New CDC Study Confirms Effectiveness Of UV-C Disinfection In Reducing Harmful Pathogens For Hospitals

A recent study funded by Centers for Disease Control and Prevention (CDC) Epicenters Program and published in Infection Control and Hospital Epidemiology (Deverick H. Anderson, M.D., MPH et al., 2013) supports and expands on previously published studies confirming the effectiveness of an automated UV-C-emitting device to combat the pathogens Clostridium difficile (C. diff.), vancomycin-resistant enterococci (VRE) and Acinetobacter spp. some of the common culprits of health care-associated infections drawing increased attention for hospitals across the country.

It is well-documented that these pathogens, along with others such as methicillin-resistant Staphylococcus aureus (MRSA) and carbapenem-resistant Enterobacteriaceae (CRE), can persist on environmental surfaces for days or weeks, and C. diff. spores can exist as long as five months on surfaces in hospital environments. Standard approaches to environmental cleaning have proven inadequate with studies showing that 50 percent or more of hospital surfaces go untouched during terminal room disinfection, leading to the transmission of these hardy pathogens from one patient to another. The data published by the Society of Healthcare Epidemiology of America (SHEA) concluded that an automated UV-C system capable of delivering a measured and consistent UV-C dose significantly improved terminal disinfection of patient areas in hospitals.

The only device utilized in the study is TRU-D SmartUVC, a portable UV disinfection system unique to the market with Sensor360 technology, which analyzes the unique contents, shape and size of the room to calculate the precise pathogen-lethal dose of UV-C light needed to properly disinfect the environment (both line-of-site and shadowed spaces). A proper dose of UV-C light modifies the DNA structure of an infectious cell so it cannot reproduce and therefore cannot colonize and spread. These results were confirmed by the study, which reported a significant decrease in the total number of colony-forming units (CFUs) of these pathogens in both direct and indirect line of sight.

"Results of TRU-D have been supported by multiple independent peer-reviewed studies conducted by leading authorities in infection control and epidemiology," said Chuck Dunn, president of Memphis-based Lumalier, maker of TRU-D SmartUVC. "We are pleased to add another reputable third-party validation of our method of automated no-touch disinfection."

The study was performed at two tertiary acute care hospitals, Duke University Medical Center and University of North Carolina Health Care, from July 2011 through September 2011. Hospital rooms utilized in the study were identified as those of patients placed on precautions as a result of colonization or infection with a target

organism. Environmental cultures from direct and indirect lines of site were obtained on specific environmental locations within the room after patient discharge and before manual room cleaning by housekeeping personnel. TRU-D was then used in the room, and cultures were repeated in triplicate from the same environmental sites following application of the UV-C light. In total, 229 environmental surfaces were sampled in the rooms of 39 patients over the 15-month study. Following use of TRU-D, there was a calculated reduction of more than 91 percent in the total number of CFUs of any pathogen detected from all sampled sites. Additionally, a greater than 92-percent reduction was achieved for all three target organisms (97.89 percent for VRE, 92.95 percent for C. diff. and 98.07 percent for Acinetobacter), with no statistically significant differences in reductions occurring in direct versus indirect line of sight disinfection for any of these categories.

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