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Introduction to the Collaborating Centre

The National Institute of Environmental Health Sciences (NIEHS)-World Health Organization (WHO) Collaborating Centre for Environmental Health Sciences (the Collaborating Centre) was designated on Sept. 14, 2013, building on several decades of productive partnership between the two institutions. The NIEHS vision, presented in the 2012-2017 Strategic Plan, is to provide “global leadership for innovative research that improves public health by preventing disease and disability.” NIEHS identifies global environmental health (GEH) as one of its strategic themes, recognizing that because environmental health problems cross national boundaries, conducting studies around the world benefits not just those in areas being studied, but all people who suffer from the same or related environmental health problems. The inclusion of GEH continues a tradition of NIEHS global leadership and collaboration on solving the most pressing environmental health problems and improving the lives of the most vulnerable populations, both in the U.S. and around the world. While the focus of this report is on Collaborating Centre activities, NIEHS is proud to organize a number of initiatives that may be relevant to global audiences and inform health professionals around the world. A number of these initiatives are highlighted throughout the report.

Directed by NIEHS Senior Advisor for Public Health John Balbus, M.D., M.P.H., the Collaborating Centre provides a focal point and resource for NIEHS to fulfill its strategic goals related to GEH. This partnership with WHO provides NIEHS with opportunities for translating research findings into effective public health interventions to improve health around the world.

Under its designation for 2013-2017, the Collaborating Centre’s Terms of Reference are:

1. To assist WHO by promoting international cooperation among environmental health research institutes around the world.

2. To assist WHO in promoting global awareness of emerging issues in environmental health.

3. To assist WHO in the preparation of training materials and support education and training efforts in environmental and occupational health sciences.
NIEHS Leadership for the WHO Collaborating Centre

Focus area leaders come from different branches of NIEHS and provide guidance to each area.

John Balbus, M.D.
Collaborating Centre director and lead for climate change

Kimberly Gray, Ph.D.
Co-lead for children’s environmental health and indoor air pollution

Michelle Heacock, Ph.D.
Co-lead for children’s environmental health and electronic waste

Jerrold Heindel, Ph.D.
Co-lead for developmental origins of health and disease

William Suk, Ph.D.
Co-lead for children’s environmental health and electronic waste

Claudia Thompson, Ph.D.
Co-lead for developmental origins of health and disease and indoor air pollution

Christopher Weis, Ph.D.
Representative to the WHO Chemical Risk Assessment Network

Photos courtesy Steve McCaw/NIEHS
NIEHS Leadership for Global Environmental Health

Steering Committee

Gwen Collman, Ph.D.  
Division of Extramural Research and Training

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Kimberly Thigpen Tart, J.D.  
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GEH Program Staff

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Photos courtesy Steve McCaw/NIEHS
Collaborating Centre Activities

This section briefly describes progress made in the implementation of the Collaborating Centre work plan from Sept. 1, 2015, to Sept. 30, 2016, organized by the Centre’s focus areas of activity.

Focus Area 1: Children’s Environmental Health

Following a second successful year of the WHO Collaborating Centres Network for Children’s Environmental Health (CEH Network), NIEHS has continued to support the Network’s quarterly conference calls and has expanded participation to 13 WHO Collaborating Centres. In 2015-2016, NIEHS worked with Centres to expand existing CEH Network Web pages, and added new pages for new Centres (the International Network on Children’s Health, Environment and Safety and the International Society of Doctors for the Environment). The site now provides easy access to basic Centre information, including a description of the Centre and its research or training activities, chemical(s) and health effects being examined, training areas being developed or conducted, relevant publications, collaborations and collaborators, and collaborative network publications. A major effort of 2016 was to expand the web pages to include information on cohort studies being undertaken by Network Centres, including study description, location, contact information for principal investigator, health effects studied, sample types collected, questionnaires (and URLs), and any published key findings. Centre pages continue to be updated and information is revised during quarterly phone calls.

Centres currently participating in the Network include:

- Center for Applied Research in Environment and Health at Autonomous University of San Luis Potosi in San Luis Potosi, Mexico
- Center for Environmental Hazards to Children’s Health (CEHCH) at Pontifíca Universidade Católica do Rio Grande do Sul in Porto Alegre, Brazil
- Children’s Health and Environment Program at the University of Queensland in Brisbane, Australia
- Chulabhorn Research Institute in Bangkok, Thailand
- Department of Toxicology, Faculty of Medicine at the University of the Oriental Republic of Uruguay in Montevideo, Uruguay

“In this day of needing to link and communicate, the intent is to develop a network specifically to improve the health of children from environmental exposures.”

~William Suk
Efforts to raise awareness of the Network during 2015-2016 included presentations at meetings of international significance and joint authorship of peer-reviewed publications. CEH was a theme of several presentations during Global Environmental Health Day at NIEHS in June 2016. In addition to staff presentations, NIEHS funded the travel of two CEH Network participants to the annual International Congress on Pediatric Pulmonology. The conference, attended by physicians from around the world, had rarely emphasized the role of the environment in children’s health, but participants welcomed the presenters’ important perspectives and have requested additional information.

NIEHS staff joined Network participants in the publication of multiple peer-reviewed publications, including:

- “Early-life Exposure to Widespread Environmental Toxicants and Health Risk: A Focus on the Immune and Respiratory Systems”
- “Ensuring a Bright Future for Children’s Environmental Health”
- “Environmental Pollution: An Under-recognized Threat to Children’s Health, Especially in Low- and Middle-Income Countries”
- “Health Consequences of Environmental Exposures: Causal Thinking in Global Environmental Epidemiology”
- “Health Consequences of Environmental Exposures in Early Life: Coping with a Changing World in the Post-MDG Era”

- Hokkaido University Center for Environmental and Health Sciences at Hokkaido University in Sapporo, Japan
- Icahn School of Medicine at Mount Sinai in New York, USA
- Institute for Health and the Environment at the University at Albany in New York, USA
- Institute for Risk Assessment Sciences at Utrecht University in Utrecht, the Netherlands
- International Network on Children’s Health, Environment and Safety (INCHES) in Dieren, the Netherlands
- International Society of Doctors for the Environment (ISDE) in Basel, Switzerland
- National Institute of Environmental Health Sciences in North Carolina, USA
- National Institute of Environmental Research in Incheon, Republic of Korea
Institute Initiatives – CHEAR and ECHO

In addition to international outreach efforts in CEH, NIH and NIEHS unveiled two exciting programs to improve children’s health research in 2016. Focus area leaders from across NIEHS and the Collaborating Centre were involved in the development and implementation of these programs and have presented these new research initiatives at multiple international meetings and networks in an effort to raise awareness of new tools, processes, and cohorts.

The Children’s Health Exposure Analysis Resource (CHEAR) grant program is designed to expand the number of studies that include environmental exposure analysis while creating a public resource of children’s exposures across the country. These include studies adding environmental exposure data to their analyses and studies that have collected environmental exposure data but seek more extensive analysis. At no cost to studies currently or previously funded by the National Institutes of Health (NIH), CHEAR can provide a wide range of services, including: 1) expert consultation on exposure analysis, study design, and data analysis and interpretation; 2) analysis of biological samples for biological, psychosocial, chemical, and physical exposures using state-of-the-art techniques; 3) a data repository and associated data science tools; 4) statistical and data analytical services, including support for meta analyses; and 5) development and dissemination of new statistical methods and informatics tools.

The Environmental influences on Child Health Outcomes (ECHO) program will study how environmental factors affect child health and development via a new seven-year initiative from NIH. NIEHS, as part of NIH, is bringing extensive scientific expertise in CEH to this effort. ECHO will focus on how environmental factors may affect health outcomes around the time of birth as well as later in childhood or adolescence. These outcomes have a substantial public health impact and include: obesity, upper and lower airway conditions (including asthma), and neurodevelopment (the development of the brain and nervous system). To maximize current resources, ECHO will build on existing studies that are following the health of children over time, called cohort studies. Some of these cohort studies are already assessing the health effects of environmental factors, while others are adding environmental factors because of ECHO. ECHO will consist of more than 35 cohort studies from around the United States. All of the cohorts will measure common elements such as demographics, environmental factors, genetic influences, indicators of typical early health and development, and patient reported outcomes that capture the voice and experience of participating children and their families. A coordinating center will manage and standardize the contributions from the individual studies, and a data analysis center will provide support for statistical analysis.
Focus Area 2: Electronic Waste (e-waste)

The Collaborating Centre has given visibility to the importance of electronic waste (e-waste) as a research topic and health risk in a number of ways. Building on successful collaborations and past publications, NIEHS staff and CEH Network participants published “E-waste: The Growing Global Problem and Next Steps” in March 2016. In addition, e-waste was noted in a publication authored by focus area leader William Suk, Ph.D., titled “A Quarter Century of the Pacific Basin Consortium: Looking Back to Move Forward.” An additional publication, “Changing Exposures in a Changing World: Models for Reducing the Burden of Disease,” was written by Suk and featured e-waste as a notable area for multidisciplinary interventions to improve public health in low- and middle-income countries.

2016 marked the first annual Global Environmental Health Day at NIEHS and featured presentations by all focus area leaders. E-waste was a featured topic in a panel session exploring issues in sustainable development and was presented by focus area leader Michelle Heacock, Ph.D.

“Reducing the health burden from e-waste requires not only raising awareness among health professionals, but also fostering innovative solutions to the problems of waste segregation, recycling and disposal. NIEHS is bringing together engineers and health researchers to do just that.”

–Michelle Heacock

Multiple participants in the CEH Network and Suk are contributing to a publication by the Global Commission on Pollution, Health and Development, which aims to quantify the burden of pollution, including that of e-waste and unsafe disposal of waste, and present solutions to pressing global health issues. The final report of the Commission is scheduled to be released by the Lancet in March 2017.
Focus Area 3: Developmental Origins of Health and Disease and Prevention of Early Life Exposures

NIEHS continued to raise awareness of the role of early life exposures in adult non-communicable disease, particularly those influenced by the environment. The institute’s primary focus for the year included support for and participation in the WHO Meeting on Avoidable Early Environmental Exposure, held June 13-14 in Geneva, Switzerland. The meeting aimed to synthesize WHO information on avoidable exposures; discuss possible interventions to reduce the risks to children; discuss effective education and advocacy strategies for health care professionals, policy makers, the general public, nongovernmental organizations, and civil society; and identify the key elements of a roadmap for action by the global community, including priority areas for action, advocacy, capacity building, research, and other elements. NIEHS focus area leaders Kimberly Gray, Ph.D., and Jerry Heindel, Ph.D., attended the meeting and were joined on planning calls by Claudia Thompson, Ph.D. NIEHS provided additional support to the meeting by coordinating and supporting travel for an on-site scientific writer and meeting assistant.

“NIEHS is excited to see new international networks focused on DOHaD and endocrine disruption research. We hope that they will continue to advance research on sensitive developmental stages, and inspire efforts to understand and prevent diseases related to environmental exposures.”

~Jerry Heindel

NIEHS staff were actively involved in planning committees for upcoming conferences, including PPTOX V, and presented on DOHaD at multiple international conferences during the year. NIEHS celebrated the history of research on endocrine disrupting chemicals at the “25 Years of Endocrine Disruption Research: Past Lessons and Future Directions” workshop hosted in September at the NIH campus in Maryland.
NIEHS is working with U.S. scientists to develop a U.S. DOHaD Society affiliate chapter. This chapter will work to stimulate DOHaD research, communication, and collaborations among researchers working in nutrition, environmental chemicals, stress, and the microbiome. This DOHaD Society affiliate chapter will then provide a means to interact with other Society affiliates in Japan, France, Africa, South America, Australia/New Zealand, and Canada to form a “global network” focusing on DOHaD and its importance in disease across the globe. NIEHS is organizing a side event at PPTOX V in 2016 that will bring together representatives of institutions from Asia, the U.S., Europe, and Canada to explore the potential collaborations across the DOHaD Society affiliates, focusing initially on developing an Asian DOHaD Society and network.

In 2015, NIEHS hosted a satellite symposium to the DOHaD Society Conference in Cape Town, South Africa, that focused on sexually dimorphic disease outcomes from developmental exposures to environmental chemicals. NIEHS provided funding to the meeting, held Nov. 8-11 in Cape Town. In addition, NIEHS organized the First African Conference on Health Effects of Endocrine Disruptors, which focused on the DOHaD paradigm and brought together researchers from across Africa as well as the U.S. and Europe. This conference set the stage for further DOHaD activities in Africa. A manuscript is being developed that describes the conference and the state of endocrine-disrupting chemical (EDC) and DOHaD research and infrastructure needs to further develop DOHaD research and education across Africa.

Over the course of the year, NIEHS staff were involved in publishing a number of DOHaD-focused peer-reviewed articles, including:

- “A Proposed Framework for the Systematic Review and Integrated Assessment (SYRINA) of Endocrine Disrupting Chemicals”
- “Burden of Disease and Costs of Exposure to Endocrine Disrupting Chemicals in the European Union: An Updated Analysis”
- “Developmental Origins of Health and Disease: Integrating Environmental Influences”
- “Life-Long Implications of Developmental Exposure to Environmental Stressors: New Perspectives”
- “Minireview: Endocrine Disruptors: Past Lessons and Future Directions”
- “NIEHS/FDA CLARITY-BPA Research Program Update”
- “Uppsala Consensus Statement on Environmental Contaminants and the Global Obesity Epidemic”
Institute Initiative – Global Environmental Health Day

On June 29, NIEHS held its first annual Global Environmental Health (GEH) Day as part of the institute’s 50th Anniversary celebration. This event was designed to foster connections between the many local global health efforts taking place in Chapel Hill, Durham, and Raleigh, known as the Triangle region, with NIEHS efforts to further integrate environment into global health. More than 200 participants, including people involved in global health science and policy, attended the event either in-person or via webcast. The day featured six sessions, including sustainable development and the Sustainable Development Goals, climate change, e-waste, children’s environmental health, developmental origins of health and disease (DOHaD), and indoor air pollution. Each session featured global health researchers and practitioners from the Triangle area as well as NIEHS scientists and Collaborating Centre focus area leaders. As part of NIEHS efforts to build capacity for GEH research, trainees and institute fellows from outside the U.S. were invited to present their research.

International fellows and trainees currently at NIEHS spoke at GEH Day, shown here with GEH program staff [L]. Students from universities in the Triangle region had an opportunity to meet NIEHS staff during the day [R].

Staff photos courtesy NIEHS/Steve McCaw
Focus Area 4: Health Implications of Climate Change and Sustainable Development

NIEHS played a leading role in the development of the U.S. Global Change Research Program (USGCRP) report "The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment." The publication includes an updated assessment of the climate change and health literature with national-scale modeling of selected health impacts in the United States. Climate change focus leader Balbus was a convening lead author on two chapters, and along with Kimberly Thigpen Tart, J.D., M.P.H., was a member of the steering committee that provided guidance and oversight to the entire report. Thigpen Tart was also a contributing author to several chapters. Balbus, Thigpen Tart, NIEHS Director Linda Birnbaum, Ph.D., and NIEHS scientist Caroline Dilworth, Ph.D., raised awareness of climate change and health in the U.S. medical and public health communities through published commentaries related to the USGCRP report, including “Marking a New Understanding of Climate and Health” and “Changing the Climate of Respiratory Clinical Practice. Insights from the 2016 Climate and Health Assessment of the U.S. Global Change Research Program.”

“Extremes of weather and severe storms have direct and indirect effects on people’s health around the world, especially those in poverty. As these events become more frequent and severe in coming years, the impacts will also become more severe unless we intervene. NIEHS activities are helping build public health capacity in places where it is most needed and advance the science to be able to protect those most vulnerable.”

~John Balbus
Balbus and Thigpen Tart were members of the U.S. delegation to the Second Global Conference on Health and Climate in Paris in July 2016. Balbus also served on the planning committee and spoke on a panel on enhancing the resilience of health systems at the conference.

U.S. delegation members in Paris included (l to r) Balbus (NIEHS), Juli Trtanj (NOAA), Thigpen Tart (NIEHS), Mark Shimamoto (USGCRP), and Joshua Glasser (U.S. Department of State). Third from right is Maria Neira, M.D., WHO Director, Department of Public Health, Social Determinants of Health (PHE). Photo courtesy of NIEHS

NIEHS sponsored a climate change and human health innovation challenge, or prize contest, that encouraged scientists to develop data visualization tools and maps that will help decision-makers and the general public respond to the environmental health risks presented by climate change. Winning submissions created a variety of visualizations, including one that allows users to identify neighborhoods vulnerable to flooding, extreme heat, and air pollution. The winning tools are publically available on the NIEHS Climate Change and Environmental Exposures Challenge website and the U.S Climate Resilience Toolkit website.

An outcome of the 2015 WHO/Pan American Health Organization (PAHO) Collaborating Centres workshop on climate change, the article “Enhancing the Sustainability and Climate Resiliency of Health Care Facilities: A Comparison of Initiatives and Toolkits” was published in late September 2016 in the Pan American Journal of Public Health special issue on climate change.

In September 2015, NIEHS sponsored the training workshop “Understanding Climate Health Associations in India (UCHAI)” in New Delhi, a kickoff to building a community of practice (CoP) on climate and health in India. Late 2015 and 2016 saw additional UCHAI activities aimed at building India’s capacity to address health impacts of climate change and leveraging Indo-U.S. and in-country collaborations. A series of webinars was developed by NIEHS, The Energy Research Institute (TERI), and TARU Leading Edge to help further UCHAI goals. The first webinar, “Sustainable Development Goals: Hopes and Challenges,” held in December 2015, featured NIEHS and Indian researchers who elaborated on the broader vision, scope, and participatory approach of the Sustainable Development Goals (SDGs) in addition to showcasing the achievements of the Millennium Development Goals. The presentations helped develop insights into various goals of SDGs, and the speakers/dignitaries proposed strategies to address planetary health through protection, promotion, and restoration of the ecosystem. The second webinar, “Building the Bridge Between Climate and Public Health,” was held in March 2016 and explored the use of meteorological forecasts for public health early warning systems. A new UCHAI website was developed in early 2016 to help further advance the goals of the CoP.
Building on NIEHS-Indian collaborations, Balbus traveled to India in March 2016 and met with the principal health secretary of the State of Maharashtra, Sujata Saunik, and her staff to discuss that state’s efforts to enhance health resilience to climate change impacts. Balbus also delivered an opening address at the Indian Institute of Tropical Meteorology’s Monsoon Forecast Conference and represented NIEHS at an Indo-U.S. bilateral meeting with the Indian Council on Medical Research to explore areas of collaboration in environmental health.

Balbus helped plan and facilitated a breakout group for a U.S.-based workshop on multi-sector, multi-scale IAV-IA modeling frameworks, which evaluated research gaps and challenges in modeling climate change impacts on a variety of sectors. Balbus also gave presentations on climate change and health at numerous professional society and public health conferences, focusing specifically on the USGCRP climate and health assessment report, the Sustainable and Climate Resilient Health Care Facilities Initiative, and U.S. federal resources and tools for climate change and health.

NIEHS and other NIH institutes and centers fund research projects around the world that study climate variability and change and the impacts on health. NIEHS and the NIH Fogarty International Center have joined with other U.S. and Canadian agencies to fund the NIH Global Environmental and Occupational Health (GEOHealth) program, a grant program that supports regional centers of excellence for research and training in environmental health in low- and middle-income countries. Many of the funded centers are intending to develop projects on climate change and health. This program will be important to the Collaborating Centre’s ongoing translation and networking activities over the coming years.

NIEHS’ work in climate and health was also featured in an article in Vogue Magazine and a commentary in the UK’s Adjacent Government.

In an effort to better educate students on the health impacts of climate change, NIEHS revised and updated climate and health high school curricula materials to align with Intergovernmental Panel on Climate Change (IPCC) and USGCRP assessments. In addition, NIEHS has contracted to convene a working group of educators, scientists, and advocates who share an interest in bringing climate change and health education to classrooms around the U.S. and the world. This initiative aims to distribute newly-created climate and health education materials, share ideas and teaching strategies with teachers, and to better understand existing tools for reaching students with important climate and health information.

NIEHS is nearing completion of a user-friendly literature portal of climate and health literature to better improve access to the latest climate and health science. This portal will be launched in late 2016.
Focus Area 5: Cookstoves and Indoor Air Pollution

NIEHS continues to actively fund researchers around the world studying the health impacts of indoor air pollution, solid fuel, and cookstoves. In fiscal year 2015, NIEHS and the Collaborating Centre, in collaboration with several NIH institutes and centers as well as other U.S. government agencies and the Global Alliance for Clean Cookstoves, began the development of an implementation science network. This network is comprised of extramural and federal scientists, nongovernmental organizations, and others with experience in improving adoption and uptake of interventions in the high-burden countries—including, but not limited to, improved cookstoves. Products from this network include a series of papers on regional case studies and a summary of best practices for both researchers and implementers. This project will help WHO in implementing its new indoor air quality guidelines. The implementation science network in 2016 published a solicitation and awarded funds to four institutions to advance cookstove implementation efforts. Collaborating Centre focus area leaders Gray and Thompson served as proposal reviewers.

“NIEHS is acting in close collaboration with global partners to find the most effective means to reduce the enormous burden of illness and death from indoor combustion of biofuels, including cookstoves and heating fires. With an estimated 4 million deaths occurring each year from indoor air pollution, this is a high priority for the institute.”

~Claudia Thompson
for responses to the first solicitation. The network has a second solicitation available to researchers and expects to make awards in 2017.

NIEHS, through the Division of Extramural Research and Training, has led the cookstove effort by supporting several individual projects in certain regions in low- and middle-income countries (LMIC). There is now a concerted focused effort by several funders to explore the health benefits of cleaner cookstoves by supporting a randomized clinical trial of LPG stove and fuel distribution in four LMIC regions.

NIEHS staff also contributed to the development of an NIH funding opportunity announcement (FOA) for a Household Air Pollution Health Outcomes Trial. The first award from this FOA was made in September 2016 to Emory University. The research teams will study four sites: Guatemala, Peru, India and Rwanda. Focus area leaders continue to provide support to the research teams.
Centre Theme: Improving Global Awareness through Multimedia

NIEHS continues to use multimedia to bring attention to international environmental health issues. Communications and outreach are key elements of all Collaborating Centre activities, and each is promoted in a unique way to best reach the intended audience.

The NIEHS GEH Newsletter is the Collaborating Centre’s primary communication mechanism. This free online bi-monthly newsletter has a specific focus on NIEHS Collaborating Centre activities. It includes scientific updates, and a feature exploring the latest international event or research project. In the past year NIEHS re-designed the newsletter to be “mobile friendly” and created a specific section to highlight Collaborating Centre activities in each edition.

Additional media products include the NIEHS monthly newsletter, Environmental Factor, which highlights presentations by NIEHS staff at international meetings and attendance at WHO or PAHO events. The January 2016 issue of Environmental Factor featured a story on Collaborating Centre climate change outreach efforts at COP21.

The NIEHS flagship journal, Environmental Health Perspectives (EHP), publishes peer-reviewed research and news that highlights the interrelationships between the environment and public health. Collaborating Centre focus area leadership and many members of the CEH Network have published in EHP. In an effort to reach additional researchers with the latest environmental health news, EHP also provides a Chinese language version of each issue.

The WHO/United Nations Environment Programme (UNEP) Healthy Environments for Children Alliance monthly newsletter has included a number of stories this year that highlight NIEHS and WHO efforts to bring awareness to CEH issues.

NIEHS is separately planning a series of webinars to explore important global environmental health topics.

NIEHS and GEH Multimedia

- NIEHS WHO Collaborating Centre for Environmental Health Sciences Web pages: http://www.niehs.nih.gov/research/programs/geh/partnerships/index.cfm
- NIEHS Twitter: @NIEHS https://twitter.com/niehs
- NIEHS Facebook https://www.facebook.com/NIH.NIEHS
Centre Theme: Promotion of Global Environmental Health Training and Capacity Building

As part of its efforts to build a CoP, the UCHAI initiative described in Focus Area 4 is developing training materials for physicians and public health professionals and planning to conduct training sessions in leading medical institutions in India.

NIEHS Support for the WHO Chemical Risk Assessment Network

NIEHS also supports training and capacity building in low- and middle-income countries through its participation in and support for the WHO Chemical Risk Assessment Network. The Network is organized by the WHO International Programme on Chemical Safety (IPCS) and was founded in 2014. NIEHS staff member Christopher Weis, Ph.D., serves as the NIEHS liaison to the Network. A major Network goal is to train researchers in risk assessment and to build capacity for researchers in LMICs to understand and perform risk assessments.

“With the network, we are trying to build capacity to address environmental risks and threats, in a way that is both globally coordinated and, at the same time, relevant to a country’s situation.”

–Christopher Weis

NIEHS has provided support to the Network Secretariat through participation in steering committee calls and document reviews. With contractor assistance, NIEHS also provides meeting support and assists WHO with the development of
quarterly Network newsletters, website content, and other communications products.

To expand participation in the Network, Weis has presented Network activities and materials at major international conferences, including the Society of Toxicology Annual Meeting and EuroTox. NIEHS supported a series of Network webinars aimed at increasing awareness and understanding of systematic review (SR) for chemical risk assessment. Speakers in the two-part series, held between December 2015 and May 2016, explained the basics of SR, shared case studies of uses of SR in risk assessment, and addressed benefits and challenges of SR. NIEHS is now supporting the Network working group on SR in developing the first WHO Guidelines for SR in Chemical Risk Assessment and in coordinating efforts with other international SR initiatives. NIEHS staff members, including representatives of the National Toxicology Program, are working to co-author multiple chapters of the guidelines.
NIEHS Publications


