

Looking at the Effects of Antibiotic Use on Childhood Obesity and Growth -- The PCORnet[®] Antibiotics Study

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What was the research about?

Antibiotics are medicines that help fight infections caused by bacteria. Antibiotics can cause side effects. One side effect may be weight gain. Weight gain may result when antibiotics kill good bacteria in the gut as well as the bacteria causing infection.

In this study, the research team wanted to learn how antibiotic use before age two affected weight and growth. The team reviewed children's health records and looked at

- Body mass index, or BMI, at ages 5 and 10. BMI is a measure of a person's body fat based on their height and weight.
- Risk of having overweight or obesity at ages 5 and 10.
- How fast children gained weight between ages 2 and 5.

The research team looked separately at children with and without long-term health problems.

What were the results?

Children with and without long-term health problems had similar results:

- At age 5, children who received an antibiotic prescription before age 2 had a slightly higher BMI and were a bit more likely to have overweight and obesity than those who didn't receive one.

- At age 10, the children who received an antibiotic prescription before age 2 had a slightly higher BMI than those who didn't have one. But they weren't more likely to have overweight or obesity.
- Between ages 2 and 5, children who received a prescription for an antibiotic before age 2 gained weight at a slightly higher rate than those who didn't receive one.

Who was in the study?

The study looked at health records between 2009 and 2016 for 362,550 children. These children were receiving care at 35 health systems across the United States. All children had at least three doctor's visits where their height and weight were recorded. Of the children, 53 percent were white, 27 percent were black, and 2 percent were other or unknown race and ethnicity; 18 percent were Hispanic. Also, 52 percent were boys; 58 percent received a prescription for an antibiotic before age two.

What did the research team do?

The research team looked at health records for each child's weight, height, and growth patterns. The team took into account other things that might affect weight gain such as

- Sex
- Race or ethnicity
- Premature birth

- Asthma
- Whether a child took steroids
- How often a child saw a doctor and had an infection before age two

Parents, caregivers, doctors, and people from health systems and community and advocacy groups provided input during the study.

What were the limits of the study?

The health records didn't have data about whether children took the medicine as prescribed. The records also didn't have some data, such as parents' income,

that may have affected the results. The study may have counted children twice if they saw doctors in more than one healthcare system.

Future research could explore how other medicines affect childhood weight and growth.

How can people use the results?

The relationship between antibiotics and weight was very small. Doctors and other health professionals can use the results when considering guidelines for prescribing antibiotics for children under age two.

To learn more about this project, visit www.pcori.org/Block313.

The PCORnet® Study reported in this results summary was conducted using PCORnet®, the National Patient-Centered Clinical Research Network. PCORnet® is intended to improve the nation's capacity to conduct health research, particularly comparative effectiveness research (CER), efficiently by creating a large, highly representative network for conducting clinical outcomes research. PCORnet® has been developed with funding from the Patient-Centered Outcomes Research Institute® (PCORI®).