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## **Uptick in hospital-based *C difficile* infections in children raising concerns**

**Bethesda, Md.** — Hospitalized children in the United States are becoming infected with the bacteria *Clostridium difficile* more frequently and children who acquire the infection are more likely to die or require surgery, according to researchers from the Uniformed Services University of the Health Sciences (USU) and Cincinnati Children's Hospital Medical Center. The findings, which will appear in the May print issue of *Archives of Pediatrics & Adolescent Medicine*, one of the *JAMA/Archives* journals, are available online.

*C difficile*, which can colonize the gastrointestinal tract and lead to infection, may show no symptoms in infected patients, while others develop diarrhea, toxic megacolon (extreme inflammation and distention of the large intestine), perforated bowels or other potentially fatal complications. "In recent years, the incidence of *C difficile* infection, number of hospitalizations, associated deaths and severity in adults have been increasing," the authors write.

According to study lead author Air Force Major (Dr.) Cade Nylund, an assistant professor of Pediatrics at the USU and pediatric gastroenterologist at the National Capital Consortium pediatric gastroenterology fellowship at Walter Reed Army and National Navy Medical Centers, "When pediatric patients are finally hospitalized they tend to be more complex and more susceptible to infections like *C difficile*. At the same time, the patients, especially hospitalized children, are less able to fend off the serious effects of these infections, making them more likely to die." Dr. Nylund performed this research during his fellowship in pediatric gastroenterology at Cincinnati Children's in collaboration with Drs. Anthony Goudie, Jose Garza, Gerry Fairbrother, and Mitchell Cohen. Nylund adds that a strain of *C difficile* found in hospitals, known as the North American Pulse Field type 1 (NAP1), may be a partially to blame for the increasing trend of *C difficile* infections in children. "There may also be increasing awareness among health care providers, leading to increased testing in symptomatic patients," said Nylund.

Based on national hospital discharge data from 1997, 2000, 2003 and 2006 collected by the Agency for Healthcare Research and Quality, the researchers reviewed records representative of more than 10.5 million patients, of whom 21,274 (0.2 percent) had *C difficile*. They found the number of cases increased by 15 percent each year, from 3,565 in 1997 to 7,779 in 2006. Additionally, children with *C difficile* infection had an increased risk of death or colectomy (surgery to remove all or part of the colon), longer hospital stays and higher hospitalization charges.

Some children appeared more likely to become infected, including those who had other co-occurring diseases, such as inflammatory bowel disease, organ transplant, or cancer. The risk of infection was also higher among those who were white, lived in the West or in urban areas, or had private insurance. "We don't know exactly why we see these populations have an increased risk.

*C difficile* (page 2)

However, it likely has much to do with antibiotic exposure, which is a major risk factor for development of *C difficile*,” Nylund said. “The population-based data in our study provide additional evidence that *C difficile* infection cases have a significant effect on the pediatric population. Our study supports previous reports that *C difficile* infection is increasing among hospitalized children and provides a background for understanding changing trends and risk factors of *C difficile* infection in children. Increasing awareness of these risk factors and of an upward trend in hospitalized children with *C difficile* infection is the first step in controlling this infection.”

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Available pre-embargo to the media at [www.jamamedia.org](http://www.jamamedia.org).)

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