

'Super bug' that's resistant to antibiotics threatens hospital patients

By Laura Ungar
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As intravenous antibiotics dripped into his arm, David Carmody seemed to be recovering nicely from a bad bladder infection. But then out of the blue things got worse as he lay in bed at a rehabilitation center: He felt weaker and began suffering uncontrollable diarrhea.

A battery of tests revealed an entirely new, and serious, problem: *Clostridium difficile* (or *C. diff*), a virulent form of bacteria that doctors worry has become a new "super bug" -- increasingly common in hospitals and with growing resistance to antibiotics and virulence among those afflicted.

"I hadn't heard of *C. diff*. But there it was, eating its way through me," said Carmody, a 55-year-old government retiree from Anne Arundel County, whose multiple sclerosis requires him to use a wheelchair. He recovered after more than a week of heavy-duty antibiotics that still work against *C. diff*, but "it scared me," he said.

The *C. diff* strain sickens about 3 million Americans a year, usually attacking people who, like Carmody, have been on antibiotics or in hospitals or other health-care facilities. It can cause severe diarrhea and inflammation of the colon. It is deadly in up to one in 40 cases, particularly when it strikes the elderly and infirm, and

contributes to 15,000 to 30,000 deaths annually, according to the Centers for Disease Control and Prevention.

Research shows that the *C. diff* bacterium rivals the better-known MRSA, or methicillin-resistant *Staphylococcus aureus*, as a source of hospital-acquired infection resistant to various drugs. A recent study found 25 percent more *C. diff* than MRSA in 28 community hospitals in Virginia, North Carolina, South Carolina and Georgia.

Becky Miller, an infectious-disease physician at Duke University Medical Center who presented that research at a recent conference, says she believes those statistics reflect what's happening at hospitals across the country and not just in those states.

The findings bolster research published in 2008 in the American Journal of Infection

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Control showing that *C. diff* rates had skyrocketed to 13 per 1,000 hospitalized patients, up to 20 times higher than previous estimates. Other studies show MRSA rates on the decline, partly because hospitals have worked to reduce them. (A study published this month in the Journal of the American Medical Association showed a 28 percent decrease in all hospital-onset, invasive MRSA infections over the four-year period from 2005 through 2008.)

"In many areas, *C. diff* is the number one hospital-acquired infection," said Kevin Kavanagh, a Kentucky physician who runs a patient advocacy organization called Health Watch USA.

A major reason for the surge in cases, doctors said, is the overuse and inappropriate use of antibiotics; Miller pointed particularly to the prescription of more broad-spectrum antibiotics that work against *C. diff*, including Cipro, for problems such as urinary tract infections that could be treated with drugs designed for a narrower spectrum of bacteria. He said another driver is the increased use of alcohol-based hand sanitizers, which don't kill *C. diff* spores, instead of soap and water, which does. Hospital officials across the nation say they are working on these issues as they beef up infection control by paying attention to keeping their facilities clean, isolating patients affected by *C. diff* and ensuring that doctors and nurses wash their hands.

But Kavanagh argues that more must be done, and he says public reporting of *C. diff* rates would speed things along.

In the meantime, the problem continues to escalate. Carmody, who used to work for the Office of Naval Intelligence, said he contracted *C. diff* after being treated in a hospital and then a rehab center for a MRSA bladder infection; he developed the infection after a catheter to drain his urine was replaced. He surmises that antibiotics used to treat the first infection helped bring on the second because the medication killed off other bacteria in his body but didn't work against *C. diff*, allowing it to grow. These days he asks more questions when doctors prescribe antibiotics and makes sure health-care workers wash their hands with soap and water before touching him. "You've got to be vigilant," he said.

The *C. diff* strain was discovered in 1935 and first associated with disease in 1978. But it

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has grown more dangerous in recent years, with the CDC in 2004 reporting a new, more virulent strain with the ability to produce greater quantities of certain toxins. Recent studies have also cited cases in which *C. diff* bacteria were resistant to Flagyl, a common antibiotic.

The *C. diff* strain normally lives harmlessly in the human digestive system but can grow out of control when the body's delicate bacterial balance is disrupted, such as when antibiotics that don't kill *C. diff* wipe out its competition. Besides sickening the patient, the germ can spread outside the body through feces and live for a long time on objects and surfaces in hospitals, doctors' offices and nursing homes.

According to the American Academy of Family Physicians, the *C. diff* germ has been cultured from bed rails, floors, toilets and windowsills, and it can remain in hospital rooms for up to 40 days after infected patients have been discharged. Health-care workers can hasten the spread. One study found *C. diff* on the hands of almost 60 percent of doctors and nurses caring for infected patients -- a percentage experts said could be reduced dramatically if they washed their hands thoroughly with soap and water between patients.

Many hospitals have begun to step up efforts to fight *C. diff*.

A poll this year of 1,800 members of the

Association for Professionals in Infection Control and Epidemiology showed that 53 percent of respondents had adopted additional measures in the previous 18 months to prevent and control *C. diff*. More than eight in 10 respondents said their hospitals have hand hygiene programs, including unannounced observations. Nearly all said they always isolate *C. diff* patients and use gowns and gloves while caring for them. And 63 percent said they use both alcohol sanitizers and soap and water to keep their hands clean.

But the poll found room for improvement. While hospital cleaning programs have increased, the poll said, monitoring hasn't kept pace. And patient education lags; only half of respondents said they educate patients about *C. diff*.

Allan Morrison, a hospital epidemiologist for the Inova Health System in Falls Church, said Inova has attacked the problem on many

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fronts: by isolating infected patients, not over-prescribing antibiotics for problems that would be appropriately treated in other ways, using the correct antibiotics to target particular germs and using a bleach solution to clean in patient rooms and other areas as recommended by federal health officials. Inova has also increased enforcement of standards for hand-washing and the use of gowns by health-care workers; "safety coaches" observe their colleagues and remind them of the rules.

Still, Morrison said he doesn't expect *C. diff* to disappear anytime soon, given that the population is aging and the elderly are at high risk for the infection. "A victory could be declared if the rates are stable," he said.

Although some patient-safety groups believe that one of the best tools for reducing infection is to force hospitals to report their infection rates, Morrison opposes the idea. Echoing officials at many hospitals, he said facilities keep *C. diff* data differently, making comparisons difficult and potentially unfair.

But Health Watch's Kavanagh disagrees. He is one of several safety advocates joining the Consumers Union's Safe Patient Project in supporting a new federal effort, scheduled to begin in 2012, that will tie hospital Medicare payments to how well those facilities protect patients from *C. diff* and other hospital-acquired infections.

In June, the organizations sent a letter to the Centers for Medicare and Medicaid Services urging the adoption of proposed regulations that would require all U.S. hospitals to report how many patients develop certain infections during treatment. Those regulations, required under the new health-care law, are being developed as part of the Department of Health and Human Services' five-year plan to reduce hospital infections.

Kavanagh said this measure would add an economic incentive for hospitals to keep up the fight.

From Cameron Flick's point of view, anything that makes it harder to get *C. diff* would be worth it. Flick, 90 and from New Albany, Ind., received a *C. diff* diagnosis in March 2009 after being treated at a doctor's office for pneumonia. His wife, Ruby, said the infection landed him in an emergency room four times.

Flick suffered from severe diarrhea, stomach

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pain, nausea and fatigue for months, lost 20 pounds and spent most days lying on his recliner. "I felt excruciating pain sometimes," he recalled. "I wasn't able to do anything. The least little thing wore me out."

More than a year later, he said his energy still hasn't returned. "It just about did me in," he said.

Ungar is the medical reporter for the Courier-Journal in Louisville and has been a journalist for 20 years.

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