

Positive mid-term assessment of the German Environmental Survey for Children and Adolescents 2014–2017 (GerES V)

Over 1,300 families are already participating in GerES V



The first half of the Fifth German Environmental Survey (GerES V) was completed at the end of May 2016. By that time, the number of participants had reached 1,326 children and adolescents and their parents, from 101 locations. The study examines **the extent to which children and adolescents in Germany are exposed to environmental stressors**. Since children are considered particularly vulnerable to substances potentially harmful to health, GerES V spotlights their exposure. So far, 1,267 urine samples, 2,786 tap water samples

and 398 indoor air samples have been taken. Noise levels outside participants' bedrooms and concentrations of ultra-fine particulate matter in indoor air were measured in nearly all households. The 3- to 17-year-olds participating in GerES V had previously taken part in the German Health Interview and Examination Survey for Children and Adolescents conducted by the Robert Koch Institute (KiGGS Wave 2). As part of that study, blood samples were collected from 1,025 children and adolescents. A sub-sample of the blood is used by the German Environment Agency (Umweltbundesamt, UBA) to analyse it for the pollutants it contains.

Interviews and sample collection ongoing

Since January 2015, dedicated interviewers from Kantar Health GmbH have been working throughout Germany on behalf of the German Environment Agency, visiting the families of the 3- to 17-year olds, carrying out measurements, collecting samples, and asking the parents of all participating children and adolescents detailed questions. The adolescents (aged 11 years or older) are also interviewed. The standardized questionnaire stored on the interviewers' laptops covers about 60 questions, the topics ranging from home equipment, e.g. type of heating system, materials used for walls and floors, furnishings, the use of household and cosmetic products such as pesticides, shampoos and sunscreens, to personal behaviour, e.g. consumption of certain foods and outdoor activities, and personal perceptions, e.g. annoyance by noise from different sources. Information is also collected about any illnesses and health complaints of the children and adolescents that might be linked with environmental stressors.

In GerES the UBA is analysing the samples for environmentally relevant substances, including plasticisers and other constituents of plastics; polycyclic aromatic hydrocarbons, which arise as a result of incomplete combustion; pesticide ingredients; fluorine chemicals from impregnated articles, which are taken up mainly via food; and volatile organic compounds, which represent a major part of indoor air

Pollutants measured in GerES V for the first time:

In urine: arsenic and selenium species, metabolites of new plasticisers; pyrrolidones (NMP, NEP); specific polycyclic aromatic hydrocarbons (naphthols, fluorene); benzothiazole 2-MBT; parabens, benzophenones, triclosan, bisphenol A; acrylamide; benzene derivative; glyphosate

In blood: per- and polyfluorinated chemicals

In drinking water: chromium VI, organic compounds, arsenic

pollution and are mainly released from solvents from furniture and construction materials. The samples are analysed right away or at a later time by specialised laboratories or directly at the UBA for the pollutants included in the study programme. Some of the samples are frozen prior to analysis.

UBA collects all analytical results and the answers from the interviews in a database and provides a biomedical assessment of the analytical results. The participating families are very much interested in the study and in their own analysis data. So far, nearly all participants have asked to be informed about the results of the analysis of their samples. It takes about four to six months for them to receive them. The German Environmental Survey makes it possible for participants to learn how their personal lifestyles affect their own internal exposure. These complex analyses, which are free for the families, are only offered in this study.

The next step: Data evaluation for policy and science



Until data collection is completed in July 2017, home visits at 66 further locations will be carried out, which will bring the total number of randomly selected children and adolescents interviewed with their families to nearly 2,500. So far, three quarters of those contacted participated in the study. The random sample and the high rate of participation ensure that the GerES results are representative of this group of the population. This excellent result shows that people are keen to receive comprehensive information about potential

exposures.

Once all home visits and interviews have been completed and all analytical data are available in quality-assured form, statistical analysis of the data will start. The aim of this work is to uncover possible links between the use of certain products or materials and lifestyles and the pollutant concentrations determined. The results will allow us to assess suspected associations between environmental stressors and health problems. The study will also generate findings on whether such factors as age, sex and social status have an influence on exposure levels.

Scientific discussion of the results in Germany and at European and international level will lead to the formulation of recommendations on how environmental policies aimed at protecting human health can be further improved and will support the establishment of human biomonitoring (measurement of the population's internal exposure to pollutants) as a tool for decision-making on international chemicals policy.

Websites

- ▶ **German Health Interview and Examination Survey for Children and Adolescents (KiGGS)**
[short link: <http://bit.ly/2daIwBt>]
- ▶ **Further information about the German Environmental Survey, GerES 2014–2017**
[short link: <http://bit.ly/2d8tffM>]

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