

Young children's antibiotic exposure associated with higher food allergy risk

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Various pills. Credit: Wikipedia

Antibiotic treatment within the first year of life may wipe out more than an unwanted infection: exposure to the drugs is associated with an increase in food allergy diagnosis, new research from the University of South Carolina suggests.

Analyzing South Carolina Medicaid administrative data from 2007 to 2009, researchers from the College of Pharmacy, School of Medicine and Arnold School of Public Health identified 1,504 cases of children with food allergies and 5,995 controls without food allergies, adjusting for birth month and year, sex and race/ethnicity. Applying conditional logistic regression and adjusting for factors including birth, breastfeeding, asthma, eczema, [maternal age](#) and urban residence, the

researchers found that children prescribed [antibiotics](#) within the first year of life were 1.21 times more likely to be diagnosed with [food allergy](#) than children who hadn't received an antibiotic prescription.

The association between antibiotic prescription and development of food allergy was statistically significant, and the odds of a food allergy diagnosis increased with the number of [antibiotic prescriptions](#) a child received, growing from 1.31 times greater risk with three prescriptions to 1.43 times with four prescriptions and 1.64 times with five or more prescriptions. The interdisciplinary research team, led by Bryan Love, Pharm.D., found the strongest association between children who were prescribed cephalosporin and sulfonamide antibiotics, which are broad-spectrum therapies (adjusted OR 1.50 and 1.54, respectively), compared with narrower spectrum agents such as penicillins and macrolides. The study was published recently in the journal *Allergy, Asthma & Clinical Immunology*.

This research builds upon previous studies finding that normal gut flora is critical for developing the body's tolerance to foreign proteins such as food. Antibiotics are known to alter the composition of gut flora, and U.S. children ages three months to three years are prescribed 2.2 antimicrobial prescriptions per year on average, according to the literature. The study's results suggest a potential link between the rise in antibiotic prescriptions for young children and the rise in diagnosis of food allergies in children.

Given the study's findings and the body of research suggesting that antibiotics are frequently improperly prescribed to treat viral infections, Love said that prescribing medical professionals should be cautious before ordering antibiotics for young [children](#) but noted that it can be difficult to distinguish between viral and bacterial infections. "We need better diagnostic tools to help identify kids who truly need antibiotics," he said. "Overusing antibiotics invites more opportunity for side effects,

including the potential development of food allergies, and can encourage antibacterial resistance.

The research team is currently expanding the scope of their study, analyzing data from multiple states using a retrospective cohort design to determine if their findings hold in a larger patient population.

More information: Bryan L. Love et al, Antibiotic prescription and food allergy in young children, *Allergy, Asthma & Clinical Immunology* (2016). [DOI: 10.1186/s13223-016-0148-7](https://doi.org/10.1186/s13223-016-0148-7)

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