

Ultraviolet cleaning reduces hospital superbugs by 20 percent

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Healthcare-associated vancomycin-resistant enterococcus (VRE), methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile* (CD), and other multidrug-resistant organisms (MDRO) were decreased among patients after adding ultraviolet environmental disinfection (UVD) to the cleaning regimen, according to a study published in the June issue of the *American Journal of Infection Control*, the official publication of the Association for Professionals in Infection Control and Epidemiology (APIC).

In this retrospective study led by the Department of Infection Prevention and Control at Westchester Medical Center in Valhalla, NY, researchers discovered that the rate of healthcare-associated infections caused by MDRO and *C. difficile* was significantly lower during the 22 months of UVD use compared with the 30-month period before UVD (2.14 cases per 1,000 patient-days vs 2.67 cases, respectively). This dramatic decline in incidence occurred despite missing 24 percent of UVD opportunities.

UVD is a disinfection method that uses ultraviolet light to kill microorganisms in the patients' environment.

"In our study, overall decreases in MDRO plus *C. difficile* were led by a decrease in VRE, which is our most common hospital-acquired MDRO," the authors state. "Although there were many other simultaneous [infection control](#) interventions occurring at our hospital that could have contributed to the reduction in VRE acquisition, the rates experienced during UVD are the lowest incidence rates of VRE at our institution for

the past 10 years and were sustained for 22 months."

The study analyzed 52 months of hospital-acquired MDROs plus *C. difficile* before and during UVD use. During the pre-UVD period (January 2009-June 2011), the hospital used standard cleaning protocols [sodium hypochlorite (bleach)] to disinfect MDRO patient rooms upon discharge. Once the hospital leased two UVD machines and trained the staff to use them, the second phase began (July 2011-April 2013), during which UVD was added to the cleaning regimen.

In addition to use for contact precaution discharges, UVD was used weekly in the dialysis unit and for all burn unit discharges. UVD could be requested for rooms of long-stay patients or for discharges in units with high prevalence of MDRO or CD.

Under contact precautions, everyone coming into a patient's room is asked to wear a gown and gloves because the patient has a type of infection that can be spread by touching the patient or their environment.

The system was used for 6 minutes in the bathroom and 6 minutes each at two positions in the patient room. On average, UVD added 51 minutes per discharge.

"Use of UVD as an adjunct to routine discharge cleaning of contact precautions rooms was feasible and temporally associated with a significant decrease in hospital-acquired MDRO plus CD in our institution," conclude the authors.

More information: "Implementation and impact of ultraviolet environmental disinfection in an acute care setting," by Janet P. Haas, Jonathan Menz, Stephen Dusza, and Marisa A. Montecalvo, appears in the *American Journal of Infection Control*, Volume 42, Issue 6 (June 2014)

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