bacteria. The presence of a heating device was associated with reduced risk of detectable gram-negative organisms, specifically Enterobacterales, in sink drains. The limitations of this study included low overall rates of positivity for certain pathogens, including CPE, and suboptimal, inconsistent performance across heating devices. Further work with a larger sample size and more consistent heating devices is warranted, as are data regarding patient outcomes as a result of such interventions.

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Presentation Type:

Poster Presentation

Efficacy of UV-C Disinfection in Hyperbaric Chambers

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Background: UV-C light reduces contamination of high-touch clinical surfaces. Few studies have tested the relative efficacy of UV-C devices in real-world clinical environments. **Methods:** We assessed the efficacy of the Tru-D (SmartUVC) and Moonbeam-3 UV-C (Diversey) devices at eradicating important clinical pathogens in 2 hyperbaric chambers at a tertiary-care hospital. Formica sheets were inoculated with 106–107 CFU of MRSA (USA300) or 104–105 CFU of *C. difficile* (NAP1). Sheets were placed in 6 predetermined locations throughout the chambers. Two Moonbeam-3 UV-C devices were positioned in the center of each chamber and were run for 3-minute (per manufacturer's instructions) and 5-minute cycles. One Tru-D was positioned in the center of the chamber and was run on the vegetative cycle for MRSA and the spore cycle for *C. difficile*. UV-C dosage was measured for both machines. Quantitative cultures were collected using Rodac plates with DE neutralizing agar and were incubated at 37°C for 48 hours. *C. difficile* was likewise plated onto sheep's blood agar. **Results:** We ran each combination of chamber, microbe, and UV-C device in triplicate for In total, 108 samples per species.

For MRSA, the Tru-D vegetative cycle, the 5-minute Moonbeam cycle, and the 3-minute Moonbeam cycle resulted in average CFU log10 reductions of 7.02 (95% CI, 7.02–7.02), 6.99 (95% CI, 6.95–7.02),
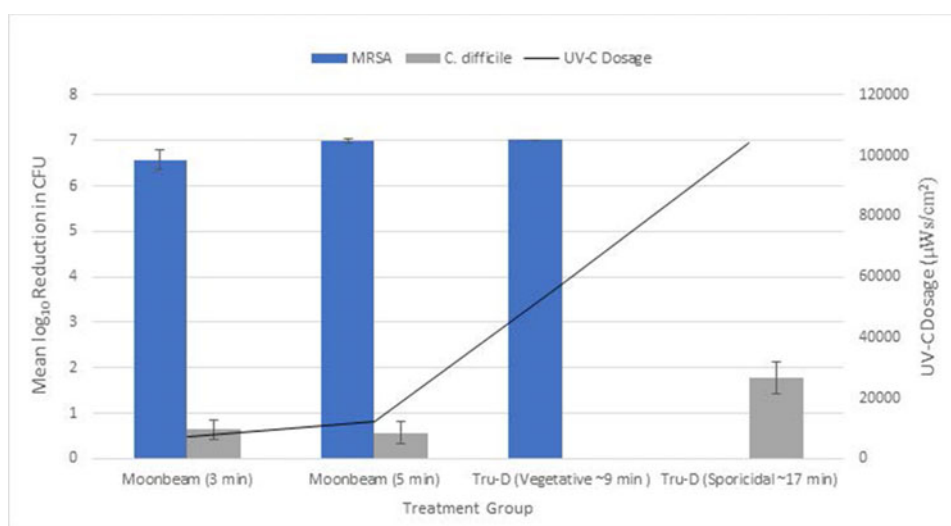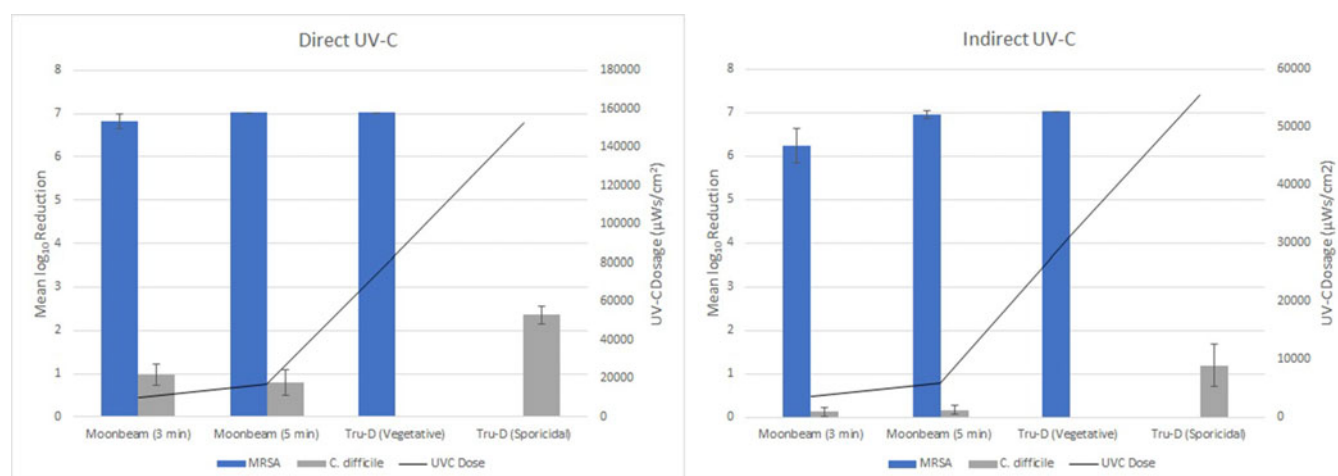

Fig. 1.

Fig. 2.

and 6.58 (95% CI, 6.37–6.79), respectively (Fig. 1). The Tru-D vegetative and 5-minute Moonbeam cycles were similarly effective ($P > .99$), and both were more effective than the 3-minute Moonbeam cycle ($P < .001$ and $P < .001$, respectively). MRSA samples receiving direct UV-C exposure had significantly greater log10 reductions (6.95; 95% CI, 6.89–7.01) than did indirect exposure (6.67; 95% CI, 6.46–6.87; $P < .05$) (Fig. 2). For *C. difficile*, the Tru-D sporicidal, the 5-, and 3-minute Moonbeam cycles resulted in average CFU log10 reductions of 1.78 (95% CI, 1.43–2.12), 0.57 (95% CI, 0.33–0.81) and 0.64 (95% CI, 0.42–0.86), respectively (Fig. 1). Tru-D was significantly more effective than either the 3- or 5-minute Moonbeam cycles ($P < .00$). *C. difficile* samples receiving direct UV-C exposure had higher dosage and significantly greater log10 reductions (1.34; 95% CI, 1.10–1.58) than did indirect exposure (0.58; 95% CI, 0.31–0.86; $P < .01$) (Fig. 2). **Conclusions:** Use of the Tru-D vegetative cycle and the Moonbeam 3- and 5-minute cycles resulted in similar reductions in MRSA; both resulted in significantly greater reductions than the manufacturer's recommended 3-minute Moonbeam cycle. Therefore, healthcare facilities should carefully evaluate manufacturer-recommended run times in their specific clinical setting. For *C. difficile,* the Tru-D sporicidal cycle was significantly more effective than either of the Moonbeam cycles, likely due to higher irradiation levels. As such, direct UV-C exposure resulted in greater average reductions than indirect exposure.

Presentation Type:
Poster Presentation
Emergence of Vancomycin Resistance after Treatment of Enterococcus: Risk Factors for Subsequent Pathogen Resistance

Variable	VSE-VSE (n=99)	VSE-VRE (n=76)	p value
Average Age Years (SD)	60.5 (17.4)	60.4 (16.5)	0.966
Male Gender (%)	45 (45.5)	32 (42.1)	0.7588
E.faecalis (%)	28 (28.2)	21 (27.6)	
Hospital Amission w/in 2y (%)	87 (89.9)	72 (94.7)	0.1848
ICU Admission w/in 2y (%)	35 (35.4)	41 (53.9)	0.0207
Prior *Clostridium difficile* infection (%)	11 (11.1)	20 (26.3)	0.0155
Prior H2 Blocker/PPI	75 (75.8)	56 (73.7)	0.8607
Prior Positive VRE Swab or Culture	28 (28.3)	36 (47.4)	0.0114
Time between Cultures in days (SD)	21.5 (21.7)	21.7 (22.2)	0.9694
Initial VSE Culture Sites			
Abdominal Fluid (%)	13 (13.1)	10 (13.2)	
Abscess (%)	4 (4.0)	3 (4.0)	
Bile (%)	5 (5.1)	4 (5.3)	
Blood (%)	22 (22.2)	17 (22.4)	
Bone (%)	1 (1.0)	1 (1.3)	
Fluid NOS (%)	6 (6.1)	4 (5.3)	
Tissue (%)	10 (10.1)	8 (10.3)	
Urine (%)	38 (38.4)	29 (38.2)	
Antibiotics Prior to Initial VSE			
Amoxicillin-Clavulanic Acid (%)	14 (14.1)	13 (17.1)	0.6744
Ampicillin-Sulbactam (%)	15 (15.1)	5 (6.6)	0.095
Cefazolin (%)	25 (25.3)	3 (3.9)	0.0001
Cefepime (%)	23 (23.2)	32 (42.1)	0.0089
Ciprofloxacin (%)	29 (29.3)	29 (38.2)	0.2575
Daptomycin (%)	14 (14.1)	14 (18.4)	0.5337
Ertapenem (%)	13 (13.1)	8 (10.5)	0.6462
Levofloxacin (%)	28 (28.3)	25 (32.9)	0.5127
Linezolid (%)	10 (10.1)	12 (15.8)	0.3578
Piperacillin-Tazobactam (%)	37 (37.4)	38 (50.0)	0.1232
Trimethoprim-Sulfamethoxazole (%)	14 (14.1)	14 (18.4)	0.5337
Vancomycin (%)	46 (46.5)	53 (69.7)	0.0022
Antibiotics After initial VSE			
Cefepime (%)	15 (15.2)	20 (26.3)	0.0861
Ceftriaxone (%)	14 (14.1)	9 (11.8)	0.822
Cephalexin (%)	7 (7.1)	0 (0	0.0193
Ciprofloxacin (%)	14 (14.1)	8 (10.5)	0.5015
Ertapenem (%)	10 (10.1)	5 (6.6)	0.5873
Linezolid (%)	10 (10.1(	7 (9.2)	1
Piperacillin-Tazobactam (%)	26 (26.3)	21 (27.6)	0.8647
Vancomycin (%)	32 (32.3)	41 (53.9)	0.0053