

Group 1 National Hub Template (**HBM data for Awareness**)

Group Leader: Lisbeth Knudsen (liek@sund.ku.dk)

Name and email of National Hub Author: Lijana Kononenko (lijana.kononenko@gov.si), Slovenia

Introduction:	
<ul style="list-style-type: none"> • Background information on the evolution and status of HBM in your country. 	<p>HBM for the general population in Slovenia began to develop as research on certain population groups through participation of Jožef Stefan Institute in international projects such as ES BIO, PHIME, CHROME, DEMOCOPHES and COPHES. The Chemicals Office of the Republic of Slovenia (CORS) defined biomonitoring of chemicals in Article 51.a of the Chemicals Act as early as 2003, thus enabling the use of state budget for implementation of the HBM program and its continuous and planned national development.</p> <p>Joint European efforts and the actual needs in Slovenia led to the first national HBM program in Slovenia, which took place from 2008 to 2015. This program was harmonized with the approaches defined at EU level therefore, the data obtained are comparable to those of many other countries. The first program also laid the financial and methodological foundations for the implementation of HBM and the acquisition of quality and reliability.</p> <p>In 2014 Slovenia joined the initiative to establish a common European platform for HBM. In the period from 2017 to mid-2022, we are participating in a project HBM4EU co-creating new knowledge needed to raise awareness of the safe handling of chemicals and providing solid evidence of actual exposure to chemicals and their potential health effects. The second national HBM program started at the end of 2018 and is expected to last until the end of 2023.</p>
Main text - Results and Discussion	
<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>At the beginning of the first program we prepared several types of promotional material - leaflets, gifts (AVENT pumping flasks for nursing mothers, T-shirts and shopping bags with the HBM logo) - which was part of the communication program. During the program and after it we prepared few informational campaigns (press conferences, round tables, brochures with information on risk assessment ...) with special emphasis on hotspots with exposed inhabitants to PCBs from 80-ies (Bela Krajina) and arsenic (Zagorje). For the sum of PCBs, the measured values in none of the examined samples did not exceed the reference value (1.43 mg / kg m.m.). The area of Bela krajina stands out, where the highest value of the sum of PCBs was determined: 0.513 mg / kg m.m.</p> <p>Under the Target Research Program "Exposure of children and adolescents to selected chemicals through the living environment" (2016-2019) two age populations (children</p>

	<p>6-9 years and adolescents 12-15 years) were studied in rural region of NE Slovenia on presence of biomarkers: bisphenols, parabens, triclosan, phthalates, flame retardants and few pesticides (in blood, urine, hair and saliva). The response of the parents and children was very good and the results were used for few awareness raising campaigns and different participating schools' activities.</p> <p>In the first HBM program, population of the adults of both sexes of childbearing age were selected as subjects (n = 1.200), aged 20 to 40 years. We selected first-born women because we wanted to assess the potential intake of chemicals in infants between 2 and 8 weeks of age by determining the content of contaminants in breast milk. Persistent organic pollutants (dioxins, furans, organic chlorine pesticides, polychlorinated biphenyls, polybrominated flame retardants) and toxic elements (cadmium, lead, mercury, arsenic) in body fluids (blood, breast milk and / or urine) and hair samples were monitored. Additional analyses included important parameters in blood samples (essential elements selenium, copper and zinc, thyroid hormone TSH) and in urine samples biochemical indicators of kidney damage and creatinine as these data are important in the interpretation of results in connection with risk assessment.</p> <p>Geographically, sampling was performed in three different types of areas by all statistical regions of Slovenia: rural environment, urban environment and environment that is potentially burdened due to past human activity. The last program is more comprehensive as we monitor 33 chemicals, chemical groups and biochemical indicators of exposure. The selected population are children aged 6–9 years and adolescents aged 12–15 years. Saliva is added for sampling.</p>
<ul style="list-style-type: none"> • Description of HBM programme if it exists e.g. implementation of a HBM module into HES 	<p>In the HBM 2018–2023 program we re-used urine samples already obtained in the HBM program 2007–2014 and stored in biobank at the Jožef Stefan Institute. We analyzed the presence of chemicals for which new analytical methods were developed during this period - in addition to the chemicals already mentioned in the first program, we also added phthalates, bisphenols, triclosan and parabens. New samples are still not collected as planned regarding the Covid-19 pandemic.</p>
<ul style="list-style-type: none"> • Describe which ministries (Environment, Health etc.)/policy makers and stakeholders involved/steering/financing the HBM programme. 	<p>CORS as part of the Ministry of Health is financing the national HBM program, that is preliminary discussed and confirmed by NH members. CORS is also co-ordinating the NH. Slovenian National Hub consists of following institutions: EPA, Food and Veterinary Administration, Research Agency, National Public Health Institute, National</p>

<ul style="list-style-type: none"> • Give examples - specific chemicals or outcomes. 	Laboratory for Health, Environment and Food, Clinical Occupational Medicine Institute, National Biology Institute and Jožef Stefan Institute.
<ul style="list-style-type: none"> • Steps/processes needed or used to get the attention of policy makers. 	Communication and constant/stable cooperation with other ministries – their representatives. Organisation of intersectoral conferences and round tables on the environmental health and chemicals topics. Inclusion of NGOs in the processes.
<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. 	Socio-economic crisis is the biggest barrier for funding HBM. And when there is less funds we get less cooperation among ministries. The EC partial funding fro a common EU purpose in the filed of HBM would be of much help to get more support of the policy and the countries' budgets. HBM4EU (EC?) could be more helpful to stress the need for policy involvement with cross government working and linking of env data with exposure measurements and not left the work mainly to the science.
<ul style="list-style-type: none"> • Other players who would be beneficial in raising awareness and working together to promote HBM 	Medical public institutions, NGOs, ENV and Health Ministries ...
<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? 	Yes, the data will be used widely according to the national HBM Programme, which includes the public communication plan also e.g. leaflets, videos, factsheets and presentation at different occasions to wide public (experts, general public, policy people).