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-PRESS RELEASE-

Higher Exposure to Bisphenol A in the Womb Associated with Increased Risk for Asthma and Wheezing in School-Age Girls

Study of over 3,000 children from six European countries examines possible effects of prenatal exposure to bisphenols on respiratory health in childhood

Barcelona, 18 March 2022.- An analysis of data from more than **3,000 mother-child pairs from six European countries** indicates that prenatal exposure to bisphenol A may have negative effects on respiratory health in school-age girls. The results of a study led by the Barcelona Institute for Global Health (ISGlobal), an entity supported by the "la Caixa" Foundation, have just been published in the journal *Environment International*.

Bisphenols are chemical substances used in the manufacture of **plastics and resins found in many consumer products**, such as food cans, reusable bottles and toys. The most well-known is bisphenol A (BPA), a known **endocrine disruptor** used widely in the manufacture of food containers and the interior coatings of such recipients. The European Chemicals Agency (ECHA) included BPA on its list of substances of "very high concern" in 2017. Since then, some countries have limited its use, leading some manufacturers to replace BPA with other bisphenols.

Since it is known that bisphenols are present in maternal milk and that **they can cross the placental barrier**, the aim of the authors of the study published today was to discover whether prenatal exposure to these chemical compounds is associated with respiratory health problems in later years. The authors studied urine samples taken during pregnancy from more than 3,000 women from six European countries (**Spain, France, Greece, Norway, the Netherlands and the United Kingdom**) collected between 1999 and 2010 and data on the respiratory health of their offspring collected years later through questionnaires and spirometry.

Analysis of the urine samples revealed a **high prevalence of BPA, which was found in 90% of the samples**. The other bisphenols studied were, however, less prevalent at the time these samples were collected: the Netherlands was the only country where a notable presence of other bisphenols was detected among the study participants (bisphenol F in 40% of the samples and bisphenol S in 70%). This finding was probably due to the early switch to replacements for bisphenol A in that country.

The results of this study revealed **an association in girls between concentrations of bisphenol A in maternal urine during pregnancy and an increased risk of asthma and wheezing at school age** (a twofold increase in the concentration of bisphenol A was linked to a 13% higher risk of respiratory symptoms). **This association was not, however, observed in boys or in the case of the other two bisphenols studied**. Neither were any associations observed between prenatal bisphenol A exposure and lung function at school age.

"Our results are in line with those of earlier studies, which have also reported that bisphenol A has a negative impact on respiratory health in childhood. We believe that the effect may be due the fact that bisphenols can cross the placental barrier and interfere

with the child's respiratory and immune systems during the developmental phase", explains **Alicia Abellán**, ISGlobal researcher and first author of the study.

Talking about the differences observed between girls and boys, **Maribel Casas**, ISGlobal researcher and last author of the study, makes the point that "bisphenols are endocrine disruptors and can interfere with sex hormones. As our findings suggest, this may give rise to differences in the effects they have depending on the sex of the person exposed."

The study included data from eight birth cohorts: BiB (United Kingdom), EDEN (France), Generation R (The Netherlands); INMA Guipuzkoa, INMA Sabadell and INMA Valencia (Spain); MoBa (Norway) and RHEA (Greece).

Reference

Alicia Abellan, Sara M. Mensink-Bout, Raquel Garcia-Esteban et al. *In utero* exposure to bisphenols and asthma, wheeze, and lung function in school-age children: A prospective meta-analysis of 8 European birth cohorts. *Environment International*. March 2020. doi.org/10.1016/j.envint.2022.107178

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between the "la Caixa" Foundation and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. Its working model is based on the generation of scientific knowledge through Research Programmes and Groups, and its translation through the areas of Training and Analysis and Global Development. ISGlobal has been named a Severo Ochoa Centre of Excellence and is a member of the CERCA system of the Generalitat de Catalunya.

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