Conclusions. There is an enhanced risk of asthma exacerbations and unscheduled visits to primary care physicians strongly related to return to school after summer vacations.

Reviewer Comments. This study is the largest epidemiologic trial to date demonstrating a well-recognized peak in asthma exacerbations after the return to school, particularly in September; this peak is likely related to viral illness, environmental allergens, and/or lack of controller medications. Prophylaxis, particularly with inhaled steroid controller medication beginning at the end of August, is recommended by the authors, particularly for children with multifactorial asthma.

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Consequences of Antibiotics and Infections in Infancy: Bugs, Drugs, and Wheezing
Ong MS, Umetsu DT, Mandl KD. Ann Allergy Asthma Immunol. 2014;112(5):441–445.e1

Purpose of the Study. Previous studies have investigated the association between early antibiotic exposure and the development of asthma, with inconsistent results and concern that any observed association was confounded by lower and upper respiratory tract illnesses in early childhood. Given the inconsistencies of existing data, the purpose of this study was to clarify if an association exists between antibiotic exposure in the first year of life and the development of asthma up to age 7 years.

Study Population. From a retrospective cohort of children enrolled in a nationwide, employer-provided health insurance plan in the United States, this study examined 62,576 children who were continuously enrolled from birth to at least 5 years of age.

Methods. The children were evaluated for an association between antibiotic exposure during the first year of life and subsequent development of 3 asthma phenotypes: transient wheezing (began and resolved before 3 years of age), late-onset asthma (began after 3 years of age), and persistent asthma (began before 3 years of age and subsequent development of 3 asthma phenotypes: persistent asthma, late-onset asthma, and transient wheezing). The development of asthma was determined as having persistent asthma if at least 1 of the following criteria was met in the first year of life: (1) at least 1 emergency department visit with asthma as the principal diagnosis; (2) at least 1 acute care inpatient encounter with asthma as the principal diagnosis; (3) at least 4 outpatient asthma visits with asthma as one of the listed diagnoses and at least 2 asthma medication–dispensing events; and (4) at least 4 asthma medication–dispensing events. Exclusion criteria included having >1 physician-diagnosed lower and upper respiratory tract illness in the first year of life.

Results. Antibiotic use in the first year of life was associated with the development of transient wheezing (odds ratio [OR]: 2.0 [95% confidence interval (CI): 1.9–2.2]; P < .001) and persistent asthma (OR: 1.6 [95% CI: 1.5–1.7]; P < .001). A dose–response effect was observed. When ≥5 antibiotic courses were received, the odds of persistent asthma doubled (OR: 1.9 [95% CI: 1.5–2.6]; P < .001). There was no association between antibiotic use and late-onset asthma.

Conclusions. Antibiotic use in the first year of life is associated with an increased risk of early-onset childhood asthma before 3 years of age. The apparent effect has a clear dose response.

Reviewer Comments. The exclusion of respiratory tract illnesses in the first year of life removes a significant potential confounding factor that has led to inconsistent conclusions in previous studies examining a link between antibiotic use in infancy and the development of asthma. The finding that more frequent antibiotic use leads to an increased risk of early-onset asthma seems to support the microbiota hypothesis, which postulates that antibiotic use in early life increases the risk of atopic disorders by altering the diversity and composition of the intestinal microbiota, thereby disrupting mucosal mechanisms of immune tolerance and increasing susceptibility to Th2 cytokine-dependent allergic inflammation. Antibiotic use in infancy should be limited to reduce the possibility of driving this process.

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Food Allergy and Increased Asthma Morbidity in a School-Based Inner-City Asthma Study

Purpose of the Study. The goal of this study was to investigate the relation between food allergy and asthma morbidity in inner-city students with asthma.

Study Population. A total of 300 elementary school students with physician-diagnosed asthma were enrolled over a period of 6 years in the School Inner-City Asthma Study in the northeastern United States. Subjects were eligible if they had wheezing, used controller medications, or had unscheduled health care visits for asthma in the previous 12 months. This population was primarily nonwhite (>95%), impoverished cohort with 47% of caregivers reporting an annual income of <$25,000.
Consequences of Antibiotics and Infections in Infancy: Bugs, Drugs, and Wheezing
Lisa C. Winterroth and Paul V. Willams
Pediatrics 2014;134;S166
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