



ERA-ENVHEALTH

NEWSFLASH



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SAVE THE DATE

Autumn 2019:

ERA-ENVHEALTH annual conference in Paris, France

Special thanks to Denise Köhler, UBA, for compiling this Newsflash.

The year 2018 was another fruitful year for the **ERA-ENVHEALTH NETWORK** and its information exchange activity.

This time, the annual meeting and open conference took place in Berlin, Germany and was hosted and organised by the German Environment Agency (UBA), on 10-11 September 2018.

The open conference theme attracted a number of very interesting talks on the topic “**Considering vulnerable groups in policy, research and risk communication**”, presenting either work in progress or case studies of experience and expertise from the different participants.

Evidence of significant environmental health inequalities across the European region has been presented by WHO in 2012. Environmental risks are found to disproportionately affect socially disadvantaged and vulnerable population groups. Therefore, vulnerable groups such as children, elderly people, pregnant women, socially deprived persons and people suffering from (chronic) diseases need to be addressed in policy, research and risk communication in the field of environment and health.

The conference, attended by almost 40 participants from nine countries, enabled stimulating discussions on several questions. This Newsflash edition contains abstracts of all conference presentations. The annual general assembly meeting was also very productive for the members, as the network agreement is to be renewed

for 2019-2021 prompting discussions on what benefits the members get from the network and what future activities should focus on, and finally how to renew and expand the membership and interest. The objectives of the cooperation are:

- To facilitate the integration of knowledge and best practices in the environment and health field, and to enhance networking opportunities.
- To facilitate information exchange
- To stimulate the implementation of joint activities where transnational collaboration can bring added value.

After many years of close collaboration and cooperation, the network has become valuable for the members by providing for instance:

- privileged contact-points in Member organisations working in the same fields,
- access to a unique source of information and
- tools to disseminate relevant information.

Hence, the members have chosen to maintain the network based on “contributing and sharing” and certain of its activities focusing on information exchange including the newsletter, and implementation of joint activities such as workshops and conferences.

This year’s annual meeting will take place in Paris, France and will probably focus on circular economy, so do not hesitate to join us and take part in these fruitful discussions. The 2020 meeting will be in Sweden.

SUMMARY OF THE ERA-ENVHEALTH CONFERENCE ON “CONSIDERING VULNERABLE GROUPS IN POLICY, RESEARCH AND RISK COMMUNICATION IN THE FIELD OF ENVIRONMENT AND HEALTH”

The member organisations of the ERA-ENVHEALTH network organise an annual meeting and conference with varying topics in the field of environment and health. The conference in 2018 focused on vulnerable groups. These are especially vulnerable population groups, which have a higher risk of disease due to different reasons like age, sex, social status or previous illnesses. Vulnerable population groups can be, for example, children, the elderly or people with a suppressed immune system. The programme of the conference can be found [here](#).

In her presentation on “[Vulnerability in the field of environment and health: Conceptual background and selected activities of the German Environment Agency](#)” **Nadja Steinkühler** (German Environment Agency, UBA) described the concept of “vulnerability”. Depending on the scientific discipline the term vulnerability is defined differently. She referred to the vulnerability of different population groups which can be found in increased morbidity and mortality. Moreover, she presented three research projects of the UBA which have a connection to vulnerable population groups.

Suzan Fiack (German Federal Institute for Risk Assessment, BfR) showed in her presentation on “[Risk Perception and Risk Communication at BfR](#)” what tools the BfR uses to communicate on risk. For example the BfR uses risk profiles to communicate risks visually. The profiles contain which groups could be affected, how high the probability of health effects is and if validated data are available. Moreover, the affected groups are visualised by pictographs. More information on the risk profiles can be found here: https://www.bfr.bund.de/en/bfr_risk_profile-186391.html.

In her presentation on “[Vulnerabilities to allergies linked to mould and pollen: the case for three ANSES opinions](#)” **Adrienne Pittman** (French Agency for Food, Environmental and Occupational Health & Safety, ANSES): presented three ANSES-publications: 1) An opinion on the

health impact associated with exposure to pollen found in ambient air (https://www.anses.fr/en/system/files/AIR2011sa_0151EN.pdf). 2) A revised opinion on mould in buildings (https://www.anses.fr/en/system/files/AIR2014SA_0016EN.pdf). 3) A report only available in French, on pollen and mould in ambient air in French overseas territories.

Karin Björklund (Public Health Agency of Sweden, Folkhälsomyndigheten) presented on “[Vulnerable groups and equality in environmental health policy](#)”. She showed the different measures of the Public Health Agency of Sweden. These include human-biomonitoring (especially on vulnerable groups), environmental monitoring and an environment-health-survey where every four years over 40.000 people are asked about their health burdens caused by environmental factors.

In the presentation “[Insights on vulnerable groups from Horizon2020-Project INHERIT \(INter-sectoral Health and Environment Research for Innovation\)](#)”. **Hanneke Kruijze** (Dutch National Institute for Public Health and the Environment, RIVM) introduced the Horizon 2020 project “INHERIT”. Central topics in the field of environment and health are active transport, greenspace, energy efficiency and food production and consumption. Approximately 100 promising practices from around Europe were collected and scenarios were created. More information can be found here: <https://inherit.eu/>.

Carlos Borrego (University of Aveiro, Portugal): reported in his presentation on “[Air quality, exposure and health of vulnerable groups](#)” about different projects of the University of Aveiro in the field of air pollution. For example, he highlighted the project „LifeIndexAir“, which is funded by the European Union (<http://www.lifeindexair.net/>). In this project inter alia nine primary school children were equipped with mobile trolleys which measure the air quality.

Bert Morrens (University of Antwerp, Flemish Center of Expertise on Environment and Health, Belgium): presented on “[Involving vulnerable groups in environmental health research – Experiences from the Flemish Environment and Health Study](#)” and talked about the Flemish Environment and Health Study (FLEHS) and his experience to include vulnerable groups and inequalities in this study. He pointed out where vulnerable groups are confronted with higher or lower health burdens (for example in relation to lead and PCB due to consumption and living conditions). Moreover, he illustrated the obstacles from the point of view of vulnerable groups to participate in human-biomonitoring studies.

In her presentation on “[Risk perception and communication in vulnerable populations: primary and tertiary cancer prevention](#)” **Béatrice Fervers** (Centre Léon Bérard, CLB, France) reported about cancer, the leading cause of death in France. She showed that the risk perception differs in different groups (young vs. old, men vs. women). The CLB operates a website to inform about risk factors of cancer (<http://www.cancer-environnement.fr/>, in French). Moreover, she

informed about the work of the CLB with adolescents and young adults to prevent cancer or a new cancerous disease.

Liliana Cori (Italian National Research Council, CNR) talked in her presentation on “[Risk communication: tools for training, enhancement and empowerment](#)” about risk perception of noise, especially of children and adolescents. She presented the LIFE+-project „GIOCONDA“ (<http://progettogioconda.ifc.cnr.it/en/home-eng/>). The goal of the project was to show students how to develop scientific results, identify problems and develop solutions to present them at the local administration level. 600 students were questioned on noise in their schools within the project.

All presentations are available on the conference website:

<https://www.umweltbundesamt.de/en/2018-era-envhealth-programm>

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VULNERABILITY IN THE FIELD OF ENVIRONMENT AND HEALTH – CONCEPTUAL BACKGROUND AND SELECTED ACTIVITIES OF THE GERMAN ENVIRONMENT AGENCY

In the scientific literature, there is a lack of a uniform understanding of the concept of vulnerability. Thus, the term is used in various scientific disciplines (such as biology, human medicine, poverty research and economics). In the field of Public Health, a multidimensional vulnerability concept is required. In this context, vulnerability means an increased risk of morbidity and mortality, for instance, an increased likelihood of illness and death as well as a higher need for protection. Furthermore, there are various reciprocally overlapping or potentiating causes for health burdens that can increase vulnerability, like inadequate participation in society in combination with insecure material conditions.

Concerning the influence of the environment on human health various factors need to be considered. Depending on, for example, age, gender, social situation, ethnicity, psychosocial burden and previous illnesses, there may be an increased sensitivity as well as an increased exposure to environmental influences. Both of these aspects characterise individual vulnerability.

Three examples (climate change and health, environmental justice, gender) were given to illustrate the concept of vulnerability in the field of environment and health. Especially with regard to socially unequal distributed environmental impacts, there is a complex relationship between burdens, resources and individual vulnerability, which in turn has a significant influence on health.

Finally, three of the German Environment Agency's research projects were outlined which either implicitly or explicitly address questions of vulnerability. One of these is a systematic literature review on the vulnerability of elderly people to identify to which environmental burdens (in relation to air pollution, noise, climate change and chemicals) older people represent a relevant vulnerable group. First results are expected in August 2019.

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RISK PERCEPTION RESEARCH AND RISK COMMUNICATION AT BfR

How can risks be communicated in such a way that the type, extent and significance of a risk can be adequately assessed by both experts and lay persons? How can vulnerable groups be successfully reached through risk communication? Which means of communication are used or can be used for this purpose? Using examples from the press work of the Federal Institute for Risk Assessment (BfR) some of the challenges associated with the communication of risks were presented.

A clear understanding of how risks are perceived and what factors influence risk perception are indispensable for adequate risk communication. To obtain information on how the public or specific social groups assess an issue, the BfR studies the

risk perception and risk behaviour of different target groups. The results can be used to design risk communication processes effectively. To a large extent, risk perception is determined by the following factors: personal concern, dreadfulness, risk-benefit relationship, controllability and trustworthiness.

The way in which risk measurement results are presented can have an impact on the perception of the risk. Consumers expect easy-to-follow tips and clear information that are helpful to them in their everyday life. For this reason, the BfR always begins its scientific opinions with a summary that includes concrete recommendations, written in language that the general public can understand. In addition, a BfR-Risk Profile has been developed

which summarises the key points of the opinions in the form of a graph, thereby visualising the described risk. The BfR-Risk Profile aims to help readers to quickly grasp the situation and the central features of the risk assessed in the opinion. The information includes the affected group of persons, which can be pregnant women, infants, elderly and ill people.

Different types of risks require different approaches to risk communication, especially with regard to vulnerable groups. Emergency food safety events require a rapid response, while enduring food safety problems require ongoing communication with target audiences and stakeholders, including consumers.

There are a number of ways for defining the *vulnerability of populations*. Vulnerability in the

context of consumer protection can be regarded as the diminished capacity of an individual or group to cope with a risk. There are major areas in which vulnerable groups differ from the general population: toxicokinetics, toxicodynamics and exposure to substances.

With the help of some concrete examples (e.g. fipronil in eggs, unfounded claims of glyphosate accumulation in breast milk, and arsenic in rice) different approaches and risk communication guidelines were presented.

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VULNERABILITIES TO ALLERGIES LINKED TO MOULD AND POLLEN – THE CASE FOR THREE ANSES OPINIONS

According to estimates regularly put forward, the prevalence of allergic respiratory diseases such as seasonal rhinitis and asthma has nearly doubled in industrialised countries in the past 20 years. Allergic rhinitis is an important risk factor for asthma, and relationships between pollen allergies and food allergies have been described. Also, studies published in recent years have shown that climate change may influence the production of pollen, mainly by extending the pollen season and changing spatial distribution and air pollution. In recent years, in order to help understand the questions surrounding vulnerabilities to allergies linked to mould and pollen, ANSES has published three collective appraisals with ANSES opinions:

A first one in 2014 to update the state of knowledge on pollen and its effects on health, including engaging in a debate on the prospects for appropriate management: on what scale, for which priority pollen species, and with which monitoring tools: [Pollen found in ambient air: state of knowledge on the health impact associated with exposure of the general population](#) (ANSES opinion available in English on the website

<https://www.anses.fr/en/system/files/AIR2011sa0151EN.pdf>)

With increasing attention being paid to the issue of indoor air quality with, in particular, the establishment of monitoring that is gradually becoming mandatory in certain establishments open to the public, a second opinion was requested in 2016 on mould in buildings with a focus on the assessment of exposed and/or at-risk populations: [Mould in buildings: Recommendations to reinforce measures for preventing mould growth and the impact on human health](#) (ANSES opinion available in English on the website <https://www.anses.fr/en/system/files/AIR2014SA0016EN.pdf>)

The third referral, in 2017, is part of the Agency's ongoing expert work on pollen in ambient air and mould in buildings, published in 2014 and 2016 respectively and focuses on these questions in France's overseas territories: [Pollen and mould in the ambient air of France's overseas territories](#):

[improving our understanding in order to better assess their health impact.](#)

The main aims of these three opinions were to provide state of knowledge on health effects, exposure and its determinants, and vulnerable populations, and provide recommendations for French Ministers in charge of Environment and Health and identify priorities for research. These three recent expert assessments conducted by ANSES concerning mould and pollen show the existence of established respiratory health effects and allergies linked to exposure. The assessments also show that certain population

groups are more susceptible to developing pathologies when exposed. In its conclusions, the Agency recommends preventing health problems, especially for the most vulnerable population groups, through changes in the regulations in order to better integrate the risks of mould and pollen exposure.

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VULNERABLE GROUPS AND EQUALITY IN ENVIRONMENTAL HEALTH POLICY



Public health in Sweden is generally good. However, the health gap between groups of different socioeconomic background is growing, where those with lower socioeconomic background are generally worse off also in health. Socioeconomic status is a strong determinant for exposure, vulnerability and capacity for mitigating consequences of adverse health impacts related to our environment. As such, health inequality is of growing concern also within environmental health. Our mission with regard to environmental health is to detect, prevent and eliminate health hazards in the physical environment and to promote positive environmental impacts on human health.

Vulnerable groups and equality in health are always in focus.

Environmental health policy is dependent on two main policy frameworks in Sweden – that of public health and that of the environment. However, national objectives within transport, outdoor recreation, housing, living and planning as well as climate legislation also relate to environmental health. Moreover, there are international frameworks, such as the Sustainable Development Goals (SDGs), the Environment and health process (EHP) of the World Health organization (WHO) and the 7th Environment Action Programme (EAP) that affect environmental health policy. The tools traditionally used for monitoring environmental health usually analyse environmental or human samples, but have not regarded socioeconomic inequalities. Vulnerable groups such as children and pregnant women are often the targets of human biomonitoring, but socioeconomic differences within vulnerable groups or within a geographic area are usually not included.

The Public Health Agency serves as a knowledge base supporting the government and other agencies, and provides a basis for priority and decision making for national, regional and local governments. However, this work is sometimes complicated by the fact that environmental factors affecting health are the responsibility of several agencies, which in turn are set under different

ministries. Thus, much of our work is done through collaboration with other government agencies and ministries. We are presently wrapping up a collaborative project on health aspects of Sweden's environmental objectives involving fifteen different agencies, which has shown the strength of collaboration as well as the need to

collaborate to reach our common goal of protecting both our health and the environment.

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INSIGHTS ON VULNERABLE GROUPS FROM HORIZON2020-PROJECT INHERIT (INTER-SECTORAL HEALTH AND ENVIRONMENT RESEARCH FOR INNOVATION)

Dr. Hanneke Kruijze presented insights on vulnerable groups in relation to environment and health, derived from the Horizon 2020 project INHERIT (www.inherit.eu). The INHERIT project aims to identify and evaluate promising policies, practices and innovations in Europe that create a triple win of environmental sustainability, health, and equity.

Central question in this project how lifestyles and behaviours can be changed to achieve this triple win. The project focuses on four topics: active transport, greenspace, energy efficiency and food production and consumption. To detect the most efficient entry points for action and levers for change, a literature review was carried out to describe the links between lifestyles and behaviours, environmental sustainability, and health and equity for these four topics, and health inequalities were addressed.

Furthermore, a conceptual framework was developed, combining DESTEP, eDPSEEA and Michie's COM-B Behavioural model into one integrated model that is used as a base in the INHERIT project for the other activities. A searchable database with about 100 promising practices from around Europe has been created, in which one can select e.g. a specific vulnerable group. Currently, the INHERIT partners evaluate a selection of these promising practices, not only on their impact on environmental sustainability, health, and equity, but also on the collaboration between the involved stakeholders. Dr. Kruijze will present some examples of these promising practices, in particular ones with a focus on vulnerable groups.

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AIR QUALITY, EXPOSURE AND HEALTH OF VULNERABLE GROUPS

Outdoor air pollution is a major environmental health problem affecting everyone in low, middle, and high-income countries. Ambient (outdoor) air pollution in both cities and rural areas was estimated to cause 4.2 million premature deaths worldwide per year in 2016; this mortality is due to exposure to small particulate matter of 2.5 microns or less in diameter (PM_{2.5}), which cause cardiovascular and respiratory disease, and cancers.

Despite the importance of citizens' behaviour in combating air pollution (their choices have been decisive for air quality), some important sources of outdoor air pollution are well beyond the control of individuals and demand concerted action by local, national and regional level policy-makers working in sectors like transport, energy, waste management, urban planning, and agriculture. Vulnerable and susceptible populations are at increased risk of morbidity and mortality associated with increased exposures to air pollution. This accounts in particular for urban settings and communities affected by traffic-related air pollution. Understanding how air pollution may differently affect individuals or population subgroups is of major relevance for evidence-based policy making in emission reduction strategies and in health protection of those populations most vulnerable and susceptible. The elderly, the chronically ill, children and people with activities that take place in particularly exposed locations (professional drivers, industrial workers, firefighters) are examples of more susceptible and vulnerable groups.

The University of Aveiro has been coordinating and developing research studies, as joint collaborations between environmental and medical experts, attempting to answer to the questions: How does air quality affect the exposure and health of children? Are asthmatics more vulnerable to air pollution than healthy children? Is an industrial worker more likely to

suffer the effects of the air he breathes than other professionals? How does smoke from a forest fire affect the health of firefighters?

The methodologies developed under these studies focus on the application of both monitoring and modelling tools, in an integrated way (from emissions through concentrations, exposure, until health effects) towards a more sustainable and healthier life. The city of the future must be able to produce its own food and energy, reduce and treat its waste, have water in quantity and quality, improve air quality and reduce human exposure.

The solutions need to be innovative and must integrate new social and technological perspectives. On one hand, integrated assessment modelling tools allow a cost-effective analysis and decision support on emission reduction strategies. On the other hand, nature itself is resource-efficient and can inspire or support innovation. Nature-based solutions will lead the transition to circular and smart cities, promoting environmental, social and economic sustainability, help build resilience to climate change, and improve citizens health and well-being. In this perspective, the urban metabolism must be conceived as plainly integrated in a wider circular and renewable energy based economy.

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INVOLVING VULNERABLE GROUPS IN ENVIRONMENTAL HEALTH RESEARCH – EXPERIENCES FROM THE FLEMISH ENVIRONMENT AND HEALTH STUDY

The Flemish Environmental Health Study (FLEHS) uses human biomonitoring to assess the internal exposure to environmental chemicals in the general population and in specific hotspots in Flanders (Belgium). Since 2007, the FLEHS research team experiments with different approaches to better involve vulnerable social groups into the biomonitoring research cycle and to identify and tackle mechanisms of social inequality.

We use the multifaceted environmental justice framework of Schlosberg to describe and map these approaches within the three dimensions of justice.

- **Distributional justice:** we stratified human biomonitoring results according to educational attainment, income and ethnic background to determine whether vulnerable social groups are disproportionately exposed to environmental chemicals. Remarkably, we observed more complex and nuanced patterns of social stratification than can be assumed on the basis of the environmental justice hypothesis.
- **Procedural justice:** we initiated a targeted recruitment system with personal buddies to lower participation barriers for vulnerable groups and to create more openness and flexibility in the research procedures and ethics. We experienced that by investing in direct, person-to-person contact with trusted buddies and supported by practical advice about cultural and linguistic sensitivity, it was possible to increase study participation of socially disadvantaged people.
- **Recognitional justice:** we explored how vulnerable groups and ethnic minorities can benefit more from environmental health promotion and risk communication. Two participatory projects with migrant women and community gardeners in a deprived urban neighbourhood underlined the importance of



using a positive and holistic approach to communicate about environmental health problems and to raise capabilities to cope with these problems.

These initiatives demonstrate the complex social and cultural embeddedness of environmental health risks and illustrate how and why the chemical environment should always be monitored and managed in relation to the social environment.

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The Flemish Environmental and Health Studies were commissioned, financed and steered by the Ministry of the Flemish Community (Department of Economics, Science and Innovation; Flemish Agency for Care and Health; and the Department of Environment, Nature and Energy).

RISK PERCEPTION AND COMMUNICATION IN VULNERABLE POPULATIONS: PRIMARY AND TERTIARY CANCER PREVENTION

Cancer has become the leading cause of death in France. Estimations show that 40% of all cancer cases could be prevented based on current knowledge. While tobacco use, alcohol, overweight and sedentarity play a major role, preventable environmental factors and occupational exposures also contribute significantly to the cancer burden. There is increasing evidence that early life exposures and early onset of lifelong exposures to environmental carcinogens contribute to cancer risk later in life.

Also, due to improvement in cancer therapy, 50 to 60% of patients will survive cancer diagnoses. This proportion is even greater in adolescents and young adults (AYAs) diagnosed with cancer. Cancer survivors are at increased risk of second primary cancer, in particular AYAs. Health literacy, the ability to read, understand, and act on health information, is a strong predictor of preventive behaviours. Evidence-based information about cancer risk factors need to be framed and delivered in a format and on support appropriate to the target population.

The communication presented ongoing projects by the Léon Bérard Comprehensive Cancer Center, Lyon to provide access to evidence-based

information on cancer risk factors to AYAs in primary and tertiary to enable these vulnerable populations to better understand cancer risks and make informed decisions to take care of their health. This involves the web portal www.cancer-environment.fr as well as printed support in primary and tertiary prevention to AYAs and AYAs after cancer in childhood and adolescence. Current research and research perspectives to better understand risk perception in these vulnerable populations were also presented.

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RISK COMMUNICATION: TOOLS FOR TRAINING, ENHANCEMENT AND EMPOWERMENT

In the framework of environmental epidemiology research, risk communication acquired a crucial role and it is debated among experts, regulatory agencies, policy makers and stakeholders. An intense activity of training on risk communication have been carried out, to promote better knowledge of theory as well the exchange of practices and lessons learnt.

With regards to research tools:



- Questionnaires have been used in Human Biomonitoring Research for adults, to detect risk perception, sources of information and trust.
- Web based questionnaires have been used for children education and capacity building in environment and health, where risk perception is compared to the pollution monitored at school.

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SECOND ANNUAL MEETINGS OF THE HBM4EU INITIATIVE (HUMAN BIOMONITORING FOR EUROPE)



From September 24th to 27th 2018, the German Environment Agency (UBA) organised the second meeting week of the HBM4EU project, during which the annual meetings of important decision-making and advisory bodies took place. With the help of the Austrian project partners, the events were held in Vienna this year, as Austria currently holds the EU Council Presidency.

Main objectives of the European Human Biomonitoring Initiative HBM4EU, which started in January 2017, are, amongst others, the establishment of a pan-European network for harmonised human biomonitoring studies and providing qualified policy advice. The project is funded by the EU Commission under "Horizon 2020" and has a total funding volume of approximately 74 million euros. More than 110 partners from 28 predominantly European countries participate, coordinated by UBA until the end of 2021.

The annual event included meetings of the Advisory Board, the scientific advisory body consisting of international, globally renowned experts from various disciplines, and the Stakeholder Forum, which is made up of stakeholders from NGOs, industry and non-industry associations such as patient forums.

Moreover, the HBM4EU Governing Board, the highest decision-making body of the initiative, met to make important decisions on the future project work such as the adoption of the annual work plan for the upcoming year. In addition, Thomas Jakl, Deputy Head of Section at the Austrian Federal Ministry for Sustainability and Tourism and Chairman of the HBM4EU Governing Board, was appointed as the new HBM4EU Ambassador. This role is essential in order to support the exchange with various stakeholders on HBM4EU and to promote the development of a long-term establishment of HBM at the European level.

Following the successful week based on constructive exchange, an HBM conference was held under the auspices of the Austrian Presidency of the Council of the European Union.

During this HBM conference and throughout the entire meeting week, the increased political importance of the project and its objectives became evident, especially through the recurring exchange on sustainability options for HBM4EU.

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Further information:
www.hbm4eu.eu
<https://twitter.com/hbm4eu>

Previous project results:
<https://www.hbm4eu.eu/deliverables>

2018 MEETING OF THE EEA EIONET NATIONAL REFERENCE CENTRES ON ENVIRONMENT AND HEALTH

On the last two days of October, the European Environment Agency, EEA, hosted the 2018 meeting of the Eionet National Reference Centres on environment and health in Copenhagen, Denmark. These annual meetings provide an opportunity to share and get an update on ongoing work in environment and health at EEA and WHO Europe as well as in the different member countries. In total, 22 countries were represented at this year's meeting.

EEA presented their report on "Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperature in Europe" which is set to be published in February 2019 as well as their ongoing work with SOER 2020 and the 2019 EEA environment and health report. They also presented their work on environmental noise, air quality and climate change in relation to health.

Switzerland presented their state of the work on environment and health from the initial studies to a first report. Sweden presented their work on collaboration in environmental health policy, [which is also presented on page 5] and Austria gave us an update on plastics and microplastics. RIVM from the Netherlands presented their work on developing a structural approach to detect early warnings of environmental health problems and from Ireland we learned of their work on socio-economic determinants of health and well-being in relation to access to blue and green spaces.

Representatives from two pan-European research projects were also there to present their work, HBM4EU and INHERIT, while the Global Alliance on Health and pollution presented the recent Lancet Commission report on pollution and health. With regard to pollution, we also heard about Belgium's work on social determinants of chemicals which was presented by VITO.

We also had an update on WHO Europe's ongoing work in environment and health, which included the environment and health process and its national portfolio for action, as well as the air quality conference held in Geneva at the same time as the EEA meeting. Also, we learned that WHO is updating their review and assessment report on environmental health inequalities, and are currently working on a revision of the global air quality guidelines. Moreover, their guidelines on sanitation and health will be released in February.

With regard to physical planning, WHO presented their report from 2017 on urban green spaces, and also a risk assessment tool, GreenS+, whose prototype is currently being tested, as well as the BlueHealth project which aims to establish a decision support tool for local action on blue space risk and benefits.

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BIODIVERSITY AND HUMAN HEALTH: MECHANISMS AND EVIDENCE OF THE POSITIVE HEALTH EFFECTS OF DIVERSITY IN NATURE AND GREEN SPACES

The article concerns the importance of biodiversity in relation to nature, green spaces and human health and was published in the British Medical Bulletin. It's a systematical review in which the authors analysed the mechanisms and effects of biodiversity on health and discuss some research areas that require more attention. Their vision is in

line with priorities of the current BiodivERsA call on biodiversity and health

Introduction

Natural environments and green spaces provide ecosystem services that enhance human health



and well-being. They improve mental health, mitigate allergies, and reduce all-cause,

respiratory, cardiovascular and cancer mortality. Most studies, however, have only focused on effects of presence, accessibility, proximity or greenness of green space, and the role of biodiversity within green spaces remains underexplored. This review describes mechanisms and evidence of effects of biodiversity in nature and green spaces on human health.

Sources of data

We identified studies listed in PubMed and Web of Science using combinations of keywords including 'biodiversity', 'diversity', 'species richness', 'human health', 'mental health' and 'well-being' with no restrictions on the year of publication. Papers were considered for detailed evaluation if they were written in English and reported data on levels of biodiversity and health outcomes.

Area of Agreement

There is evidence for positive associations between species and ecosystem diversity, and psychological and physical well-being and immune system regulation.

Areas of concern

There is more evidence for self-reported psychological well-being than for well-defined clinical outcomes. High biodiversity has been associated to reduced and increased vector-borne disease risk.

Growing points

Biodiversity supports the ecosystem services that mitigate heat, noise and air pollution which all mediate the positive health effects of green spaces, but direct health outcomes of biodiversity have been understudied so far.

Areas timely for research

More studies are needed that quantify health effects of direct exposure to perceived and objectively measured biodiversity in terms of well-defined clinical outcomes.

Authors:

Aerts R., Honnay O., Van Nieuwenhuyse A. (2018): Biodiversity and human health: mechanisms and evidence of the positive health effects of diversity in nature and green spaces. *British Medical Bulletin*, 127:5-22.

UPCOMING EVENTS

25-26 March 2019: The 4th **SRA-BeNeLux Annual Conference** on "Reasoning with Uncertainty" will take place in Luxembourg. <http://www.sra.org/events/sra-benelux-2019-annual-conference>

3-5 July 2019: The **IMRB International SUMMER SCHOOL** on "Environmental Stress and Chronic Diseases" will be held in Paris, France. <http://www.imrb.inserm.fr/en/summer-school-2/>

25-28 August 2019: The **31st Annual Conference of the International Society for Environmental Epidemiology (ISEE 2019)** on "Airs, Waters, Places" will take place in Utrecht, Netherlands. <https://isee2019.org/>

28-30 August 2019: The **11th International Symposium on Biological Monitoring in Occupational and Environmental Health** on "Biomonitoring in Exposure and Human Health Assessment" will take place in Leuven, Belgium. <https://kuleuvencongres.be/isbm-11>

8-11 September 2019: The **EUROTOX 2019** on "Toxicology – Science Providing Solutions" will be held in Helsinki, Finland. www.eurotox2019.com

Autumn 2019: The annual **ERA-ENVHEALTH open conference 2019** will take place in Paris, France. <https://www.anses.fr/en/content/era-envhealth-network>

20-23 November 2019: **The 12th European Public Health Conference**: "Building Bridges for solidarity and public health" will take place in Marseille, France. <https://ephconference.eu/>

THE ERA – ENVHEALTH-NETWORK COLLABORATION IN RESEARCH TO HELP TACKLE THE CHALLENGES IN ENVIRONMENT AND HEALTH AND THEIR POLICY IMPLICATIONS

The European Environment and Health Action Plan for 2004-10 pointed a need to strengthen networks between researchers, policy-makers and stakeholders. The FP7 ERA-ENVHEALTH* project was set up to bring together European organisations planning research in the Environment and Health (E&H) arena with the objectives of providing policy support. ERA-ENVHEALTH's task was to mobilise scientific research in support of European and national policies on E&H issues.

Goals and activities

ERA-ENVHEALTH facilitates better communication and deeper understanding of the drivers and priorities in E&H for both scientists and policy-makers. ERA-ENVHEALTH is a **unique active transnational network** in the E&H field. ERA-ENVHEALTH has shown that transnational collaboration in E&H fills an important niche and the network is an **innovative forum** to discuss challenges, visions and emerging issues. In this respect

- **access to, sharing and communicating information** is a crucial success factor, and
- **joint activities** are essential to promote exchange and collaboration and foster new ideas to enhance the uptake of environment and health issues and co-benefits in different sectors and provide valuable support in tackling the future challenges for better health and well-being.

Join us!

- Become a **member**: signature of the MoU, contribution on a voluntary basis
- Register for the ERA-ENVHEALTH **newsflash**: with regular up-to-date information on E&H activities
- Participate in its **annual conferences** and help build up this innovative discussion forum

The structure of the network is based on “contributing and sharing” and involves no centralised budget; each organisation participates on a voluntary basis.

Acronym	Name	Country	Logo
ANSES	French agency for food, environmental and occupational health & safety	France	
Centre Léon Bérard	University Lyon 1	France	
CNR	Italian National Research Council	Italy	
EPA	Environmental Protection Agency	Ireland	
Folkhälsomyndigheten	Public Health Agency of Sweden	Sweden	
FPS HFCSE	Federal Public Service Health, Food Chain Safety and Environment	Belgium	
RIVM	National Institute for Public Health and the Environment	Netherlands	
Swedish EPA	Swedish Environmental Protection Agency	Sweden	
UA	University of Aveiro	Portugal	
UBA	German Environment Agency	Germany	
UoWM	University of Western Macedonia	Greece	

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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