ticular ages in early life is predictive of abnormal pulmonary function (airway hyperreactivity [AHR] and percentage of predicted forced expiratory volume in 1 second [FEV₁]) and current asthma at age 6 to 7 years.

STUDY POPULATION. The Childhood Allergy Study is an ongoing study evaluating environmental determinants of childhood allergies and asthma. An unselected birth cohort consisting of 835 term infants born to women >18 years of age belonging to a health maintenance organization in the suburban Detroit, Michigan, area between 1987 and 1989 was followed prospectively with annual interviews through age 6 to 7 years. The children were then seen in the clinic for further evaluation at age 6 to 7 years. Ninety-three percent of the children were born to mothers who identified themselves as white.

METHODS. Current asthma was defined as ever having a physician diagnosis of asthma and symptoms of asthma or use of asthma medication in the previous year. Spirometry and methacholine challenge were performed during the clinic visit at 6 to 7 years of age. The provocative concentration of methacholine causing a 20% decrease in FEV₁ was considered abnormal at <16 mg/mL. Methacholine challenge and spirometry results for children with current asthma were excluded from analysis.

RESULTS. Age-specific wheeze incidence according to parental report was highest at age 1 year (27.2%). The second highest incidence was at age 6 years (13.4%). Wheeze incidence was higher for boys than for girls at all ages (1–6 years), and the 6-year cumulative incidence of wheezing was higher for boys than for girls (66.2% vs 47.6%). At age 6 to 7 years, 7.3% of the children had current asthma (boys: 10.3%; girls: 4.5%). Abnormal AHR was seen in 35.7% of patients without current asthma at age 6 to 7 years, compared with 75% of those with current asthma. The percentage of predicted FEV₁ was normal in all children but was higher in those without current asthma (94.5%) than in those with current asthma (87.9%). Wheezing at ≤3 years (early wheeze) was not associated with current asthma at age 6 to 7 years in either boys or girls. Wheezing at >4 years (late wheeze) was associated with current asthma at age 6 to 7 years. Neither early nor late wheezing was associated with abnormal AHR or percentage of predicted FEV₁ at age 6 to 7 years. History of childhood eczema or parental asthma and cord blood immunoglobulin E levels did not affect any of the associations.

CONCLUSIONS. Wheezing in the first 3 years was not associated with current asthma at age 6 to 7 years and was not associated with AHR or FEV₁ at age 6 to 7 years.

REVIEWER COMMENTS. The data from this unselected cohort are similar to those seen in the United States (Tucson Children’s Respiratory Study) and Europe, with the lack of association of wheeze in early childhood with subse-quent asthma. The Tucson study determined that certain characteristics of atopy in the child and atopy and asthma in the parents were predictive of subsequent asthma, which led to the development of the Asthma Predictive Index. In the current study, cord blood immunoglobulin E levels, childhood eczema, and parental asthma history did not affect the negative associations of wheezing in the first few years with subsequent development of asthma. Wheezing at >4 years was associated with current asthma at age 6 to 7 years.

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Seasonal Patterns in Health Care Use and Pharmaceutical Claims for Asthma Prescriptions for Preschool- and School-Aged Children

PURPOSE OF THE STUDY. The goal of the study was to determine how seasonal patterns of asthma medication prescription claims relate to seasonal patterns of asthma-related health care use (outpatient visits, emergency department visits, and hospitalizations) for children.

STUDY POPULATION. Data were collected for preschool-aged children (2–5 years of age) and school-aged children (6–12 years of age).

METHODS. An ecological analysis of data from insurance claims records from 2002 through 2004 was conducted with a large US health care plan (United Healthcare) database. Patterns of health care use and estimates of prescription asthma controller and reliever use were determined. Controller medications were defined as inhaled corticosteroids, leukotriene receptor antagonists, and long-acting β₂-adrenergic receptor agonists. Reliever medications were defined as short-acting β₂-adrenergic receptor agonists only. Rates were constructed by week; deviations from annual mean rates were used to determine peaks in use.

RESULTS. Rates of emergency department visits, outpatient visits, and hospitalizations were lowest during summer months; rates increased beginning in September, peaking in October or November. Asthma controller and reliever medication claims increased beginning in September, peaking in December.

CONCLUSIONS. The data suggest that children who reduce their asthma medications during the summer do not resume taking asthma medications until symptoms of asthma worsen. The summer hiatus and other factors may contribute to seasonal increases in health care use.
and in asthma medication prescriptions, particularly in the autumn.

REVIEWERS COMMENTS. It has been established that asthma-related health care use has a seasonal pattern, with a peak at the start of the school year. The authors found that, coincident with increased health care use, there is an increase in prescription claims for asthma medications. The authors hypothesize that this may be because a summer medication hiatus is taken. Although this is an intriguing possibility, additional study needs to be performed to determine support for a causal relationship, because many seasonal factors play an important role in asthma exacerbations and rates of new asthma diagnoses. For patients with established asthma, controller medication claims should remain relatively steady throughout the year if the medications are being used on a chronic basis. The fact that there are peak periods when more claims for controller medications are filed supports the possibility that the medications are being prescribed in this manner or patients are using the controller medications on an as-needed basis. However, it is not surprising that reliever medication claims demonstrate a seasonal pattern. Limitations of the study are that this database represents only an insured population and it is not possible to determine actual use (or adherence to a prescribed regimen) of prescription medications from these data.

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Management of Asthma Based on Exhaled Nitric Oxide in Addition to Guideline-Based Treatment for Inner-City Adolescents and Young Adults: A Randomised Controlled Trial

PURPOSE OF THE STUDY. To determine whether the use of exhaled nitric oxide (NO) measurements to modify asthma treatment regimens improves asthma control when used as an adjunct to management based on national asthma care guidelines.

STUDY POPULATION. A randomized, double-blind, parallel-group trial at 10 centers in the United States monitored a total of 546 inner-city subjects, 12 to 20 years of age, with poorly controlled asthma.

METHODS. Physician assessment was performed every 6 to 8 weeks for 46 weeks, during which patients were evaluated for asthma symptoms, pulmonary function, and exhaled NO, a marker of airway inflammation. At each visit, treatment was stepped up or down on the basis of the National Asthma Education and Prevention Program (NAEPP) asthma care guidelines for the control group or the NAEPP guidelines plus measurements of fraction of exhaled NO (FeNO) for the NO group.

RESULTS. There was no difference between the control group and the NO group with respect to asthma symptoms, pulmonary function, or asthma exacerbations. By the end of the study, patients in the NO group were receiving higher doses of inhaled corticosteroids (difference in fluticasone doses: 119 µg; P = .001) than those in the control group, with a greater number receiving long-acting β₂-adrenergic receptor agonists. Adverse events did not differ between the treatment groups.

CONCLUSIONS. The addition of FeNO as an indicator of asthma control resulted in higher doses of inhaled corticosteroids, without clinically important improvements in symptomatic asthma control.

REVIEWERS COMMENTS. Because asthma symptoms and exacerbations are linked to underlying airway inflammation, it seems that using measurements of biomarkers that are indicators of airway inflammation (FeNO) to direct asthma management would improve asthma control. However, this study showed that use of current NAEPP guidelines for asthma treatment alone provided good asthma control for inner-city adolescents and young adults. The addition of FeNO measurements resulted in higher doses of inhaled corticosteroids and long-acting β₂-adrenergic receptor agonists, without producing additional improvements in asthma symptoms, lung function, or need for health care.

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MEDICAL THERAPIES

Episodic Use of an Inhaled Corticosteroid or Leukotriene Receptor Antagonist in Preschool Children With Moderate-To-Severe Intermittent Wheezing

PURPOSE OF THE STUDY. To examine the effectiveness of episodic use of an inhaled corticosteroid (ICS) or leukotriene receptor antagonist (LTRA) in preschool-aged children with moderate-to-severe intermittent wheezing associated with respiratory tract illness (RTI).

STUDY POPULATION. Children 12 to 59 months of age with ≥2 episodes of wheezing with RTI in the previous year and either 2 urgent care visits for wheezing, 2 wheezing...
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