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Opioid prescription in hospital increases chances for dangerous infection



The University of Maryland School of Medicine. (Baltimore Sun file)



By **KARL HILLE**

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About one in every 31 hospital patients will pick up an infection in the hospital, according to the Centers for Disease Control and Prevention. New research shows that being prescribed an opioid for pain relief could leave you twice as likely to get sick by depressing your immune system, or disturbing the balance of gut bacteria that can keep you healthy.

Opioids affect both the gut and the immune system, said Summer Thompson, an assistant professor studying gut-brain interactions at the University of Maryland School of Medicine. She said these effects may increase patients' susceptibility to infection by *Clostridioides difficile* or *C. diff* — a highly contagious and potentially deadly intestinal infection.

"There are two main hypotheses for this interaction," Thompson said. "The first is microbiome disruption, and the second is the immune-modifying effects of opioids. Some immune cells have receptors for opioids, and opioid use does change the composition of microbes in the gut."

In Maryland, more than 700 patients picked up a *C. diff* infection in 2024, according to the Maryland Health Care Commission.

Thompson, with the Kahlert Institute for Addiction Medicine, spoke with the Baltimore Sun to shed light on research from the University of Georgia, published in October in the American Journal of Infection Control. Analyzing four studies of almost 120,000 patients, the researchers found that 31% of patients prescribed opioids caught the infection, compared to 17% of patients not taking the powerful painkillers. They said some patients are at a lower risk of infection than others.

“It has to be case by case. Each patient has a very different history,” lead author Pooja Gokhale wrote in a press release about the study. “If it’s a healthy young patient, physicians may not be as concerned about the risk, but hospitalized or immunocompromised patients are already at high risk. Opioids mess with the gut microbiome, and that creates an environment that is more likely to support *C. diff* colonization, and of course, *C. diff* is a highly infectious disease.”

In 2010 and 2011, Maryland hospitals ranked near the bottom in the nation of 17 states that reported hospital-acquired infection data to the CDC. As a result, the state Health Care Commission instituted the Maryland Hospital Acquired Conditions program to improve patient care and hospital management. The program put up to 2% of hospital revenue on the line based on each hospital’s performance on 14 preventable complications.

According to a 2025 report by the national nonprofit Leapfrog Group, Maryland hospitals overall ranked 20th in the nation, with 11 state hospitals earning an “A” ranking for hospital safety. Another 15 hospitals earned a “B” and 15 more earned a “C.”

Thompson pointed out that antibiotics may also play a significant role in increasing a patient’s risk of contracting *Clostridioides difficile*.

“*C. diff* infections often happen as a result of antibiotic treatment,” she said, “because antibiotics also affect the gut microbiome. Ironically, doctors’ first line of treatment for *C. diff* is antibiotics.”

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