

Phthalates and bisphenol A biomonitoring in Italian mother-child pairs: link between exposure and juvenile diseases



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## Editorial: LIFE-PERSUADED first Workshop

The first project workshop "[Activities and perspectives one year after the project started](#)" took place last December 17th in Rome at the National Institute of Health (ISS).

The programme included three distinct sections during the day. After the greetings of Dr. Umberto Agrimi, Director, Department of Veterinary Public Health and Food Safety, an initial introductory phase opened by the contribution of the Coordinator - Dr. Cinzia La Rocca - on the state of the art of the project and an overview of the ongoing activities. Following some communications by stakeholders, the main recipients of the meeting.

Dr. Carlo Zaghi of the Ministry of Environment, Land and Sea (Division V, Environmental certification, chemicals and green public procurement) has talked about "Endocrine disruptors: framework on national and European initiatives." In particular, he mentioned that during 2014 – 2020 period, funding is planned in the EU Framework Programme for Research and Innovation "Horizon 2020" for: 1) activities focused to finalize test and methodologies for the

identification and evaluation of endocrine disruptors (EDCs); 2) research and development activities aimed at replacing substances of very high concern (SVHCs) in industrial processes and products. Moreover, in the period 2016-2017, a proposal of the European Commission concerning the criteria for the identification of EDCs is foreseen and in 2017-2020, a EU-wide definition of a regulatory framework to protect workers from EDCs exposure will be delineated. Dr. Pietro Pistolese of the Ministry of Health has addressed the issue of how ECHA and the European Commission plan to restrict the use of BPA and DEHP in Europe, mainly focused on the REACH program.

Of great interest the speech of Prof. Agostino Macri, (former Director of the Department of Veterinary Public Health and Food Safety), representative of Consumers Union, which addressed the problem of how to disseminate useful information to consumers on phthalates and BPA, which methods and what topics have to be used to ensure informative and not alarmist messages. The information and communication theme - key aspect of the project - has been recurring and

expanded by other communications during the meeting.

The representatives of the Italian Society of Pediatric Endocrinology and Diabetology, and the Italian Society of Obesity and Diabetes (respectively Prof. Stefano Cianfarani, Dr. Paolo Sbraccia and Dr. Raffaella Buzzetti) underlined the need for further investigations on pathologies linked to EDCs, emphasizing the importance of the project's output for the elaboration of preventive measures.

The second part of the workshop was devoted to the results obtained one year from the start of the project. Dr. Luca Busani and Dr. Sabrina Tait - management of the project – from ISS, introduced the topics relevant to the study of biomonitoring. In particular, the objectives, the sampling criteria, the distinction made by geographical area and age group, as well as the organization, functioning and potential of the database sample register have been described. Following, Dr. Giacomo Toffol (Cultural Association of Pediatricians) and Dr. Enrica Fabbri (Italian Federation of Paediatricians, Marche Region) have

described the importance of the biomonitoring study from the point of view of [pediatricians involved](#), and the fallout on the population. To this end, they turned to pediatricians that have finished the recruitment activities for the project, asking them to answer some questions and to interview some of the families involved in the study. The survey results showed increased interest and sensitivity towards the project's topic by both pediatricians and families, willing to change the lifestyle in relation to the study findings. The questionnaire is going to be extended to other pediatricians still in the process of recruiting before drawing overall data obtained.

Dr. Amalia Gastaldelli – project associated beneficiary National Research Council - Institute of Clinical Physiology, (IFC-CNR), Pisa, Italy - described briefly the methods and preliminary results of biomonitoring, noting that - to date - there is a great variability in the data and no difference between the levels of contaminants between males and females and urban or rural population. Dr. Annalisa Deodati, Pediatric Hospital Bambino Gesù of Rome, associated beneficiary of the project, presented the hypothesis of relationship between exposure to BPA and phthalates and developmental disorders, from the pediatrician endocrinologist point of view.

The last part of the workshop was committed to the Networking activities that PERSUADED undertook with other projects having similar topic, at national and international level. Dr. Gemma Calamandrei

from ISS, presented the project [CROME-LIFE](#), Cross-Mediterranean Environment and Health Network. The aim of this project is to identify and understand the link between environment and health by selecting a series of case studies in the countries involved in the project (Greece, Italy, Slovenia, Spain), in order to promote international policies aimed at children's health protection.

Dr. Liliana Cori, IFC-CNR, presented the [GIOCONDA](#) project - Young Voices Count in Decisions on Environment and Health. GIOCONDA stems from the need for involvement of young people in decisions affecting the environment. The areas in which GIOCONDA operates are: Ravenna, the Lower Valdarno (Castelfranco di Sotto, Montopoli in Val d'Arno, San Miniato and Santa Croce sull'Arno), Naples and Taranto. The project focus on the development and test of an online platform to facilitate the application of environmental and health risk governance and policies, the involvement of administrators and schools, and dissemination activities. Dr. Annalaura Carducci, University of Pisa, presented [MAPEC LIFE](#) Project- Monitoring Air Pollution Effects on Children for Supporting Public Health – a study on the link between pollutants and early biological effects in the oral mucosa cells and the factors involved in such process in children of school age. In particular, the project aims to build global models of risk assessment to support environmental policy strategies to contain health risks.

An interesting contribution came from Dr. Kinga Polanska , Nofer Institute of Occupational Medicine of Poland, which introduced the project Polish Mother and Child Cohort Study [REPRO\\_PL](#), a multicenter prospective study to evaluate the impact of exposure to different environmental factors - including phthalates - during pregnancy and after birth, on pregnancy outcome and children's health. The results obtained so far point out that exposure to phthalates may pose a risk, and - consequently - the preventive reduction and prevention measures are especially important.

Closing remarks of Dr. Calamandrei and Dr. Polanska on [HEALS](#) project - Health and Environment-wide Associations based on Large population Surveys - "An integrated approach to understand health-environment association", focused on neurodevelopmental disorders etiology complex as Autism Spectrum Disorders (ASDs) and Disorder Attention Deficit/Hyperactivity Disorder (ADHD).

For PERSUADED, the workshop represented an important tool not only to disclose the first data, but above all to draw the interest of stakeholders and to promote collaboration and share activities, in terms of exposure assessment and children health .

Contributions will be soon available on the [PERSUADED website](#).

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## Events

- [2nd International Conference on Human Biomonitoring, April 17-19, 2016 - Berlin, Germany](#)
- [ECHA Topical Scientific Workshop - New Approach Methodologies in Regulatory Science, April 19-20, 2016 - Helsinki, Finland](#)
- [SETAC Europe 26th Annual Meeting, May 22-26 2016 - Nantes, France](#)

# Progress update

<p><b>A3. Involvement and training of family pediatricians</b> Training of pediatricians from Umbria, Campania, Calabria, Sicilia Italian Regions</p>	<p><b>B5. Data management and statistical analysis</b> Check of medical history data which have been reported on the documents prepared by pediatricians concerning enrolled people Check of data of the filled questionnaires</p>	<p><b>D1. Website</b> Periodic and steady upgrade of the <a href="#">website</a> <b>D4. Newsletter</b> Number 1, Volume 2, newsletter in Italian (<a href="#">available on the website</a>)</p>
<p><b>B1. Human biomonitoring study</b> The enrollment of subjects for the biomonitoring study in the Lazio and Basilicata Italian Regions is in progress. The enrollment is going to start in the Umbria, Campania, Calabria, Sicilia Italian Regions.</p>	<p><b>B.6 Juvenile rodent toxicological study to evaluate the effect of exposure to BPA and DEHP mixtures derived from the Italian children biomonitoring study</b> Dose levels for the juvenile study have been selected on the basis of the biomonitoring data in children population (Action B.4).</p>	<p><b>D6. Workshop and conference holding</b> First Workshop of PERSUADED (December 17<sup>th</sup>, 2015 Istituto Superiore di Sanità Rome Italy) Programme available on the website <a href="#">PERSUADED workshop</a></p>
<p><b>B2. Case-control study on idiopathic premature thelarche and idiopathic central precocious puberty - B3. Case-control studies on idiopathic obesity in children</b> The enrollment of children for case-control studies is in progress.</p>	<p><b>B7. Clinical biomarkers evaluation</b> <b>B8. Toxicological biomarkers evaluation</b> Analysis of clinical and endocrine biomarkers related to children obesity and altered timing of pubertal development</p>	<p><b>D7. Dissemination activities</b> Workshop FIMP Naples Italy "Safe Food", Naples Italy December 5th, 2015 <b>D8. Facebook page</b> Periodic upgrade of the project <a href="#">Facebook page</a></p>
<p><b>B4. Assessment of contaminants in human samples</b> Reception and storage of urine samples from the biomonitoring study. Analysis of creatinine, BPA, MEHP, MEHHP and MEOHP in urine samples. Preliminary data.</p>	<p><b>C1. Monitoring of the impact of the project</b> Steady monitoring of the project impact.</p>	<p><b>E1. Project management</b> Monitoring of project activities.</p>

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