



## **World Health Organization**

### **Children's Health and the Environment Annual Report - 2011**

The World Health Organization (WHO) has been working on a program promoting children's health and the environment, and contributing education, training, management and treatment for healthier children for over a decade. The program has and is addressing different chemical safety activities, with a special focus on the vulnerability of children to chemicals in the environment. Many of these activities have been undertaken in conjunction with other colleagues in the Department of Public Health and Environment as well as colleagues in other programmes at WHO (e.g., Department of Maternal, Newborn, Child and Adolescent Health, Department of Food Safety and Zoonoses, Violence and Injury Prevention, Reproductive Health and Research, Nutrition for Health and Development, Tobacco Free Initiative, etc). The numerous activities on children's health and the environment also have been conducted in collaboration with WHO regional and country offices, WHO Collaborating Centres, other UN agencies, academia and non-governmental organizations (NGOs) including the International Paediatric Association, the International Society of Doctors for the Environment, the World Federation of Public Health Associations, the World Association of Family Doctors, and the International Network on Children's Health Environment and Safety, among others.

**The following is a brief summary of the WHO activities on children's health and the environment during 2011:**

#### ***Capacity building and information dissemination***

A wide variety of activities on children's health and the environment were conducted by WHO during 2011 including presentations at scientific meetings, symposia and workshops with the participation of scientists, health care and environmental professionals, community leaders, and international organizations and non-governmental organizations.

WHO and the United Nations Environment Programme (UNEP) continued to publish a monthly newsletter on children's environmental health and distribute to an international mailing list to promote healthy environments for children (on-going since 2002).

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WHO finalized a new set of training modules prepared by the WHO Working Group on the Training Package for the Health Sector on Children's Environmental Health and peer-reviewed by a wide range of experts. The modules include extensive notes, references and case studies. The modules are backed up by manuals and guidelines and also self-evaluation instruments. The new modules include:

- Biomarkers and human biomonitoring
- Children and neurodevelopmental behavioral intellectual disorders
- Children and chemicals
- Developmental environmental origins of disease
- Endocrine disorders and environment
- Immune systems and environment
- Mycotoxins
- Heavy metals and children
- Second-hand tobacco smoke and children
- Sanitation and hygiene

WHO prepared a special set of PowerPoint presentations for the health sector on the influence of the environment on reproduction, pregnancy and fertility. Six modules were developed and peer-reviewed by international experts. The modules have extensive notes, references and case studies. They include the following:

- Reproductive health & environment: introduction
- Female reproductive health & environment
- Case studies: female reproductive health & environment
- Male reproductive health & environment
- Case studies: male reproductive health & environment
- Preventing reproductive health problems

The modules were made available on the WHO website at [http://www.who.int/ceh/capacity/training\\_modules/en/index.html](http://www.who.int/ceh/capacity/training_modules/en/index.html)

WHO continued to contribute to the Global Alliance to Eliminate Lead in Paints, along with the United Nations Environment Programme (UNEP) and other partners.

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WHO helped to pilot test the training tool “Toxicology in the Classroom” with the Universiti Sains Malaysia, Penang, Malaysia in January 2011. The training tool was developed by the United Nations Environment Programme (UNEP), the World Health Organization Regional Office for Europe and the National Poison Centre of Universiti Sains Malaysia for use by science teachers and other instructors. The tool provides information about how chemicals, especially pesticides, can affect human health and the environment, and gives advice about preventing contamination and protecting oneself and others.

WHO launched projects with Ministries of Health in Ghana, Uganda and Zambia to work towards healthy home environments in which children are at less risk for poisonings by paraffin and other common household chemicals. This effort, which responded to the 6<sup>th</sup> priority action of the Libreville Declaration, included establishing pilot surveillance for childhood poisonings in the 3 countries, undertaking public relations efforts focusing on media dissemination of messages about how to prevent children's exposures to common household poisons, consulting with manufacturers of kerosene regarding safer packaging, and educating health providers about treatment of common childhood poisonings.

WHO launched a project to assess the impact of electronic waste (e-waste) on the health of children. This was initiated in collaboration with the Chulabhorn Research Institute in Bangkok, Thailand and the Institute for Risk Assessment Sciences at Utrecht University in the Netherlands.

WHO joined the Partnership for Action on Computing Equipment (PACE) led by the United Nations Environment Programme as part of the Basel Convention (<http://basel.int/industry/compartnership/>).

WHO finalized, with contributors from the University of Turku (Finland) and Rigshospitalet (Denmark) a document "Possible developmental early effects of endocrine disruptors on child health".

WHO and UNEP held 2 meetings to update the 2002 *Global Assessment of the State-of-the-Science of Endocrine Disruptors*. The first meeting took place in May 2011 in Copenhagen, Denmark, and the second meeting in December 2011 in Geneva, Switzerland. The focus of these meetings was to discuss and review the updated draft document, which includes new scientific evidence published about the potential adverse health effects from exposure to chemicals through endocrine-mediated mechanisms.

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### ***Assessment, Data Collection, Guidance and Awareness Raising Activities***

- WHO presented 2 talks on harmonization and coordination of birth cohort studies at the Japan Environmental and Children's Study Workshop on International Linkage that took place in February 2011 in Tokyo, Japan
  - WHO presented several talks on children's health and the environment and participated in a workshop with a small group of international experts convened by UNEP Chemicals in Geneva to discuss "The Effects of Chemicals upon Children's Health and Corresponding Risk Management Strategies in Developing Countries" on 23-24 March 2011
  - WHO finalized a report on Children's Health and the Environment that summarized progress since 1997 on advocacy and awareness raising, two focus areas of the WHO Global Plan of Action for Children's Health and the Environment.
  - WHO printed and distributed the document *Childhood Lead Poisoning* in 2011.
  - WHO printed and distributed the document *Children's Exposure to Mercury Compounds* to support the initiative to negotiate a legally-binding Convention to reduce mercury exposures that has been launched by the United Nations Environment Programme (UNEP).
  - WHO printed and distributed the document on *Children's Environmental Health Units* in 2011.
  - WHO printed and distributed the document *Persistent Organic Pollutants: Impact on Child Health* in 2011.
  - WHO translated the booklet *Healthy Children in Healthy Environments* into 2 other UN languages (Spanish and French) and posted E-books on the WHO website in 2011.
  - WHO attended a workshop on developing a child cohort research strategy for Europe and served as a discussant for a session on European Union research strategy on 10-12 April 2011.
  - WHO presented at the meeting on "Monitoring the implementation of Parma Conference commitments: organizational and methodological issues", WHO European Centre for environment and Health, Bonn, 29-20 Sept. 2011.
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- WHO distributed the publication “*A Guide to Undertaking a Birth Cohort Study*” at the annual meeting of the International Society for Environmental Epidemiology in Barcelona, Spain in September 2011.
  - WHO organized, chaired, and presented a talk at a symposium on "Opportunities for international cooperation in birth cohort studies of children’s health and the environment" at the annual meeting of the International Society of Exposure Science on 25 October 2011 in Baltimore, Maryland, USA
  - WHO finalized the summary of the WHO Environmental Health Criteria document (EHC 237) "Principles for Evaluating Health Risks in Children Associated With Exposure to Chemicals".
  - WHO finalized a document describing the 30 year partnership of scientific collaboration between the US National Institute of Environmental Health Sciences and WHO.
  - WHO drafted and posted for peer-review a document on "Identifying Important Life Stages for Monitoring and Assessing Risks from Exposures to Environmental Contaminants, a practical tool for countries to explicitly consider early life stages (from preconception through adolescence) in risk assessment.
  - WHO organized a lunchtime seminar at WHO Headquarters in Geneva about the fetal basis of adult disease given by Professor Sir Peter Gluckman (New Zealand) and Professor Mark Hanson (Faculty of Medicine, University of Southampton, Southampton, UK ) in May 2011.
  - WHO met with the Environmental Working Group of the World Federation of Public Health Associations in the framework of the Annual Meeting of the World Federation of Public Health Associations in Geneva, Switzerland on 13 May 2011.
  - WHO presented and did awareness-raising on reproductive health and environment / prenatal exposures at the GYNACTIONS conference in Monaco in June 2011.
  - WHO presented a talk at a side event on "Vulnerable groups and pesticides exposure: Joining forces to reduce hazardous work and child labour in agriculture" during the Fifth Conference of the Parties to the Rotterdam Convention in Geneva, Switzerland on 22 June 2011.
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- WHO presented at a combined symposium at the 5<sup>th</sup> Europaediatrics Congress in Vienna, Austria in June 2011, addressing the topic of links between childhood infectious diseases and exposures to environmental pollutants.
- WHO organized a lunchtime seminar at WHO Headquarters on 12 July 2011 for Dr Chisato Mori and Dr Emiko Todaka from the Center for Preventive Medical Science, Graduate School of Medicine, Chiba University, in Chiba, Japan to speak on "Environmental Preventive Medicine -- to reduce the risk on future generations".
- WHO spoke via videoconference at the Congreso del Centenario de la Sociedad Argentina de Pediatría in September 2011.
- WHO served as the focal point for the Department of Public Health and Environment for work towards development of a WHO global consensus document on preconception care for maternal and infant/childhood survival, health and well being.
- WHO continued to serve on the Joint Technical Committee on Child Labour and working youth, organized by WHO and the International Labour Organization to deal with safety and health issues arising from young people's employment.
- WHO assisted with the launch of Children's Health and Environment Program (Brisbane, Australia, August 2011).
- WHO presented two talks at the 6<sup>th</sup> International Conference on Children's Health and the Environment, organized and co-sponsored by the International Network on Children's Health, Environment and Safety, the Nofer Institute of Occupational Medicine, and the Polish-Norwegian Research Fund in Lodz, Poland in November 2011.

### **Promotion of Collaborative Research among Scientists in Developing and Industrialized Countries**

WHO completed a longstanding agreement with the US National Institute of Environmental Health Sciences (NIEHS) to collaborate on health issues of high concern to both the NIEHS and WHO, especially on the promotion of collaborative research and children's environmental health issues.

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WHO helped to organize a Symposium "Ethical issues in the use of neonatal screening bloodspots in international population-based studies of childhood cancer" at the Brocher Foundation in March 2011. This event was co-organized with the University of Zürich and the National Institutes of Health in the USA.

WHO organized a Maternal Environmental Assessment Form Workshop on 5th & 6th September 2011 at Green Templeton College, in Oxford, UK. This event was hosted by Oxford University.

### ***Collaborating Centers and Networks***

WHO promoted collaborative research networks among scientists and institutions worldwide to support research programmes, technical cooperation, information dissemination, and training activities on emerging children's environmental health issues at the country, regional, and global levels.

WHO Collaborating Centres in Children's Environmental Health helped WHO carry out many activities. These Centres enabled professionals from different parts of the world to synergize resources and jointly implement the global plan of action for children's health and the environment. This global plan of action was finalized in 2011 and posted on the WHO website.

WHO previously designated five WHO Collaborating Centres, and designated one new Collaborating Centre in 2011, as follows:

- Universidad Autónoma de San Luis Potosí (San Luis Potosí, Mexico) - WHO Collaborating Centre on Health Risk Assessment and Children's Environmental Health
- Chulabhorn Research Institute (Bangkok, Thailand) - WHO Collaborating Centre for Capacity Building and Research in Environmental Health Science and Toxicology
- Telethon Institute for Child Health Research (Perth, Australia) - WHO Collaborating Centre for Research on Children's Environmental Health
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- Departamento de Toxicología, Facultad de Medicina, Universidad de la República Oriental del Uruguay (Montevideo, Uruguay) - WHO Collaborating Centre in Children's Environmental Health and Human Environmental Toxicology
- The Mount Sinai Medical Center (New York, New York, USA) - WHO Collaborating Centre on Children's Environmental Health
- (new in 2011) Institute for Health and the Environment, University at Albany, SUNY, (Rensselaer, New York, USA) - WHO Collaborating Centre in Environmental Health

### ***Pilot collaborative research projects***

Pilot collaborative research projects conducted by the WHO Collaborating Centres mentioned above addressed priority research issues including: children's health and the environment; persistent toxic substances, persistent organic pollutants, endocrine disrupting chemicals; gene-environment interactions, toxico-genomics, biomarkers; and improved risk assessment methodologies.

These pilot studies are tackling inter-regional environmental health problems such as:

- Environmental health issues in vulnerable groups in Latin America;
- Collaborative projects on arsenic and child health in Southeast Asia;
- Childhood asthma and other respiratory diseases in Southeast Asia;
- The impact of air pollutants on children's health and development in Eastern Europe.

### ***Long term cohort studies on children's health and the environment***

During 2011, WHO started a new phase in its long-standing initiative on long-term cohort studies of children's health and the environment. Following WHO's participation at WHO established a Working Group for Coordination of the Next Generation of Large-Scale Birth Cohorts.



The Working Group for Coordination of the Next Generation of Large-Scale Birth Cohorts was convened three times: in September 2011 at the Centre for Environmental Epidemiologic Research in Barcelona, Spain; in October 2011 in Baltimore, Maryland, USA in the context of the meeting of the International Society of Exposure Science; and in December 2011 at the WHO European Centre for Environment and Health in Bonn, Germany. These working group meetings brought together birth cohort investigators from many parts of the world in order to discuss coordination of the next generation of birth cohort studies and explore the feasibility of development of a core set of exposure, outcome and socio-economic measures for collection across multiple studies.

WHO continued to participate in the International Childhood Cancer Cohort Consortium (I4C), which uses evidence from prospective children's cohort studies around the world to work towards the prevention of childhood cancer.

### **WHO Publications on Children's Health and the Environment**

1. WHO (2011). Summary of Principles for Evaluating Health Risks in Children Associated with Exposure to Chemicals ([http://www.who.int/ceh/publications/health\\_risks\\_exposure\\_chemicals/en/index.html](http://www.who.int/ceh/publications/health_risks_exposure_chemicals/en/index.html))
  2. WHO (2011). Training Package for the Health Sector on Children's Environmental Health. ([http://www.who.int/ceh/capacity/training\\_modules/en/index.html](http://www.who.int/ceh/capacity/training_modules/en/index.html))
  3. WHO (2011). Healthy Environments for Healthy Children E-book. (<http://www.who-unep-healthyenvironmentsforhealthychildren.org/>)
  4. WHO (2011) Possible developmental early effects of endocrine disruptors on child health.
  5. WHO (2011) Collaboration between the World Health Organization and the National Institute of Environmental Health Sciences: Highlights from 30 years of Partnership.
  6. Gavidia T, Bruné MN, McCarty KM, Pronczuk J, Etzel R, Neira M, Carpenter DO, Suk WA, Arnold RG, Ha EH, Sly PD (2011) Children's environmental health - from knowledge to action. *Lancet*; 377(9772):1134-6.
  7. Pronczuk J, Bruné MN, Gore F (2011) Children's environmental health in developing countries. In: *Encyclopedia of Environmental Health*. J. Nriagu, ed. Elsevier.
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