

BITTERFELD Study

Background

- After German reunification in 1990, the East-German population rapidly adopted a modern "Western lifestyle".
- Some of these lifestyle factors may have affected the development of allergies.
- If environmental and lifestyle factors contributed to the higher prevalence of allergies among West Germans, an increase in prevalence of allergies among East Germans after German reunification would be expected.

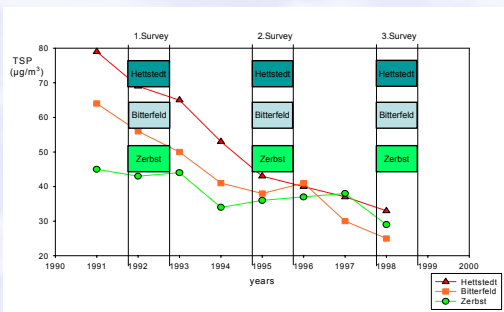
Objectives

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- To determine the impact of ambient air pollution on children's health.
- To study temporal changes in the prevalence of allergic and non-allergic diseases in East German children.
- To investigate determinants of asthma and allergic diseases in children.

Study design

- Three cross-sectional surveys: 1992-93, 1995-96, 1998-99



Study population & methods

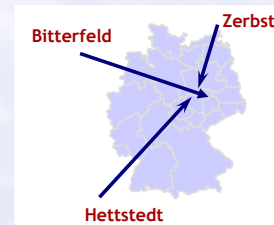
Study population

- 2400-2800 children in each survey resulting in 7611 questionnaires from 5360 different children
- In each survey the study population consisted of 5 to 7 year-old school entrants, 8 to 10 year-old third graders and 11 to 14 year old sixth graders.

Study methods

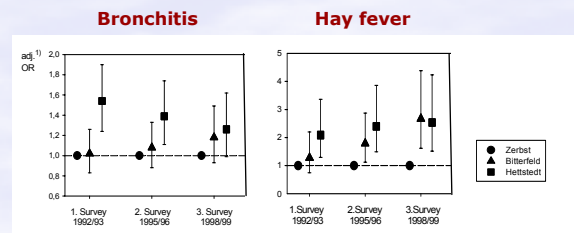
- Questionnaire
- Serum specific IgE
- Heavy metal analyses in blood & urine
- Lung function testing

Study area

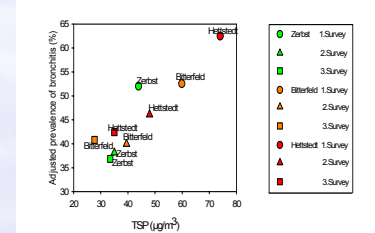


Results

- Children from the most polluted area (Hettstedt) showed poorer respiratory health (Heinrich et al. EHP 1999, Heinrich et al. AJRCCM 2002).



- Non-allergic respiratory morbidity improved along with improved air hygiene (Heinrich et al. Epidemiology 2003).



- Hettstedt ambient particles were associated with increased risk of allergic sensitization in children (Heinrich et al. EHP 1999) and influence the severity of allergic respiratory disease in mice (Gavett et al. EHP 2003).
- Numerous publications on determinants of asthma and allergies and temporal changes of several health outcomes (http://www.gsf.de/epi/en/index_ag_unm_epi_en.htm).

Collaborators

- GSF – National Research Institute of Environment and Health, Institute of Epidemiology, Neuherberg, Germany: **Joachim Heinrich** and **H.-Erich Wichmann for the Bitterfeld study group**
- Gesundheitsamt Bitterfeld, Kreiskrankenhaus Wolfen, Gesundheitsamt Hettstedt, Klinikum Mansfelder Land, Gesundheitsamt Zerbst
- Umweltbundesamt, Institut für Wasser-, Boden-, Lufthygiene.
- US-EPA-NHEERL, Chapel Hill, NC U.S.A.