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The Informed Patient: Rising Foe Defies Hospitals' War On 'Superbugs'

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Shortly after being admitted to a Cleveland-area hospital with severe abdominal pain, 52-year-old Maureen O'Hearn was transferred to intensive care. An intestinal infection had distended her abdomen so badly she appeared to be six months pregnant. To save her life, a surgeon had to remove her colon.

The cause of Ms. O'Hearn's illness was an epidemic strain of **Clostridium difficile** -- C. diff for short -- that is fast emerging as one of the most dangerous and virulent foes in the war against antibiotic "superbugs." C. diff is spawning infections in hospitals in the U.S. and abroad that can lead to severe diarrhea, ruptured colons, perforated bowels, kidney failure, blood poisoning and death.

Even as hospitals begin to get control of other drug-resistant infections such as MRSA, a form of staph, rates of C. diff are rising sharply, and a recent, more virulent strain of the bug is causing more severe complications. The Centers for Disease Control and Prevention estimates there are 500,000 cases of C. diff infection annually in the U.S., contributing to between 15,000 and 30,000 deaths. That's up from roughly 150,000 cases in 2001.

"We've been trying to sound the alarm repeatedly since 2004 that the trend is continuing upward," says Cliff McDonald, a CDC epidemiologist. He adds that C. diff, once mainly a concern for older patients, is now a growing risk for pregnant women, children and healthy adults.

Many patients get C. diff infections as an unintended consequence of taking antibiotics for other illnesses. That's because bacteria normally found in a person's intestines help keep C. diff under control, allowing the bug to live in the gut without necessarily causing illness. But when a person takes antibiotics, both bad and good bacteria are suppressed, allowing drug-resistant C. diff to grow out of control.

As a result, hospitals are more closely monitoring and limiting their use of antibiotics. It's a strategy that also has shown some success in preventing the spread of other drug-resistant bacteria. Once patients do contract a C. diff infection, hospitals sometimes can treat them with certain "last ditch" antibiotics, such as vancomycin, but many patients relapse after treatment.

Other efforts to stop the spread of C. diff include isolating infected patients; suiting workers and visitors from head to toe with scrubs, masks and gloves; and blasting patient rooms with super-strength **bleach** solutions. Milder "green" cleaners don't kill C. diff, undermining some hospitals' efforts to use these products.

One problem: C. diff produces spores that can dry out after cleaning and hang around on hospital cart handles, bed rails and telephones for months. Hand cleaning with alcohol, many hospitals' standard practice for keeping staff from spreading infection, can actually help disperse C. diff spores. Many hospitals now have special rules requiring staff to wash their hands with antibacterial soap when dealing with C. diff patients.

Katie Lancey, lead environmental services aide at SSM St. Joseph Hospital West in Lake Saint Louis, Mo., says she spends up to an hour cleaning a room after a C. diff patient leaves. She wears protective garments and wipes down everything in the room with a **bleach** solution, including the TV, pillows, mattress and lower structure of the bed. "Anything you can think of, you make sure you wipe it down thoroughly," she says.

If a patient coming in to SSM St. Joseph is suspected of having C. diff infection -- severe diarrhea is one symptom -- they are put in isolation even before lab tests come back, says James Hinrichs, the infectious-disease specialist charged with the hospital's C. diff-prevention program. He says that when C. diff patients are discharged, he advises them to eat yogurt with so-called pro-biotics to help restore a healthy balance of bacteria in their intestines. He also tells families to follow strict cleaning and hand-washing rules at home.

The efforts, along with more careful use of antibiotics, have helped SSM St. Joseph reduce the rate of C. diff infections to 0.5 cases per 1,000 patient days currently from 2.5 cases in 2006, Dr. Hinrichs says.

C. diff was first recognized in the 1970s, when it was readily treatable. The more virulent strain was first identified at the University of Pittsburgh Medical Center in 2000, killing 18 patients. By 2004, the new C. diff strain was reported elsewhere in the U.S. and around the world, and studies showed it was producing 20 times more toxin than older strains.

Carlene Muto, medical director of infection control at the University of Pittsburgh, says the hospital was able to reduce its C. diff infections by 50% after the 2000 outbreak and has sustained that rate since then. It instituted strict cleaning practices, restricted its use of antibiotics and began relying on its electronic medical-record system to quickly flag lab tests of patients most at risk so they can be isolated. "You have to be constantly vigilant," Dr. Muto says.

Only 3% to 5% of healthy, non-hospitalized adults carry C. diff in their gut, but that rate is much higher in hospitals and nursing homes, where carriers can spread the bacteria to others. Studies at several hospitals in recent years have shown that 20% or more of inpatients were colonized with C. diff, and a 2007 study of 73 long-term-care residents showed 55% were positive for C. diff. Even though the majority had no symptoms of disease, spores on the skin of asymptomatic patients were easily transferred to the investigators' hands.

The CDC is launching a national surveillance effort to gather more precise data about the prevalence of C. diff. It is working with states to identify local outbreaks. It also is working with Medicare and the Environmental Protection Agency to develop new guidelines for fighting C. diff.

Ms. O'Hearn, the Cleveland-area patient, says she took an antibiotic for a sinus infection and then visited a nursing home, where she may have picked up the C. diff bug. During her hospital treatment, Ms. O'Hearn says she suffered an irregular heartbeat and dehydration, and required additional surgery to temporarily attach her small intestine to the abdominal wall to bypass the large intestine. "It was the worst nightmare that anyone could imagine," says Ms. O'Hearn, a nurse by training. Though she has returned to work and a more normal lifestyle, she continues to have digestive troubles, and must take medications to regulate her heart.

Kettering Medical Center near Dayton, Ohio, had 305 cases of C. diff last year and has had 165 cases so far this year. Even newborn babies have gotten the disease from their mother during birth, says Rebekah Wang-Cheng, Kettering's medical director for clinical quality. She says that among other measures, the hospital has cut its post-operative antibiotic doses for all joint-replacement surgeries to two from three to avoid C. diff infections. Patients who come into the hospital with suspected pneumonia now get an antibiotic within six hours, instead of four hours previously, to allow more time to assess the need for drugs.

One controversial strategy: fecal transplants. For one patient with recurrent C. diff, Kettering suggested a stool transplant from a relative, to help restore good bacteria in the gut. But Jeffrey Weinstein, an infectious-disease specialist at the hospital, says the patient "refused to consider it because it was so aesthetically displeasing."

The Greater New York Hospital Association in March began a 40-hospital effort to halt the spread of C. diff from patient to patient. This included placing signs on patient rooms with pictures of a bottle of **bleach** and soap and water to remind staff the room needs special cleaning. The association also asks visitors not to use patient bathrooms.

Hospitals face growing legal concerns if they don't take such measures; relatives of 16 patients who were infected or died from a C. diff outbreak are suing a Quebec hospital, claiming that infection-control practices weren't followed.

C. diff infections can emerge days or weeks after antibiotic therapy. Earlier this year, Marcus Glover, a 40-year-old mailroom worker for the Greater New York Hospital Association, was discharged from hospital after a successful rotator-cuff surgery, which included antibiotic treatment. Ten days later, he landed in an emergency room with a C. diff infection that required another week in the hospital. Mr. Glover avoided the worst complications and was successfully treated with strong antibiotics.

But C. diff can be fatal. Philadelphia radio personality Hy Lit, 73, contracted a C. diff infection at a rehabilitation center after being treated at a hospital owned by Main Line Health System last fall. He died in another Main Line hospital two weeks later. "It was a multiple train wreck, when the bug permeated his bloodstream and his kidneys failed," says his son, Sam Lit. "It was a tragedy to lose him like that."

Main Line says it can't comment on individual patients but adds that it follows stringent prevention guidelines and is conducting ongoing initiatives to control infections in its hospitals.

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