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Title: Non-medical risk factors of underdiagnosis of childhood asthma in Upper Silesia, Poland

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Body: Background Our recent study of 4535 children aged 7-17 years in Upper Silesia (PL) yielded 186 cases (4.1%) of asthma diagnosed before the survey. Children without that diagnosis but with asthmatic symptoms were examined by a chest physician who found 44 new asthma cases. Objective The goal of the study was to identify non-medical factors that could explain why children with newly diagnosed asthma were not diagnosed in the past. Methods A case-control analysis included a group of 44 'new-asthma' children and a group of 184 children with asthma diagnosed in the past. Their parents answered questionnaires on socio-economic and family-related factors. Correlates of underdiagnosed asthma were explored using odds ratios and their 95% confidence intervals (logOR, 95%CI) yielded by logistic regression. Results New diagnoses were more frequent in younger children, who had less parental attention and who were not registered with specialized health care. Logistic regression included variables for which OR>1.5: age, gender, farm residence, parental education, asthma, chronic bronchitis, allergy in siblings, dampness in house, registration with specialized health care, distance to health center, economic standing, time spent with child. The following variables reached the criterion $p < 0.05$: age below 12 years – logOR = 3.59 (1.28-10.36), distance to health center > 5 km - logOR = 3.45 (95%CI: 1.05-11.36), time spent with child < 1 hour/day - logOR = 6.28 (95%CI: 1.98-19.91). Conclusion Among non-medical determinants of underdiagnosis of asthma low age of a child plays a major role. Other important factors were a large distance from home to health center and a low parental attention (time spent with child).