

## Rochester-area hospitals to study bacteria-killing method

Four Rochester Hospitals that have worked together for months on ways to wipe out a stubborn bacterium are shining a new light on the problem.

Rochester General, Strong Memorial, Highland and Unity hospitals will participate in a two-year study to see whether ultraviolet light adds to the effectiveness of current ways to kill *Clostridium difficile*.

The bacterium, linked to 14,000 deaths nationwide each year, can add thousands of dollars in hospital costs. Because *C. diff* can live for months and is protected by a hard shell, it is a vexing foe.

“*C. diff* is very difficult,” said Dr. Alexandra Yamshchikov, an infectious diseases specialist at Rochester General Hospital, who is leading the study with Dr. Ghinwa Dumyati, infectious diseases physician with the Center for Community Health at the University of Rochester Medical Center. “We’re looking for any and all assistance we can get.”

Each hospital received two R-D Rapid Disinfectant light systems made locally by Steriliz LLC. The systems were donated by

the John and Jayne Summers Foundation for an undisclosed amount, but the machines retail for \$74,500 each.

Yamshchikov and Dumyati oversaw a demonstration Monday at Rochester General.

The machines will be used in addition to a rigorous cleaning protocol developed by hospitals as part of the Rochester Patient Safety Collaborative that started in October. The collaborative also has best practices for hand hygiene, using protective gear when treating infected patients and the judicious prescribing of antibiotics. The goal is to reduce *C. diff* infections by 30 percent by 2014.

“It’s a big donation of new technology,” said Dr. Mark Shelly, director of infectious diseases at Highland Hospital, where a different type of machine has been used since 2010 but not subjected to scientific study.

“The responsible response is to say,

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'Thank you.' Let's use this as an opportunity as a collaborative to establish (whether) this is the best thing since a good cleaning rag or that it doesn't make a difference.

"My own personal sense is I like the idea, (of the machine), but that's not good science or how you go to your CEO or (chief financial officer) and say to get one," Shelly said.

The hospitals have a track record of working together; a few years ago they collaborated to reduce the rate of infections from catheters used to administer medications and fluids patients.

*C. diff* can be an opportunistic infection for a person taking antibiotics.

The drugs can put good bacteria that protect against infection out of commission for several months. During that time, the person can get sick from *C. difficile* picked up from contaminated surfaces or spread from a health care provider's hands. Those most at risk are people, especially older adults, who take antibiotics and also get medical care.

The infection, which can be fatal, increased nationally 400 percent from 2000 to 2007, according to the Centers for Disease Control and Prevention.

New York is one of a few states getting a handle on the problem, having reduced hospital infections by 20 percent in two years. However, the nine-county Rochester

region is 17 percent above the state average for hospital onset infections, according to the Department of Health.

Dumyati said that rates between hospitals shouldn't be compared because of the difference in tests used to detect the presence of *C. diff*.

The state will be following the results of the study, according to DOH spokesman Jeffrey Hammond.

The machines use UVC light, which has been shown to kill pathogens in other environments, and the lights have killed *C. diff* in the lab. But Yamshchikov said that's a controlled environment, not a room with a phone, TV remote, bed rails, table and dresser — all of which can harbor spores and are touched by lots of people. She said the study would show whether the lights are useful adjuncts to current methods.

The Rapid Disinfector stands about 5 feet, 8 inches tall. It has 20 vertical fluorescent bulbs and is controlled by what looks like a

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smartphone. After four sensors are strategically placed around the room, the lights are remotely activated and their progress is monitored. The process can take about 30 minutes. If necessary, the light can be turned off, the sensors repositioned and process resumed. The room is closed and no one is allowed inside when the lights are working.

The exact study protocol still is being developed. Currently, all patient rooms are cleaned every day with bleach. Once surfaces look clean, they are swabbed with a chemical that picks up traces of organic material. The UV machine would be brought in after a patient with *C. diff* had been discharged and the room had undergone normal cleaning. The results would be compared with rooms that had been scrubbed only by hand. The lights are most likely to be used in units that experience high rates of infections.

UV may be in the spotlight, but it will be a while before data can confirm whether it's a star.

Donna Farnsworth, a registered nurse who is manager of infection prevention at Unity Health System, said the focus is on educating everyone to the front-line defenses of cleaning surfaces and washing hands.

"This is a lot of work," URM's Dumyati said. "Some things are easy. This involves many, many people."



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The UV machine is only used behind close door for security reasons. The intensity of the light is being researched by the four main hospitals in Monroe County to destroy the Clostridium Difficile bacteria in the hospital rooms. / MARIE DE JESUS/staff photographer

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### Focus on C. diff

The Centers for Disease Control and Prevention recently reported that *C.*

*diff* infections are at an all-time high nationwide and released fact sheets on the disease. For complete information, go to [www.cdc.gov/Features](http://www.cdc.gov/Features) and click on "On Antibiotics."

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