

Group 1 National Hub Template (HBM data for Awareness)

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<p>Introduction:</p> <ul style="list-style-type: none"> • Background information on the evolution and status of HBM in your country. 	<p>The first environmental human biomonitoring studies date back to the 80s in Hungary. Blood lead levels were investigated before and after phasing out of lead from gasoline in Hungary. The detailed studies included, among others, the investigation of the link between lead exposure and neurodevelopmental effects.</p> <p>Urinary iodine concentrations were measured in the 90s to check the iodine intake of the population and to develop action plans.</p> <p>Hungary was one of the partner countries involved in the COPHES („COntortium to Perform Human biomonitoring on a European Scale”, 2009-2012) and DEMOCOPHES („DEMOstration of a study to COPHES” 2010-2012) projects. In the frame of the DEMOCOPHES study, new human biomonitoring data were produced on different substances (phthalates, cotinine, cadmium, mercury).</p> <p>Hungary joined HBM4EU project in 2018 and new human biomonitoring data (phthalates, DINCH, pesticides) were generated for different age groups.</p> <p>In 2019, a new national human biomonitoring study was carried out to investigate the potential biomarkers of air pollution originating from solid fuel burning.</p> <p>Besides environmental human biomonitoring studies, occupational human biomonitoring investigations have been carried out in the past decades.</p> <p>Most of the human biomonitoring studies were carried out by the National Public Health Center and its predecessor institutes. The results of the human biomonitoring studies are available in Hungarian and international journals.</p>
<p>Main text - Results and Discussion ENSURE YOUR NARRATIVES ARE REFERENCED AS FAR AS POSSIBLE</p>	
<ul style="list-style-type: none"> • Description of issue(s) which have resulted in the raising of awareness. • Include brief description of sample population, substances of concern and whether local/regional/national. 	<p>Lead in the environment (past and present)</p> <p>Exposure to lead was a hot topic especially in the 80s and 90s; thus, some human biomonitoring studies were carried out. Both children and adults were included in the local studies. A large nationwide monitoring campaign on lead in tap water was carried out in the past years which also raised the awareness on the exposure to lead.</p> <p>Changing Children’s Blood Lead Level in Hungary 1986–2006 SpringerLink</p> <p>Red sludge disaster (2010)</p>

	<p>The wall of a giant reservoir of an alumina factory collapsed near Ajka, Hungary and approximately one million cubic meters of red sludge flooded three nearby settlements in 2019. Children's exposure to heavy metals were investigated at two settlements for 1.5 years by human biomonitoring (n=20).</p> <p>Rudnai P., Náray M., Rudnai T., Tóth E., Kanizsai J.: Néhány toxikus fém koncentrációja a vörösiszappal elárasztott területen élő gyermekek vizeletében. Népegészségügy 2011. 89(3). 230-236.</p> <p>Pesticides (present)</p> <p>Based on the citizens survey carried out in 2020, many people have concerns about pesticides. The SPECIMEn study (100 child – parent pairs) is still ongoing to generate new knowledge on the exposure to pesticides.</p>
<ul style="list-style-type: none"> • Description of HBM programme if it exists e.g. implementation of a HBM module into HES 	<p>A national HBM programme has not been launched yet. However, surveys targeting different age groups, locations and substances have already been carried out.</p>
<ul style="list-style-type: none"> • Describe which ministries (Environment, Health etc.)/policy makers and stakeholders involved/steering/financing the HBM programme. • Give examples - specific chemicals or outcomes. 	<ul style="list-style-type: none"> • Ministry of Human Capacities and National Public Health Center: co-financing of the studies • University: PhD course on human biomonitoring was launched at ELTE
<ul style="list-style-type: none"> • Steps/processes needed or used to get the attention of policy makers. 	<ul style="list-style-type: none"> • Relevant policy makers were invited to the <i>International Conference on Problem-Solving Approaches to Ensure Schoolchildren's Health</i> organized by the National Public Health Center in May 2019, in Budapest, Hungary. With this conference we aimed to discuss the impacts of different aspects of the environment on the health and well-being of children and to highlight the importance of stakeholders, scientists, and decision makers. The conference programme included 3 oral and 3 poster presentations on HBM. • A subpage on human biomonitoring was created on the website of the National Public Health Center (https://www.nnk.gov.hu/index.php/nnk-projektek/human-biomonitoring/general-information). Factsheets and posters were prepared for 6 priority substances and these materials are available in Hungarian and in English. • A short review on chemical exposure and male infertility was prepared and provided to decision

	<p>makers to support the development of the strategy to reduce male infertility rate in Hungary (the strategy has not published yet).</p>
<ul style="list-style-type: none"> Describe barriers e.g. funding; challenges e.g. participant recruitment; opportunities e.g. enhancing cross government working and linking of env data with exposure measurements currently at play in your country with regards to HBM. Have any of these barriers been addressed by HBM4EU? If yes - describe. 	<ul style="list-style-type: none"> Low awareness of policy makers. There is still no national human biomonitoring programme despite the fact that the National Public Health Center highlighted its importance several times. Recruitment for blood sampling is difficult.
<ul style="list-style-type: none"> Other players who would be beneficial in raising awareness and working together to promote HBM 	<p>industry, NGOs, universities</p>
<p>Future plans -</p> <ul style="list-style-type: none"> Are there plans to use HBM data in the future for policy or awareness - give clear examples. Will the data from HBM4EU be used? 	<p>Yes, we have some ideas for three group of substances:</p> <ol style="list-style-type: none"> 1. Phthalates and DINCH 2. Pesticides 3. Biomarkers of air pollution <p>We have not formulated the details yet.</p>