

# Multi-drug resistant infections rising in children

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Antibiotic-resistant *Acinetobacter baumannii* infections, one of the most common hospital-acquired infections in children across the United States, are on the rise, according to results of a recent study published in the *Journal of the Pediatric Infectious Diseases Society* on March 22.

"*Acinetobacter* are bacteria known to cause serious infections and notoriously difficult to treat because of growing antibiotic resistance. The bacteria survive for long periods in the environment," said study primary author Dr. Latania Logan, chief of pediatric infectious diseases and associate professor of pediatrics at Rush University Medical Center.

The research examined national and regional trends of [antibiotic resistance](#) in clinical specimens over a 13-year period. The data was taken from The Surveillance Network Database, a network of 300 laboratories distributed throughout the U.S. and is compiled by the Centers for Disease Dynamics Economics and Policy in Washington, D.C.

## Children with chronic conditions are at higher risk of infection

Because *A. baumannii* is an [infection](#) caused by bacteria that takes advantage of patients with compromised immune systems, children with a chronic condition are at a higher risk of infections of the lung, urinary tract, or other sites after surgery, intubation, trauma, or catheterization.

The amount of *A. baumannii* samples in infected children that were resistant to the [antibiotics](#) cephalosporin and carbapenem increased between 1999 and 2012 overall. However, the authors of the study noted a slight decline after a peak in 2008. Antibiotic stewardship guidelines released in 2007 or infection control guidance specifically designed to combat multi-drug resistant *A. baumannii* in health care settings may have been related to the decrease.

"While we are encouraged by the slight downtrend in resistance after 2008, there is still an overall increase in these infections. Further studies are needed to assess the most effective prevention strategies in children," Logan said.

## **'A perfect storm' of drug resistant infections**

*A. baumannii* has numerous ways that protect it from antibiotics. The bacteria are able to protect themselves by using genetic adaptations that support survival in dry, harsh environments, and additionally have in place several mechanisms to render antibiotics ineffective. In this situation, "a perfect storm" results, Logan said. As a result, highly resistant *A. baumannii* infections are increasingly being reported worldwide.

The study results show that the number of cephalosporin resistant *A. baumannii* increased from 13.2 percent of infections in 1999 to 23.4 percent in 2012, whereas the number of carbapenem resistant *A. baumannii* increased from 0.6 percent in 1999 to 6.1 percent in 2012. From 1999 to 2012, the proportion of cephalosporin resistant and carbapenem resistant bacteria among all *A. baumannii* increased each year by 3 percent and 8 percent, respectively. After 2008, a downward trend was observed, but resistance remained higher than the 1999 baseline.

"It is encouraging to see the downtrend after 2008, but we need to continue to monitor," said the study co-author Dr. Sumanth Gandra, a resident scholar in the Center For Disease Dynamics, Economics & Policy, an independent research initiative based in Washington, DC and New Delhi, India.

Provided by Rush University Medical Center

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