

Dedicated cleaning staff shown to reduce *C. difficile* contamination in hospital rooms

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With rates and deaths associated with *Clostridium difficile* (*C. difficile*) at historically high levels, many hospitals have taken extra steps to reduce these infections. New research finds that a dedicated daily cleaning crew who adequately clean and disinfect rooms contaminated by *C. difficile* using a standardized process can be more effective than other disinfection interventions. The study is published in the May issue of *Infection Control and Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America (SHEA), in a special topic issue focused on the role of the environment in infection prevention.

C. difficile is a highly contagious, antibiotic-resistant intestinal [germ](#) that causes inflammation of the colon, known as colitis. Any surface, (e.g., toilets, bathing tubs, and electronic rectal thermometers) can become contaminated with *C. difficile* spores. [Spores](#) can also be transferred to patients via the hands of [healthcare professionals](#) who have touched a contaminated surface or item.

During a 21-month period, researchers conducted a prospective [intervention study](#) at the Cleveland Veterans Affairs Medical Center through three intervention sequences including: 1) the use of fluorescent markers applied to high-touch surfaces in [patient rooms](#) to provide monitoring and feedback on thoroughness of cleaning; 2) utilization of an automated ultraviolet (UV) radiation device as a complementary disinfection strategy used after cleaning; and 3) an enhanced disinfection process composed of a dedicated daily disinfection team and a process requiring supervisory assessment and clearance of terminally-cleaned *C. difficile* infected rooms. Each strategy built on the previous one.

To determine the effectiveness of the interventions, cultures were obtained from rooms contaminated with *C. difficile* after cleaning and disinfection. The fluorescent marker intervention modestly improved the disinfection of high-touch

surfaces over traditional cleaning practices (57 percent versus 67 percent). The use of the UV device further reduced the percentage of positive cultures, but *C. difficile* still was present in 35 percent of rooms. Ultimately, disinfection was dramatically improved with the addition of enhanced standard disinfection intervention, reducing positive cultures to 7 percent.

"Healthcare facilities are increasingly turning to automated room disinfection devices as a strategy to optimize environmental disinfection. With effective monitoring and feedback, motivated environmental services personnel can achieve results that rival or surpass many of the automated devices," said Curtis Donskey, MD, staff physician at Louis Stokes Cleveland Veterans Affairs Medical Center and an author of the study.

The enhanced standard disinfection intervention included formation of a dedicated *C. difficile* disinfection team that used bleach wipes to disinfect high-touch surfaces. Establishing a dedicated team of highly-motivated housekeepers eliminated the problem of variability in housekeeper performance. Supervisory housekeeping staff and/or infection control personnel cleared *C. difficile* rooms granting an opportunity to directly observe individual housekeeper performance and provide immediate feedback. Notably, although use of the UV device was continued in the third intervention, it did not contribute to the effectiveness of the intervention (i.e., all negative cultures were negative both before and after operation of the UV device).

While the study highlights the potential for environmental services personnel to achieve excellent [disinfection](#) of *C. difficile* rooms, it does have several limitations. Researchers have not yet demonstrated if this intervention could be maintained long-term or if it would be effective in reducing *C. difficile* transmission and infections. Additionally, environmental cultures for *C. difficile*

were crucial to the success of the intervention, but are currently not feasible for most healthcare facilities.

More information: Brett Sitzlar, Abhishek Deshpande, Dennis Fertelli, Sirisha Kundrapu, Ajay K. Sethi, Curtis J. Donskey. "An Environmental Disinfection Odyssey: Evaluation of Sequential Interventions to Improve Disinfection of Clostridium difficile Isolation Rooms." *Infection Control and Hospital Epidemiology* 34:5 (May 2013).

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