ERA-ENVHEALTH NEWSFLASH

2nd Semester 2022

CONTENTS

SAVE THE DATE

21-23 June 2023, Porto, Portugal:
12th International Symposium on Biological Monitoring in Occupational and Environmental Health (ISBM-12)

5-7 July 2023, Budapest, Hungary
7th Environment and Health Ministerial Conference (MCEH7)

25-29 September, Bonn, Germany
5th Session of the International Conference for Chemicals Management (ICCM5)

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EDITORIAL

The ERA-ENVHEALTH network held its annual Open Conference on 6 October 2022. Hosted by Belgium, this year's Conference shed a light on *indoor environment* and was aptly titled "*Making the Invisible Visible*".

Indoor environment encompasses a wide array of themes, so the Open Conference's main topic lent itself perfectly to offering a varied conference programme. With presentations from across Europe, touching on subjects such as indoor pollutants, endocrine disruptors, house dust, the European projects PARC and HERA and some legislative measures, the conference offered a comprehensive take on indoor environment.

Indoor environment is a determining, yet often overlooked, factor for our health. Indoor environment is so much more than just the air quality inside our houses, office buildings and other indoor spaces; everything we use and all of the substances we are exposed to can have a profound influence on our health. The fact that we spend a staggering 85% of our time indoors only amplifies our vulnerability to the indoor environment.

It goes without saying that the Open Conference was heavily overshadowed by what's going on in the world today. The ERA-ENVHEALTH members are deeply concerned about the war, which is still wreaking havoc in Ukraine. The war is a human and environmental disaster. One third of the Ukrainian territory (200 thousand square km) is damaged by pollution and spills of oil and hazardous chemicals from destroyed industrial facilities and electricity producing infrastructure[1]. On a human level, the devastating impact this war is having on the people of Ukraine is nothing short of heartbreaking.

The war is also hugely felt beyond Ukrainian borders. The cost of energy and living had become so high in other European countries that many people will struggle to support themselves and their families this winter.

The current state of the world is of great concern to the members of the ERA-ENVHEALTH network. We wholeheartedly hope the situation will improve very soon and people can start healing. Until then, we stand in solidarity with all the people who are suffering from this terrible war and its far-reaching consequences to human and environmental health.

[1] *https://ecozagroza.gov.ua/en*

FLEHS: The Flemish Environment and Health Survey: from knowledge to policy: interpretation, participation and action with a focus on indoor environment

Maja Mampaey, Flemish Planning Bureau for the Environment and Spatial Development, Belgium

FLEHS

The Flemish Center of Expertise on Environment and Health is a scientific knowledge pool for environmental health in Flanders (Belgium), since 2001. Since 2002, a human biomonitoring network has been established by the Center as part of a programme on environmental health surveillance. Up to now, four FLEHS studies have been implemented: FLEHS I (2002-2006), FLEHS II (2007-2011), FLEHS III (2012-2015) and FLEHS IV (2016-2020). This fourth cycle builds on strengths and experiences from the past and also addresses new upcoming challenges. (https://www.milieu-en-gezondheid.be/en/homepage-eng)

The first FLEHS study included more than 4,400 participants recruited from 8 regions in Flanders with different environmental characteristics and who belonged to 3 different age groups (newborns and their mothers, 14-15 yrs. old adolescents and 50-65 yrs. adults). The first cycle of the HBM programme evaluated exposure to traditional pollutants and showed that living in areas with different environmental pressure yields a different fingerprint of pollutants in the body indicating the importance of region-based environmental policies and priorities.

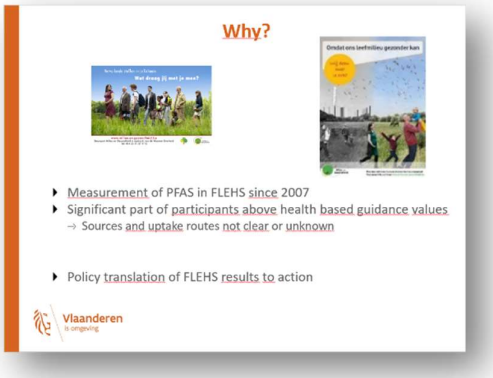
The possibility to obtain geographically differentiated information on environmental health was exploited further in the second cycle of the human biomonitoring programme (FLEHS II 2007-2011) with the selection of 2 hotspots of interest for human biomonitoring. As part of the second cycle of the biomonitoring programme reference data for a much wider set of exposure biomarkers was obtained compared to the first cycle, this was emphasised by the slogan “What are you carrying with you?”. Reference values for more than 50 biomarkers were generated.

The third cycle of the programme allowed us to generate time trends of internal pollutant levels in the general population of Flanders. The programme also allowed us to evaluate the associations between exposure levels and different health outcomes in prospective cohorts of the first two cycles of the Flemish environmental health surveys (FLEHSI and FLEHSII).

As society changes, new insights and approaches are needed. The fourth FLEHS cycle (2016-2020) builds on strengths and experiences from the past and also addresses new upcoming challenges. One of the approaches investigated the impact of indoor air quality and energy-efficient housing. Some factors that increase the internal concentrations of chemicals and can harm health were identified. For example, when there is a stove in the dwelling or people smoke inside, more PAHs in the urine of participants are found. For some factors, we find the opposite. When participants indicate that they use ecological materials or live in an energy-efficient building, less perfluorinated compounds are found.

PFAS@home

To gain more insight into how per- and polyfluoroalkyl compounds or PFAS can enter the human body from the environment, PFAS were measured in humans (serum) and in multiple environmental compartments such as soil, compost, eggs, water, home-grown vegetables and house dust (PFAS@home). This project is a first limited study with 19 participants not living in currently known no regret zones (demarcated areas where current no regret measures[2] apply) and far away from PFAS-suspected sites or hot spots, as the aim was to investigate the exposure of the general Flemish population. This limited study allowed to develop and test a measurement method that can be further applied in the next Flemish human biomonitoring campaign.

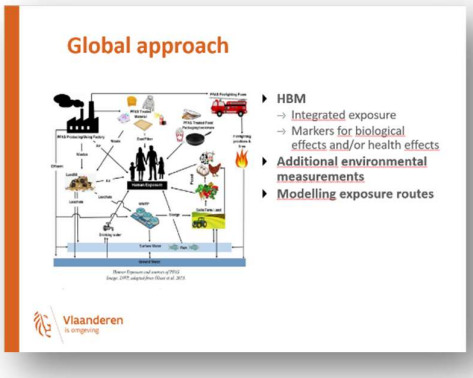


PFOS and PFOA are found in almost all samples from soil (chicken coop and kitchen garden), compost, eggs, house dust and serum, but not in water (rain, ground or tap water) or vegetables. In eggs, the highest concentrations are observed for PFTeA and PFDoA. 6:2 fluorotelomer sulfonate (6:2 FTS) is found in the samples of all water types. 6:2 FTS was also observed in house dust. However, the measurement results for 6:2 FTS still show too many uncertainties to derive a clear meaning from these results. Further research on the method of sampling and analysis is needed for future studies. Serum values in this study are similar to those in the Flemish reference campaign (2016-2020) (more information can be found in the fact sheet). Only slightly higher values are now observed for PFHxS in compairison with the Flemish reference campaign (2016-2020), which is also logical as this is a substitute product.

HBM-3M

Following the PFAS contamination in the vicinity of the 3M company, a Human Biomonitoring (HBM) project will be set up to visualise exposure and effect through measurements in humans.

By linking HBM and environmental measurements, the internal dose of a chemical in the body can be related to the environment. If personal factors (e.g. age, gender) and lifestyle factors are also taken into account (e.g. preventive behaviour, diet, smoking), an integrated risk analysis can be performed. Similarly, it is important to make the clinical link to health effects, and to consider how the results can be medically interpreted.



By considering different scenarios, we identify entry points to identify measures that allow to reduce exposure and formulate policy measures. Based on the results of the proposed study, the “no regret measures” currently in place in various hotspots will be revised and adjusted if necessary. This will allow the development of “no regret measures” in the long term.

[2]*No-regret measures are precautionary measures recommended for an issue which there is not yet complete scientific knowledge. For PFAS, this are measures that help reduce our exposure to PFAS and prevent accumulation and stress in our bodies.*

Indoor air pollution in the Brussels Capital Region: 20 years of experience by the green ambulance

Sylvie Vanderslagmolen, Brussels Environment, Belgium

Until the year 2000, indoor air quality and its impact on human health were not of major interest in the Brussels Capital Region. Furthermore, at that time there was not even any housing code nor any cooperation between the housing and health sector. As an answer to this precarious situation, the Regional Cell for Intervention in Indoor Pollution (CRIPI) was born, which focuses on the impact of the indoor environment and health. Up to date, CRIPI is based on a partnership between 1) Brussels Environment (IBGE-BIM) as the general coordinator and responsible for the chemical analyses, 2) the Institute for Public Health (Sciensano) that is responsible for the microbiological aspects and 3) a NGO working on respiratory health problems (FARES) that is responsible for the social and medical support.

The aim of CRIPI is to assist medical doctors in their diagnosis of patients, which suffer from health problems that might be related to the indoor air quality of their dwelling. This means that CRIPI operates on official demand of a medical practitioner. That demand includes the diagnostics of the patient's health problems, previous medical analyses…

Depending on the reported problems, a home visit consists of both chemical and microbiological samplings. A questionnaire is filled in together with the patient and first general advice on healthy housing is provided. After sample analyses, a social nurse of the team contacts the patient to provide specific advice to improve the indoor air quality. The report is also sent to the medical doctor to complete his/her medical diagnosis.

One year after the home visit, a health assessment is performed and a questionnaire is sent to both the medical doctor and the patient to evaluate the evolution of the patient's health. In general, the response rate of these questionnaires is about 33%. In 57% of the cases, doctors report a slight or even significant improvement of the patient health. These results account also for the patients. For the persons who responded "no improvement", it seems that they expect the landlord to work on the housing conditions.

Up to date, CRIPI performed more than 3,200 visits. The major problems encountered are requests for mould exposure. The symptoms associated with these exposures are often of a respiratory nature (ORL symptoms as well as lower tract disorders). The effects of chemical pollutants are more marked in acute pathologies.

Analyses in nurseries and kindergartens are also performed. In general, CO_2 concentrations and environmental bacterial concentrations are too high. Often, this is due to a lack of air exchange in the classrooms and play areas. At the moment the CRIPI team is finalising their latest activity report. It should be available at the end of this year (2022)[3].

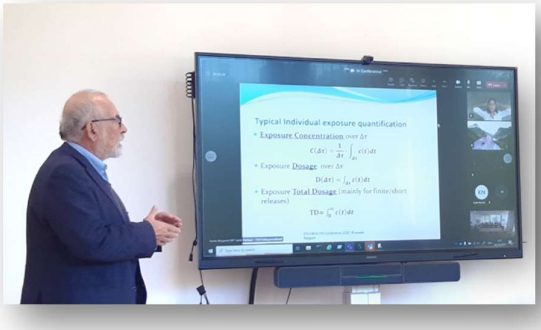
[3] *https://luchtkwaliteit.brussels/themas/binnenlucht*

Air exposure assessment challenges in indoor environments

John G. Bartzis, Thalia Xenofontos, Nektarios Koutsourakis, Ioannis A. Sakellaris.

University of Western Macedonia (UOWM), Dept. of Mechanical Engineering, Greece.

Human exposure to a large extent is built indoors due to (a) the fact that people spent roughly 90% of the time indoors [1] and (b) for several pollutants indoor sources are quite significant [2]. The indoor environment is a complex environment and the reliable estimation of the human exposure in it, is a real challenge for several reasons. More specifically: For primary sources there can be a variety of continuous emissions (building and decoration material, furniture, appliances in continuous operation) and finite/short emissions (cleaning and body care products, use of appliances, occupant activities/life style). In other words the spatial and temporal emissions variation should be known. Additionally for chemical air pollutants (e.g. VOC), the emission profiles are needed as well as the ability to model their fate due to associated physicochemical processes indoors including pollutant deposition and generation of secondary pollutants. For aerosol, besides chemistry, the size data and predictions are also necessary. Exposure control parameters such as room ventilation, microclimatic conditions, filtration/purification mechanisms also need to be taken into consideration. The exposure spatial variation could also be important especially for localised sources or/and large rooms. Finally, it should be noted that short releases need special treatment due to the fact that there are no deterministic answers because the stochastic behaviour of ambient turbulence becomes an important defining factor. In the present study illustrative examples are given from past [3,4,5] and new experiences underlying the challenges in assessing human exposure indoors.



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Chemicals in indoor environments: contribution from the European Partnership for the Assessment of Risks from Chemicals

Adrienne Pittman, French Agency for Food, Environmental and Occupational Health & Safety

The European Partnership for the Assessment of Risks from Chemicals was selected for funding by the European Union's "Horizon Europe" framework programme for the 2021-2027 period. Coordinated by the French Agency for Food, Environmental and Occupational Health & Safety (ANSES), this major Partnership is seeking to develop next-generation chemical risk assessment in order to protect health and the environment.

PARC will advance research, share knowledge and improve skills in chemical risk assessment. By doing so, it will help support the European Union's Chemicals Strategy for Sustainability, paving the way for the "zero pollution" ambition announced in the European Green Deal.

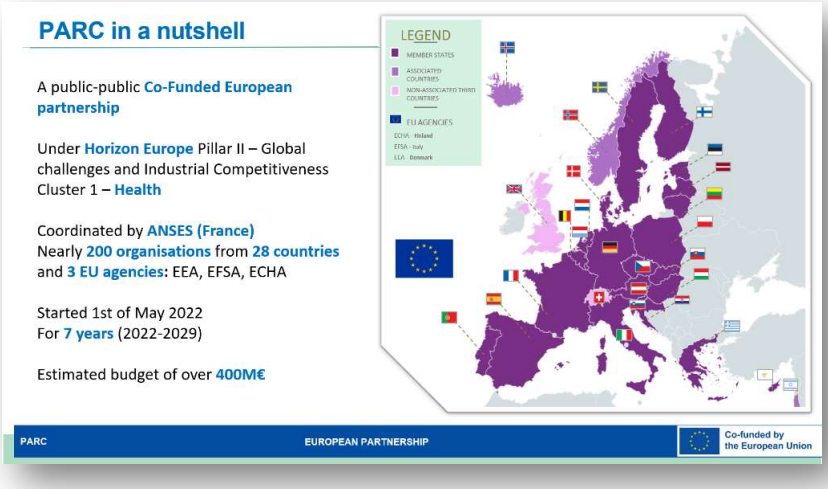
PARC represents a campaign of unprecedented scale, since it brings together about 200 French and European players, involving national and European health and safety agencies as well as research organisations. The partnership encompasses all aspects of chemical risk assessment, aiming in particular to: better anticipate emerging risks, better account for combined risks, and underpin the concrete implementation of new orientations in European public policies to safeguard health and the environment in response to important issues for health, the environment and citizens' expectations.

PARC's mains objectives are to:

- Develop the scientific skills needed to address current and future challenges in chemical safety
- Provide new data, methods and innovative tools to those responsible for assessing and managing the risks of chemical exposure
- Strengthen the networks which bring together actors specialised in the different scientific fields contributing to risk assessment

Its main expected results include the:

- Establishment of a sustainable interdisciplinary network on a European scale to identify and prioritise conceptual, scientific and technical advances and needs in terms of research and innovation for chemical risk assessment
- Development of joint research and innovation activities reflecting the defined priorities
- Strengthening of existing capacities and the creation of new cross-disciplinary platforms



Although not specifically geared only towards indoor environments, the work carried out in PARC will contribute to understanding exposure and risks from chemicals in indoor environments through the development of new tools and data informing the conditions of exposure to chemicals in indoor environments including occupational environments.

PARC's substance prioritisation will include substances of interest in the indoor (non-occupational) and occupational environments and multiple case studies and models with a focus on indoor environments will be implemented. PARC activities on indoor environments will contribute to the evaluation of exposure sources and routes and determinants of exposure and to the development of strategies to assess aggregate exposure through different living environments and different routes of entry as well as internal exposure during life. As such, PARC will be able to provide recommendations to reduce the most important exposures in indoor environments in terms of impact on health.

For more information: https://www.anses.fr/en/content/european-partnership-assessment-risks-chemicals-parc or email: parc@anses.fr

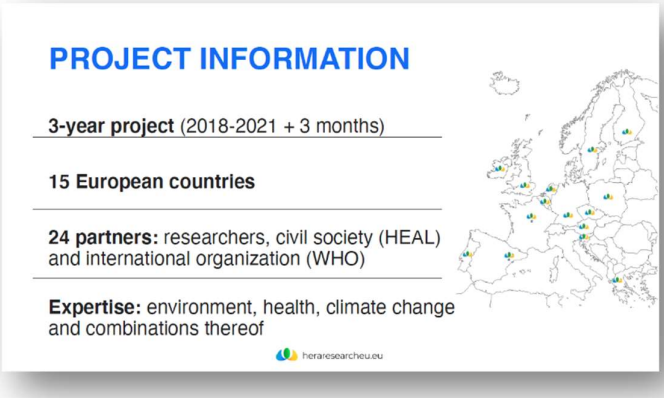
Making visible major challenges in environment, climate and health research in the EU – HERA

Kateřina Šebková, RECETOX, Faculty of Science, Masaryk University, Czech Republic

This work presents the outcomes of research on behalf of the consortium of 24 partners from 15 EU countries responsible for the EU Horizon 2020 project HERA Health and Environment Research Agenda (grant agreement No. 825417 implemented 2019-2021).

The project was a coordination and support action developing a 10 year European research and innovation agenda on environment, climate and health covering key strategic research and policy aspects for 2021-2030. The resulting output published in March 2022 is aimed at implementing visions and targets of the EU Green Deal and reflects policy needs and stakeholder concerns identified at different levels - national, regional, European and global in the health, environment and climate change nexus.

The research output is structured in six research goal areas addressing exposures and health effects (RG1,RG2 and RG3), supports development or strengthening of infrastructures, technologies and human resources for sustainable research on environment and health (RG4 and RG5) as well as introduces research topics supporting transformational change approaches in environment and health (RG6). The research needs address the complexity and long-term goals in issues such as climate change, urban planning and ecosystem threats related to human health and introduce systems approach needed at multiple levels.



The final EU research agenda 2021-2030 is increasing coordination and collaboration of diverse communities in environment, climate and health research. It identifies interdisciplinary research themes to strengthen EU research and innovation competitiveness and outlines transformational research topics focusing on the needed behavioural and policy transformation towards sustainability.

All interested persons are invited to consult the website www.heraresearcheu.eu, as the identified research areas often serve as input into the upcoming research calls published under the Horizon Europe from 2022 onwards.

Indoor air pollution from radon in Sardinia: assessing uncertainty and risk perception at the centre of prevention actions

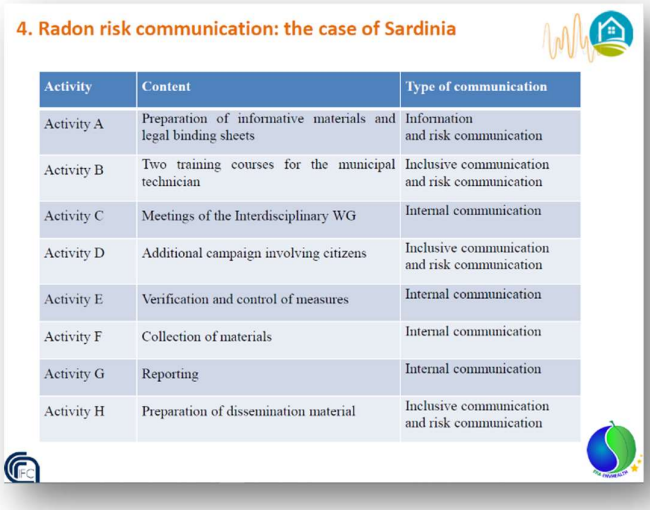
Liliana Cori and Fabrizio Bianchi, Institute of Clinical Physiology, National Research Council, Italy

Radon gas is an indoor pollutant, a decay product of uranium and thorium, a natural, unintentional risk, neither visible nor perceivable. To set up risk communication, researchers must consider a direct level of uncertainty (facts, numbers, models) and an indirect one (the quality of knowledge). Considering risk perception, radon is a paradigmatic example, with the following elements as a basis: a solid scientific evidence about the risk of exposure, the mechanism of damage, the carcinogenicity to the lung (with causal uncertainty because lung cancer recognises other causes); a low widespread knowledge of the existence and low perception of risk; a good knowledge of available prevention and mitigation tools.

Studying and preventing radon risk is a challenge at theoretical and practical levels. With this awareness, IFC-CNR participated in the Radon Sardinia Project by carrying out the Health Impact Assessment, HIA, of exposure to Rn (in the region and in the sub-area with the highest concentrations, based on data measured and estimated by the Regional Environmental Agency) and planning risk communication (1).

The impact assessment by epidemiological approach, Health Impact Assessment, HIA, of radon exposure in Sardinia was developed on the basis of data collected during the radon monitoring campaign. HIA was implemented, calculating the cases attributable to radon exposure, combining the following parameters: lung baseline cancer mortality rate, size of the exposed population, concentration-response function (available by literature); difference between measured and target radon concentration.

Communications about health and environmental hazards tend to focus on the cognitive (rational and information-related) aspects; however, research shows that individuals' actions are also driven by the emotional aspects of risk. Information is the driver of behaviour only if it is able to overcome the many biases that individuals have in processing risk information. Some psychological mechanisms, when risks threaten, drive people to action; others drive them to inaction. The radon hazard, due to its specific characteristics, can easily be downplayed to justify inaction: radon risk is perceived as distant, uncertain, and easily taken for granted; these biases may act to minimise risk perception. It is not surprising that radon hazards fail to promote appropriate precautionary behaviour: there are no immediate risks, and radon-related lung cancer occurs in the distant future.



Activity	Content	Type of communication
Activity A	Preparation of informative materials and legal binding sheets	Information and risk communication
Activity B	Two training courses for the municipal technician	Inclusive communication and risk communication
Activity C	Meetings of the Interdisciplinary WG	Internal communication
Activity D	Additional campaign involving citizens	Inclusive communication and risk communication
Activity E	Verification and control of measures	Internal communication
Activity F	Collection of materials	Internal communication
Activity G	Reporting	Internal communication
Activity H	Preparation of dissemination material	Inclusive communication and risk communication

A multidisciplinary approach, involving continuous collaboration, with experts in the field of psychology, is deemed essential to solve the problems associated with the lack of radon remediation. A key challenge for risk awareness programmes is to inform the public in a way that does not create apathy, complacency, or overconfidence, without creating undue stress or alarmism (2).

The principles guiding the communication planning included in the Potsdam Manifesto on Radon Communication (3) considered the available literature on risk perception, where the importance of psychological and social aspects for risk management and an in-depth dialogue on uncertainty and consequent actions are highlighted. The communication plan envisaged the maintenance of information gathering by questionnaire, the involvement of administrators and communities, and the creation of permanent information exchange fora.

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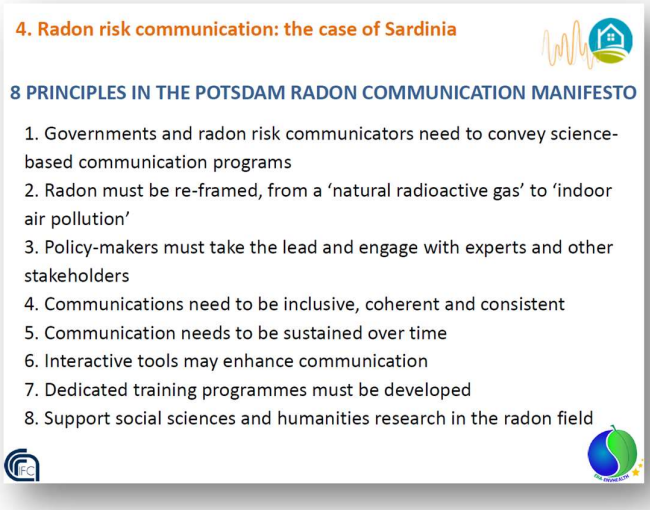


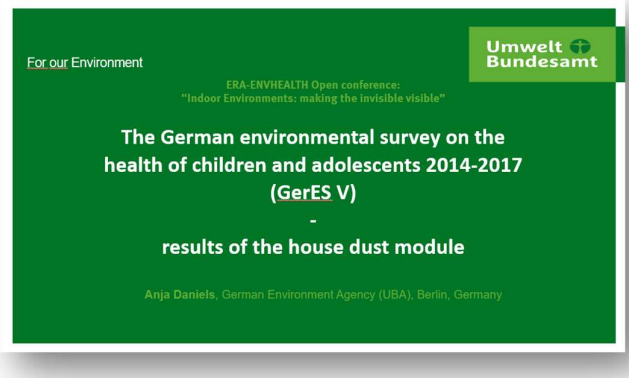
The German environmental survey on the health of children and adolescents 2014-2017 (GerES V) - results of the house dust module

Anja Daniels, German Environment Agency (UBA)

As part of the federal government's health-related environmental monitoring, the German Environment Agency (UBA) provides representative up-to-date data on the exposure of 3 to 17-year-old children and young people to environmental influences. In order to collect this data, UBA carried out the German Environmental Study on the Health of Children and Adolescents - (GerES V 2014 - 2017).

To be able to make statements about the substance content in house dust from households with children, house dust samples were taken from the vacuum cleaner bags. The house dust was examined for phthalates, alternative plasticizers, flame retardants and musk fragrances. To identify possible sources of increased dust pollution, the furnishing in the households was documented in questionnaires.

Of the twelve phthalates determined, levels above the limit of quantification of n-dibutyl phthalate (NDP), diisobutyl phthalate (DiBP) and di(2-ethylhexyl) phthalate (DEHP) were found in all households. However, diisononyl phthalate (DINP), diisodecyl phthalate (DIDP) and diheptyl and diisoheptyl phthalate (DIHP) could also be detected in more than 90% of households. In contrast, the level of dimethyl phthalate (DMP) was above the limit of determination in only 7% of the households. DINP was found to have the highest concentrations, followed by DEHP.



Of the nine alternative plasticizers analysed, di(2-ethylhexyl)terephthalate (DEHT), acetyl tributyl citrate (ATBC) and diisononyl cyclohexane-1,2-dicarboxylate (DINCH) were found in more than 97% of households. Dibutyl adipate (DBA), on the other hand, could not be detected in any household. The highest grades were found for DEHT.

When examining house dust for flame retardants, tris(2-butoxyethyl) phosphate (TBEP) was measured in 93% of households and tris(2-chloropropyl) phosphate (TCPP) in 77% of households. The highest levels in house dust were determined for TBEP.

The analysed musk fragrances could only be identified in a few households. The most frequent substance, ISO E Super was measured above the limit of quantification in 34% of the house dust samples. The substances tonalide, galaxolide and galaxolide-lactone were quantified in less than 10% of all households. Musk xylene and musk ketone could only be determined in two house dust samples.

Children and young people spend most of the day indoors. The protection of the population from exposure to chemicals and other pollutants requires that substances that are problematic to health are identified timely and that the effectiveness of restrictions is monitored. The GerES data represent an instrument for these tasks.

Where can urban children breathe clean air?

Emilie Stroh, Occupational & Environmental Medicine, Medical Faculty, Lund University, Sweden

The global urbanisation causes more and more children to grow up in urban environments, at the same time space designated for children in cities, such as playgrounds, are diminishing. As the cities densify there is also a major concern of increasing levels of air pollution and exposure especially in children's outdoor environments, such as preschools outdoor areas, nearby parks, or playgrounds.

Children's exposure to air pollution may differ significantly from that of adults. Compared to adults, children have a higher minute ventilation at rest – a difference that is even more pronounced considering their temporarily higher physical activity. Thus, children are at an increased risk of inhaling more air pollutants than adults. This is alarming since children are especially vulnerable to air pollution exposure as their lungs and cardiovascular system are still developing and damages in these systems during childhood might cause permanent impairments and accordingly lower their life expectancy.

Urban children's risk of increased exposure to outdoor air pollutants in our cities is even more alarming as we tend to forget that outdoor air is our "fresh air" and that "healthy indoor air" requires an effective ventilation replacing indoor air with outdoor air. This raises concerns about where and when are our children exposed to the highest levels of air pollutants.

To try to answer this we conducted a study where, during a workweek, we logged indoor and outdoor levels of air pollutants (particles; PM_1, $PM_{2,5}$, PM_{10} and NO_2) at four preschools in the inner city of Malmö (southern Sweden) and at four less urban preschools in Malmö's vicinity. Activity levels for preschool children (n=125) were logged, using accelerometers, to be able to estimate their minute ventilation. This enabled us to estimate how much of these ambient air pollutants they inhaled during various time periods and places (indoor and outdoor at their preschool) during a day.

With this study, we want to answer the questions; Are there differences in exposure between indoor and outdoor environments? And what are the differences in these exposures between children attending urban or more rural preschools?

Endocrine disruptor compounds and the links between environmental exposure, neurodevelopment and social behaviour in children

Joana Madureira, National Institute of Health Doutor Ricardo Jorge, Portugal

The environmental and epidemiological data to interpret adverse impacts of endocrine disruptors (EDCs) is highly insufficient, yet these pollutants are largely unregulated in the current frameworks. Current evidence has shown that many of the endocrine-related diseases and disorders (neurobehavioural disorders, prevalence of obesity, diabetes type 2) are on the rise. This is especially relevant for children whose exposure to EDCs (known or suspected) is higher in comparison with adults.

EDC(Mind)2 is a 3-year multidisciplinary project that will characterise exposure to EDCs (air, dermal, diet), and cognitive conditions and behaviour among a population of 1800 schoolchildren.

The project is divided into two phases. Phase I will address child air exposure (sample of 20 primary schools) and will investigate early signs of adverse cognitive development and behaviour in 8-9 year old children (field campaigns at the beginning of the 2022/2023 school year). Indoor exposure assessment (simultaneously with outdoor air) will encompass concurrent chemical (selected EDCs– in gas phase + particulate fractions; VOCs, CO, NOx), physical ($PM_{2.5}$, ultrafine, CO_2, temperature, relative humidity), and biological pollutants (bacteria and fungi). Detailed information on the children's lifestyle, diet, physical activity, and respiratory health will be provided by the parents via a standardised questionnaire. Cognitive development will be evaluated via validated short attention form tests; child social behaviour will be measured using the teacher form of the Social Skills Improvement Rating Scale. Phase II encompasses a sub-population of 200 schoolchildren exposed at their homes. Both air and dermal exposure to EDCs will be investigated while monitoring diet and eating patterns of the subjects.

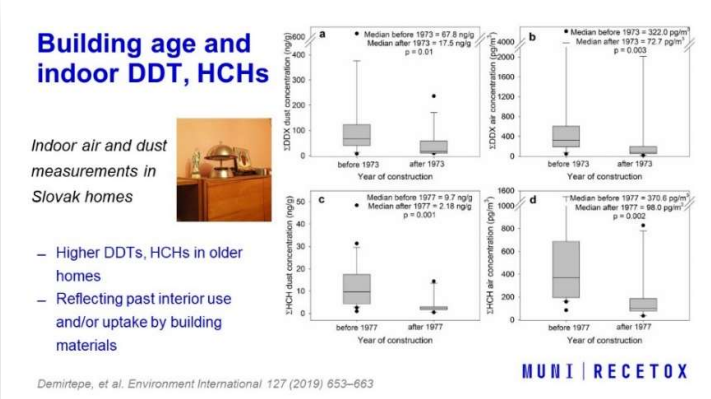
Successful accomplishment of EDC(Mind)2 will allow for a set of recommendations for surveillance of child exposure to endocrine disruptors while defining a list of practices for implementation of guidelines contributing to healthy and safe public and private indoor environments.

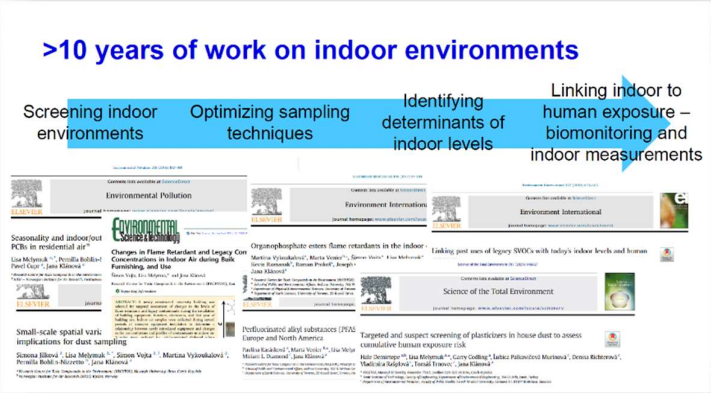
This work is financed by LA/P/0045/2020 (ALiCE) and UIDB/00511/2020–UIDP/00511/2020 (LEPABE) though national funds FCT/MCTES (PIDDAC), and by PTDC/CTA-AMB/3040/2021.

From legacy to modern indoor pollutants in Central Europe

Lisa Melymuk, RECETOX, Masaryk University, Czech Republic

Concern regarding the chemicals to which we are exposed in indoor environments has shifted as our patterns of chemical use have shifted. In Central Europe, studies done in Czech Republic and Slovakia have traced the shift from historic persistent organic pollutants such as DDT and polychlorinated biphenyls to pollutants of modern, on-going concern – flame retardants, phthalates, and alternative plasticizers. But as we turn our focus to the modern pollutants, it is crucial to remember that the legacy pollutants, because of their widespread past use and high persistence, remain present in indoor air and dust, and continue to be a hazard decades after restrictions on their production.





Indoor Environmental Quality: the RIVM files

Rik Bogers, National Institute for Public Health and the Environment, The Netherlands

At RIVM, several centers work on topics that directly or indirectly concern indoor environmental quality, either through research, advice for policy makers or support of regional health authorities. Until recently, these activities were fragmented and lacked coordination. Catalysed by the COVID pandemic, interest in indoor environment increased. At RIVM, indoor quality also became higher on the agenda, in particular with respect to indoor (aerogenic) transmission of the virus. In addition, we notice increased attention for indoor environments because of the energy transition and energy efficient retrofitting of buildings.

Since last year, researchers at RIVM with an interest in indoor environment regularly meet to inform each other and coordinate their activities. This has resulted in a research proposal (for 'Strategic Research RIVM') on combined exposure to chemical, biological and radiological indoor exposure in the context of energy efficient retrofitting of houses.

In this presentation, an overview was given of the indoor environment related activities at RIVM.

UPCOMING EVENTS

12th International Symposium on Biological Monitoring in Occupational and Environmental Health (ISBM-12)

When: 21 – 23 June 2023

Where: Porto, Portugal

The Portuguese National Institute of Health (INSA, I.P.), the Institute of Public Health of the University of Porto (ISPUP), and the Scientific Committee of Occupational Toxicology (SCOT) of the International Commission on Occupational Health (ICOH), in collaboration with other ICOH's Scientific Committees, invites you to participate in ISBM-12.

ISBM-12 "Next Generation Biomonitoring" will continue the International Symposium on Biological Monitoring congress series with a multidisciplinary and holistic view of the latest developments in Human Biomonitoring (HBM) sciences, bringing together world-leading scientists, experts, and students. State-of-the-art developments in different topics of HBM (e.g., biomarkers, risk assessment, and regulation), new methodologies, and developing expertise will be covered.

You are invited to submit abstracts for oral/poster communications on any of the Conference Topics (isbm12.com/abstract-submission) Authors of selected abstracts will be invited to publish in a Special Issue of Toxicology Letters!

For more information, please visit the website (isbm12.com/home).

7th Environment and Health Ministerial Conference (MCEH7)

When: Budapest, 5 – 7 July 2023

Where: Budapest, Hungary

The World Health Organization announced the next Ministerial Conference on Environment & Health #MCEH7 to take place in Budapest, Hungary from 5 till 7 July 2023. Environmental & health crises put a serious burden on our region's health systems. We must find solutions for our health & for future generations.

5th session of the International Conference for Chemicals Management (ICCM5)

When: 25 – 29 September 2023

Where: Bonn, Germany

The fifth session of the International Conference for Chemicals Management (ICCM5) will be organized in Bonn, Germany, 25 - 29 September 2023. The Strategic Approach to International Chemicals Management (SAICM) is a policy framework to promote chemical safety around the world and ICCM is its highest decision making body. The overall SAICM`s objective is the achievement of the sound management of chemicals throughout their life cycle so that by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health. Nowadays, intersessional process (IP) has been launched to negotiate a successor to SAICM for strengthening the sound management of chemicals and waste (SMCW) for a just and resilient world beyond 2020. The meeting in 2023 should renew the commitment enshrined in the Dubai Declaration from 2006 but also reinforce actions to promote sound and sustainable chemicals management globally.

The ERA-ENVHEALTH Network

What?

ERA-ENVHEALTH is an active transnational network including stakeholders in the Environment and Health field, stemming from a previous European-funded project, which ended in 2012. It is a forum to discuss challenges, visions and emerging issues.

Why?

The main purposes for the network are to share and exchange information and promote networking and joint activities (such as the annual open conference on specific topics of interest).

Join us!

The structure of the network is based on "contributing and sharing"; each organisation participates on a voluntary basis.

CONTACTS

https://www.anses.fr/en/content/era-envhealth-network

Do not hesitate to get in touch with the network either through your national contact point and member of the network or by contacting:

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NETWORK MEMBERS

	Acronym	Name	Country
anses	ANSES	French Agency for Food, Environmental and Occupational Health & Safety	France
	CNR	Italian National Research Council	Italy
epa	EPA	Environmental Protection Agency	Ireland
	FPS HFCSE	Federal Public Service Health, Food Chain Safety and Environment	Belgium
Instituto Nacional de Saúde Doutor Ricardo Jorge	INSA	National Institute of Health Dr Ricardo Jorge	Portugal
	PHAS	Public Health Agency of Sweden	Sweden
	RIVM	National Institute for Public Health and the Environment	Netherlands
	Swedish EPA	Swedish Environmental Protection Agency	Sweden
MUNI | RECETOX	RECETOX	National Centre for Toxic Compounds in the Environment, Faculty of Science, Masaryk University	Czech Republic
universidade de aveiro	UA	University of Aveiro	Portugal
Umwelt Bundesamt	UBA	German Environment Agency	Germany
	UoWM	University of Western Macedonia	Greece