

Environmental Health Surveillance in South Korea and the Use of Biomonitoring Data

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National biomonitoring program can offer solid scientific evidence on exposure profiles of environmental chemicals at a national level, and provide a snapshot of changing exposure level over time. Therefore, several countries have maintained such programs for developing environmental health policies. The Korean National Environmental Health Survey (KoNEHS) was designed to understand the level of human exposure to environmental chemicals by time and location, and to identify possible sources of such exposure. The 2nd stage of KoNEHS, which was conducted between 2012 and 2014, examined a total of 6478 adult subjects over 19 years of age, and measured 21 environmental chemicals of major policy concern. Compared to the findings from the first stage monitoring (2009-2011), slightly higher levels of blood lead were observed, while those of mercury remained similar. Blood metal concentrations, however, were higher than those reported from national biomonitoring programs of United States, Germany and Canada. The urinary concentrations of phthalates metabolites were lower, but those of t,t-muconic acid and BPA were higher than those reported in the first stage survey. The urinary cotinine level decreased perhaps reflecting general declining patterns of first- and second-hand smoking. The results of the second stage survey were made available for public use since April 2016. Some policy efforts appear to be at least in part effective on mitigating chemical exposure among people, e.g., urinary phthalate metabolites and cotinine, while further confirmations are warranted. In-depth assessments will be conducted to identify vulnerable groups and important exposure pathways.