0.98]) compared with white children. Black children in all age categories were more likely to have filled any prescription for inhaled corticosteroids compared with white children (ranging from an OR of 1.11 [95% CI: 1.02–1.21] to 1.11 [95% CI: 1.04–1.19]).

CONCLUSIONS. Despite universal health insurance coverage offered through the MHS, the authors found evidence of racial and ethnic differences in asthma prevalence, treatment, and outcomes.

REVIEWER COMMENTS. This study corroborates the presence of racial and ethnic disparities in asthma within a cohort offered universal health care coverage. Black children were not only more likely to be diagnosed with asthma, but they were also found to have poorer control of asthma. It was surprising that black children were also more likely to have filled prescriptions for inhaled steroids compared with white children. The authors suggested that the higher rates of filled prescriptions might be attributed to the higher likelihood of receiving these prescriptions for asthma medications during and after emergency department visits and/or hospitalizations. Actual use and administration of these medications were not evaluated. The study's findings suggest that eliminating racial and ethnic disparities in health care likely requires a multifaceted approach beyond universal health insurance coverage.

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Status of Asthma Control in Pediatric Primary Care: Results From the Pediatric Asthma Control Characteristics and Prevalence Survey Study (ACCESS)

Liu AH, Gilesenan AW, Stanford R, Lincourt W, Ziemiecki R, Ortega H. *J Pediatr.* 2010;157(2):276–281

PURPOSE OF THE STUDY. To determine the prevalence of uncontrolled asthma by using validated instruments in a representative sample of pediatric primary care offices.

STUDY POPULATION. Patients were recruited from pediatric outpatient offices across the United States. Eligible patients for this study included children who were between the ages of 4 and 17 years, had a history of asthma as diagnosed by a heath care provider, used an asthma medication in the previous year, and were able to read, write, and comprehend English.

METHODS. This was a multisite cross-sectional study of patients with asthma who visited a pediatric health care provider for any reason between January and May 2008. The questionnaires given to the patients included the Childhood Asthma Control Test (C-ACT) for those between the ages of 4 and 11 years and the Asthma Control Test (ACT) for those between the ages of 12 and 17 years. Uncontrolled asthma was defined as a C-ACT or ACT score of <19. Each visit was also classified as either respiratory- or non–respiratory-related.

RESULTS. The overall prevalence of uncontrolled asthma was 46% (35% in patients with nonrespiratory complaints and 54% among those seen for a respiratory complaint). For patients evaluated for respiratory reasons, more children with uncontrolled asthma had missed ≥ 1 school day in the previous 4 weeks because of asthma (67% vs 29%; $P < .0001$). For patients seen for nonrespiratory reasons, more children with uncontrolled asthma had missed ≥ 1 day of school in the previous 4 weeks (53% vs 24%; $P < .0001$).

CONCLUSIONS. The number of missed school and work days resulting from uncontrolled asthma was not only greater for patients seen in a pediatric office for respiratory-related issues but also for non–respiratory-related reasons. This result highlights the burden and impact of uncontrolled asthma seen in all patients in pediatric clinics. Providers should consider evaluating asthma control on a regular basis regardless of the reason for the visit.

REVIEWER COMMENTS. The ACT and C-ACT tools were designed to use only for children already diagnosed with asthma. The cutoff score of ≤ 19 is not an absolute indicator of uncontrolled asthma but should serve to alert the provider that asthma might not be well controlled. A report of using C-ACT scores to identify children with very poorly controlled asthma has been published previously (*J Allergy Clin Immunol*. 2010;126[2]:267–273).

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Translation of a Pediatric Asthma-Management Program Into a Community in Connecticut

Cloutier MM, Wakefield DB. *Pediatrics.* 2011;127(1): 11–18

PURPOSE OF THE STUDY. National Asthma Education and Prevention Program (NAEPP) guidelines have been widely disseminated, but their adoption by primary care clinicians has been problematic. This study evaluated an asthma-management program based on NAEPP guidelines.

STUDY POPULATION. Children aged 6 months or older in Connecticut were enrolled in community pediatric offices by trained community personnel.

METHODS. Pediatric office health care providers and personnel in 6 Connecticut communities were trained in an asthma-management program entitled "Easy Breathing," which was based on NAEPP guidelines. Quality parameters encompassed enrollment census, relevant use of anti-inflammatory medications, and provision of a written action plan. Utilization of medical services was confirmed for Medicaid-covered children and compared by using relative rates and 95% confidence intervals (CIs) before and after enrollment.

RESULTS. There were 51 practices and 297 health care providers who enrolled 32 680 children from 2002 to 2007; 10 467 of these children had asthma according to history, 4354 of whom were insured by Medicaid. Children with persistent asthma according to history had a decline in the number of hospitalizations (relative rate: 0.51 [95% CI: 0.39–0.65]) and emergency department encounters (relative rate: 0.70 [95% CI: 0.68–0.84]) but no decline in the number of outpatient visits (relative rate: 0.99 [95% CI: 0.9–1.10]). The use of inhaled corticosteroids doubled with an increment in relevant utilization of anti-inflammatory medications to 96%, and a written action plan was provided to 94% of enrolled children with asthma.

CONCLUSIONS. The authors concluded that general pediatricians can effectively institute an asthma-management program, using NAEPP guidelines, that enhances asthma care for a large population of children.

REVIEWER COMMENTS. The limitations of this study that affect its generalizability were (1) claims data were only available for Medicaid-insured children, (2) the intermittent character of state funding, and (3) the fact that both the number of outpatient visits and the filled-prescription rate were low. Therefore, the actual number of children who both filled prescriptions and received them is unknown. However, these results indicate that a disease-management program for pediatric asthma can be implemented successfully in a community pediatric setting with a subsequent significant decrease in the number of hospitalizations and emergency department visits in a large Medicaid-insured population of children.

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Genetic Variations in Nitric Oxide Synthase and Arginase Influence Exhaled Nitric Oxide Levels in Children

Salam MT, Bastain TM, Rappaport EB, et al. *Allergy*. 2011;66(3):412–419

PURPOSE OF THE STUDY. Elevated fractional exhaled nitric oxide (FeNO) has been shown to be a sensitive biomarker for airway inflammation in children with asthma. This study examined whether a relationship could be demonstrated between genetic variants in nitric-oxide synthase and arginase genes and FeNO in asthma.

STUDY POPULATION. Subjects aged 5 to 7 years were recruited from 13 Southern California communities for a Children's Health Study cohort established in 2003. Although FeNO data were available irrespective of race/ethnicity, genetic data were only available from Hispanic and non-Hispanic white children, and data from 2773 children were available for the combined analysis.

METHODS. FeNO measurements were made with breath-sample collections that followed American Thoracic Society guidelines and took place in 2 consecutive school years. Variations in 5 genetic loci were characterized by tag single-nucleotide polymorphisms. Repeated-measures analysis of variance was used to evaluate the association between these genetic variants and FeNO.

RESULTS. Sequence variations in the *NOS2A* and *ARG2* loci were globally associated with FeNO ($P = .0002$ and 0.001, respectively) but in opposite directions regarding FeNO levels. The *ARG2* association was tagged by intronic variant rs3742879 with stronger association with lower FeNO levels. The directional change noted between FeNO levels and the above-mentioned genetic variants was more pronounced in the children with asthma than in those without asthma.

CONCLUSIONS. Variants in the nitric-oxide synthesis pathway genes jointly contribute to the differences in FeNO concentrations. Some of these genetic influences were stronger in children with asthma. Further studies are required to confirm these findings.

REVIEWER COMMENTS. Exhaled nitric oxide has become a more widely used tool in asthma patient care and clinical research settings. This report points out that there are genetic variants that could influence the interpretation of FeNO results. More studies are needed to determine the potential role of these genetic variants in the pathogenesis of asthma.

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MEDICAL THERAPIES

Leukotriene Antagonists as First-Line or Add-on Asthma-Controller Therapy

Price D, Musgrave SD, Shepstone L, et al. *N Engl J Med*. 2011;364(18):1695–1707

PURPOSE OF THE STUDY. To evaluate the real-world efficacy of leukotriene-receptor antagonists (LTRAs) for the

Translation of a Pediatric Asthma-Management Program Into a Community in Connecticut

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