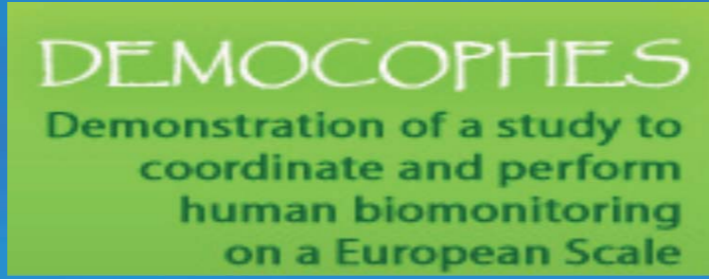
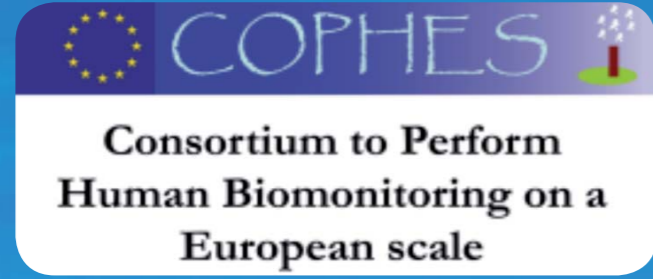


# HUMAN BIOMONITORING FOR EUROPE



a harmonised approach

## Investigation of mother's and children exposure to environmental contaminants in Slovakia

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### Introduction

Public Health Authority of the Slovak Republic, in order to protect public against adverse effects of environmental contaminants, performed in cooperation with Regional Authority of Public Health in the district of Banská Bystrica, pilot DEMOCOPHES study with primary aim to obtain and contribute with slovakian data to the process of feasibility testing and harmonization of human biomonitoring.

### Sampled population

According to project proposition, sample of 120 pairs of mothers (age group ≤ 45 years) and children (age group from 6 to 11 years) per participating country was aimed. Children - mother pairs were recruited from 2 different sampling locations according to the degree of urbanisation - urban (city) environment vs. rural (village) environment, not including industrial and traffic hot spots.



#### Bratislava

- capital city of Slovak Republic  
1258 inhabitants per km<sup>2</sup>

For DEMOCOPHES study suburb settlement of **urban areas** with restrained traffic and environment were selected (Lamač, Karlova Ves, Ružinov, Petržalka).

#### Brusno

49,5 inhabitants per km<sup>2</sup>

#### Slovenská Ľupča

95,3 inhabitants per km<sup>2</sup>

**Rural areas** characteristic by contact with nature of Low Tatras mountains, spa and no significant connectivity to urban environment.

### Training of fieldworkers

After international training in Berlin, slovakian teams of recruiters and fieldworkers were formed for both sampling locations and theoretical and practical training focused on recruitment and interview standards as well as the hair sampling topic was organised.

### Training of hair sampling



### Recruitment

Duration: October 2011 - January 2012

Public Health representatives visited involved schools during parental meetings explaining the study purposes to children's mothers directly while handing out of invitations (924 invitations together in both locations).

Total N	Total participating	Not participating			Response rate
		Not reached	Not eligible	Refusing	
924	129	462	11	322	14 %

Year of birth	Urban area		Rural area		Total	
	Boys	Girls	Boys	Girls	Boys	Girls
2000	5	1	4	9	9	10
2001	7	2	6	6	13	8
2002	4	8	5	6	9	14
2003	4	8	3	5	7	13
2004	6	4	5	11	11	15
2005	7	7	4	2	11	9
<b>Total</b>	<b>33</b>	<b>30</b>	<b>27</b>	<b>39</b>	<b>60</b>	<b>69</b>
	<b>63</b>		<b>66</b>		<b>129</b>	

### Fieldwork

Individual meetings with mother - child pairs took place from November 2011 till January 2012, agreed mostly in afternoon / evening hours (04.00 - 07.00 PM) suiting mostly to working mothers and children coming from school.

Introductory words and collecting of informed consents, by basic interview and subsequent hair sampling and questionnaire interview was followed normally. Finally, urine sampling instructions and giftedness of children (reflex decorative toy for school bag, color-box with DEMOCOPHES emblem) was done.

According to our observations, mothers living closer to our institute preferred visit of the project centre while mothers with distant resident asked for visit of fieldworkers in their homes usually.

### Chemical analysis

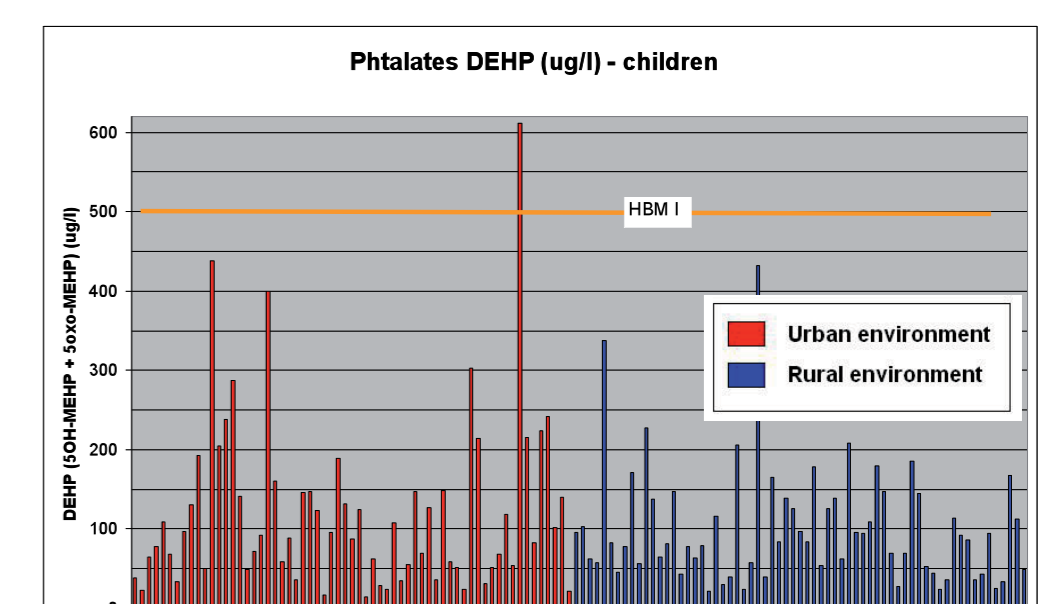
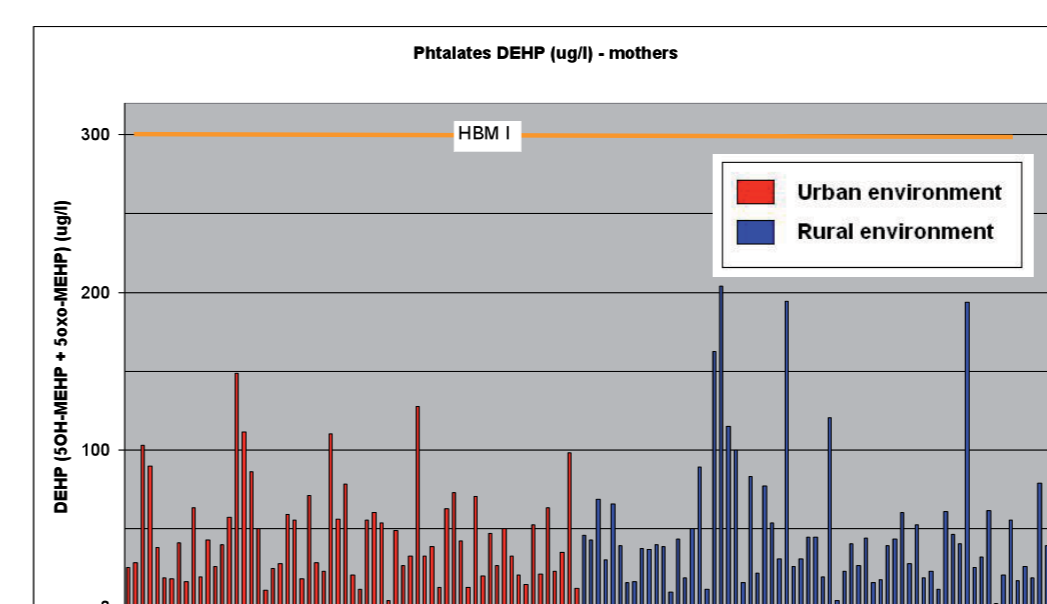
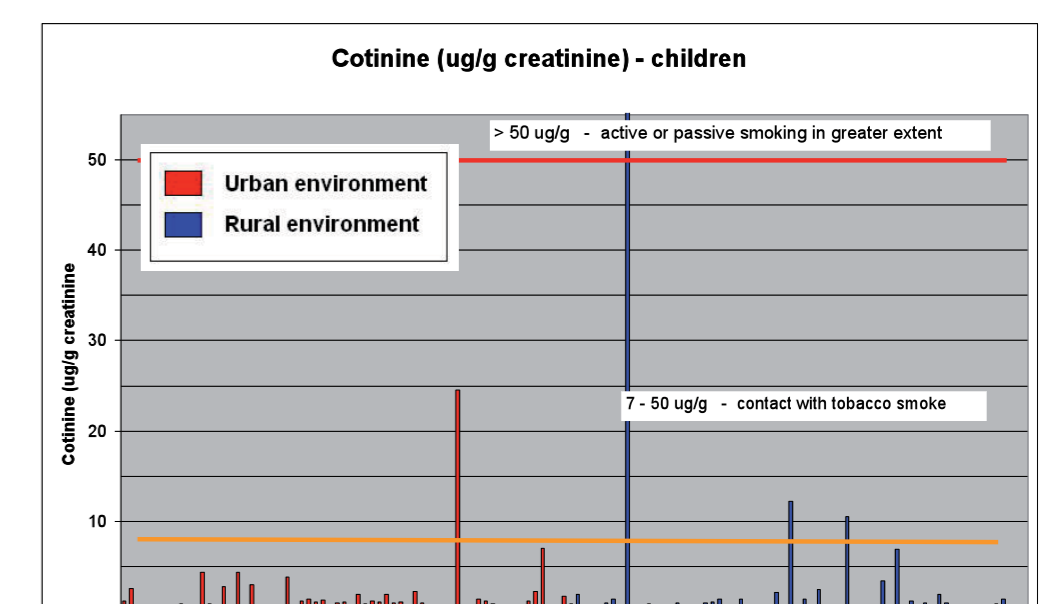
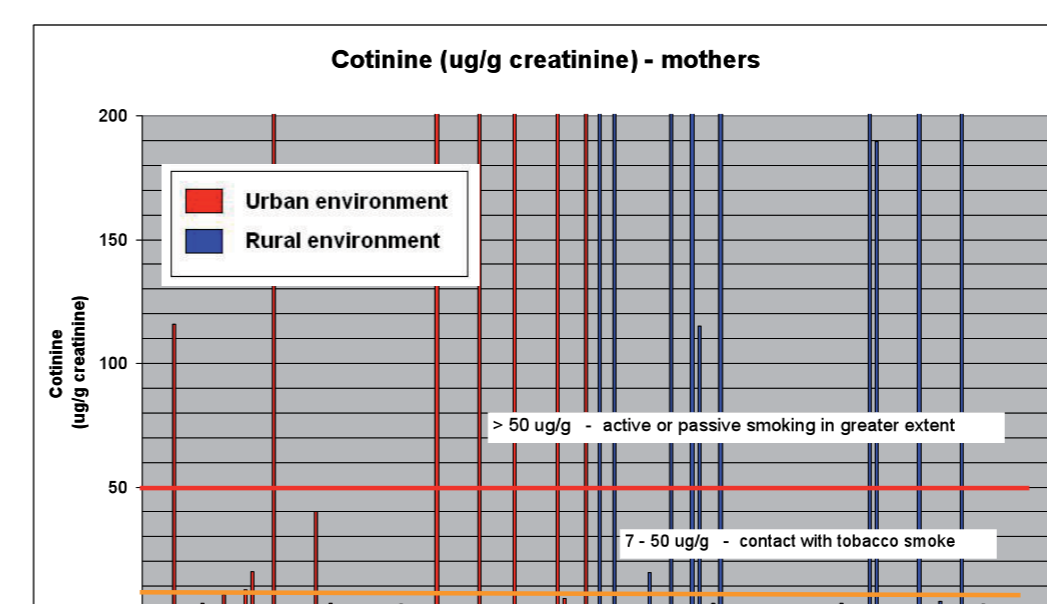
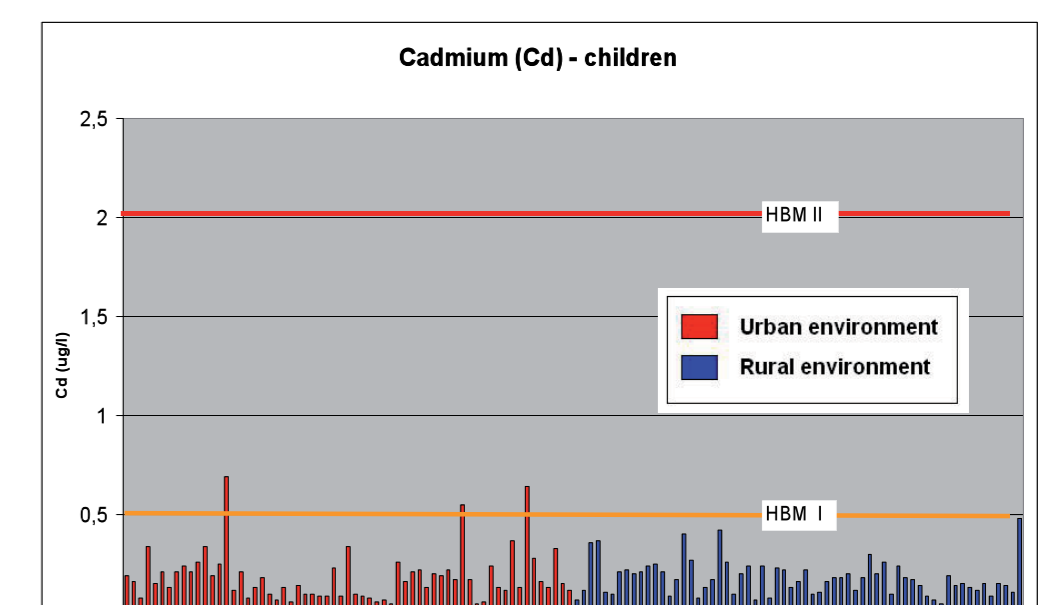
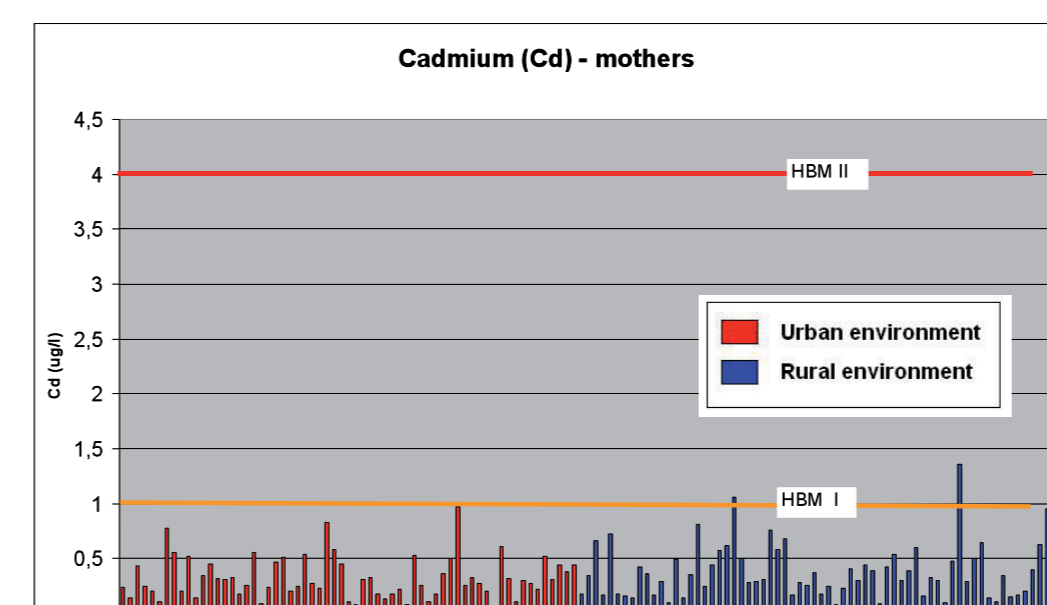
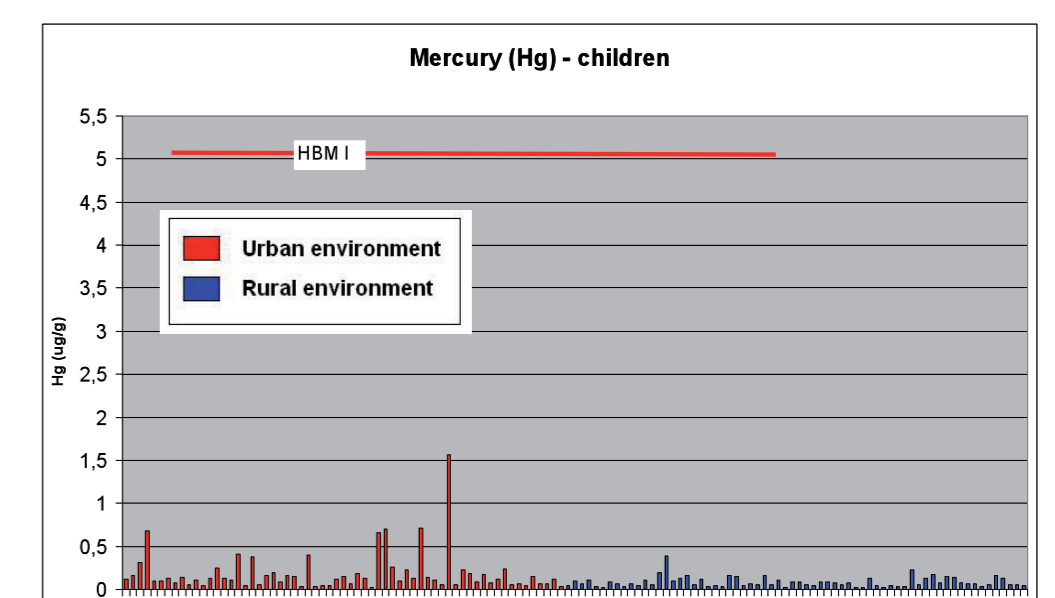
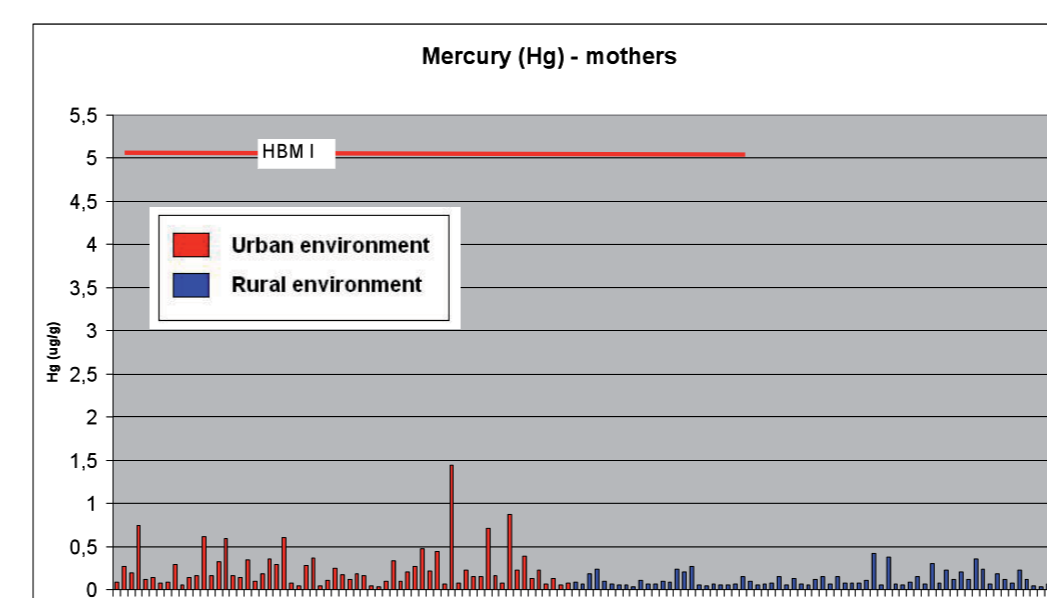
Marker	Matrix	Laboratory	Analytical method
Mercury	hair	Regionálny úrad verejného zdravotníctva Banská Bystrica, Slovakia	AAS
Cadmium	urine	Státní zdravotní ústav Prague, Czech Republic	ICP-MS
Cotinine	urine	Státní zdravotní ústav Prague, Czech Republic	GC-MS
Phtalates	urine	Státní zdravotní ústav Prague, Czech Republic	LC-MS/MS

### Data management and statistical analysis

Data type	Tool
Questionnaires (BQ, HM, HC, UM, UC, NR)	national version of web-based SOCRATOS - CAPI (translated in slovak language)
Questionnaires / Protocols (PS, RI) - not be a subject of QC and SA	excel files prepared according to variables defined in SOP Annex IV_1 Data management
Chemical analysis data on biomarkers (TM, TC)	common pre-defined excel files with input and export sheets

Completed database was checked using the scripts for software "R" provided by COPHES WP4 team (VITO). Based on the outputs of this program, all the mistakes and invalid values were checked again in questionnaires and replaced by correct data properly. Statistical analysis of national database is using the SPSS software package with centrally provided analysis scripts.

### Results



### Our experiences and lessons learned

- expected number of participants only hardly obtained, despite of number of people invited exceeding original recommendations
- in future studies to prepare inviting materials much concise and easier way, following the headword "Less is sometimes more"
- selection of participants via schools considered as suitable
- review of the process of inviting participants by reply cards and recruitment interview desirable to achieve non-responder questionnaires answering in larger scale
- performance of interview and hair sampling in school as place convenient for mothers proposed
- sampling and interviews experience are positive, minor difficulties with answering of several questions (identification of gloves material, time spent per day outdoors/in the car, etc.)
- few concerns of privacy breach was felt from several mothers questions (storage of samples in biobank, abusing of hairs for cloning purposes)

### Keywords

Slovakia, DEMOCOPHES, human biomonitoring, recruitment, sampling, parents, experiences

### Contact

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