

predict disease severity in asthma. These results indicate that for most indoor allergens, allergen-specific IgE levels might be a marker of allergen exposure and disease burden.

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TOBACCO AND AIR POLLUTION

Smoke-Free Air Laws and Asthma Prevalence, Symptoms, and Severity Among Nonsmoking Youth

Dove MS, Dockery DW, Connolly GN. *Pediatrics*. 2011; 127(1):102-109

PURPOSE OF THE STUDY. To investigate the relationship between smoke-free laws and asthma prevalence, symptoms, and severity among nonsmoking children aged 3 to 15 years.

STUDY POPULATION. The data were obtained from the National Health and Nutrition Examination Survey 1999-2006 (NHANES).

METHODS. Survey sites were designated as having or not having at least 1 smoke-free work location, restaurant, or bar law at the county or state level that encompassed the entire county population. Asthma prevalence was assessed as self-reported current asthma and as ever having asthma with current symptoms. Asthmatic symptoms included persistent wheeze, chronic night cough, and wheeze-medication use. The authors also examined asthma severity defined by asthma episode or emergency department visit for asthma.

RESULTS. Smoke-free laws were significantly related with lower odds of asthma symptoms (odds ratio [OR]: 0.67 [95% confidence interval (CI): 0.48-0.93]) among nonsmoking youth. The relationship between smoke-free laws and ever having asthma with current symptoms trended to significance (OR: 0.74 [95% CI: 0.53-1.03]). Smoke-free laws were associated with lower odds of asthma episodes (OR: 0.66 [95% CI: 0.28-1.56]) and emergency department visits for asthma (OR: 0.55 [95% CI: 0.27-1.13]), but these outcomes were not statistically significant.

CONCLUSIONS. Smoke-free laws decrease asthma symptoms, including persistent wheeze, chronic nocturnal cough, and wheeze-medication use in youthful nonsmoking populations.

REVIEWER COMMENTS. This study was limited by the county-limited definition of smoke-free laws, which is only an estimate of individual exposure to secondhand tobacco

smoke outside the home. Misclassification of county smoke-free laws might not reflect individual exposure, and misclassification of current asthma is possible because self-reports were not validated by objective measures or clinical assessment. However, the findings of this study are consistent with those of other studies of secondhand smoke. In summary, the take-home message and conclusion of this important study is that smoke-free laws are associated with decreased exposure to secondhand smoke but equally with decreased respiratory symptoms as well.

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A Strong Synergism of Low Birth Weight and Prenatal Smoking on Asthma in Schoolchildren

Bjerg A, Hedman L, Perzanowski M, Lundbäck B, Rönmark E. *Pediatrics*. 2011;127(4). Available at: www.pediatrics.org/cgi/content/full/127/4/e905

PURPOSE OF THE STUDY. To study the independent and joint effects of prenatal smoking and low birth weight (LBW) on childhood asthma.

STUDY POPULATION. The study included asthmatic 11- to 12-year-old children in Sweden ($N = 3389$).

METHODS. Children were studied by questionnaire survey as part of the International Study of Asthma and Allergy in Childhood (ISAAC). A subset of 2121 children also underwent skin-prick testing.

RESULTS. Mean birth weight was 3360 g in children exposed to prenatal smoking and 3571 g in nonexposed children ($P < .001$). The association of prenatal smoking with physician-diagnosed asthma was stronger in LBW children (risk ratio: 8.8 [95% confidence interval: 2.1-38]) than in normal birth weight children (risk ratio: 1.3 [95% confidence interval: 1.0-1.8]). LBW alone was not an independent predictor of asthma.

CONCLUSIONS. There is a strong interaction of LBW and prenatal smoking on the risk of physician-diagnosed asthma, which is observed even after adjusting for known risk factors including allergic sensitization.

REVIEWER COMMENTS. This report highlights the observation that the combination of LBW and prenatal smoking increases the risk of physician-diagnosed asthma sixfold versus either LBW (no effect) or prenatal smoking (weak effect) alone. The authors speculated that smoke-induced oxidative stress in underdeveloped airways (caused by impaired fetal growth) might lead to increased asthma risk. In this regard, it has been shown that smoke exposure interacts with *ADAM33* polymor-

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