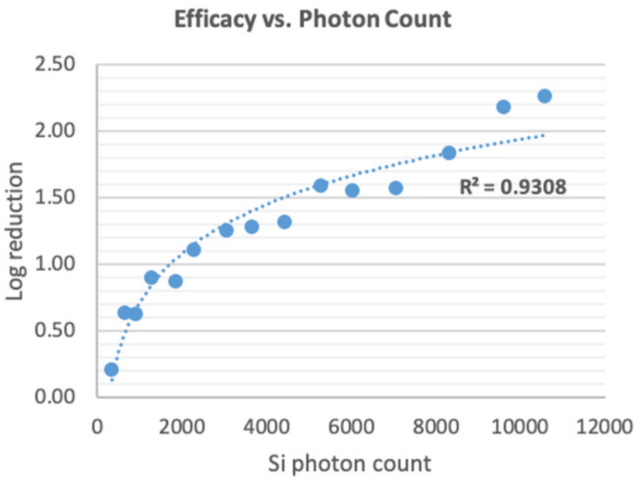


Disclosures. **All authors:** No reported disclosures.

1218. Evaluation of a Novel Sporicidal Spray Disinfectant for Decontamination of Surfaces in Healthcare

Jennifer Cadnum, BS[1]; Scott Livingston, MD[1];
Thriveen Sankar Chittoor Mana, MBA[2]; Annette Jencson, MT, CIC[1];
Sarah Redmond, MD[1]; Curtis Donskey, MD[3]; [1]Northeast Ohio VA Healthcare System, Cleveland, Ohio; [2]Case Western Reserve University, Cleveland, Ohio; [3]Cleveland VA Medical Center, Cleveland, Ohio

Session: 146. HAI: Environment
Friday, October 4, 2019: 12:15 PM

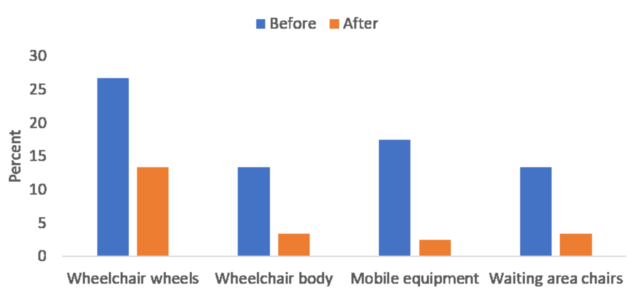
Background. Surfaces in healthcare facilities are typically cleaned by manual application of liquid disinfectants. However, thoroughness of cleaning is often suboptimal and application can be challenging and time-consuming when surfaces are irregular.

Methods. We tested the effectiveness of a novel spray disinfectant technology that uses an electrostatic sprayer to thoroughly apply a sporicidal disinfectant to surfaces after minimal pre-cleaning to remove visible soil. In a laboratory setting, we compared the effectiveness of the spray disinfectant vs. manual application of disinfectant for removal of *Clostridium difficile* spores inoculated onto the seat, armrest, and seat back of a wheelchair and measured the time required for each method of disinfection. In a healthcare setting, we tested the effectiveness of a 15-second spray application for reduction of *C. difficile* spores on 130 items with irregular or hard to clean surfaces, including 30 wheelchairs, 40 pieces of portable equipment, and 30 waiting room chair seats.

Results. In laboratory testing, application of disinfectant using the electrostatic sprayer was as effective as wiping in reducing *C. difficile* spores inoculated onto wheelchair surfaces, but required only one-fourth the time for application. *C. difficile* spore contamination was common on mobile equipment, wheelchairs, and waiting rooms chairs, and spray application of the sporicidal disinfectant was effective in reducing contamination (figure).

Conclusion. Commonly shared items such as wheelchairs, portable equipment, and waiting room chairs were frequently contaminated with C. difficile spores. Application of a sporicidal disinfectant using an electrostatic sprayer provided a rapid and effective means to reduce spore contamination on these surfaces.

Figure. Percentage of sites positive for *Clostridium difficile* spores before and after spray application of sporicidal disinfectant with an electrostatic sprayer.



Disclosures. **All authors:** No reported disclosures.

1219. Disinfection of Surfaces Contaminated with Carbapenemase Producing *Acinetobacter baumannii* Using Ozone Under Complex Room Conditions

Johannes Karl-Mark. Knobloch, MD; Gefion Franke, MD;
Cristina E. Belmar Campos, MD; Eva-Maria Klupp, MD; Birte Knobling, BSc;
University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Session: 146. HAI: Environment
Friday, October 4, 2019: 12:15 PM

Background. *Acinetobacter baumannii* is an emerging multiresistant Gram-negative rod, which has caused multiple hospital outbreaks. *A. baumannii* can display a high ability to survive on inanimate surfaces. Therefore, cleaning and disinfection is an important part in the prevention of *A. baumannii* transmission. No-touch room decontamination is performed with increasing frequency to reach more standardization in hospital cleaning. In this study, we investigated the efficacy of an automated room decontamination using ozone (Sterisafe™ pro) against *A. baumannii* under complex room conditions.

Methods. A Carbapenemase-producing *A. baumannii* outbreak strain was analyzed with respect to its ability to survive on dry surfaces. The Sterisafe™ pro instrument was used in a patient room with an attached bathroom. The *A. baumannii* strain was dried on three different carriers (ceramic tiles, stainless steel, solid core furniture board) and placed at eight different positions in the rooms. A standard disinfection cycle (80 ppm ozone; 90 % RH; 60 minutes) was conducted in three independent experiments.

Results. The *A. baumannii* strain displayed a long-term survival on surfaces under dry conditions sufficient for further disinfection experiments. Interestingly, the mean reduction rates of *A. baumannii* dried on three surfaces displayed significant differences. Reduction rates greater than 5 log were reached on all stainless steel and ceramic carriers even under the complex room conditions using the standard disinfection cycle of the Sterisafe™ pro instrument. In contrast, on furniture board individual carriers displayed reduction rates of even less than 4 log. The mean reduction rate was still 5 log for *A. baumannii* on furniture board.

Conclusion. *A. baumannii* dried on different surfaces display a differential susceptibility against automated ozone disinfection. However, the Sterisafe™ pro instrument displayed a sufficient reduction of *A. baumannii* for all tested surfaces even under complex room conditions. The individual behavior of *A. baumannii* on different materials indicate the necessity for the validation of automated room decontamination systems under varying conditions.

Disclosures. **All authors:** No reported disclosures.

1220. Effective, Novel, Handheld, UV Technology for Surface Disinfection While Patients or Staff Are Nearby

Maria Gergen-Teague, MT(ASCP)[1]; Kurt Garrett, BA, BS[1];
Svetlana Semenysheva, MS[2]; David J. Weber, MD, MPH[3]; [1]Lumagenics, Cary, North Carolina; [2]EMSL Analytical, Inc., Morrisville, North Carolina; [3]University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Session: 146. HAI: Environment
Friday, October 4, 2019: 12:15 PM

Background. The battle against nosocomial infections is ongoing, and the role the environment plays in these infections has been well established. Because only 50% of the items in a patient's room are adequately cleaned at the time of discharge, many hospitals are turning to "no-touch" systems to supplement their manual cleaning and disinfection protocols. Lumagenics introduces a safe, novel, handheld, low heat-generating Cool UV™ technology that can be used on a daily basis, while the patient is in the room.

Methods. Templates were drawn on Formica surfaces and inoculated with known amounts of epidemiologically important pathogens (EIP's) (i.e., MRSA, VRE, CRE *Klebsiella pneumoniae*, multidrug-resistant *Acinetobacter baumannii*, and *Clostridioides difficile* spores). After drying, each surface was exposed to the Cool UV™ at varying times and distances. After exposure, each surface was cultured with a Rodac plate and incubated according to standard microbiological procedures. Following incubation, all growth was quantitated and $\log_{10}$ reductions were calculated.

Results. Without an organic load, vegetative EIP's were reduced by an average of 3.63–5.08 $\log_{10}$ for 1 and 5 sec., respectively, at 1 inch and by an average of 2.10–4.08 $\log_{10}$ for 1 and 5 sec., respectively, at 5 inches (Table 1). *C. difficile* spores were reduced an average of 1.84–3.18 $\log_{10}$ in 10–60 secs from a distance of 1 inch, and an average of 1.21–2.58 $\log_{10}$ at 5 inches (Table 2). With an organic load (10% fetal calf serum), the $\log_{10}$ reduction for *C. difficile* spores was reduced ~0.94 $\log_{10}$, but the reduction achieved for the vegetative EIP's remained relatively unaffected.

Conclusion. Lumagenics' Cool UV™ technology, with short exposure times, reduced EIP's by levels similar to "no touch" room disinfection UV devices and may be a useful adjunct to daily cleaning and chemical disinfection.

Table 1. $\log_{10}$ Reduction of Epidemiologically Important Pathogens Exposed to Cool UV™ Technology

Pathogen	$\log_{10}$ Reduction			
	1 Inch		5 Inch	
	1 Second	5 Seconds	1 Second	5 Seconds
	0% Fetal Calf Serum			
MRSA	4.83	5.17	2.57	4.50
VRE	3.31	4.61	2.01	4.06
K. pneumoniae (CRE)	3.81	6.08	2.77	4.55
MDRO *A. baumannii*	2.56	4.44	1.03	3.21
10% Fetal Calf Serum				
MRSA	4.40	5.32	3.26	4.02
VRE	4.14	4.98	2.18	3.74
K. pneumoniae (CRE)	3.95	6.17	2.54	4.72
MDRO *A. baumannii*	3.08	4.11	1.44	3.06