

Austrian Biomonitoring study :

mothers and children



creating the future

Programm zur grenzüberschreitenden Zusammenarbeit SLOWAKEI - ÖSTERREICH 2007-2013
Program cezhraničnej spolupráce SLOVENSKÁ REPUBLIKA - RAKÚSKO 2007-2013



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Um-MuKi: environment- mother - child

Chemical analyses in

- pregnant women (36th - 38th week of pregnancy)
- and cord blood (birth)
- **Total included:** 200 mother-child pairs (100 SK - 100 AT)
heavy metals, gene polymorphisms
- **40 mother-child pairs (20 SK – 20 AT):**
Me-Hg, PFAS and BPA
- detailed **questionnaires** for mothers



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Cities: Bratislava - Vienna



- ° 50 km airline distance
- ° Iron curtain for ~50 years

residents: 610.850 - 1.705.623

density (res./km²) : 298 - 4.113

markedly differences in age at pregnancy, housing, food consumption, life stile, environment

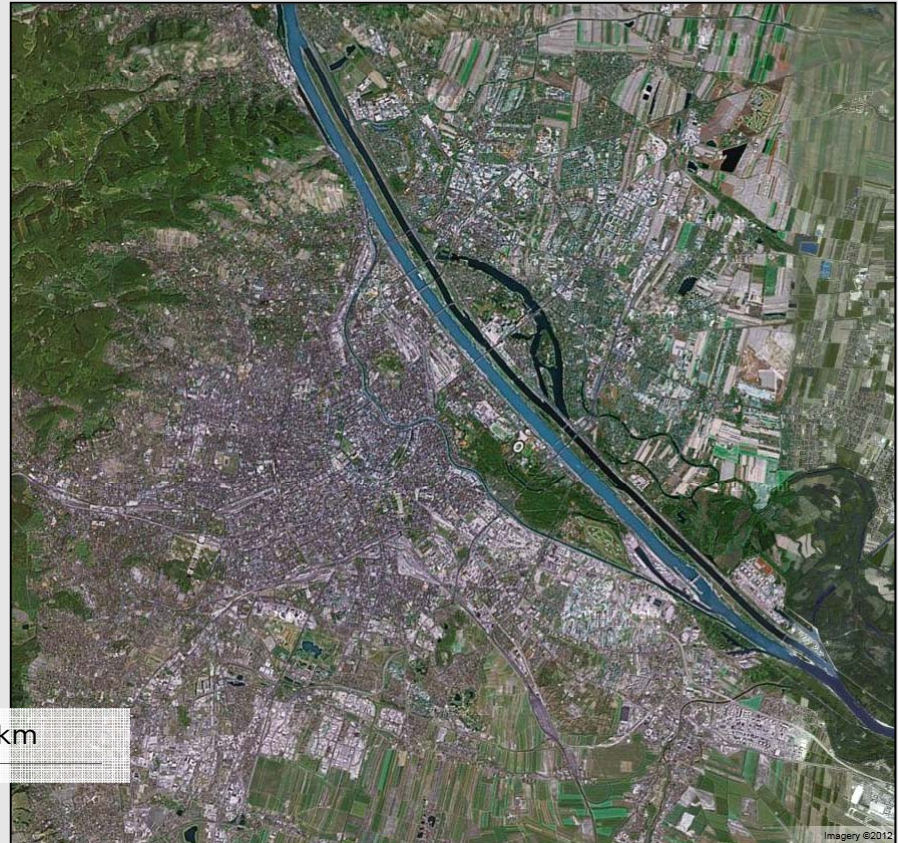
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Cities: Bratislava - Vienna

Bratislava



Wien



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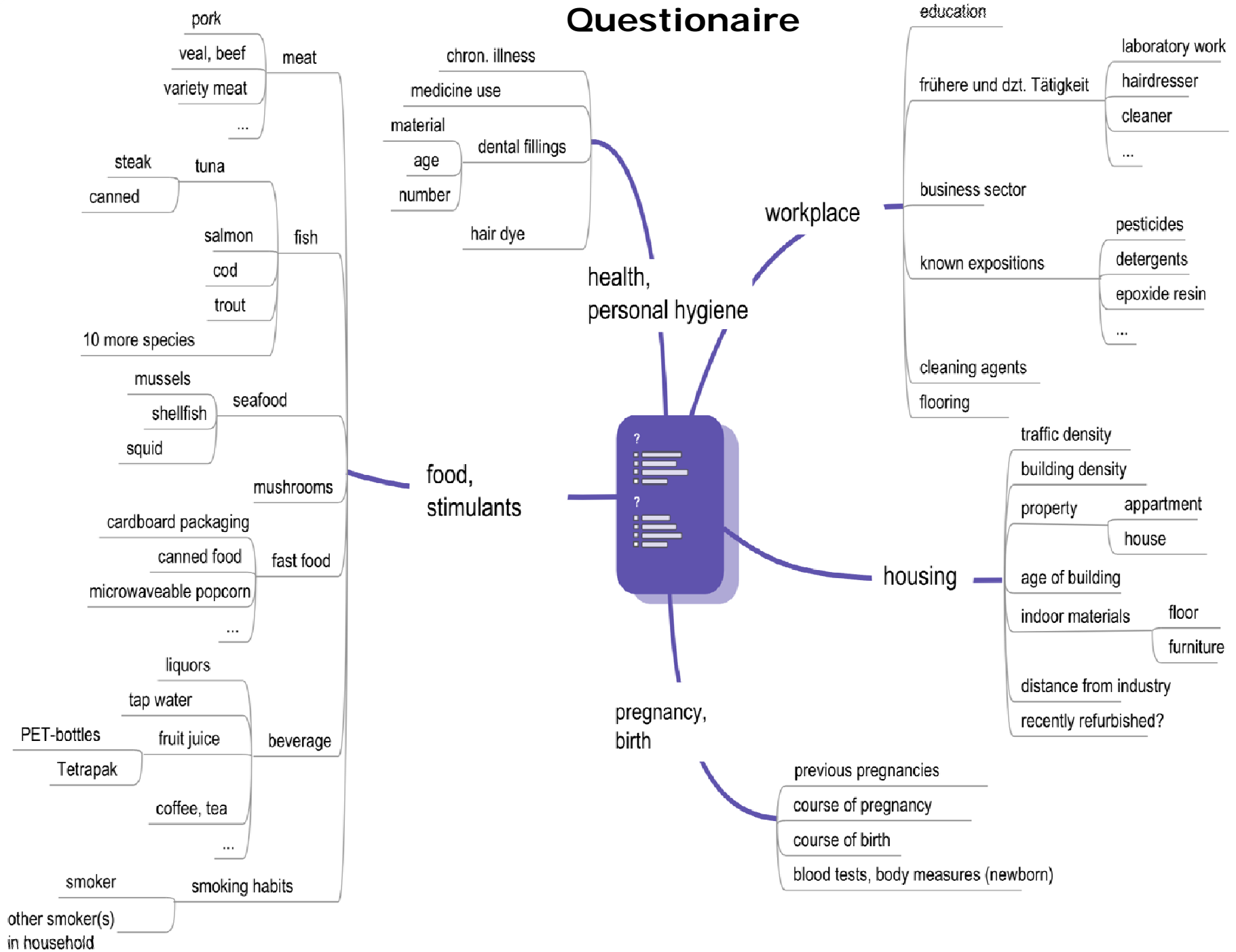
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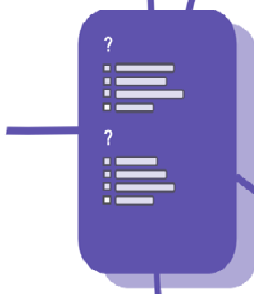
Questionnaire



- meat
 - pork
 - veal, beef
 - variety meat
 - ...
- fish
 - tuna
 - steak
 - canned
 - salmon
 - cod
 - trout
 - 10 more species
- seafood
 - mussels
 - shellfish
 - squid
- mushrooms
- fast food
 - cardboard packaging
 - canned food
 - microwaveable popcorn
 - ...
- beverage
 - liquors
 - tap water
 - fruit juice
 - PET-bottles
 - Tetrapak
 - coffee, tea
 - ...
- smoking habits
 - smoker
 - other smoker(s) in household

- chron. illness
- medicine use
- dental fillings
 - material
 - age
 - number
- hair dye

health, personal hygiene



workplace

- education
- frühere und dzt. Tätigkeit
 - laboratory work
 - hairstyler
 - cleaner
 - ...
- business sector
- known expositions
 - pesticides
 - detergents
 - epoxide resin
 - ...
- cleaning agents
- flooring

housing


- traffic density
- building density
- property
 - apartment
 - house
- age of building
- indoor materials
 - floor
 - furniture
- distance from industry
- recently refurbished?

pregnancy, birth

- previous pregnancies
- course of pregnancy
- course of birth
- blood tests, body measures (newborn)

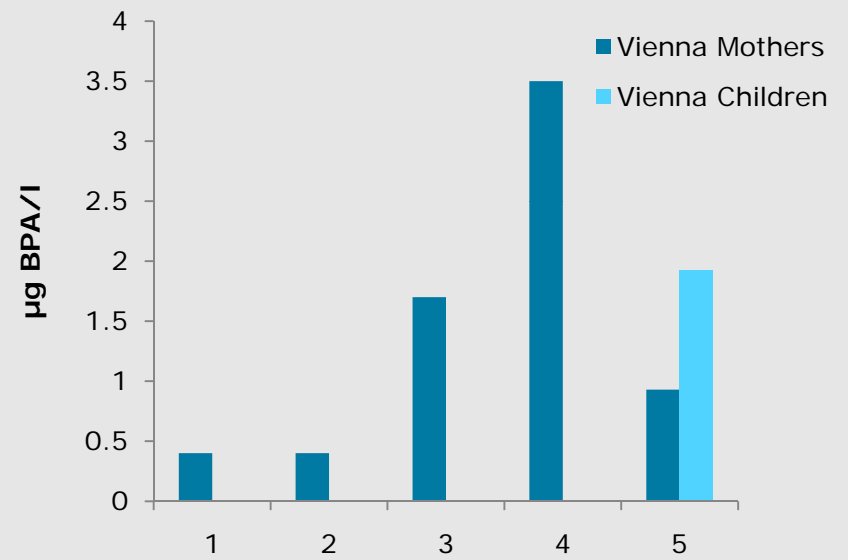
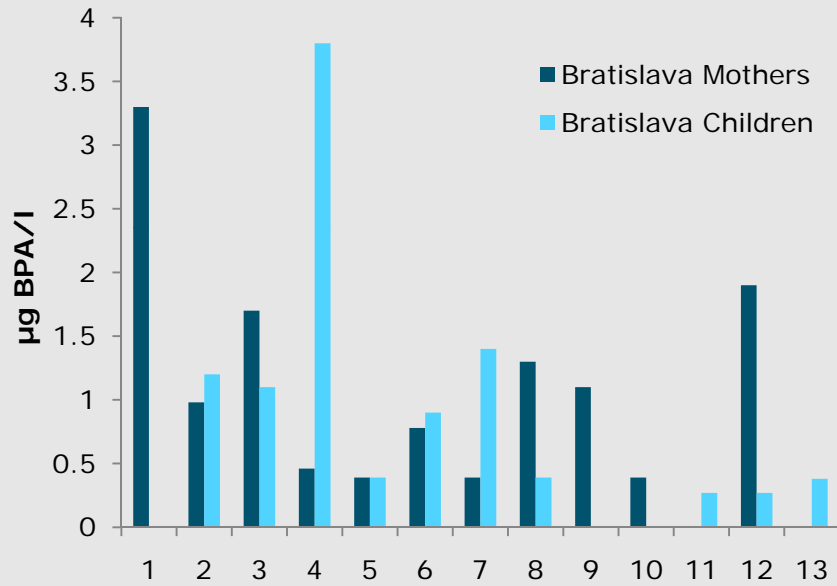
Results: Bisphenol A

method for chemical analyses: LC-MS/MS

	Bratislava		Vienna	
	mothers n=20	children n=20	mothers n=20	children n=20
detection frequency	55%	50%	35%	10%
range: µg/L	n.n – 3.3	n.n-3.8	n.n-3.5	n.n-1.9



Bisphenol A



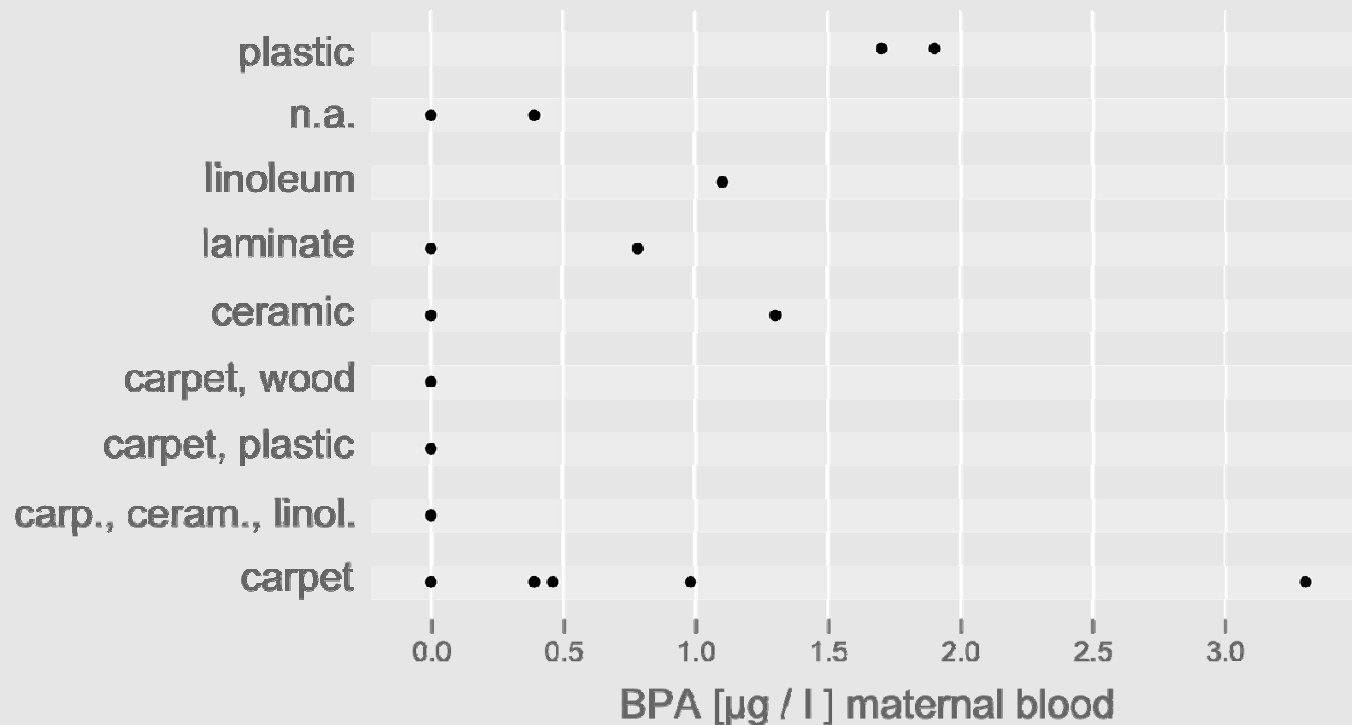
Results I

- no correlation with consumption of canned food
- no correlation with installation, occurrence or removal of dental inlays of synthetic origin
- no correlation with flooring at home
(e.g. PVC or laminate flooring)

Further in depth analyses, also with the results of genetical polymorphisms, will be performed within the next months

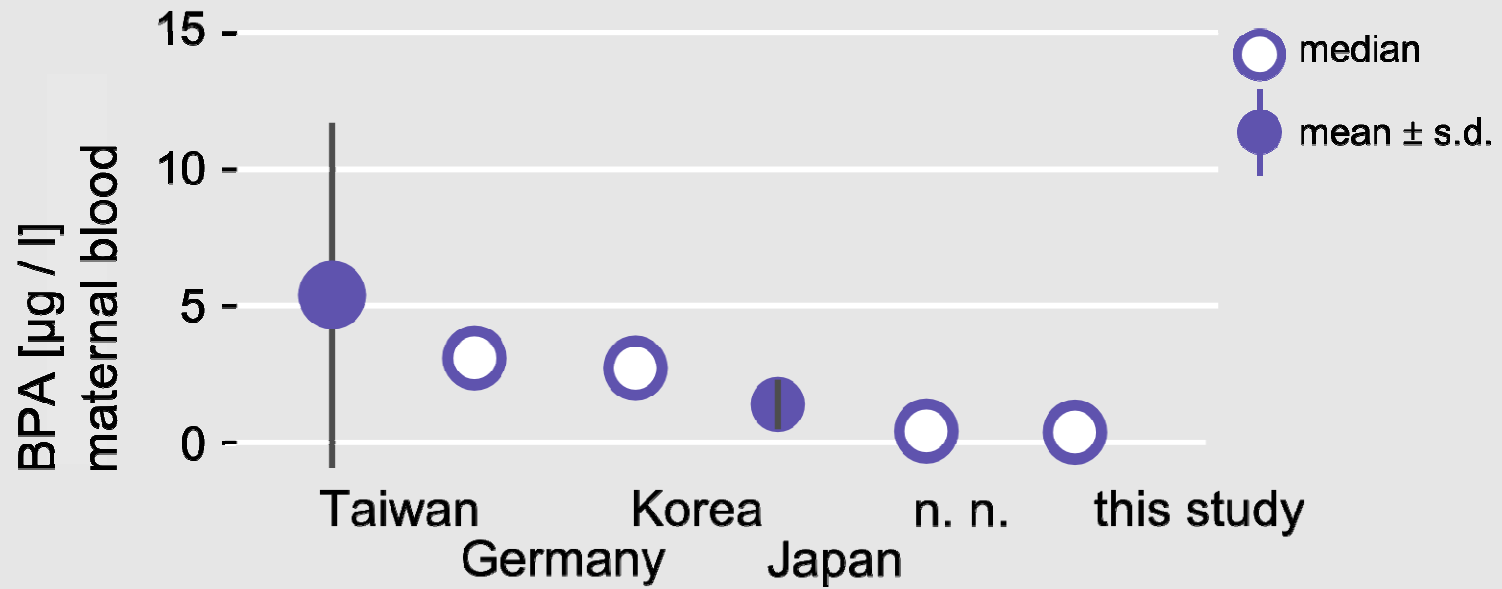
Results II

Bisphenol A and PVC flooring at work place:



highest exposed individuals : PVC flooring
 but: no statistical significance

Comparison with other studies: BPA in maternal blood samples



Conclusions

- BPA was detected in 37% of the samples
- mother –child pairs from Bratislava were higher exposed
- In some cases children higher exposed than mothers
- no explanation has been found yet
- 24 hour urine sampling together with detailed food consumption protocols could help in finding main sources of exposure





contact & information

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