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**Contact:** Sarah Marshall, Office of  
External Affairs

**Email:** [sarah.marshall@usuhs.edu](mailto:sarah.marshall@usuhs.edu)

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### **Infants Exposed to Antacids, Antibiotics at Increased Risk for Childhood Allergies**

**Bethesda, Md.** – Exposing infants to antacids or antibiotics in their first six months of life could increase their risk of developing allergies in childhood, including anaphylaxis and allergies to foods and medications, according to a new study published April 2 in JAMA Pediatrics.

The study, “Association Between Use of Acid-Suppressive Medications and Antibiotics During Infancy and Allergic Diseases in Early Childhood,” the largest of its kind to date, was conducted by researchers at the Uniformed Services University (USU) in collaboration with Dwight D. Eisenhower Army Medical Center at Fort Gordon, Ga. The research team, led by Edward Mitre, M.D., associate professor in USU’s Department of Microbiology and Immunology, sought to understand why allergic diseases, especially food allergies, have become so prevalent in children over the last several decades. They were also interested to find out whether this increase in allergies could have anything to do with a marked increase in the use of antibiotics or antacids in the first six months of life – medications that have been known to alter the development of the human microbiome, an internal ecosystem made up of bacteria that benefits our immune system.

The researchers retrospectively analyzed the birth records of 792,130 children in the Military Health System who were born between October 2001 and September 2013, and continuously enrolled in the system within 35 days of birth until they turned at least age one. They were able to track data for these children over an average of 4.6 years. The scientists found that all allergic diseases evaluated were increased in children who had been treated with antacids or antibiotics during the first six months of infancy. Food and medication allergies, anaphylaxis, and allergic rhinitis were most strongly associated with antacid usage. Those exposed to antibiotics were more likely to have developed asthma during their childhood, as well as allergic rhinitis, anaphylaxis, and allergic conjunctivitis.

In medical records where a specific food allergy was identified, they found that peanut allergies were most common, followed by cow’s milk, then eggs. Other common allergy diagnoses included contact dermatitis, atopic dermatitis, and hives, according to the study.

While not fully understood, the process of antibiotics increasing the risk for allergies may have to do with intestinal dysbiosis – an alteration of the bacteria in the intestinal tract, which could potentially

affect immune system development. For acid-suppressive medications, they suggest that these medications might increase risk for allergies because they reduce protein digestion in the stomach.

In this study, the researchers noted that about eight percent of all infants were prescribed an antacid medication during the first six months of life, most likely to alleviate symptoms of gastroesophageal reflux. While in severe cases gastroesophageal reflux can be a disease during infancy, the authors state that for most infants reflux is a developmentally normal process that does not cause substantial harm. They point out that studies show little clinical benefit for the routine use of antacid medications for gastroesophageal reflux in infants. Therefore, they suggest only using these medications in infants when there are very clear and substantial symptoms due to reflux.

“While most health care providers understand the importance of only prescribing these medications when needed, few are aware of any downsides to antacid medications,” said Mitre, the study’s corresponding author. “The results of our study strongly suggest that using antacids in infancy should be reserved only for children with substantial symptoms due to reflux where there would be a clear clinical benefit.”

Along with Mitre, the team of researchers included Air Force Lt.Col. (Dr.) Cade Nylund, Navy Capt. (Dr.) Gregory Gorman, and Apryl Susi, from USU's Department of Pediatrics, Laura Kropp, from USU's Department of Microbiology and Immunology, and Army Lt.Col. (Dr.) David Schwartz, from the Department of Medicine at the Dwight D. Eisenhower Army Medical Center.

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