

Children's Environmental Health International Initiatives

This is an international mailing list provided by [WHO](#) and [UNEP](#) dedicated to promoting healthy environments for children

February 2018

RECYCLING USED LEAD-ACID BATTERIES: HEALTH CONSIDERATIONS

This document explains how recycling used lead-acid batteries can cause significant environmental contamination and human exposure to lead. It provides information about the mechanisms of lead release during recycling, the main routes of exposure, the health impacts, the associated burden of disease, methods for assessing lead exposure, and the types of control measures needed to prevent lead emissions and exposures.

The document aims to help the health sector recognize recycling used lead-acid batteries as an important source of lead exposure so that they can advocate for this practice to be better controlled and regulated. It also aims to inform policymakers of the health and economic burdens of lead exposure as a stimulus to introducing and enforcing control measures.

[Report \(English, French, Spanish\)](#)

[Summary \(Arabic, Chinese, English, French, Russian, Spanish\)](#)

JOURNAL ARTICLES

Air Pollution

[Geographic and social disparities in exposure to air neurotoxins at U.S. public schools](#)

Children are especially vulnerable to the health and developmental impacts of environmental hazards and they spend significant portions of their days at school. Yet there are no national-level studies examining school-level environmental inequalities and few have examined disparate exposure to neurological air toxicants, even though chronic exposure to air pollution impacts children's brain functioning. Authors paired information about the geographic

CHILDREN'S ENVIRONMENTAL HEALTH NEWS

Press Releases

[Mongolia's air pollution causes child health crisis](#)

Unless Ulaanbaatar's air pollution levels rapidly decrease in the coming years, the financial cost of treating diseases in children caused by air pollution will increase by 33 per cent by 2025, costing an additional MNT 4.8 billion per annum to the public health system from 2025, reveals a new report commissioned by the Mongolian National Center for Public Health and UNICEF. Mongolia's air pollution crisis: A call to action to protect children's health raises the alarm about the impact of air pollution on child health care and calls for urgent action to prevent and treat health problems among children, and reduce the extremely high levels of toxic air. UNICEF (22/2/2018)

[World leaders join new drive to beat noncommunicable diseases](#)

WHO is announcing a new high-level commission, comprised of heads of state and ministers, leaders in health and development and entrepreneurs. The group will propose bold and innovative solutions to accelerate prevention and control of the leading killers on the planet – noncommunicable diseases (NCDs) like heart and lung disease, cancers, and diabetes. The WHO Independent Global High-level Commission on NCDs is co-chaired by President Tabaré Vázquez of Uruguay; President Maithripala Sirisena of Sri Lanka; President Sauli Niinistö of Finland; Veronika Skvortsova, Minister of Healthcare of the Russian Federation; and Sania Nishtar, former Federal Minister of Pakistan. WHO (16/2/2018)

[Sixty five cities commit to health and well-being as drivers of urban development: two out of three people in the WHO European Region live in urban environments](#)

locations and demographics of each public school in the US with air neurotoxicant exposure estimates pertaining to 24 known neurotoxicants included in the US Environmental Protection Agency's National Air Toxics Assessment. Using bivariate and multivariate statistics, we tested for environmental injustices in air neurotoxicant exposure at 84,969 US public schools. Students attending “high risk” public schools nationwide are significantly more likely to be eligible for free/reduced price meals, and to be Hispanic, black, or Asian/Pacific Islander (API). They are significantly less likely to be white or of another race. In a multivariate generalized estimating equation controlling for school district effects, schools with greater proportions of Hispanic, black, and API students, schools with higher enrollment, and schools located in more urban (vs. rural) counties face greater risks. Schools serving the youngest students (e.g., pre-kindergarten) have greater levels of risk than schools serving older students.

Environmental Research

[Volatile chemical products emerging as largest petrochemical source of urban organic emissions](#)

A gap in emission inventories of urban volatile organic compound (VOC) sources, which contribute to regional ozone and aerosol burdens, has increased as transportation emissions in the United States and Europe have declined rapidly. A detailed mass balance demonstrates that the use of volatile chemical products (VCPs)—including pesticides, coatings, printing inks, adhesives, cleaning agents, and personal care products—now constitutes half of fossil fuel VOC emissions in industrialized cities. The high fraction of VCP emissions is consistent with observed urban outdoor and indoor air measurements. Authors show that human exposure to carbonaceous aerosols of fossil origin is transitioning away from transportation-related sources and toward VCPs. Existing U.S. regulations on VCPs emphasize mitigating ozone and air toxics, but they currently exempt many chemicals that lead to secondary organic aerosols.

Science

Chemicals

[Blood Lead Levels and Risk Factors for Lead Exposure in a Pediatric Population in Ho Chi Minh City, Vietnam](#)

Although lead recycling activities are a known risk

Thirty seven mayors will be attending the Summit of Mayors, organized by the World Health Organization Regional Office for Europe at UN City, Copenhagen on 12–13 February, alongside a further 80 high-ranking politicians, advisers and other civic representatives from all over the world. Almost 125 million people from Paraguay to the Russian Federation are represented by the participants in this high-level meeting. The Regional Office is bringing together mayors, politicians and technical experts on health and well-being, under the auspices of the WHO European Healthy Cities Network, to discuss health, politics and the future. The event will examine how health and well-being can drive urban development, ensuring it is equitable and sustainable. At the conclusion of the summit, the mayors are expected to adopt the Copenhagen Consensus of Mayors, committing themselves to working towards a set of aspirations for the future health and well-being of their cities. WHO EURO (9/2/2018)

[World Cancer Day 2018: “We can. I can” meet the challenge](#)

The world celebrates World Cancer Day on 4 February each year. This year's theme “We can. I can” is a continuation of a 3-year campaign that explores, highlights and provides guidance on how everyone – together or individually – can help reduce the global burden of cancer. The 2016–2018 World Cancer Day campaign explores the actions that we can all take to save lives, achieve greater equity in cancer care, and make fighting cancer a priority at the highest political levels. It reminds us as communities, governments, nongovernmental organizations and groups that we can inspire action, encourage others to take action, prevent cancer, and challenge misperceptions on cancer as a fatal untreatable disease. We can join forces and orchestrate efforts to make a difference in the fight against cancer. WHO (4/2/2018)

[Parties committed to a pollution-free Africa through the implementation of the Bamako Convention](#)

Over 35 countries, experts, private sector, civil society, regional economic bodies participated in the three-days Conference of the Parties to the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa that took place in the Ivorian Capital, Abidjan from 30 to 1 February 2018. The

factor for elevated blood levels in South East Asia, little is known regarding the prevalence of and risk factors for elevated blood lead levels (BLL) among the general pediatric population in Vietnam. This study is a cross-sectional evaluation of 311 children from Children's Hospital #2 in Ho Chi Minh City, Vietnam. Capillary blood lead testing was performed using the LeadCare II. Mean BLLs were 4.97 µg/dL (Standard Deviation (SD) 5.50), with 7% of the participants having levels greater than 10 µg/dL. Living in Bing Duong province (OR 2.7, 95% CI 1.4–5.6.1) or the Dong Nai province (OR 2.3, 95% CI 1.0–5.1) and having an age greater than 12 months (OR 6.0, 95% CI 3.1–11.8) were associated with higher BLLs. The prevalence of elevated BLLs in Vietnam is consistent with other SE Asian countries. Mean BLLs in Ho Chi Minh City are markedly less than those seen in a separate study of children living near lead recycling activities. Additional evaluation is necessary to better detail potential risk factors if screening is to be implemented within Vietnam.

Int. J. Environ. Res. Public Health

[Prenatal Maternal Serum Concentrations of Per- and Polyfluoroalkyl Substances in Association with Autism Spectrum Disorder and Intellectual Disability](#)

The objective of the study was to estimate associations of maternal prenatal PFAS concentrations with ASD and intellectual disability (ID) in children. Geometric mean concentrations of most PFAS were lower in ASD and ID groups relative to GP controls. ASD was not significantly associated with prenatal concentrations of most PFAS, though significant inverse associations were found for perfluorooctanoate (PFOA) and perfluorooctane sulfonate (PFOS) [adjusted ORs for the highest vs. lowest quartiles 0.62 (95% CI: 0.41, 0.93) and 0.64 (95% CI: 0.43, 0.97), respectively]. Results for ID were similar. Results from this large case-control study with prospectively collected prenatal measurements do not support the hypothesis that prenatal exposure to PFAS is positively associated with ASD or ID.

Environmental Health Perspectives

[Cadmium-Associated Differential Methylation throughout the Placental Genome: Epigenome-Wide Association Study of Two U.S. Birth Cohorts](#)

Authors aimed to investigate Cadmium (Cd) associated variations in placental DNA methylation (DNAM) and associations with gene

common message from all Parties has been that urgent actions and effective mechanisms should be developed at national and regional levels to effectively implement the Bamako Convention. While Parties committed to secure total ban of imports to Africa and control of transboundary movement of hazardous wastes, they also reaffirmed to take concrete actions for effective implementation of adopted decisions at past and present conference. UNEP (1/2/2018)

[Coming up for clean air in Bosnia and Herzegovina](#)

Air pollution is responsible for 44,000 years of life lost every year in Bosnia. In Sarajevo, UN Environment and the Global Environment Facility are helping the government better understand and tackle this toxic threat. Watch the video to learn more. UNEP

WHO Factsheets

[Physical activity](#) Updated February 2018

[Obesity and overweight](#) Updated February 2018

In the Media

[German cities to trial free public transport to cut pollution](#)

“Car nation” Germany has surprised neighbours with a radical proposal to reduce road traffic by making public transport free, as Berlin scrambles to meet EU air pollution targets and avoid big fines. The move comes just over two years after Volkswagen’s devastating “dieseltgate” emissions cheating scandal unleashed a wave of anger at the auto industry, a keystone of German prosperity. “We are considering public transport free of charge in order to reduce the number of private cars,” three ministers including the environment minister, Barbara Hendricks, wrote to EU environment commissioner Karmenu Vella in the letter seen by AFP Tuesday. The Guardian (14/2/2018)

[Hand-me-down plastic toys may not be good for kids](#)

Children who play with second-hand plastic toys may be exposed to unsafe levels of chemicals like lead and cadmium that have been linked to developmental problems and organ damage, a UK study suggests. For the study, researchers tested

expression; they also aimed to identify novel pathways involved in Cd-associated reproductive toxicity. Authors identified 17 Cd-associated differentially methylated CpG sites with meta-analysis p -values $< 1 \times 10^{-5}$, two of which were within a 5% false discovery rate (FDR). DNAM levels at 9 of the 17 loci were associated with increased expression of 6 genes (5% FDR): *TNFAIP2*, *EXOC3L4*, *GAS7*, *SREBF1*, *ACOT7*, and *RORA*. Higher placental expression of *TNFAIP2* and *ACOT7* and lower expression of *RORA* were associated with lower birth weight z-scores (p -values < 0.05). Cd-associated differential DNAM and corresponding DNAM-expression associations were observed at loci involved in inflammatory signalling and cell growth. The expression levels of genes involved in inflammatory signalling (*TNFAIP2*, *ACOT7*, and *RORA*) were also associated with birth weight, suggesting a role for inflammatory processes in Cd-associated reproductive toxicity.

Environmental Health Perspectives

[Long-term Air Pollution Exposure, Genome-wide DNA Methylation and Lung Function in the LifeLines Cohort Study](#)

Long-term air pollution exposure is negatively associated with lung function, yet the mechanisms underlying this association are not fully clear. Differential DNA methylation may explain this association. Depending on the p -value threshold used, authors found significant associations between NO_2 exposure and DNA methylation for seven CpG sites (Bonferroni corrected threshold $p < 1.19 \times 10^{-7}$) or for 4,980 CpG sites (False Discovery Rate < 0.05). The top associated CpG site was annotated to the *PSMB9* gene (i.e., cg04908668). None of the seven Bonferroni significant CpG-sites were significantly replicated in the two KORA-cohorts. No associations were found for PM exposure. Long-term NO_2 exposure was genome-wide significantly associated with DNA methylation in the identification cohort but not in the replication cohort. Future studies are needed to further elucidate the potential mechanisms underlying NO_2 -exposure-related respiratory disease.

Environmental Health Perspectives

[Prenatal Exposure to Phthalates and the Development of Eczema Phenotypes in Male Children: Results from the EDEN Mother-Child Cohort Study](#)

Contradictory results exist regarding the importance of early-life exposure to phthalates for

200 second-hand plastic toys they found in homes, nurseries and charity shops. Toys included cars, trains, action figures, puzzles and blocks - all of which were small enough to be chewed by young children. They discovered high concentrations of hazardous elements including antimony, barium, bromine, cadmium, chromium, lead and selenium in many building blocks, figures and items of jewelry that were typically either yellow, red or black. Even at low levels, these chemicals can be toxic to children who are exposed to them over an extended period of time, especially when kids chew on toys. Reuters (9/2/2018)

[Bangkok air pollution warning, children asked to stay indoors](#)

Residents in Bangkok, one of the world's top tourist destinations, were warned on Thursday the city's air quality had hit dangerous levels just days after the country's pollution control agency appealed to residents to wear face masks. Air pollution in the Thai capital has come under increasing scrutiny in recent weeks with residents complaining of smog and respiratory problems. Some schools were closed on Thursday or kept children indoors. The Pollution Control Department reported $\text{PM}_{2.5}$ dust in the Bangkok Metropolitan at midday on Thursday and at midday it was measured at 72-95 micrograms per m^3 , with the likelihood that it would increase. Reuters (8/2/2018)

[In Sweeping War on Obesity, Chile Slays Tony the Tiger](#)

The Chilean government, facing skyrocketing rates of obesity, is waging war on unhealthy foods with a phalanx of marketing restrictions, mandatory packaging redesigns and labelling rules aimed at transforming the eating habits of 18 million people. Nutrition experts say the measures are the world's most ambitious attempt to remake a country's food culture, and could be a model for how to turn the tide on a global obesity epidemic that researchers say contributes to four million premature deaths a year. New York Times (7/2/2018)

[High pollution levels expected across Thailand for rest of February](#)

Air quality in many parts of Thailand including in capital city Bangkok deteriorated to harmful levels over the weekend, with air pollution predicted to be at a critical level for the rest of the month. Thailand's Pollution Control Department (PCD)

development of childhood eczema. Authors evaluated the association between maternal urinary concentrations of phthalate metabolites between the 24th and 28th week of gestation and occurrence of eczema in their sons up to 5 y of age, according to allergic sensitization as assessed by total immunoglobulin E (IgE) in a subsample of individuals. At 5 y of age, the prevalence of ever eczema was 30.4%. Metabolites of di-isobutyl phthalate (DiBP) and diisononyl phthalate (DiNP) were positively associated with early-onset (0–24 mo of age) eczema (15.7%) and late-onset (24–60 mo of age) eczema (14.7%). Applying the Cox's model showed a significant association of occurrence of eczema in the first 5 y of life with DiBP and DiNP metabolites. Among IgE-sensitized boys, metabolites of di-n-butyl phthalate (DBP) and DiBP were significantly associated with ever eczema {hazard ratio HR=1.67 [95% confidence interval (CI): 1.10, 2.54], p=0.01 and HR=1.87 (95% CI: 1.01, 3.48), p=0.04, respectively}.

Environmental Health Perspectives

Climate Change

[Climate Change and Schools: Environmental Hazards and Resiliency](#)

The changing climate is creating additional challenges in maintaining a healthy school environment in the United States (U.S.) where over 50 million people, mostly children, spend approximately a third of their waking hours. Chronic low prioritization of funds and resources to support environmental health in schools and lack of clear regulatory oversight in the U.S. undergird the new risks from climate change. Authors illustrate the extent of risk and the variation in vulnerability by geographic region, in the context of sparse systematically collected and comparable data particularly about school infrastructure. Additionally, authors frame different resilience building initiatives, focusing on interventions that target root causes, or social determinants of health. Disaster response and recovery are also framed as resilience building efforts.

Int. J. Environ. Res. Public Health

E-waste

[Thyroid disruption and reduced mental development in children from an informal e-waste recycling area: A mediation analysis](#)

This paper aims to evaluate the effects of thyroid

said last week's colder weather contributed to a lack of vertical wind that usually carries polluted air out of the city and caused the accumulation of air particles in many major cities including Bangkok. *Straits Times* (6/2/2018)

[Ozone layer not recovering over populated areas, scientists warn](#)

The ozone layer that protects people from the sun's ultraviolet radiation is not recovering over most highly populated regions, scientists warned on Tuesday. The greatest losses in ozone occurred over Antarctica but the hole there has been closing since the chemicals causing the problem were banned by the Montreal protocol. But the ozone layer wraps the entire Earth and new research has revealed it is thinning in the lower stratosphere over the non-polar areas. Reduced protection from cancer-causing UV rays is especially concerning towards the equator, where sunlight is stronger and billions of people live. The reason for the falling ozone at lower latitudes is not known, though scientists suspect a chemical used in paint stripper and a change in atmospheric circulation caused by climate change. *The Guardian* (6/2/2018)

[China to make more polluted land safe for agriculture by 2020 - minister](#)

China will try to make around 90 percent of its contaminated farmland safe for crops by the end of 2020, and will also restrict development on a quarter of the country's territory, environment minister Li Ganjie said. Li said China would conduct a detailed investigation into soil pollution and launch pilot zones that would be used to test soil pollution prevention and treatment technologies, according to an account of a weekend meeting published by the Ministry of Environmental Protection on its official website. *Reuters* (5/2/2018)

[The Arctic is full of toxic mercury, and climate change is going to release it](#)

We already knew that thawing Arctic permafrost would release powerful greenhouse gases. On Monday, scientists revealed it could also release massive amounts of mercury — a potent neurotoxin and serious threat to human health. *Washington Post* (5/2/2018)

[The Islamic State's toxic farewell: Environmental sabotage and chronic disease](#)

The militants detonated 25 oil wells in a desperate and ultimately unsuccessful effort to defend their

disruption on the mental development of children. A total of 258 three-year-old children in Guiyu (e-waste-exposed group) and Nanao (reference group), China were examined. FT3, FT4, TSH, lead (BPb) and cadmium (BCd) in blood were determined, and cognitive and language scores of children were assessed based on the Bayley Scales of Infant Development III. Guiyu children had lower cognitive scores (100.00 ± 25.00 vs. 120.00 ± 20.00 , $p < 0.001$) and lower language scores (99.87 ± 7.52 vs. 111.39 ± 7.02 , $p < 0.001$). Mediation analysis showed that Pb negatively correlated with both cognitive and language scores (both $p < 0.001$). However, FT3, FT4 and TSH did not significantly mediate the relationship between Pb and mental development of children (all $p > 0.05$). In contrast, Cd correlated with neither cognitive nor language scores (both $p > 0.05$). Results suggest exposure to heavy metal (Pb) reduces cognitive and language skills, and affects thyroid function, but fail to confirm that thyroid disruption is involved in the neurotoxicity induced by PbCd co-exposure.

Chemosphere

New Publications

["Global Children's Environmental Health"](#)

A special issue of *International Journal of Environmental Research and Public Health*

It is clear that, for many environmental hazards, the youngest members of the population face the greatest risk of harm. The majority of the world's children live in low and middle-income countries (LMICs). Environmental hazards and health risks may be more significant in these settings due to rapid urbanization, unregulated industrialization, population growth and displacement, and increased pressure on limited natural resources. Inadequate medical and public health infrastructure, financial resources, shortage of laboratory equipment and trained technical personnel also contribute to disparate risk. Disparities in exposure and health risk may also occur in high-income countries among people of color and lower socioeconomic populations.

[Chips off the Old Block: How a Father's Preconception Exposures Might Affect the Health of His Children](#)

Scientists have long known that when it comes to harm from environmental exposures, the youngest children often face the greatest risk. Chemicals and pollutants that pass through a woman's placenta into her fetus can interfere with

terrain against Iraqi security forces in 2016 and wreck a prized national asset. For nine months, a thick, blinding cloud of smoke engulfed Qayyarah and the villages that surround it, turning people's skin and sheep's coats black from soot. The Islamic State footprint on Iraq's environment may be unprecedented and permanent, with a toxic legacy that includes wide-scale cattle deaths, fields that no longer yield edible crops and chronic breathing complications in children and the elderly, doctors and experts said. Washington Post (4/2/2018)

[Air pollution: black, Hispanic and poor students most at risk from toxins – study](#)

Schoolchildren across the US are plagued by air pollution that's linked to multiple brain-related problems, with black, Hispanic and low-income students most likely to be exposed to a fuge of harmful toxins at school, scientists and educators have warned. The warnings come after widespread exposure to toxins was found in new research using EPA and census data to map out the air pollution exposure for nearly 90,000 public schools across the US. The Guardian (1/2/2018)

[China puts finishing touches to three-year smog crackdown plan](#)

China is drawing up plans for tougher curbs on smog during the three years to 2020, an environment ministry official said on Wednesday, after a five-year crackdown on pollution helped it attain air quality targets last month. "A three-year battle plan in the war to protect blue skies" is being hammered out by officials of the Ministry of Environmental Protection, said spokesman Liu Youbin, and incorporates tougher curbs on major industrial regions. Key areas facing such restrictions are the Beijing-Tianjin-Hebei zone in the country's north and the Yangtze and Pearl River deltas further south. The new three-year plan is expected to be completed in the first half of the year, Liu told reporters. Reuters (31/1/2018)

[London schools to be alerted on high air pollution days](#)

Schools in London will receive an alert every time air pollution in the capital is set to pose an acute risk to health as part of a renewed push to highlight the scale of the capital's toxic pollution crisis. Air pollution causes about 40,000 early deaths a year in the UK – more than 9,000 in London – and the young are particularly vulnerable. The mayor of London, Sadiq Khan, already sends alerts to train stations and bus

the child's normal development and cause health effects lasting into adulthood. Newer research is examining the role a woman's prepregnancy exposures may have on the fetus. What has gotten far less attention, however, is how the biological consequences of a father's environmental exposures before conception might affect his unborn children.

Environmental Health Perspectives

[Pollution from Fossil-Fuel Combustion is the Leading Environmental Threat to Global Pediatric Health and Equity: Solutions Exist](#)

Fossil-fuel combustion by-products are the world's most significant threat to children's health and future and are major contributors to global inequality and environmental injustice. The emissions include a myriad of toxic air pollutants and carbon dioxide (CO₂), which is the most important human-produced climate-altering greenhouse gas. Synergies between air pollution and climate change can magnify the harm to children. Impacts include impairment of cognitive and behavioral development, respiratory illness, and other chronic diseases—all of which may be "seeded" in utero and affect health and functioning immediately and over the life course. By impairing children's health, ability to learn, and potential to contribute to society, pollution and climate change cause children to become less resilient and the communities they live in to become less equitable.

Int. J. Environ. Res. Public Health

UPCOMING EVENTS

[ICEHR 2018: 20th International Conference on Environmental Health and Remediation](#)

24-25 May 2018, Prague, Czechia

[9th International Conference on Children's Health and the Environment \(INCHES\). Saving the Children at Risk, Shaping the Future Sustainability](#)

27-29 June 2018, Seoul, Republic of Korea

[International Conference on Fetal Programming and Developmental Toxicity \(PPTOX\) VI Conference](#)

28-30 May 2018, Torshavn, Faroe Islands

EDUCATION AND TRAINING

[WHO Children's environmental Health training modules translated into Japanese](#)

stops when pollution levels reach dangerous levels, advising vulnerable groups including children and the elderly to take precautionary measures. Next week the system is to be extended to include schools, and GPs' surgeries and care homes will be included "in the near future". *The Guardian* (30/1/2018)

[London has already reached air pollution limits for 2018](#)

Legal air pollution limits for the whole year have been reached within a month in London, figures show. Brixton Road, Lambeth, has seen levels of pollutant nitrogen dioxide exceed average hourly limits 18 times so far this year, the maximum allowed under European Union air quality rules. It has taken the capital longer to reach the air pollution limit this year than last year when legal levels were breached less than a week into the new year. *New Scientist* (30/1/2018)

['Toxic bloc' ministers summoned by EU over air pollution](#)

The European Union has summoned the environment ministers from nine member states that are some of the bloc's worst offenders of air pollution. France, Germany and Britain are among those being threatened with court action, if they do not make urgent changes. Air pollution is responsible for hundreds of thousands of deaths across Europe every year. *Al Jazeera* (30/1/2018)

[China trash town's cleanup bolstered by import ban](#)

The dizzying stench of burning plastic still drifts through the alleys, workshops and warehouses of Guiyu, the southern Chinese town that has long symbolized China's role as the main recycler of the world's waste. But residents say the air isn't half as noxious as it was five years ago, when authorities launched a drive to industrialize the town's recycling operations – and address the chronic health problems that came from dismantling things like old computers and mobile phones by hand.

Reuters (24/1/2018)

[Compound Interest: Assessing the Effects of Chemical Mixtures in Vivo](#)

Humans are exposed to mixtures of chemicals through food, air, water, dust, and household and personal care products. In most cases, little is known about the combined effects of potentially harmful chemicals. A mouse study in *Environmental Health Perspectives* tested whether

Three modules from the WHO Training Package for Health Care Providers “Why children?”, “Children are not little adults” and “Chemicals” are now available in Japanese.

one constituent of a chemical mixture might alter tissue levels of the others. If so, the effects of the mixture on the mouse’s health might be different from the effects that would be predicted based on the effects of each chemical by itself. Such information is important when assessing the potential health risks of chemical mixtures to which the public may be exposed. Environmental Health Perspectives (12/2018)

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Have news for us?

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