, adolescents and older people are facing serious health complications due to climate change, according to a new collection of papers published in the Journal of Global Health, and yet the specific needs of these groups have been largely neglected in the climate response. The articles document the available scientific evidence on the health impacts of different climate hazards at key life stages, from heatwaves to air pollution and natural disasters like wildfires and flooding. Together, they show that climate-related health risks have been crucially underestimated for younger and older people and during pregnancy. “These studies show clearly that climate change is not a distant health threat, and that certain populations are already paying a high price,” said Dr Anshu Banerjee, Director of Maternal, Newborn, Child and Adolescent Health and Ageing at the World Health Organization (WHO). “While awareness of climate change has increased, actions to safeguard the lives of those at most risk has barely scratched the surface of what’s needed. For climate justice to be achieved, this must be urgently redressed.”

WHO (05/06/2024)

**Reports**

**State of Global Air Report 2024**

The State of Global Air 2024 reports provides a comprehensive analysis of data for air quality and health impacts for countries around the world. The analysis finds that:
residential pre- and postnatal exposure to air pollutants (NO₂, black carbon, PM₂.₅, and O₃) and green spaces indicators were obtained. They observed a decrease in the diversity of the gut microbiota and signs of alteration in its composition among infants exposed to higher levels of NO₂. Increasing green space exposure was also associated with changes in gut microbial composition. Further research is needed to confirm these findings.

Environmental Research

Air pollution from biomass burning disrupts early adolescent cortical microarchitecture development
The neurotoxic effects of PM₂.₅ from multiple sources may disrupt neurodevelopment. Here, the authors study residentially assigned exposure to six sources of PM₂.₅ and neuroimaging data from the longitudinal Adolescent Brain Cognitive Development Study (ABCD Study®), collected from 21 different recruitment sites across the United States. To contribute an interpretable and actionable assessment of the role of air pollution in the developing brain, they identified alterations in cortical microstructure development associated with exposure to specific sources of PM₂.₅. They found that average annual exposure (i.e., at ages 8–10 years) to PM₂.₅ from biomass burning was related to differences in neurite development across the cortex between 9 and 13 years of age.

Environment International

Air and Noise Pollution Exposure in Early Life and Mental Health from Adolescence to Young Adulthood
The authors examined the longitudinal associations of air and noise pollution exposure in pregnancy, childhood, and adolescence with psychotic experiences, depression, and anxiety in youths from ages 13 to 24 years. They used cohort study data from the Avon Longitudinal Study of Parents and Children, United Kingdom. Air pollutants and noise pollution were mapped to home addresses from pregnancy to 12 years of age. Psychotic experiences, depression, and anxiety were measured at ages 13, 18, and 24 years. Early-life air and noise pollution exposure were prospectively associated with 3 common mental health problems from adolescence to young adulthood (psychotic experiences, depression, and anxiety). There was a degree of specificity in terms of pollutant-timing-outcome associations. Interventions to reduce air and noise pollution exposure may reduce the risk of mental health problems in late adolescence and early adulthood.

Press Releases
UN experts call for meaningful consultations on Ecuador’s mining projects
Ecuador authorities should ensure that environmental consultations in relation to mining projects are aligned with human rights standards, notably by including all communities that will potentially be affected by these extractive activities, and by respecting their right to freedoms of expression and assembly, UN experts said recently. “We are concerned that the failure to convene all potentially affected people, together with the lack of full and impartial information regarding the potential negative consequences of these projects have exacerbated social conflict,” they said. To reactivate mining projects, halted due to social conflicts, Ecuador’s Government has established a process of environmental consultation prior authorising the resumption of these projects. However, a number of potentially affected Indigenous Peoples and communities were excluded and information provided was incomplete. UN (13/05/2024)

In the Media
Climate change heat poses lasting brain risks for children, study finds
In a recent study published in Nature Climate Change, researchers investigated the impact of temperature exposure on children's mental health and cognition during prenatal and early childhood periods. Their findings indicate that exposure to heat during infancy and toddlerhood and cold during pregnancy and infancy is associated with reduced myelination and maturation of white matter in children’s brains, highlighting the potential long-term neurological risks posed by climate change. Previous research has shown
noise pollution exposure could potentially improve population mental health. 

*JAMA Network Open*

**Chemicals**

*Cognitive performance and associated factors among primary school children in artisanal and small-scale gold mining communities in northwestern Tanzania*

The study determined the prevalence of cognitive deficits and associated factors among primary school children aged 8–12 years in artisanal and small-scale gold mining (ASGM) communities where exposure to toxic chemical elements is common. A cross-sectional school-based study was conducted in areas with and without artisanal and small-scale gold mining in northwestern Tanzania between 2017 and 2018. Primary school children aged 8–12 years were examined for their cognitive ability. Mild deficits in memory, coordination, language, learning, cognitive, and academic performance were 6%, 23%, 26%, 35%, 36.9, and 32%, respectively, found. High memory skills deficits among pupils in ASGM compared to their counterparts in non-ASGM communities call for immediate public health intervention.

*Public Health and Toxicology*

**Prenatal Exposure to Chemical Mixtures and Metabolic Syndrome Risk in Children**

Prenatal exposure to ubiquitous endocrine-disrupting chemicals (EDCs) may increase the risk of metabolic syndrome (MetS) in children, but few studies have studied chemical mixtures. Here, the authors investigate associations of prenatal exposure to EDC mixtures with MetS risk score in children and identify associated proteins and metabolites. This birth cohort study used data collected from the Human Early Life Exposome cohort based in France, Greece, Lithuania, Norway, Spain, and the UK. Participants included mother-child pairs with measured prenatal EDC exposures and complete data on childhood MetS risk factors, proteins, and metabolites. The results suggest that prenatal exposure to EDC mixtures may be associated with adverse metabolic health in children. Given the pervasive nature of EDCs and the increase in MetS, these findings hold substantial public health implications.

*JAMA Network Open*

that both cold and heat exposure can negatively impact children’s health, including their mental health, leading to increased anxiety, depression, and aggressive behaviour. In this study, the authors found that exposure to cold and hot temperatures during pregnancy, infancy, and toddlerhood may have a lasting impact on white matter microstructure. These findings highlight the potential for climate change to exacerbate negative impacts on brain development, emphasizing the need for further research and public health interventions.

*NewsMedical (14/06/2024)*

**Firearm ownership is correlated with elevated lead levels in children, study finds**

A new study has identified a surprising additional source of lead exposure that may disproportionately harm children: firearms. A team at Brown University found an association between household firearm ownership and elevated lead levels in children’s blood in 44 states, even when controlling for other major lead exposure sources. In the study, the association between elevated lead levels and firearm use was almost as strong as the association for lead-based paint, authors noted. Firearm-related take-home lead occurs when an individual discharges a firearm that uses lead-based ammunition and primer, which are the most commonly used in the United States. The lead dust settles on clothes and personal items, such as phones or bags, as well as in vehicles and common spaces. Children are more vulnerable to lead than adults due to their tendency to ingest contaminants through normal hand-to-mouth behaviors.

Brown (20/04/2024)

**Tiger mosquitoes behind dengue fever rise in Europe**

An invasive species of mosquito has set up home in 13 countries in the EU, including France, Spain and Greece, with experts linking their presence to a rise in dengue fever in Europe. Climate change is creating favourable conditions for the tiger mosquito to spread, said the European Centre for Disease Prevention and Control (ECDC). The ECDC has warned international travel will further increase the risk of more European outbreaks. It has advised people to remove stagnant water from gardens or balconies, where mosquitoes can breed, and use repellent as well as screens on windows and doors.

BBC (06/11/2024)
Metals
The association between childhood blood lead levels and proximity to airports in Colorado
This study evaluates the evidence for a link between living in proximity to airports and children’s blood lead levels in Colorado. Authors analyzed the association between childhood blood lead levels (BLLs) and proximity to airport point locations in children tested for lead in Colorado over a 10-year study period (2011–2020). The results indicate that living one mile (1.6 km) further from airport point locations decreases mean blood lead levels by 0.068 µg/dL. Additional analysis estimates that living one mile further from airport point locations decreases the odds of having a blood lead level ≥ 3.5 µg/dL by 13.2%. While the risk from proximity to airports is likely less than the risks associated with deteriorating lead paint and dust, our findings highlight the value of lead testing in children who may be at risk of exposure from all sources, including those who live near airports.
Discover Environment

Reproductive Health
Associations between multiple metal exposure and fertility in women: A nested case-control study
Here the authors evaluate the effect of metal mixtures on female fertility. The plasma levels of 22 metal elements from 180 women were measured. After adjusting for covariates, analyses showed that Cu and Co caused a significant reduction in fertility, and identified the protective effect of Zn on fertility. Trend tests showed that increased Cr, Cu, and Rb levels were associated with reduced fertility. Further analyses showed that Cr, Co, Cu, and Rb had a nonlinear relationship with fertility decline when controlling for the concentrations of other metals and suggested that Cu and Cr might exert an influence on fertility. Our findings require further validation and may identify new mechanisms in the future.
Ecotoxicology & Environmental Safety

Climate Change
Placental DNA methylation signatures of prenatal air pollution exposure and potential effects on birth outcomes: an analysis of three prospective cohorts
This study investigated the association between prenatal air pollutant exposure concentrations

East Africa floods: Kenya confirms 44 cases of cholera as WHO warns of waterborne diseases
Kenya has confirmed 44 cases of deadly cholera, attributed to the widespread flooding that has so far claimed over 270 lives and prompted the closure of some health facilities, according to officials. Kenya’s Ministry of Health and the World Health Organization (WHO) said the long rains have destroyed several sanitation facilities, contaminated water sources with fecal matter and filled latrines with floodwater. WHO advised Kenyans to be on high alert, as the country faces a looming threat of waterborne and foodborne diseases. “There is a likelihood for increased illnesses associated with contaminated food in Kenya. WHO will continue to support the health emergency response and remain vigilant for disease outbreaks that can easily spread if not quickly contained,” said Abdourahmane Diallo, WHO representative in Kenya.
DownToEarth (13/05/2024)

Philippines closes schools as heat soars to ‘danger’ level
The Philippines closed all public schools for two days in April because of dangerously high temperatures, moving classes online in a country where schools are typically shut because of tropical storms. Over the previous week, average temperatures in many parts of the country topped 40 degrees Celsius (100 degrees Fahrenheit). Extreme heat is forecast this week to blanket almost the entire country, with the heat index in some regions rising to at least 42 degrees Celsius, or “danger” level, according to the Philippine Atmospheric, Geophysical and Astronomical Services Administration. That designation is the second highest on the agency’s heat index scale. It advised people to avoid exposure to the sun or risk heat stroke, heat exhaustion and cramps.
The San Juan Daily Star (30/04/2024)

Extreme heat and weather threaten health at nearly every stage of life, WHO says
As temperatures reach historic highs across the planet, the World Health Organization warns how climate change affects the most vulnerable members of society. Pregnant people, newborns, children, adolescents, and seniors are all facing health complications from the climate crisis, as the frameworks for their care have been largely neglected. Reviews have found links between exposure to heat and pollutants and adverse birth outcomes. In addition to physiological health,
Impact of heat waves on semen quality: A retrospective study in Argentina between 2005 and 2023

This study evaluated the association between temperature and semen quality, 54,926 men (18–60 years) in Buenos Aires, Argentina. Men exposed to heat waves during spermatogenesis exhibited lower sperm number (concentration and count) and decreased normal morphology (percentage of normal sperm and normal motile count) compared to those not exposed. These differences were most pronounced between semen samples from years with several heat waves (2013, 2023) and none (2005, 2007, 2016), displaying 4–5 times higher fold changes. Further analysis revealed a significantly negative association between semen quality and heat wave length, suggesting that a prolonged exposure may be more detrimental than an acute exposure. This study raises concerns about the possible association with the worldwide declining male fertility and climate change.

Science of the Total Environment

Fertility

Glyphosate presence in human sperm: First report and positive correlation with oxidative stress in an infertile French population

The aims of our study were firstly to analyse the concentration of the herbicide Glyphosate (GLY) in the seminal and blood plasma in an

global warming is associated with mental health effects as well. Exposure to climate change-related events during childhood can have long-lasting effects throughout the lifetime as families can be disrupted by climate change. Seniors also can’t escape the threats of climate change, as an assessment found that global warming is directly affecting their longevity and healthy aging. It is important to take actions that protect those at most risk and to provide care for them in times of climate disasters.

Los Angeles Times (06/06/2024)

How traffic noise hurts children's brains

In a New York classroom, noise levels were so high that the teacher had to scream to be heard. The classroom was located near a subway train in Manhattan about 15 times a day, causing constant interruptions. Environmental noise, particularly road traffic noise but also aircraft noise, is among the most damaging environmental factors to health, after air pollution. Such noise has been found to increase chronic stress and cause disturbed sleep and higher blood pressure. Noise and noise annoyance have been associated with mental health issues such as depression and anxiety, and noise exposure has also been associated with a greater diabetes risk. Loud noise from sources such as music through headphones, motorcycles and even leafblowers, can over time lead to hearing loss and tinnitus. Noise pollution can also have a detrimental impact on babies' and children's health and development. This is particularly true for children from low socio-economic backgrounds, who are exposed to higher levels of environmental noise.

BBC (23/06/2024)

Common cleaning product releases trillions of microplastics each month, study warns

Melamine foam sponges used to clean homes worldwide release trillions of microplastics each month, a new study has warned. These sponges rely on their distinctive abrasive properties. However, a new study published in the Environmental Science & Technology journal, estimates that fibres from these cleaning products release toxic microplastic particles, potentially impacting human health. The sponges are made of a plastic polymer assembled into a soft, lightweight abrasive foam. But as they wear away with use, the foam breaks down into smaller pieces, releasing microplastic fibres (MPF) into

and changes in placental DNA methylation patterns. This multi-site study used three prospective population-based mother–child cohorts in France. The authors estimated PM_{2.5}, PM_{10}, and NO_{2} exposure over each trimester of pregnancy. The authors identified four CpGs and 28 regions associated with PAPE in the total population. They validated 35% of the CpGs available. More than 30% of the identified CpGs were related to one (or more) birth outcome and most significant alterations were enriched for neural development, immunity, and metabolism related genes. The 28 regions identified for both sexes overlapped with imprinted genes, and were associated with neurodevelopment, immune system, and metabolism. These findings highlight the molecular pathways through which PAPE might affect child health in a widespread and sex-specific manner, identifying the genes involved in the major physiological functions of a developing child.

The Lancet Planetary Health
infertile French men population (n=128). The authors also analysed potential correlations between GLY and oxidative stress biomarkers concentration and sperm parameters (sperm concentration, progressive speed, anormal forms). They detected for the first time GLY in the human seminal plasma in significant proportions and showed that its concentration was four times higher than those observed in blood plasma. The results suggest a negative impact of GLY on the human reproductive health and possibly on his progeny. A precaution principle should be applied at the time of the actual discussion of GLY and Glyphosate Based Herbicide use in Europe by the authorities.

Ecotoxicology and Environmental Safety

EVENTS

Second Global Conference on Air Pollution and Health
28 October – 1 November 2024
Accra, Ghana

Childhood exposure to air pollution may increase adult risk of bronchitis
Exposure to air pollution as a child increases an adult's risk of bronchitis, a new study warns. Young adults with bronchitis symptoms tended to have been exposed during childhood to two types of air pollutants: Particle pollution from dust, pollen, wildfire ash, industrial emissions and vehicle exhaust and nitrogen dioxide from gasoline engines. Bronchitis occurs when the large airways of the lungs become inflamed, causing severe coughing spells that bring up mucus or phlegm. Wheezing, chest pain and shortness of breath are other symptoms. "Our results suggest that childhood air pollution exposure has more subtle effects on our respiratory system that still impact us in adulthood," said researcher Dr. Erika Garcia, an assistant professor of population and public health sciences at the University of Southern California Keck School of Medicine. "Reducing air pollution would have benefits not only for current asthma in children but also for their respiratory health as they grow into adulthood," Garcia added.

UPI (28/06/2024)

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