1221. Comparison of the Antimicrobial Efficacy of Mobile Ultraviolet Light Devices in a Simulated Patient Room

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**Background.** Multiple mobile ultraviolet (UV) light devices are available for disinfection of hospital rooms, but few data are available on the relative ability of devices to reduce surface contamination and ease of use. The objective of the present study was to compare the antimicrobial efficacy of several devices in a laboratory setting.

**Methods.** Using a modification of the ASTM International method E2197, spores of *Clostridium difficile* (ATCC strain BAA-1870) suspended in phosphate-buffered saline (PBS) with 5% fetal calf serum were inoculated onto 20 mm stainless steel disks and dried. Disks were exposed to a UV light source for the specified amount of time. After exposure, the disks were inserted into 20 mL of PBS with 5% fetal calf serum, and cell counts were enumerated using dilution plating, and log reductions were determined by comparing the number of spores recovered from exposed and control disks. Times for set-up, treatment and resetting the space were recorded for each device. Results were compared using Kruskall-Wallis nonparametric analysis.

**Results.** Mean log reductions, percent reductions, run times for patient rooms and bathroom, setup/reset times, total room vacancy times, and percent reduction/minute were determined by comparing the number of spores recovered from exposed and control disks. Times for set-up, treatment and resetting the space were recorded for each device. Results were expressed as mean log reductions and percent reduction/minute of room vacancy. Results were compared using Kruskall-Wallis nonparametric analysis.

**Conclusion.** There are many factors to consider in selecting a UV device. These considerations should include mean log reduction, total vacancy times and percent reduction achieved/minute of room vacancy.

| Device | Mean Log Reduction | Percent Reduction vs Control | Run Time - minutes (patient room) | Run Time - minutes (bathroom) | Set Up/Reset Time - minutes | Total Vacancy Time - minutes | Percent Reduction per Minute of Room Vacant |
|--------|-------------------|-----------------------------|----------------------------------|-------------------------------|----------------------------|----------------------------|-------------------------------------|
| A      | 5.21              | 99.9983%                    | 34.9                             | 7.5                           | 12.0                       | 54.4                       | 1.84%                              |
| B      | 5.23              | 99.9970%                    | 120                             | 120                           | 23.3                       | 263.3                     | 0.38%                              |
| C      | 5.56              | 99.9310%                    | 9.0                             | 3.0                           | 4.8                        | 11.8                       | 3.22%                              |
| D      | 5.55              | 99.9282%                    | 18.8                            | 0                             | 12.0                       | 30.8                       | 3.24%                              |
| E      | 2.54              | 99.6483%                    | 10.0                            | 3.0                           | 4.0                        | 17.0                       | 3.85%                              |

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1222. Are Reduced Concentrations of Chlorine-Based Disinfectants Effective Against *Candida auris*

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**Background.** Currently, sporicidal disinfectants such as bleach are recommended for daily and terminal disinfection of the rooms of patients with *Candida auris* colonization and/or infection. However, bleach and other chlorine-based disinfectants can have adverse effects on surfaces and personnel. Disinfectant solutions with reduced chlorine concentrations are commonly used for other pathogens, but it is not known if diluted or alternative products maintain efficacy against *C. auris* both in vitro and in vivo.

**Methods.** We tested the efficacy of different concentrations of a sodium dichloroisocyanurate (NaDCC) product and sodium hypochlorite using the method recommended by the Environmental Protection Agency (EPA) for evaluation of the efficacy of liquid disinfectants against *C. auris* (EPA MLB SOP MB-35-00) and in a simulated patient room. Carriers were exposed to each disinfectant for 1 and 2 minutes. Log reductions were calculated by subtracting viable organisms recovered after disinfectant exposure vs. deionized water controls.

**Results.** As shown in the figure, the NaDCC product at 4306 ppm tested with a 2 minute contact time reduced *C. auris* by 25 log<sub>10</sub> colony-forming units (CFU) but had reduced efficacy with shorter exposure time or lower concentrations. Sodium hypochlorite was effective with 1 or 2 minute exposure times at a concentration of 6,500 ppm, and was effective at 4,000 ppm with an exposure time of 2 minutes. In the simulated patient room, NaDCC reduced *C. auris* contamination by 26 log<sub>10</sub> CFUs on all surfaces. A chlorine-based NaDCC product was effective at reducing *C. auris*. Both NaDCC and sodium hypochlorite products exhibited reduced efficacy at lower concentrations, particularly at concentrations below 4000 ppm. The NaDCC products were also effective in reducing contamination in the simulated patient room. UV-C treatment was an effective adjunct to manual cleaning.

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