



## Norman Regional lends out cleaning robot to schools

Oklahoma City — Moore Public Schools got a temporary addition to their cleaning staff last week when Norman Regional Health System lent out a robot to “zap” germs.

The schools already have a robust cleaning system, with a well-trained custodial staff and their own robots that spray a chlorine mist, Superintendent Robert Romines said. But an extra layer of protection was worthwhile in buildings that have had high absence rates due to illness.

“Anything that it can contribute to killing germs at the sites we're using it is beneficial,” he said.

The hospital is lending the robots as part of an outreach program, said Clyde Brawner, director of environmental services at Norman Regional. They also lent the robots to schools in the Norman and Noble districts.

The hospital decided to add the robots in 2016 at the campuses on Porter Avenue and Tecumseh Road as part of an overall plan to reduce infections. The robots are used for patient rooms where the risk of spreading infections is higher, and for high-traffic areas such as public restrooms, Brawner said.

The robot creates a 14-foot-wide “bubble” of ultraviolet C light that kills germs on any exposed surface. Staff follow standard cleaning procedures using detergent, clear out any clutter and turn the robot on, while they clean other areas, Brawner said. The robot can't move on its own, so staff reposition it to get all areas of larger rooms, he said.

The sun produces ultraviolet C light, but the Earth's atmosphere prevents it from reaching the surface, meaning bacteria and viruses haven't developed defenses against it, said Melinda Hart, spokeswoman for Xenex Disinfection Services, which makes the robots Norman Regional uses. “The germs and microorganisms have no resistance because they've never seen anything like it,” Hart said.

The ultraviolet light damages the DNA of bacteria and viruses, preventing them from reproducing and making people sick. It also can kill some cells outright.

Human cells also aren't resistant, so people who work with the robots go into a different room while disinfection is in process, Hart said. The light wouldn't cause severe damage to a person from a single exposure, but it could cause eye irritation if a person looked directly at it, she said.

Norman Regional got its initial group of robots under an arrangement where it would pay only if it saved money from reduced infections. The hospital estimated it saved about \$250,000 in the first year of using the robots.

Some facilities have reported reductions in patient infections after using the robots. According to a paper in the American Journal of Infection Control, a hospital in Birmingham, Alabama, eliminated surgical infections in its orthopedic unit, saving more than \$290,000. A long-term acute care facility, also in the Southeast, saved about \$300,000 by halving its rate of infections with *Clostridium difficile*, a hardy bacterium that causes severe diarrhea.

It's worth noting, however, that both facilities used the robot as part of a broader push to reduce infections, which included new protocols for cleaning staff.

The robots cost \$125,000, and most hospitals get about three years of service out of them, Hart said. Bulb replacements are included in the purchase price, to encourage hospitals to use it extensively, she said.

Staff were skeptical at first, but embraced the robots when they saw patients benefited, Brawner said.

“We have seen the difference that they have made,” he said. “It's a program that, if you implemented it correctly, you can see results in days.”

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