

# **Respiratory symptoms of school children and their home environment**

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# BACKGROUND

- The prevalence of asthma and allergy is **increasing** in the industrial countries all over the world.
- Children are especially **vulnerable** to effects of various risk factors causing chronic inflammation of the mucous membrane of the respiratory tract which tends to sustain in later life, too.
- Several **international studies** were carried out to assess the prevalence of these diseases and symptoms
  - e.g. **ISAAC** (International Study on Asthma and Allergies in Children),
  - CESAR** (Central European Study on Air pollution and Respiratory health)

# OBJECTIVES

- To assess the **prevalence** of chronic respiratory symptoms among school-children as
  - a.) an environmental health **indicator**
  - b.) a basis of **policies** and programmes for decreasing respiratory diseases in childhood (CEHAPE's Regional Priority Goal 3)
- To identify schools with extreme high or low prevalence of respiratory symptoms and to initiate **targeted studies** of the school environment
- To evaluate the health status of the children in relation to the physical condition of the **school building** (assessed by a separate survey)

# METHODS

**Study design:** cross sectional

**Study population:** all children visiting 3rd grade classes (>10 children) in any elementary school

**Study area:** Hungary (country-wide)

**Assessment** of both exposure and health status:

by a **questionnaire** (completed by the parents)

- the children's present and past health status
- perinatal conditions
- the parents' respiratory health
- smoking habits in the family
- the home environment
- socio-economic status of the family

**Statistics:** Multiple logistic regression (STATA 9.2)

# Questions on COUGH (Bronchitis)

- Does your child *usually* cough in the **morning** in autumn-winter season?
- Does your child *usually* cough during the **day or at night** in autumn-winter season?
- Did your child cough on *most days* for at least **3 months** consecutively in the last autumn-winter season?
- Does your child *usually* cough up **phlegm** when he/she does not have a cold?

# Questions on ASTHMATIC symptoms

- Has this child's chest sounded **wheezing** or whistling in the last twelve months?
- Has your child been **waken up** at night by wheezing in the last twelve months?
- Has this child had a **dry cough at night** in the last twelve months, apart from a cold or a chest infection?
- Has this child ever had **asthma, diagnosed** by a doctor?

# Questions on ALLERGY

- Is this child **allergic** to house dust?
  - pets?
  - pollen?
  - food?
  - medicine?
  - anything else?
- Has a **doctor diagnosed** this allergy?

# **PARTICIPATION**

**Invited: 2,726 schools**

**Participated: 2,160 schools (79.2%)**

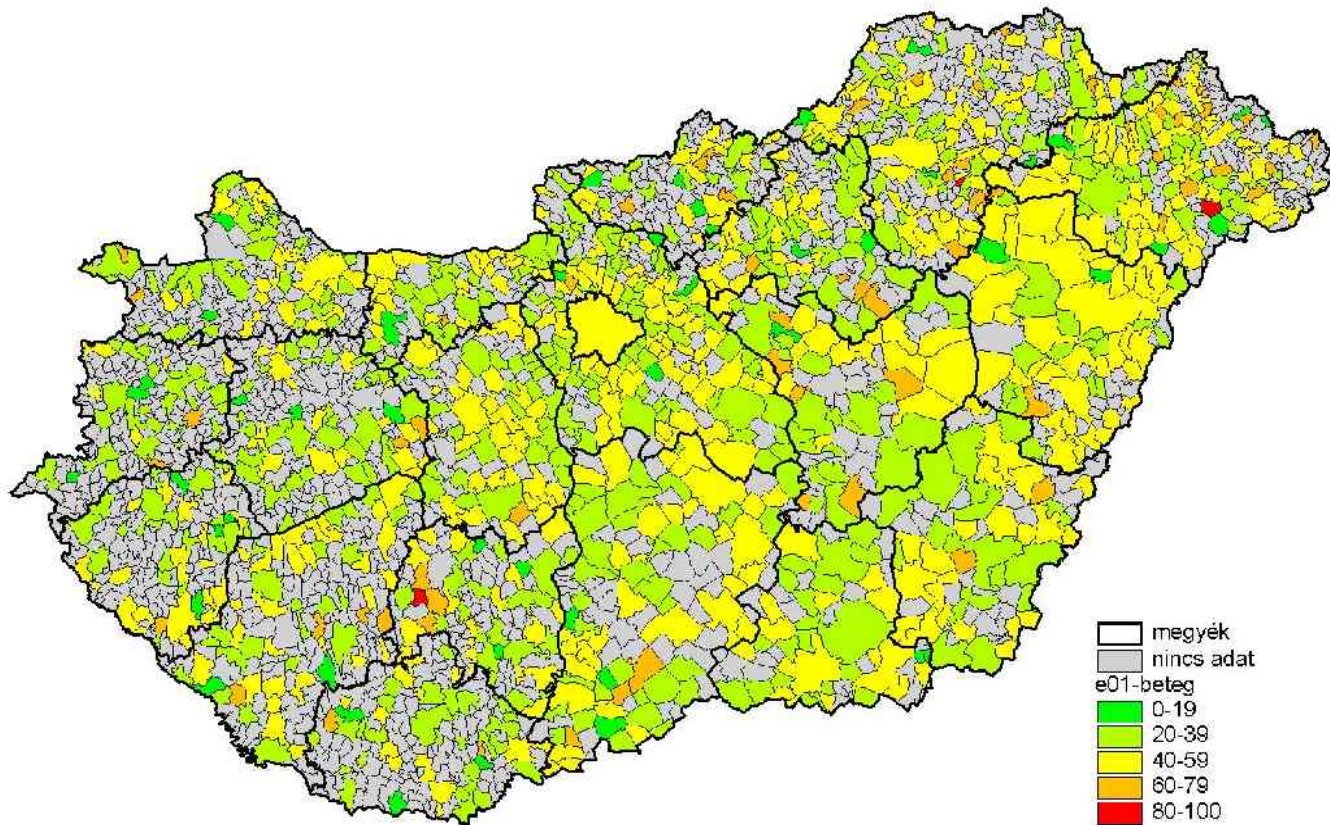
**Out of the 82,082 questionnaires sent out to these schools,**

**62,711 returned (76,4%)**

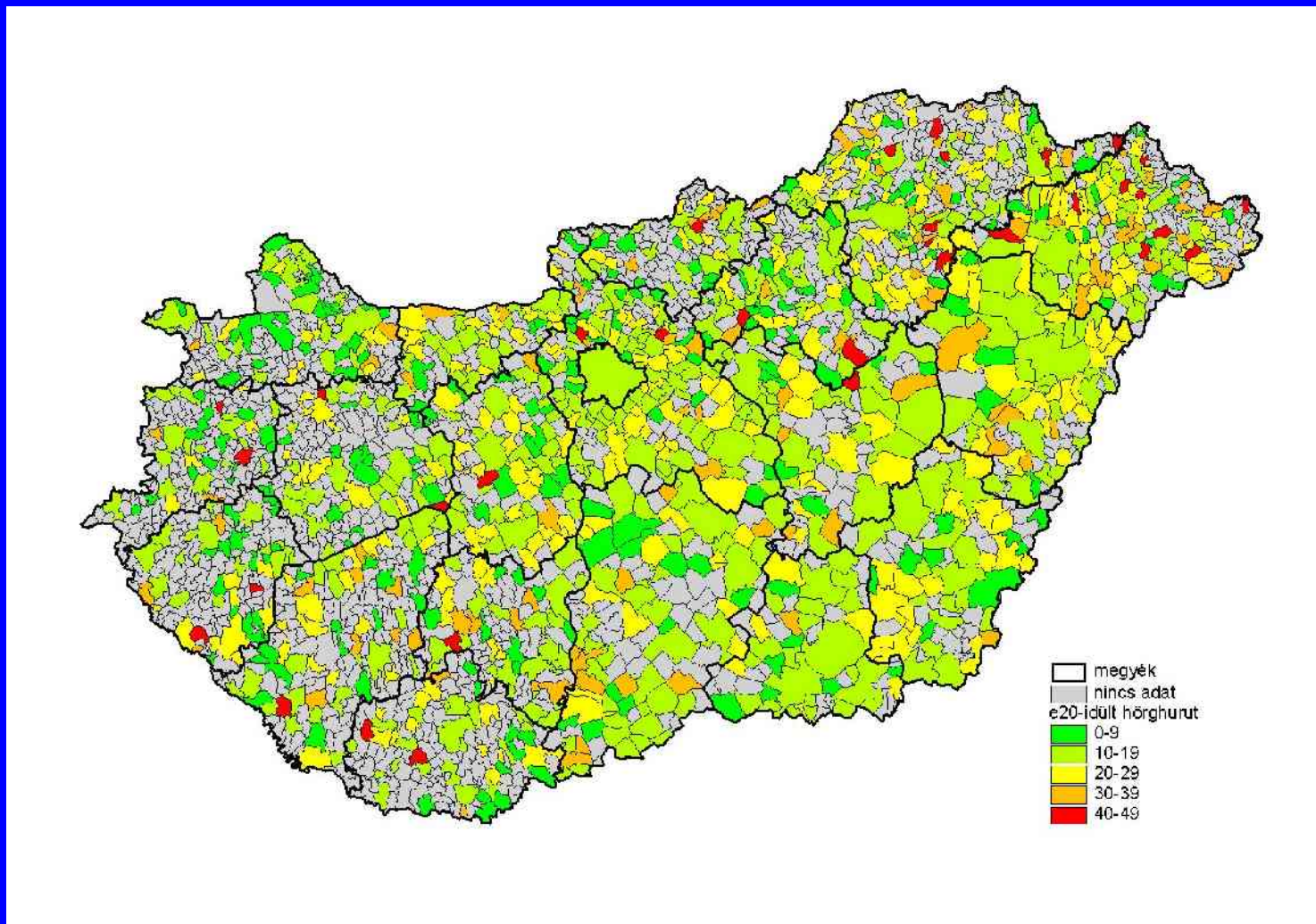
# OVERALL RESULTS

- Prevalence of children with **any respiratory or allergic symptoms**: 40%
- Prevalence of **bronchitic** symptoms: 17,4 %
- Prevalence of **asthmatic** symptoms: 17,1 %
- Prevalence of **asthma ever diagnosed**: 7,2 %
- Prevalence of children with **allergic symptoms**: 24,9 %
- Prevalence of children with **allergy diagnosed by a doctor**: 19,9 %

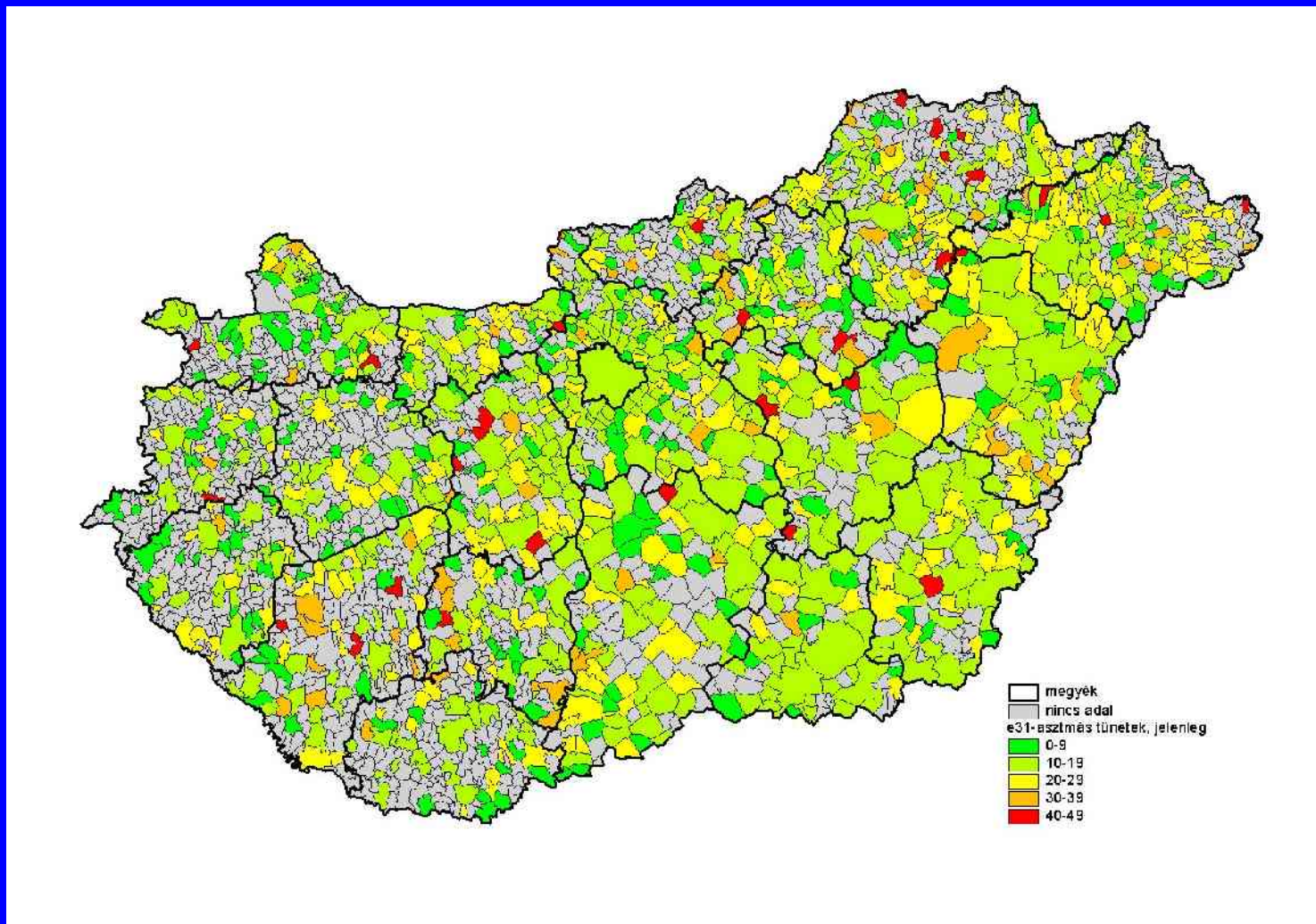
# PREVALENCE OF CHILDREN WITH ANY RESPIRATORY OR ALLERGIC SYMPTOMS



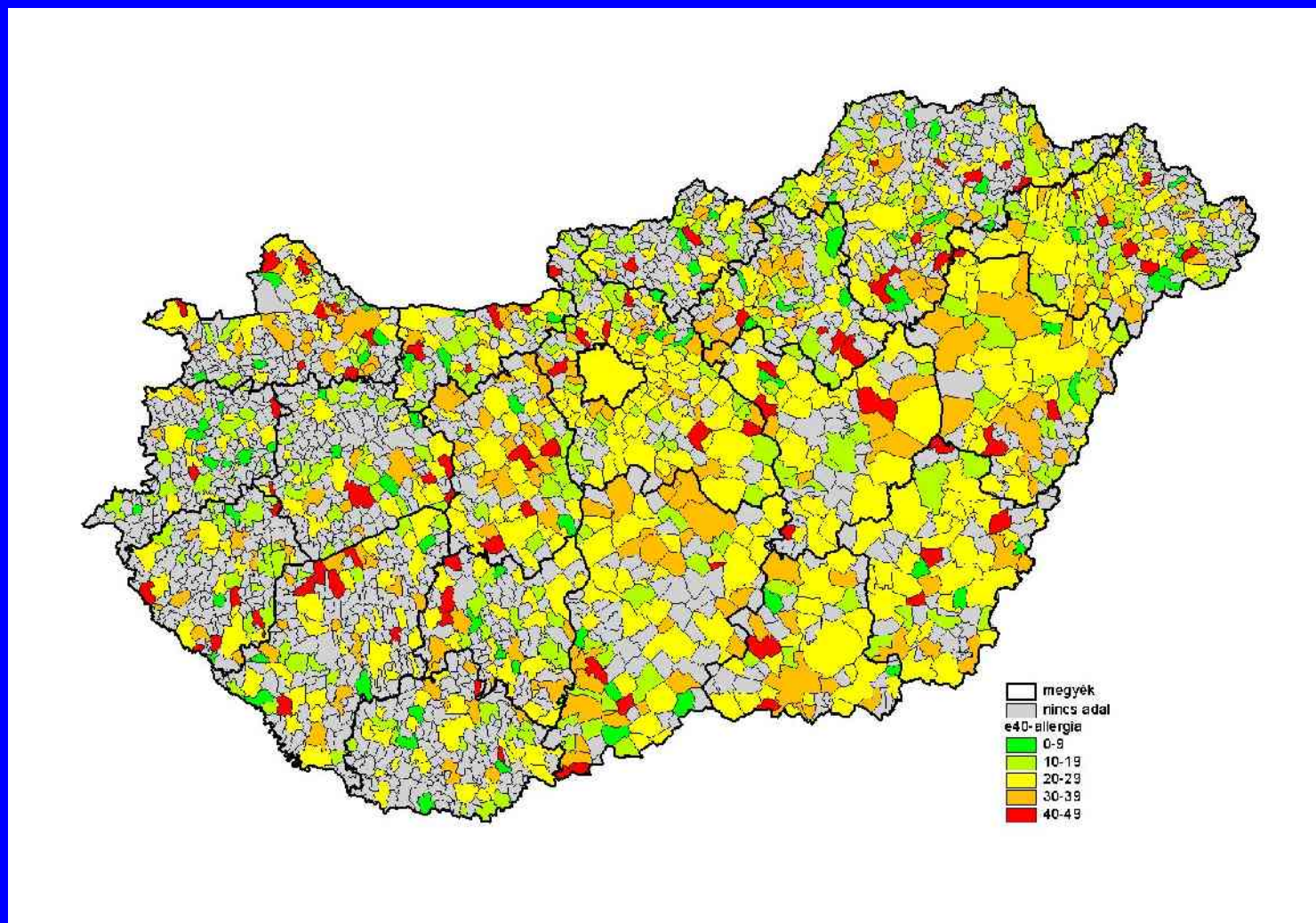
# PREVALENCE OF BRONCHITIC SYMPTOMS



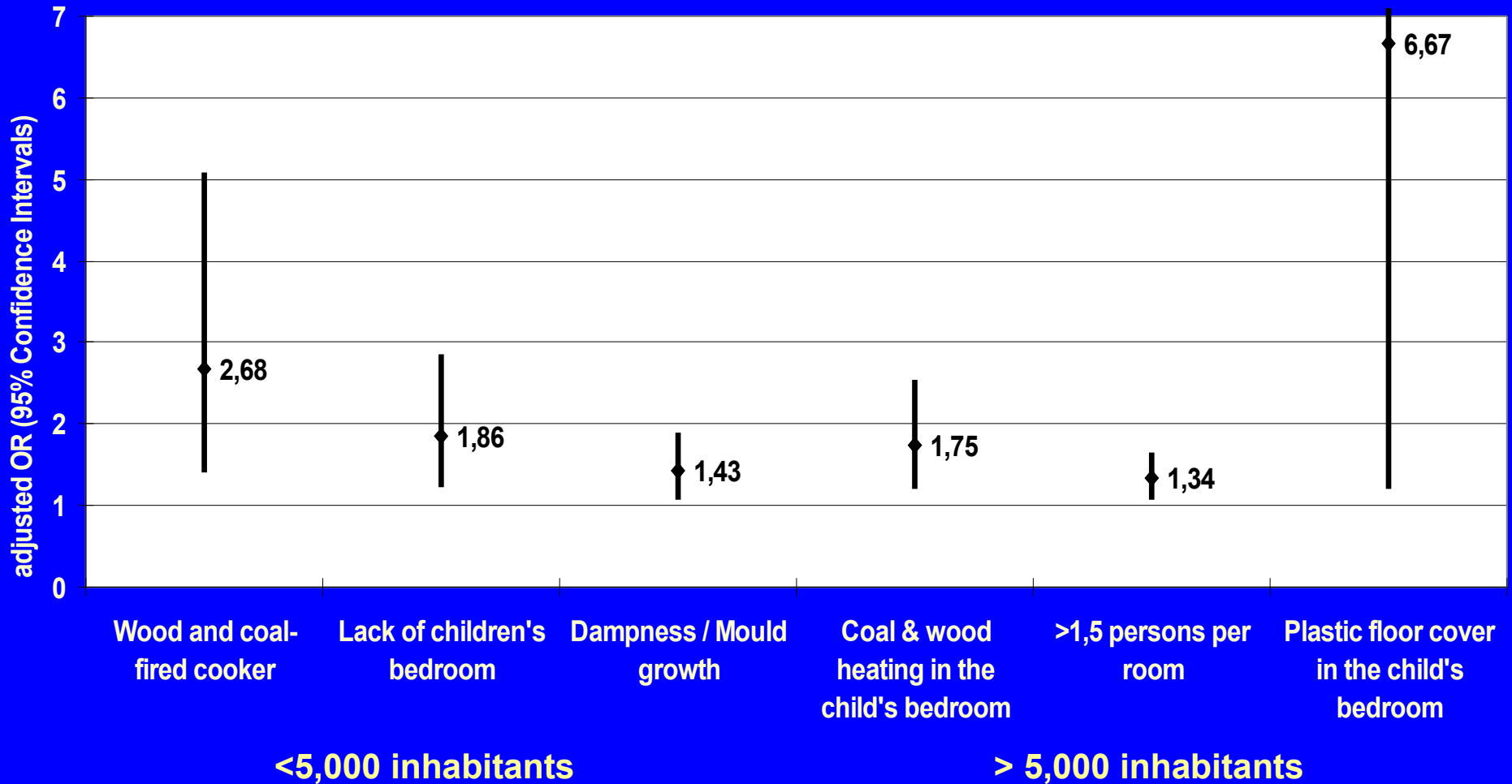
# PREVALENCE OF ASTHMATIC SYMPTOMS



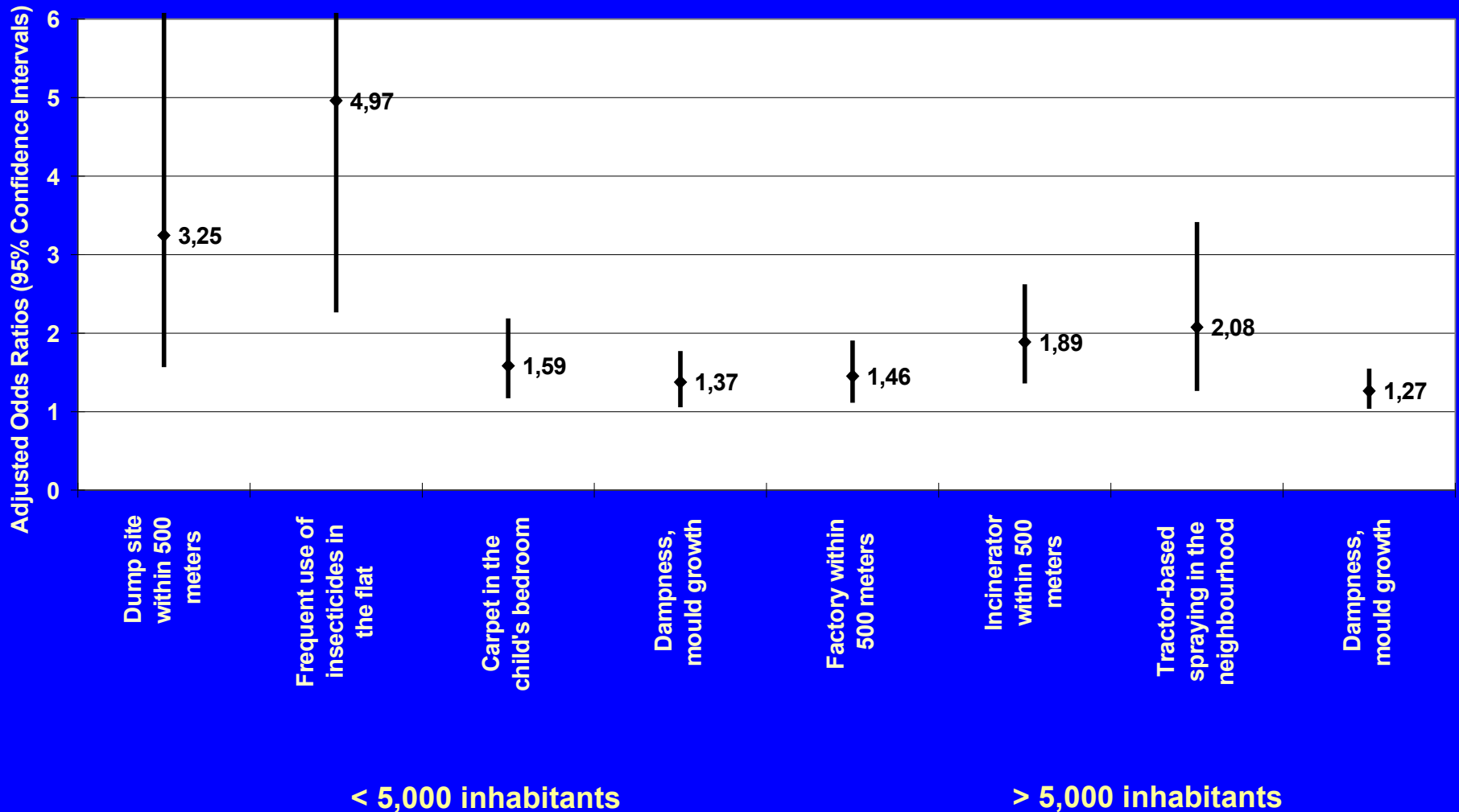
# PREVALENCE OF ALLERGIC SYMPTOMS



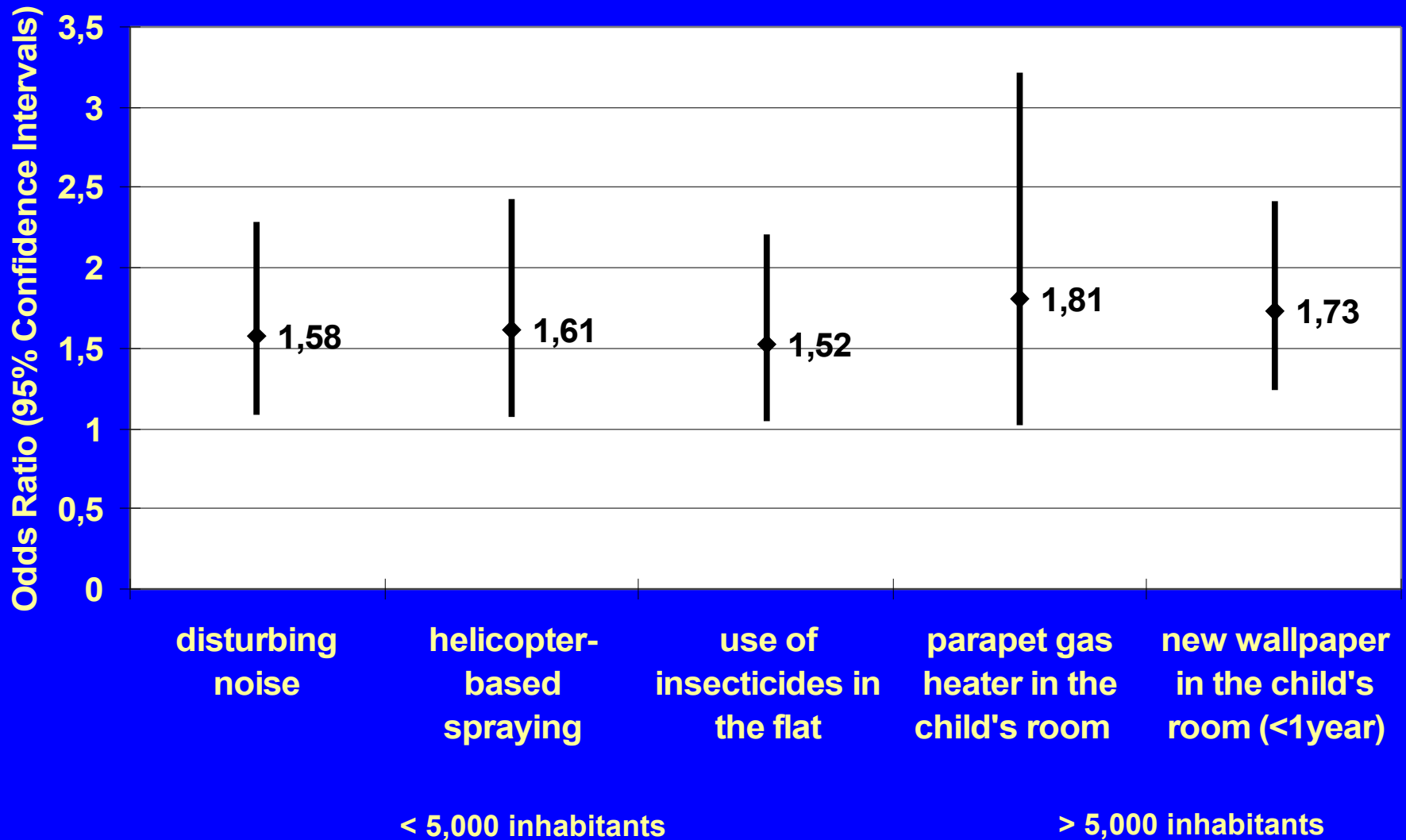
# Significant determinants of bronchitic symptoms in the home (N-Transdanubia)



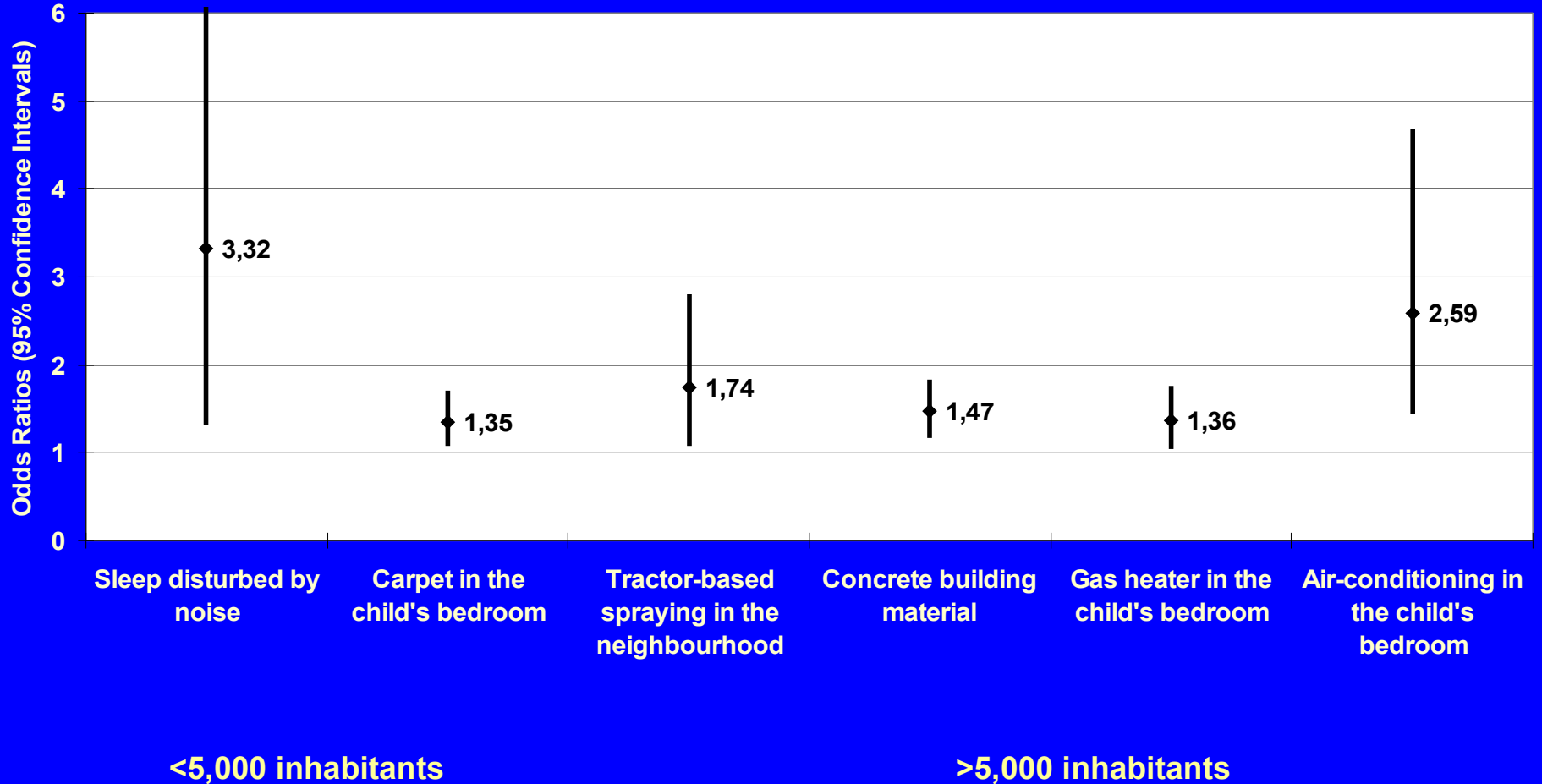
# Significant determinants of asthmatic symptoms in the home (N-Transdanubia)



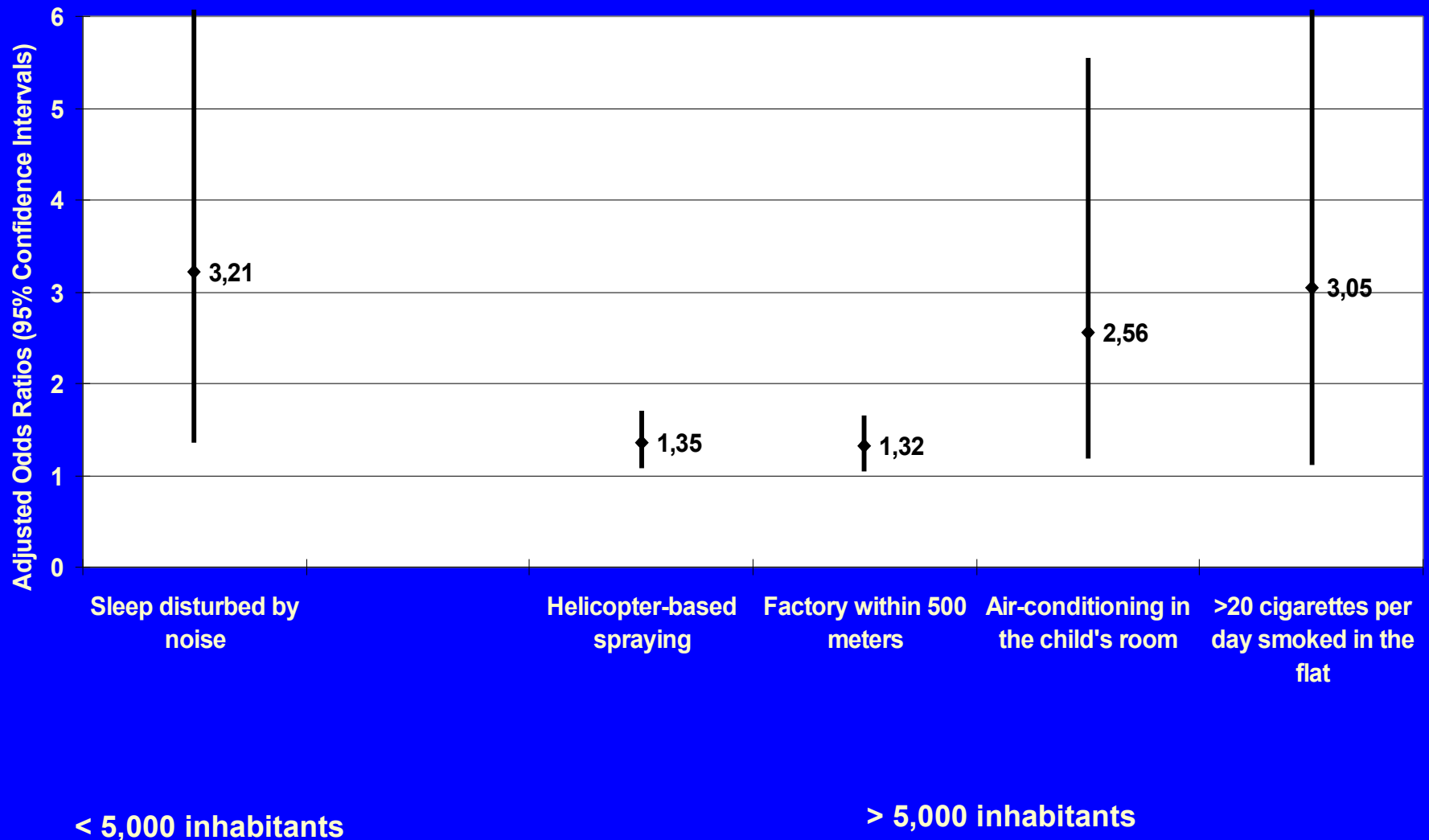
# Significant determinants of doctor-diagnosed asthma (N-Transdanubia)



# Significant determinants of allergic symptoms in the home (N-Transdanubia)



# Significant determinants of doctor-diagnosed allergy (N-Transdanubia)



# SUMMARY

- **Nation-wide overall prevalences of respiratory and allergic symptoms were assessed among school children**
- **Some factors in the home environment were found to be significant determinants of these symptoms in the North-Transdanubian Region, like**
  - **cooking and heating with coal and wood**
  - **living density, lack of children's bedroom**
  - **dump site, incinerator and industrial plant within 500 m**
  - **plastic floor cover, carpet and new wall-paper**
  - **outdoor and indoor use of pesticides**
  - **parapet gas-heater in the child's room**
  - **air-conditioning in the child's room**
  - **heavy smoking in the flat**
  - **dampness and mould growth**

# CONCLUSIONS

- **Education of the parents (to avoid ETS and pesticide use)**
- **Community action programmes (e.g. improved heating)**
- **Education of architects, engineers and other health professionals (for better design)**
- **Better regulation and control (e.g. building materials)**

**can help in the elimination of these risk factors from the home environment**

***Thank you  
for your attention***

