Human Biomonitoring in the Baltic Countries: the Case of Lithuania

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Human Biomonitoring in Lithuania: before 2014

- Local, national and international research projects in various universities and research institutes (LSMU, VDU and etc.)

✓ *Dioxins in mothers milk*

✓ *Metals in human hair from people with various exposure levels in Lithuania*

✓ *Atmosphere Air Pollution and Health of Children in Kaunas*

✓ *Cadmium and risk of breast cancer*

✓ *Alzheimer's Disease Association with Metals and Metalloids Concentration in Blood and Urine*

✓ *Kaunas Birth Cohort study on Prenatal Exposure to Chemical Mixtures*

- Analysis of chemical substances, most commonly various metals, in blood, urine, hair, and other biological media in local or international laboratories
- Statistical and causal relationships between various exposures and health outcomes, such as cardiovascular diseases, cancer, Alzheimer’s disease, and other chronic conditions
- No reference values of environmental pollutants in biological media of Lithuanian population

Human Biomonitoring in Lithuania: 2014-2016

The EC initiative on HBM

Ministry of Education and Science

- Lithuanian University of Health Sciences
- Center of Innovative Medicine
- Agency for Science, Innovation and Technology

Ministry of Health

- National Public Health Surveilance Laboratory

Decision: Lithuania has to join the EC initiative.

Human Biomonitoring in Lithuania: 2017-2018

HBM4EU

- National Public Health Surveilance Laboratory
- Agency for Science, Innovation and Technology
- Lithuanian University of Health Sciences
- Center of Inovative Medicine

- National Hub

Ministry of Health

- **The Government Program**: the objective of establishing a mechanism for monitoring hazardous chemicals in human biological media
- **A working group** (public health specialists, the researches, representatives of the Ministry of Health)
- **The mechanism** for monitoring hazardous chemical substances in human biological media approved by an order of the Minister of Health (2018/V-242)

Human Biomonitoring in Lithuania: 2019

- Meeting with the Minister of Health, the European Commissioner for Health and Food Safety, and other responsible officials of Ministry of Health at National Public Health Surveilance Laboratory
- A presentation on HBM at the Ministry of Health
- HBM4EU was presented at the Public Health Conference at LSMU
- Annual reports on the activities and achievements of HBM4EU were presented at the Ministry of Health each year

Human Biomonitoring in Lithuania: 2019-2021

- The fire at the tires recycling plant in October, 2019
- **The program for assessing the effects of hazardous chemicals on human health among people with different exposures in Lithuania (2020-2021) was approved (**Order 2020/V-803 of the Minister of Health)
- A cross - sectional survey: 225 adults & 116 firefighters; analyses of PAHs, dioxins/furans, PCBs, metals and metalloids (Pb, Hg, Cd, Cr, Zn, As)

https://www.15min.lt/tema/ekologistika-78396

Human Biomonitoring in Lithuania: 2022-2029

Ministry of Health

- HBM was included in the Health Preservation and Promotion Development Programme 2022–2030 (Order No. V-1082 of the Minister of Health)
- Description of the Human Biomonitoring Model was approved by the Minister of Health) (10 March 2026)
- Training courses
- A cross –sectional survey of a representative sample of 750-900 adults
- Reference values
- Recommendations

PARC (2022 -2029)

- Lithuanian University of Health Sciences (LSMU)
- National Public Health Surveilance Laboratory (NVSPL)

- National Hub :
  - National Public Health Surveillance Laboratory
  - National Public Health Centre
  - Lithuanian University of Health Sciences
  - Vilnius Gediminas Technical University
  - Nature Research Centre

Human Biomonitoring in Lithuania: a cross-sectional survey 2023-2028

- **A cross-sectional survey** in six major cities (Vilnius, Kaunas, Klaipėda, Šiauliai, Panevėžys and Alytus) and their surrounding districts
- **Sample**

➢ 250-300 individuals aged 18-39 years at each stage (2025, 2026 and 2027)

➢ Random representative (age, gender) sample from the Population Register

https://ontheworldmap.com/lithuania/

Exposure and effect biomarkers to be analysed

LT	PARC (exposure biomarkers)	PARC (effect biomarkers)
PAH	Bisphenols	Thyroid hormones
Dioxin/furan	Phthalates	Cholesterol, triglycerides
PCBs	Metals & metalloids	Immunoglobulines (G,M,F)
	PFAS	BDNF
	Pesticides (glyphosate/AMPA)	Kisspeptin
	Pesticides (pyrethroids)	
	Pesticides (neonicotinoids)	
	Pesticides (organophosphates)	
	Cotinine	

Today

Tomorrow

HBM

RESULTS

- Reference values
- Associations
- Risk Assessment
- Recommendations
- Reports / articles

ACTIONS

- The law on Human Biological Monitoring
- The program on Human Biological Monitoring

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