



## Children's asthma prevalence in Kaunas city

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### **ABSTRACT**

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**Aim:** To assess prevalence of asthma and its characteristic symptoms (shortness of breath, wheezing, attacks of shortness of breath, waking up at night, dry cough at night, prorogated and noisy exhalation during physical exercise) among children of different age in Kaunas city and change in prevalence over year 1994 – 2013.

**Exercises:** 1. Research prevalence and change in prevalence of asthma and its characteristic symptoms (1994 – 2013 year) among children of 6-7 and 13-14 years of age. 2. Assess difference in prevalence of asthma and its characteristic symptoms among boys and girls.

**Methods:** An anonymous survey of children 6-7 and 13-14 years of age was conducted in randomly chosen education institutions. There were 521 participants (250 boys and 271 girls) in 13-14 year group and 305 participants (145 boys and 160 girls) in 6-7 year group. An ISAAC (International Study of Asthma and Allergies in Childhood) questionnaire was used. Statistic analysis was performed using SPSS 17.0 software package. To test hypotheses of qualitative variables we used Chi square test. Prevalence of asthma in 13-14 year group grew from 2,1% in year 1994 to 3,3% in year 2002 and 5% in year 2013 ( $p<0,05$ ), in 6-7 year group – from 0,9% in year 1994 to 2,6% in year 2002 and 3,9% in year 2013 ( $p<0,05$ ). Manifestation of asthma symptoms in 6-7 year group: shortness of breath and wheezing grew from 12,2% in 2002 to 12,5% in 2013, attacks of shortness of breath grew from 5% in 2002 to 5,9% in 2013, waking up at night grew from 2% in 2002 to 2,6% in 2013, dry cough grew from 8,8% in 2002 to 8,9% in 2013, prorogated and noisy exhalation during physical activity grew from 3,2% in 2002 to 4,3% in 2013 ( $p<0,05$ ).

**Conclusions:** 1. Prevalence of asthma in 6-7 year group grew statistically significantly from 0,9% to 3,4% and in 13-14 year group from 2,1% to 5% over years 1994-2013. Prevalence of asthma symptoms grew in both age groups, but growth was statistically insignificant. Most common symptoms: shortness of breath and wheezing in 6-7 year group and prolonged exhalation during physical activity in 13-14 year group. In both age groups prevalence of asthma symptoms was greater in boys, but difference was statistically insignificant.

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## Introduction

There is some studies performed, in which authors claims that waste exposition and heavy metals can lead to respiratory diseases(1).

Asthma is a chronic inflammatory airway disease clinically characterized by recurring attacks of coughing, shortness of breath. It is a most common chronic lung disease in children. Epidemiologic and laboratory trial data show growth in prevalence of children's asthma all over the world in recent 3-4 decades (x).

## Aim

Assess prevalence of asthma and its characteristic symptoms (shortness of breath, wheezing, attacks of shortness of breath, waking up at night, dry cough at night, prorogated and noisy exhalation during physical exercise) among children of different age in Kaunas city and change in prevalence over year 1994 – 2013.

## Excercises

1. To find prevalence and change in prevalence of asthma and its characteristic symptoms (1994 – 2013 year) among children of 6-7 and 13-14 years of age.
2. To assess difference in prevalence of asthma and its characteristic symptoms among boys and girls.

## Methods

An anonymous survey of children 6-7 and 13-14 years of age was conducted in randomly chosen education institutions. There were 521 participants (250 boys and 271 girls) in 13-14 year group and 305 participants (145 boys and 160 girls) in 6-7 year group. An ISAAC (International Study of Asthma and Allergies in Childhood) questionnaire was used. Statistic analysis was performed using SPSS 17.0 software package. To test hypotheses of qualitative variables we used Chi square test. To compare low percent probabilities we used exact Fisher test. Data considered statistically significant when  $p < \alpha$  ( $\alpha = 0,05$ ).

## Results

We examined 250 boys and 271 girl in 13-14 year group, 145 boys and 160 girls in 6-7 year group. Prevalence of asthma in 13-14 year group grew from 2,1% in year 1994 to 3,3% in year 2002 and 5% in year 2013 ( $p < 0,05$ ), in 6-7 year group – from 0,9% in year 1994 to 2,6% in year 2002 and 3,9% in year 2013 ( $p < 0,05$ ). Manifestation of asthma symptoms in 6-7 year group: shortness of breath and wheezing grew from 12,2% in 2002 to 12,5% in 2013, attacks of shortness of breath grew from 5% in 2002 to 5,9% in 2013, waking up at night grew from 2% in 2002 to 2,6% in 2013, dry cough grew from 8,8% in 2002 to 8,9% in 2013, prorogated and noisy exhalation during physical activity grew from 3,2% in 2002 to 4,3% in 2013 ( $p < 0,05$ ). Manifestation of asthma symptoms in 13-14 year group: shortness of breath and wheezing grew from 12,2% in 2002 to 13,2% in 2013, attacks of shortness of breath grew from 5,4% in 2002 to 5,8% in 2013, waking up at night grew from 1,4% in 2002 to 1,5% in 2013, dry cough at night grew from 6,9% in 2002 to 7,3% in 2013, prorogated and noisy exhalation during physical activity grew from 14% in 2002 to 14,6% in 2013 ( $p < 0,05$ ). Compared 13-14 year boys and girls prevalence of asthma among boys grew from 3,5% in 2002 to 5,6% in 2013 ( $p < 0,05$ ), among girls from 3,1% in 2002 to 4,4% in 2013 ( $p < 0,05$ ). In 6-7 group asthma prevalence among boys grew from 3,5% in 2002 to 5,5% in 2013 ( $p < 0,05$ ), among girls from 1,7% in 2002 to 2,9% in 2013 ( $p < 0,05$ ).

## Conclusions

1. Prevalence of asthma in 6-7 year group grew statistically significantly from 0,9% to 3,4% and in 13-14 year group from 2,1% to 5% over years 1994-2013. Prevalence of asthma symptoms grew in both age groups, but growth was statistically insignificant. Most common symptoms: shortness of breath and wheezing in 6-7 year group and prolonged exhalation during physical activity in 13-14 year group.
2. In both age groups prevalence of asthma symptoms was greater in boys, but difference was statistically insignificant.

## Discussion

Some studies concludes that prevalence of asthma is lower in rural areas comparing with urban areas(2). Caregiver satisfaction during treatment is very important part.(3)There is weak hypothesis that primary care visits due to asthma attack can be associated with meteorological aspects.(4) Maternal asthma history can be strong risk factor in asthma occurrence in other generations.(5) Children asthma care measurements are performed to improve the quality of treatment.(6)

## Literature

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