

Für Mensch & Umwelt

Umwelt   
Bundesamt

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# Methodological challenges to assess the environmental burden of disease for children in Germany – Findings of the UKAGEP-project

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# Introduction

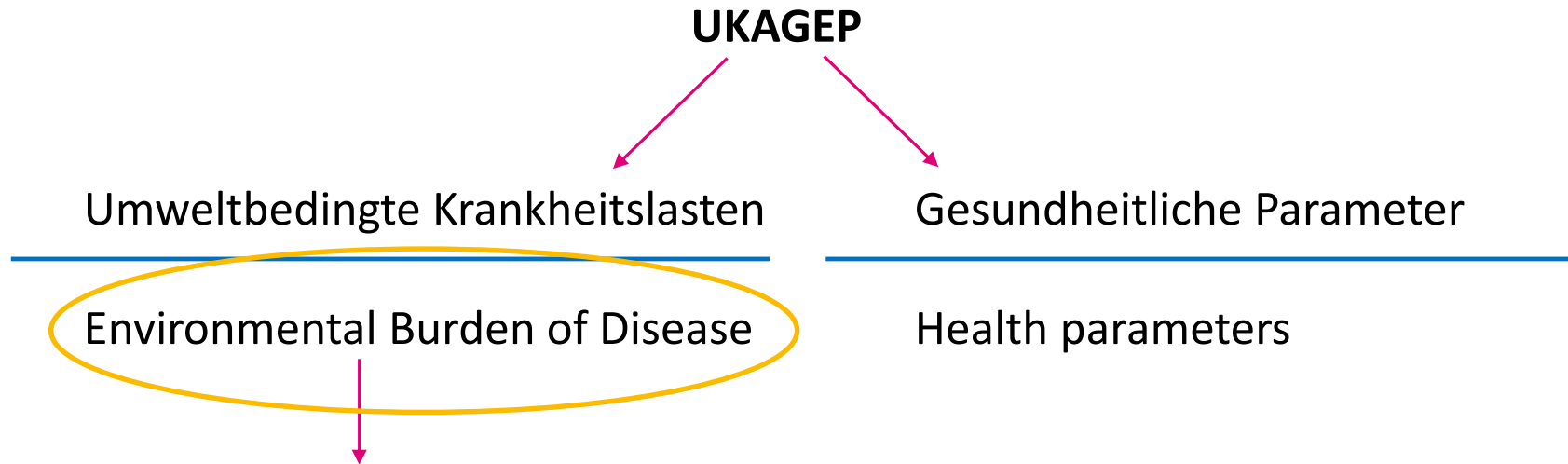


Generally, children are a relatively healthy population group. However, exposure to (environmental) risk factors during childhood can lead to adverse health effects later in life.



UKAGEP-project

# UKAGEP

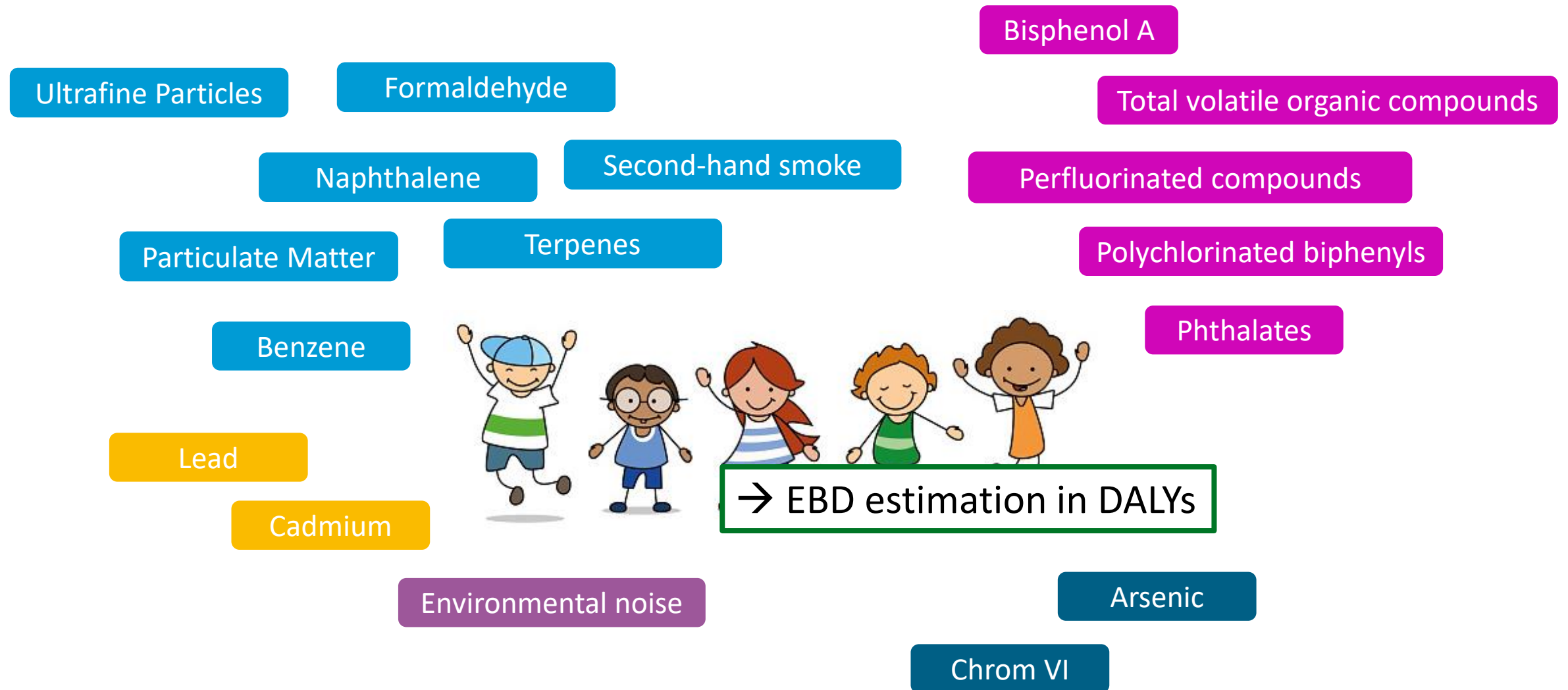


## **Study aim:**

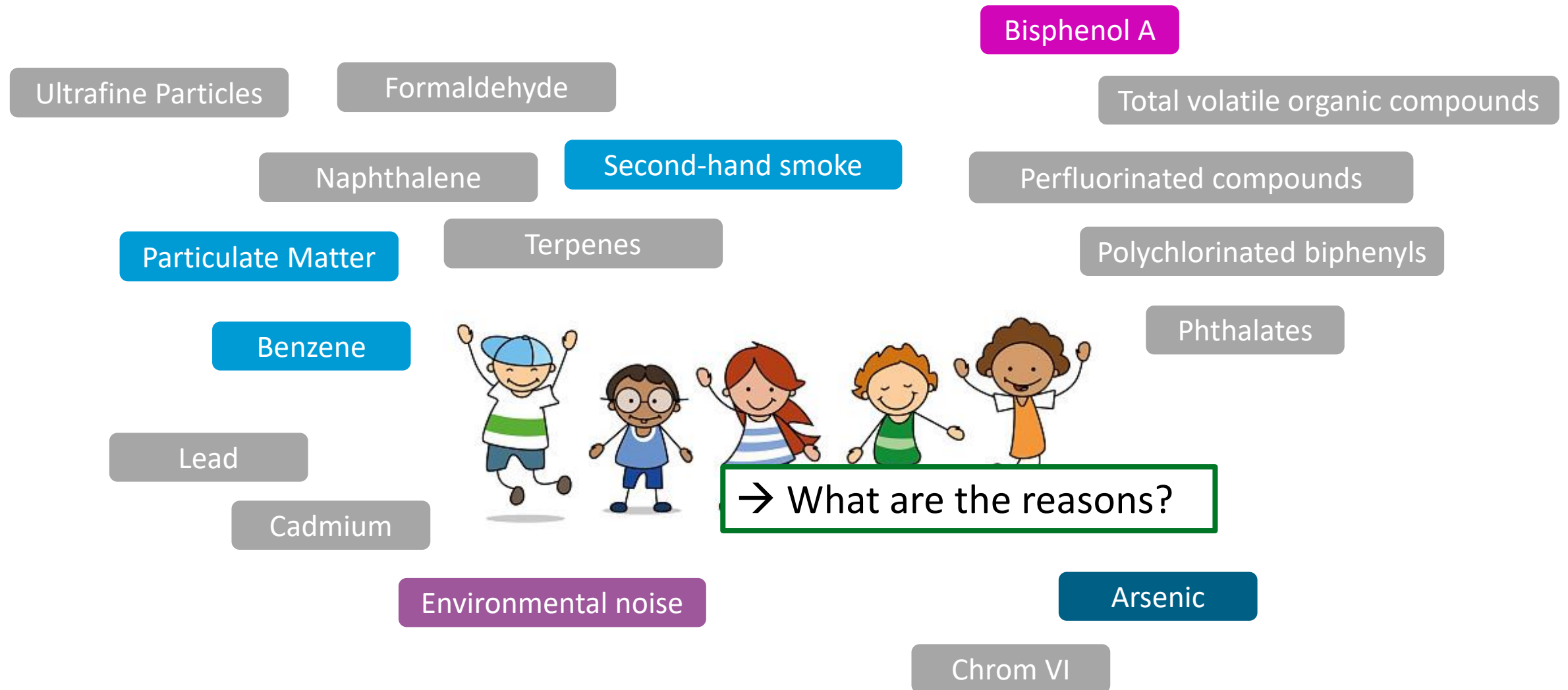
Estimate the EBD due to 18 environmental risk factors for children and adolescents, aged 3-17 years, in Germany

Based on data gathered in the fifth German Environmental Survey (GerES 2014-2017) and additional data on population level

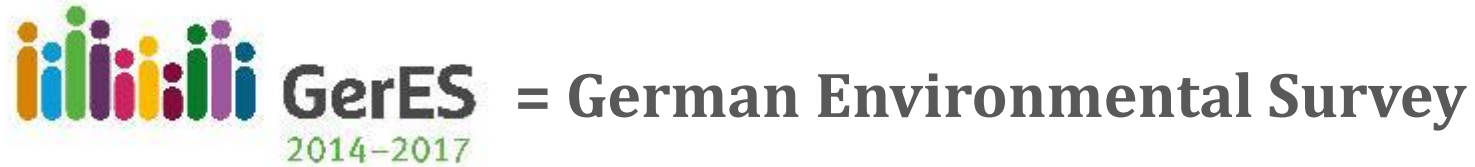
# Considered risk factors



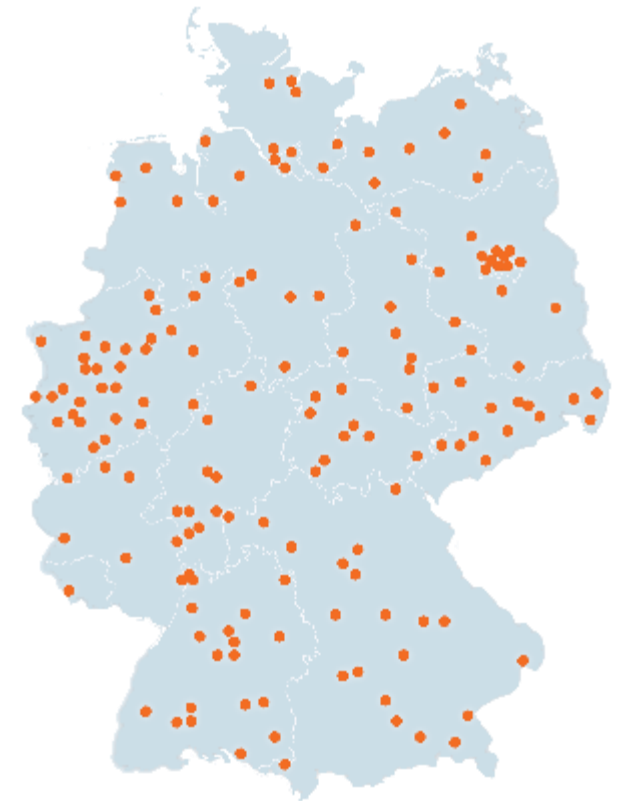
# What we could realize in the end



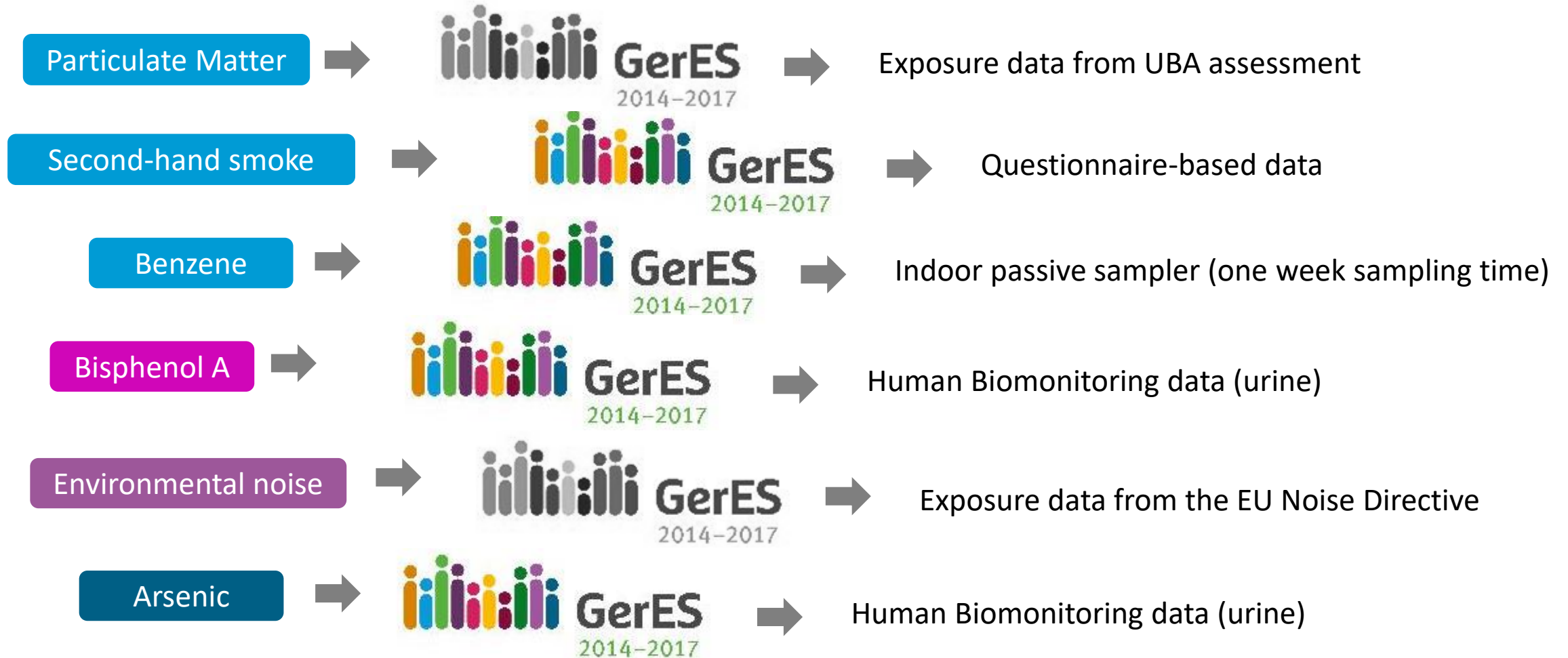
# Exposure data



- Additional questionnaires on socio-demographic factors, living conditions, behavioral and health factors
  - Focus on children and adolescents (3-17 years)
  - About 2.500 participants
  - Population-representative sample of the German population (3-17 years)
  - Measurement of the exposure towards different environmental pollutants, in the indoor air, human-biomonitoring (blood and urine), drinking water, dust
- For several risk factors the existing exposure levels were too low and thus would not result in any current disease burden



# Exposure data in detail



# EBD quantification

Particulate Matter



Focus on adults; COPD, ischemic heart disease, lung cancer, stroke, diabetes mellitus  
For children; lower respiratory tract infection

Second-hand smoke



Focus on children; atopic dermatitis, allergic rhinitis, asthma, otitis media, lower respiratory tract infection, sudden infant death syndrome

Benzene



Focus on life time exposure

Bisphenol A



Focus on children; obesity

Environmental noise



Focus on adults; ischemic heart disease, annoyance, sleep disturbance  
For children; impairment in reading and listening comprehension

Arsenic



Focus on adults; lung cancer, skin cancer

To put it in a nutshell: different exposure data and different quantification methods were used



## Discussion

- Lack of exposure data which fit to exposure-response-functions
- Availability of exposure-response-functions for children is limited
- Lack of health data, especially morbidity data
- For some health endpoints no disability weights were available, if possible other source then GBD was used
- No combined assessment of multi pollutants was possible – however, it would be desirable

## Conclusion

The research project showed that the application of the environmental burden of disease approach differed between the risk factors consequently hampering direct comparisons of results.



# Thanks for your attention!

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