



Milford hospital enlists robots in war against infections

After employees at Milford Regional Medical Center have stripped the beds and wiped down or disinfected all of the surfaces they can reach, Rosie and WALL-E have a turn with the germs left behind.

The robots, made by Xenex Disinfection Services, use an intense flash of ultraviolet light to fight the bacteria, viruses, fungi, and other micro-organisms that traditional cleaning methods can miss, according to the hospital's infection control staff.

The 4-foot-tall devices started making the rounds in May at the Milford hospital. Xenex machines are in place in about 250 hospitals across the United States. In Massachusetts, clients include Massachusetts General Hospital, Boston Children's Hospital, South Shore Hospital and Cambridge Hospital, according to a spokeswoman for the San Antonio-based company.

The robots are among the latest efforts to reduce hospital infections, which afflict about 1 in 25 patients on any given day, according to the US Centers for Disease Control and Prevention. About 75,000 patients with hospital-related infections died in 2011, the CDC reported. Its study of acute-care hospitals found that more than half of the infections took place outside of intensive care units.

Rosie the robot is sent into an empty room to kill germs that regular cleaning has missed. In Milford, the robots are described by hospital staff as one more tool in the effort to reduce the spread of infection. The nonprofit institution purchased the pair for slightly more than \$150,000 after studying the experience of other hospitals, according to a spokeswoman.

The two robots, which received their nicknames from Milford Regional staff, are deployed throughout the facility, including patient rooms, operating rooms, waiting areas, and public bathrooms.

They work individually, wheeled by staff into spaces that have been vacated. Given 10 minutes in a cleared room, the electric-powered robots generate UV-C rays that target micro-organisms that can linger for days, said Kimberly Knox, the hospital's infection prevention and control coordinator. In a recent demonstration for news media, Rosie was placed in a vacant patient room, and Hugo Castaneda, an environmental services supervisor, prepared it for action. Once the room was cleared and the door shut, the device's circular "head" rose and began to flash an intense purple light. Meanwhile, hospital staff down the hall went about their work.

The robots do not replace but rather complement the work done by people. The technology targets the toughest germs that hospitals are most concerned about, Knox said, including *Clostridium difficile* (or *C. diff*), norovirus, influenza viruses, and staph bacteria, such as methicillin-resistant *Staphylococcus aureus*.

How effective are the machines? The company cites findings in the *American Journal of Infection Control*, which recently published a 52-month study. The report found patient infections, including those involving *C. diff*, significantly decreased in a New York hospital that supplemented its cleaning regimen with the UV disinfection, according to a summary.

Mark Stibich, cofounder of Xenex, said hospitals are looking for new methods to combat infection, in part, because health care reform has affected reimbursement of infection-related hospital costs, and also because of concern about patients.

“These infections are much more serious than they’ve ever been because of antimicrobial resistance. It’s resistant to the medications being used,” he said. “Now we have ‘super bugs.’ They’re emerging all the time.”

The robots started working at Milford Regional on May 12. They haven’t been used long enough for the medical center to gauge the result, according to Michael Newstein, an infectious diseases consultant and the chairman of its department of medicine. But the findings elsewhere have been encouraging, he said.

“It kills the spores,” he said, describing *Clostridium difficile*, “which are the hardest things to kill.”

July 13 2014