Results. Of the 5181 adult members with asthma enrolled in the health maintenance organization, 30% indicated dissatisfaction with current treatment. Dissatisfaction was higher among patients with a higher number of asthma control problems, patient-provider communication problems, or belief in medication problems (eg, failure to believe their medications are useful and inability to take asthma medications as directed). The odds of dissatisfaction with treatment were 2.8 (95% confidence interval [CI]: 2.4–3.3; \( P < .001 \)) for asthma control problems, 2.0 (95% CI: 1.6–2.6; \( P < .001 \)) for communication problems, and 8.0 (95% CI: 6.7–9.5; \( P < .001 \)) for belief in medication problems compared with patients without these perceived problems.

Conclusion. Patient dissatisfaction with treatment may be related to important asthma disease management issues.

Reviewer’s Comments. The study did not distinguish those patients treated by specialists or primary care physicians. Nonetheless, the results also suggest that patients with more severe asthma are least satisfied with their care. However, most patients did not have basic treatment information, overused rescue medications, had regular nocturnal symptoms, and limitations in their activities. Sounds like they weren’t being well-managed.

Allen Adinoff, MD
Aurora, CO

QUALITY OF CARE AND OUTCOMES OF ADULTS WITH ASTHMA TREATED BY SPECIALISTS AND GENERALISTS IN MANAGED CARE


Purpose of the Study. The growth of managed health care in the United States has been accompanied by controls on access to specialty physician services. We examined the relationship of physician specialty to treatment and outcomes of patients with asthma in managed care plans.

Study Population and Methods. We conducted a mail survey of adult asthma patients who were enrolled in 12 managed care organizations and had at least 2 contacts for asthma (International Classification of Diseases, Ninth Revision, Clinical Modification code 493.x) during the previous 24 months; we also surveyed their treating physicians. This report concerns 1954 patients and their 1078 corresponding physicians. Treatment indicators included use of corticosteroid inhalers, use of peak flow meters, allergy evaluation, discussion of triggers, and patient self-management knowledge. Outcome measures included canceled activities, hospitalization or emergency department visits, asthma attacks, work days lost, asthma symptoms, physical and mental health, overall satisfaction with asthma care, and satisfaction with communication with physicians and nurses.

Results. Significant differences were noted for patients of specialists and experienced generalists compared with those of generalist physicians. Peak flow meter possession was reported by 41.9% of patients of generalists, 51.7% of patients of experienced generalists, and 53.8% of patients of pulmonologists or allergists. Compared with patients of generalists, outcomes were significantly better for patients of allergists with regard to canceled activities, hospitalizations and emergency department visits for asthma, quality of care ratings, and physical functioning. Patients of pulmonologists were more likely to rate improvement in symptoms as very good or excellent.

Conclusion. In a managed health care setting, physici ans’ specialty training and self-reported expertise in treating asthma were related to better patient-reported care and outcomes.

Reviewer’s Comments. We’ve seen this sort of stuff before. The twist here is the asthma care provided by physicians with “self-reported expertise” in addition to specialists. This suggests that primary care physicians who are willing to gain knowledge in asthma care and devoted the necessary time required, can achieve outcomes similar to specialists.

Allen Adinoff, MD
Aurora, CO

MATERNAL DEPRESSIVE SYMPTOMS AND EMERGENCY DEPARTMENT USE AMONG INNER-CITY CHILDREN WITH ASTHMA


Purpose of the Study. Inner-city minority children with asthma use emergency departments (EDs) frequently. This study examines whether maternal depressive symptoms are associated with this increased ED use.

Study Population. Children in kindergarten to fifth grade from inner-city schools in Baltimore and Washington, DC, were eligible for enrollment in the study. Children from these schools were eligible if they had an asthma diagnosis listed on their health records and their mothers reported that they had 1) asthma diagnosed by a physician, 2) day or night asthma symptoms, including wheezing, shortness of breath, and/or a cough at least once a week during the past 2 weeks, and/or 3) at least 1 visit for asthma to the ED in the previous 6 months or 1 overnight hospitalization for asthma in the previous year. Ninety-eight percent of the children were African American. One hundred fifty-eight of 338 respondents participated in both the baseline and follow-up surveys.

Methods. Telephone surveys were conducted at baseline and 6 months to evaluate ED use relative to child and maternal measures. The primary outcome measure was the number of ED visits (that did not result in hospitalization) reported by the mother between the baseline and 6-month follow-up interview. Independent variables evaluated included asthma morbidity, maternal age, maternal depressive symptoms (as measured by the Center for Epidemiologic Studies–Depression Scale), and other psychosocial data.

Results. Among mothers, nearly half reported significant levels of depressive symptoms. There were no demographic or asthma-related differences between the children of mothers with high and low depressive symptoms. However, in bivariate analyses, mothers with high depressive symptoms were more likely (\( \text{PR} = 2.1 \); \( P = .02 \)) to report ED use, as were children with high morbidity (\( \text{PR} = 1.9 \); 95% CI: 1.4–7.1; \( P = .006 \)). Child age and family income were not predictive of ED use. After controlling for asthma symptoms and mother’s age, mothers with depressive symptoms were still 30% more likely to report ED use.

Conclusions. Depression is common among inner-city mothers of children with asthma. Beyond asthma morbidity, maternal age and depressive symptoms are strong predictors of reports of ED visits. Identifying and addressing poor psychological adjustment in mothers may reduce
unnecessary ED visits and optimize asthma management among inner-city children.

**Reviewers’ Comments.** As our understanding of the pathophysiology of asthma improves and as more maintenance medications for asthma become available, most children with asthma should be able to be managed in an outpatient setting with few hospital admissions and ED visits. However, as this study once again demonstrates, we must always evaluate children with chronic illnesses in the context of their social settings. At-risk children who are seen frequently in EDs must be identified, evaluated, and followed by multidisciplinary teams, including social workers and psychologists. Only by addressing those issues that decrease adherence with medication regimens and increase ED visits and morbidity will we be successful in providing the highest quality of care to these children and, in the long run, reducing costs.

**Kelly D. Stone, MD, PhD**  
**Lynda C. Schneider, MD**  
**Boston, MA**

**ENVIRONMENTAL ALLERGENS**

**COCKROACH ALLERGY APPEARS EARLY IN LIFE IN INNER-CITY CHILDREN WITH RECURRENT WHEEZING**


**Purpose of the Study.** Children living in the inner-city are at greater risk for asthma morbidity secondary to chronic exposure to indoor allergens, particularly including cockroach. This study evaluated the hypothesis that cockroach sensitization occurs early in life in inner-city children with recurrent wheezing.  

**Study Population.** A total of 196 inner-city children from the ages of 6 months to 16 years who were seen between January 1995 and September 1997 at the Cook County Hospital Pediatric Allergy Clinic. Patients were assigned to 1 of 2 age groups, <4 years and 4 to 16 years. A total of 69.0% were African American, 26.5% were Hispanic, 1% were Caucasian, and 2.5% were of other ethnicity. Sixty-three of the 196 were <4 years old.  

**Methods.** A retrospective review of charts was conducted. All patients had had prick skin tests to cockroach and dust mite and some were also tested to cat and dog. The children in the older age group had also been tested for other standard aeroallergens. Parents were asked to fill out a questionnaire regarding the presence of cockroaches in the home environment.

**Results.** A total of 15 (24%) of the 63 children in the group <4 years old had a positive prick skin test to cockroach. The youngest patient with a positive test result was 6 months old. Eight (13%) of the 63 patients had a positive skin test to dust mite. Thirty-five of the 63 were tested for cat and dog and 11% were positive to each. In the older age group, 95 (71%) of the 133 children were sensitized to cockroach and 87 (65%) were sensitized to dust mite. Monosensitization was more prevalent in the younger group, with 21.4% of the younger group versus 7.5% of the older age group being monosensitized to cockroach.

**Conclusion.** Sensitization to cockroach in inner-city children with asthma can occur early in life and may contribute to wheezing.

**Reviewers’ Comments.** The weakness of this study is that it did not include any objective measure of cockroach exposure. Nevertheless, it does clearly demonstrate the ability of some children to become sensitized to environ-

mental allergens very early in life. In addition to the obvious contribution that this may have on asthma morbidity, it also raises the possibility that efforts to reduce cockroach exposure in high-risk infants might have preventive effects on the development of asthma.

**SALLY H. JOO, MD**  
**ROBERT A. WOOD, MD**  
**BALTIMORE, MD**

**CLINICAL IMPORTANCE OF ALTERNARIA EXPOSURE IN CHILDREN**


**Purpose of the Study.** To investigate the extent to which exposure to Alternaria increases the severity of asthma.

**Study Population.** The study included 399 children from 2 inland Australian rural towns. All those children who had a positive skin test to the mold Alternaria were enrolled (n = 179) and random samples of children from each town who were allergic, but not to Alternaria, were recruited as the allergic control group. The average age of the children in both groups was 9.1 years.

**Methods.** This was a prospective cohort study. The 2 groups of children were assessed 5 times over 22 months. Questionnaires were used asking about respiratory symptoms in the month before the assessment. Airway hyperresponsiveness was assessed with histamine provocation challenges. The dose-response ratio (DRR) was used to measure the level of airway responsiveness and airway hyperreactivity (AHR) was defined as a 20% drop in forced expiratory volume in 1 second (FEV1) at or before the maximum provocation dose. Mold spores were measured throughout the study period. Four respiratory outcomes were used: DRR, AHR, wheeze, and bronchodilator use.

**Results.** There was a wide range of mold concentrations, from an average low of 2.2 spores/cubic meter of air/day to an average maximum of 307.7 spores/cubic meter/day. The highest count was 1270 spores. These mold spore counts correlated with increased temperature and grass pollen counts. Those children who had sensitization to Alternaria also had increased sensitization to another mold, Cladosporium, mixed grain, and cat dander. Sensitization to dust mites was less common in those sensitive to Alternaria. Children who were sensitive to Alternaria were more likely to have airway hyperresponsiveness. The presence of AHR was also significantly associated with mold spore concentrations. The odds ratio for AHR at a level of 100 mold spores was 1.26. The level of airway hyperresponsiveness or DRR was significantly associated with sensitization to Alternaria and to the concentration of the spore in the air. The odds ratio at 100 spores was 1.14. The proportion of children with complaints of wheeze and the number of children who needed to use a bronchodilator increased with increasing mold concentration.

**Conclusion.** The severity of airway hyperresponsiveness increased with increasing Alternaria spore concentrations more significantly in those children who were sensitized to Alternaria.

**Reviewers’ Comments.** Molds are a current topic of great concern. In the media, there are frequent reports of how molds are affecting health. This article, as the author states, is the first study to look at the effects of natural exposure to Alternaria in both sensitized and nonsensitized children using an objective measure of airway hyperreactivity. The authors used a population of children who were skin test-sensitive to mold and assessed exposure and a variety of
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Kelly D. Stone and Lynda C. Schneider

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