



Dr. Steven Aronin, Chief of Infectious Diseases at Waterbury Hospital, explains how the Surfacide light emitters work. The devices can disinfect a typical patient room in about 30 minutes. Using three machines at one time, they are able to more quickly clean common bacteria, like C.Diff and MRSA, than traditional scrubbing. Erin Covey / Republican-American

## New lights cut infection

### Hospital has machine to clean rooms

BY CARRIE MACMILLAN | REPUBLICAN-AMERICAN  
cmacmillan@rep-am.com

For those familiar with tanning beds, certain rooms at Waterbury Hospital now have a similar, but temporary, scent.

Patients won't emerge with a golden hue, but the hospital insists they will be less likely to return home with an unwelcome infection. The hospital recently acquired a machine that uses UV-C ultraviolet light to kill multidrug-resistant organisms, including MRSA (methicillin-resistant Staphylococcus aureus) and C-diff (Clostridium difficile).

The system features three towers that send rays around the patient's room, including the bathroom, to clean all areas. It takes 30 minutes for an average cycle, said Michael Golebiewski, director of environmental services at the hospital. No one is in the room when it runs.

Multidrug-resistant organisms are bacteria that have become resistant to antibiotics used to treat them. Such organisms are a leading cause of health-care-associated infections, or infections patients acquire while receiving treatment for other conditions. They are the most common complication from



Three Surfacide light emitters slowly spin and disinfect a patient room at Waterbury Hospital during a demonstration. The three machines are able to more quickly clean common bacteria in hospitals, like C.Diff and MRSA, disinfecting a typical room in about 30 minutes. Erin Covey / Republican-American

hospital care and are among the top 10 leading causes of death in the U.S. Every day, about 1 in every 20 hospitalized patients has an infection caused by receiving medical care, according to the Centers for Disease Control and Prevention. Each year, there are an estimated 1.7 million infections,

99,000 deaths and more than \$30 billion in added costs to health care providers.

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A closer look at one of the Surfacide devices when it is not in operation. When the machine is turned on, the light emitters can disinfect a patient room at Waterbury Hospital in about 30 minutes, which traditional cleaning can miss.  
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UV-C light is not a new technology. It has been used for years to kill unwanted organisms in water supplies and is used to sterilize surgical equipment, said Dr. Steven Aronin, chief of infectious diseases at Waterbury Hospital. While UV-A and UV-B light are most associated with sun damage to skin, UV-C light has extremely low penetrating ability and does little harm.

But UV-C is rich in energy and is versatile. In addition to disinfecting water, it can destroy harmful microorganisms in other liquids, on surfaces, on food products and in the air. The device at Waterbury Hospital is called the Helios Triple Emitter UV-C Disinfection System and it is made by Surfacide out of Naperville, Ill. It cost between \$100,000 and \$120,000, according to Patricia Charvat, spokeswoman for Waterbury Hospital.

Aronin said the machine will be used in rooms where infections have been identified. The machine fits on a trolley and can be moved around the hospital as needed. Although it can't kill bed bugs, Aronin said it can fight C-diff, a "hardy" bacterium. C-diff can cause symptoms ranging from diarrhea to life-threatening inflammation of the colon, according to the Mayo Clinic.

"Our staff is excellent and we educate them on proper hand hygiene, but people can be in rush and miss spots," Aronin said. "This doesn't miss anything and gets the C-diff right away, whether it's there or not. Because the only way to know if C-diff was in a room is if we diagnose it in a patient, and by then, it could have moved to the next room."

Illness from C-diff most often affect older adults in hospitals or long-term care facilities, typically after the use of antibiotic medications.

But rates of infection among younger and healthier individuals without histories of antibiotic use or exposure to health care facilities are on the rise. More than half a million people get sick from C-diff each year and infections are becoming more frequent, severe and difficult to treat, according to the Mayo Clinic.

Aronin said he thinks UV technology is the wave of the future for health care facilities.

"These things do not supplant the need for hand washing, but human beings will make mistakes," he said.

Waterbury Hospital is the first in the state to acquire a Surfacide machine, Golebiewski said. Across town, a representative from Saint Mary's Hospital said it has evaluated the technology but has not yet decided to use it.

*Appearing in the Republican-American on Sunday, January 19, 2014*