Summary conclusions from Clinical Papers

Total Room Ultraviolet Disinfection

Rutala

Room Decontamination with UV Radiation

William A. Rutala, PhD, MPH; Maria F. Gergen, MT (ASCP); David J. Weber, MD, MPH

Conclusion. This UV-C device was effective in eliminating vegetative bacteria on contaminated surfaces both in the line of sight and behind objects within approximately 15 minutes and in eliminating *C. difficile* spores within 50 minutes.

TABLE 1. UV-C Decontamination of Formica Surfaces in Patient Rooms Experimentally Contaminated with Methicillin-Resistant *Staphylococcus aureus* (MRSA), Vancomycin-Resistant *Enterococcus* (VRE), Multidrug-Resistant (MDR) *Acinetobacter baumannii,* and *Clostridium difficile* Spores

		UV-C line of sight						
		Total		Direct		Indirect		
Organism	Inoculum	No. of samples	Decontamination, $\log_{10}$ reduction, mean (95% CI)	No. of samples	Decontamination, $\log_{10}$ reduction, mean (95% CI)	No. of samples	Decontamination, $\log_{10}$ reduction, mean (95% CI)	*P*
MRSA	4.88 $\log_{10}$	50	3.94 (2.54–5.34)	10	4.31 (3.13–5.50)	40	3.85 (2.44–5.25)	.06
VRE	4.40 $\log_{10}$	47	3.46 (2.16–4.81)	15	3.90 (2.99–4.81)	32	3.25 (1.97–4.62)	.003
MDR *A. baumannii*	4.64 $\log_{10}$	47	3.88 (2.59–5.16)	10	4.21 (3.27–5.15)	37	3.79 (2.47–5.10)	.07
C. difficile spores	4.12 $\log_{10}$	45	2.79 (1.20–4.37)	10	4.04 (3.71–4.37)	35	2.43 (1.46–3.40)	<.001

NOTE. Patient rooms had a mean area of 12.1 m^2 including bathroom. CI, confidence interval.

Boyce

Terminal Decontamination of Patient Rooms Using an Automated Mobile UV Light Unit

John M. Boyce, MD;[1,2] Nancy L. Havill, MT;[1] Brent A. Moore, PhD[3]

Conclusion. The mobile UV-C light unit significantly reduced aerobic colony counts and *C. difficile* spores on contaminated surfaces in patient rooms.

Donskey

Evaluation of an automated ultraviolet radiation device for decontamination of Clostridium difficile and other healthcare-associated pathogens in hospital rooms

Michelle M Nerandzic1, Jennifer L Cadnum1, Michael J Pultz1 and Curtis J Donskey*1,2

Conclusion: the Continuous Wave UVC Room Disinfection device is a novel, automated, and efficient environmental disinfection technology that significantly reduces C. difficile, VRE and MRSA contamination on commonly touched hospital surfaces.

Donskey

Decontamination with Ultraviolet Radiation to Prevent Recurrent Clostridium difficile Infection in 2 Roommates in a Long Term Care Facility.

Letter to the Editor – Infection Control and Epidemiology MAY 2012

Conclusion. Automated decontamination devices are able to reduce the number of organisms in places that are easily missed by or inaccessible to human cleaning. The UV radiation device requires less than 1 hour per bed (room) for a typical cycle and is easy to use. Routine use of UV radiation devices to decrease the environmental burden of pathogens is a feasible addition to current infection control and housekeeping measures and may ultimately help reduce rates of CDI among patients in hospitals and LTCFs.

Military Medicine

Disinfection of *Acinetobacter baumannii*-Contaminated Surfaces Relevant to Medical Treatment Facilities with Ultraviolet C Light

Guarantor: Vipin. Rastogi, PhD *Contributors:* Vipin.Rastogi, PhD; Lalena Wallace, MS; Lisa S. Smith,MS

Result; Efficacy of UVC Irradiation in Decontamination of A.Baumannii Cells on different surfaces: "The UVC exposure resulted in >4log(CFU) reductions in viable cells for all three metal surfaces. The killing was complete because no turbidity was observed when the test coupons were incubated in tryptic soy broth. Complete killing or decontamination of inanimate surfaces may be a desirable goal in intensive care units and patient treatment facilities." " UVC irradiation is a cost effective, easy to use, non invasive, non corrosive approach with no adverse environmental effects"

Boswell

First UK trial of an automated UV-C room decontamination device.

Nikunj Mahida, Natalie Vaughan, Tim Boswell *Nottingham University Hospital NHS Trust*

The UVC Unit was easy to use and room disinfection times were relatively short. Without the need to inactivate room ventilation or smoke detectors, we were able to disinfect 3 ITU single rooms within 3 hours. This device appears to achieve significant killing of key healthcare environmental pathogens including MRSA, VRE, MRA and Aspergillus.
Further quote: Boswell:- "Our study further strengthens the premise that a simple to use , preventative system (continuous wave UVC) that inactivates pathogens is an invaluable asset to a hopsital's infection control strategies. We have not only proven that the technology works in experimental conditions but it can be easily and comfortably adopted by a busy, real-world clinical environment and is an interesting alternative for terminal decontamination of an environment"