homes and sensitization to these allergens as a risk factor for developing asthma in urban neighborhoods. Asthma is the most common chronic childhood disease; thus, the findings from this study, that increased BMI is associated with increased risk of asthma, is additionally concerning because the rate of childhood obesity is increasing among our nation’s children.

**The Canadian Childhood Asthma Primary Prevention Study: Outcomes at 7 Years of Age**


**PURPOSE OF THE STUDY.** To evaluate the effects of a multifaceted intervention program involving high-risk infants on the development of asthma at 7 years of age.

**STUDY POPULATION.** Of the original 545 high-risk infants in the Canadian Childhood Asthma Primary Prevention Study, 380 were evaluated at 7 years of age. Infants at high risk for asthma development were defined as those with at least 1 first-degree relative with asthma or 2 first-degree relatives with other immunoglobulin E–mediated allergic diseases.

**METHODS.** The initial 545 high-risk infants were randomly assigned before birth to a multifaceted intervention group (n = 279) or the control group (n = 266). The multifaceted intervention program, which was implemented before birth and during the first year of life, included house dust mite–control measures, pet-avoidance measures, avoidance of environmental tobacco smoke, breastfeeding, and/or using partially hydrolyzed whey formula. This study describes the follow-up assessment of 380 subjects at 7 years of age who completed a questionnaire and were evaluated by a pediatric allergist for asthma. Allergy skin testing and methacholine challenge were also performed.

**RESULTS.** A significantly lower number of subjects had pediatric allergist–diagnosed asthma in the intervention group (14.9%) than in the control group (23.0%; adjusted relative risk [RR]: 0.44). The prevalence of asthma, defined as wheeze plus bronchial hyperreactivity (methacholine challenge), was also significantly lower in the intervention group when compared with the control group (12.9% vs 25%, respectively; adjusted RR: 0.39). There was no significant difference in the diagnosis of allergic rhinitis or atopic dermatitis, allergen skin-test reactivity, or bronchial hyperreactivity alone between the 2 groups. Symptoms of wheeze and wheeze apart from colds in the last 12 months were significantly lower in the intervention group compared with the control group. There were no significant differences in nocturnal symptoms, exercise-related symptoms, medication use, emergency visits for wheeze, nasal symptoms, or skin rash.

**CONCLUSIONS.** Asthma and allergic diseases likely result from a combination of environmental and genetic factors. This study showed that the prevalence of asthma was decreased after an intervention program implemented early in life. Thus, recommending environmental controls as a safe method to decrease the risk of developing asthma in high-risk patients is reasonable. It is unclear from this study whether a specific environmental control or a combination of interventions is more effective. It is interesting that no difference was noted in the prevalence of allergic rhinitis or atopic dermatitis between the groups, which, theoretically, could also be affected by environmental controls.

**The PREVASC Study: The Clinical Effect of a Multifaceted Educational Intervention to Prevent Childhood Asthma**


**PURPOSE OF THE STUDY.** To evaluate the clinical effectiveness of a multifaceted education intervention to prevent childhood asthma.

**STUDY POPULATION.** General practitioners recruited 476 high-risk children during the prenatal period.

**METHODS.** These high-risk children were randomly assigned to either a control group, receiving usual care, or an intervention group, in which families received instruction from nurses on how to reduce exposure of newborns to dust mite, pet, and food allergens and passive smoking.

**RESULTS.** A total of 443 infants were followed up for 2 years. At 2 years of age, those in the intervention group (n = 222) had less asthma-like symptoms, including wheezing, shortness of breath, and nighttime cough, compared with those in the control group (n = 221). No significant differences in total and specific immunoglobulin E were found between the groups. During the first 2 years of life, the incidence of asthma-like symptoms was similar in both groups; however, subanalysis revealed a significant reduction in the females but not in the males in the intervention group.

**CONCLUSIONS.** The intervention used in this study was not effective in reducing asthma-like symptoms in high-risk
children during the first 2 years of life, although it was modestly effective at 2 years. Follow-up is necessary to confirm whether the intervention can actually prevent the development of asthma.

**REVIEWER COMMENTS.** This is a well-designed study in a primary care environment to investigate the clinical effectiveness of a multifaceted approach to prevent the development of asthma in high-risk children. It seemed that the intervention was moderately able to reduce exposure to dust mite, pet, and food allergens, but no significant effect was observed on parentally observed symptoms or allergen-specific immunoglobulin E in the first 2 years of life. Perhaps a more focused intervention or longer follow-up period would have proven more useful. The effectiveness of a variety of multifaceted randomized intervention trials on asthma prevention has yet to be determined. Although a host of epidemiologic studies have helped identify risk factors, we will all be interested in determining whether any practical interventions may be promising in preventing asthma development.

**URL:** www.pediatrics.org/cgi/doi/10.1542/peds.2006-0900P

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**Asthma in Remission: Can Relapse in Early Adulthood Be Predicted at 18 Years of Age?**


**PURPOSE OF THE STUDY.** To determine the frequency of asthma relapse in young adults in remission at 18 years over an 8-year follow-up period and to determine possible prognostic indicators of relapse.

**STUDY POPULATION.** A subset of 68 subjects in asthma remission at 18 years of age from a cohort of 1037 subjects born in New Zealand from 1972 to 1973 followed from birth through the Dunedin Multidisciplinary Health and Development Study.

**METHODS.** The cohort was enrolled at 3 years old and followed every 2 years until age 15 and again at ages 18, 21, and 26. Subjects were given respiratory questionnaires and lung-function assessment by spirometry. Methacholine testing for bronchial hyperreactivity was performed at 9, 11, 13, 15, and 21 years of age in some. Atopy was assessed by skin tests at ages 13 and 21 years. Remission of asthma at 18 years was defined as no current symptoms with previous reported symptoms at ≥2 previous assessments.

**RESULTS.** At 18 years of age, there were 108 subjects with current asthma and 68 subjects with previous asthma in remission. Those in remission at age 18 had a later age of onset of asthma (6.4 ± 4.5 vs 4.7 ± 4 years for current asthma) and had better lung function. Those with current asthma at age 18 were more atopic at age 18, with higher skin-test reactivity for house dust mite and cat. They had higher bronchial hyperreactivity by methacholine at all age points between 9 and 18 than their counterparts in remission. Of the 68 subjects in remission at age 18, 44 remained in remission and 24 relapsed by age 26. Multiple logistic-regression analysis identified dust mite sensitization at age 13 (odds ratio [OR]: 2.63; 95% confidence interval [CI]: 1.23–5.61) and decreased forced expiratory volume in 1 second/forced vital capacity ratio at age 18 (OR: 0.9 per 1% higher ratio; 95% CI: 0.81–0.99). Those with better lung function had lower likelihood of asthma relapse by 16 years of age. Variables such as methacholine reactivity and tobacco smoking were not significant predictors.

**CONCLUSIONS.** Approximately one third of young adults with a history of asthma in childhood in remission at 18 years of age will relapse by 26 years of age. Most will have mild disease at relapse. There were weak associations with atopy and lower lung function at a young age as predictors of asthma relapse.

**REVIEWER COMMENTS.** Families often ask if their child will “outgrow” asthma. This study was consistent with other studies in finding that approximately one third of those in remission may have relapse, but the factors found by other groups as potential predictors such as atopy, lower lung function, and tobacco smoking were not as strong.

**URL:** www.pediatrics.org/cgi/doi/10.1542/peds.2006-0900Q

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**Adult Asthma Severity in Individuals With a History of Childhood Asthma**


**PURPOSE OF THE STUDY.** Childhood asthma has a range of outcomes in adulthood. This study sought to identify clinical features and exposures associated with persistence and severity of childhood asthma in adulthood.

**STUDY POPULATION.** Subjects had been previously enrolled in the Childhood Asthma Study, a double-blind, randomized, placebo-controlled trial designed to study the role of immunotherapy as an adjunct treatment. The 121 original study members, aged 5 to 12 years at the time of randomization, had moderate-to-severe asthma and had been followed for at least 1 year before enrollment. Evaluations performed during the original study included daily medication-symptom diaries, home allergen analysis, allergy skin testing, and methacholine challenges. The cohort had varied socioeconomic status, genders, and ethnicities. For this study an attempt was made to enroll all original participants.
The Canadian Childhood Asthma Primary Prevention Study: Outcomes at 7 Years of Age
Rajiv Arora and Cecilia P. Mikita
*Pediatrics* 2006;118;S9
DOI: 10.1542/peds.2006-0900O

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