

# Efficacy of a Low-Intensity Ultraviolet Radiation Device for Automated Decontamination of Stethoscopes

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## Background

- ❖ Stethoscopes are potential vectors for transmission of health-care pathogens because they frequently contact patients' skin
- ❖ Stethoscopes are not routinely cleaned between patient examinations
- ❖ We tested the efficacy of a low-intensity UV-C device for decontamination of stethoscopes, including those designated for use in isolation rooms

## Methods

- ❖ The UV Angel is a small portable device containing a single 3.5 inch long cold cathode UV-C lamp that provides automated 6-minute decontamination cycles to small items (Figure 3)
- ❖ The device includes sensors that abort the cycle if motion is detected within the area of UV-C exposure
- ❖ We examined the efficacy of the device against methicillin-resistant *Staphylococcus aureus* (MRSA), carbapenem-resistant *Escherichia coli*, and *C. difficile* spores inoculated on stethoscopes
- ❖ Log reductions were calculated by comparing recovery from treated surfaces versus untreated controls
- ❖ We also cultured 40 in-use stethoscopes before and after 1 cycle of decontamination

Figure 1. Reduction of organisms seeded on stethoscope heads after exposure to UV Angel

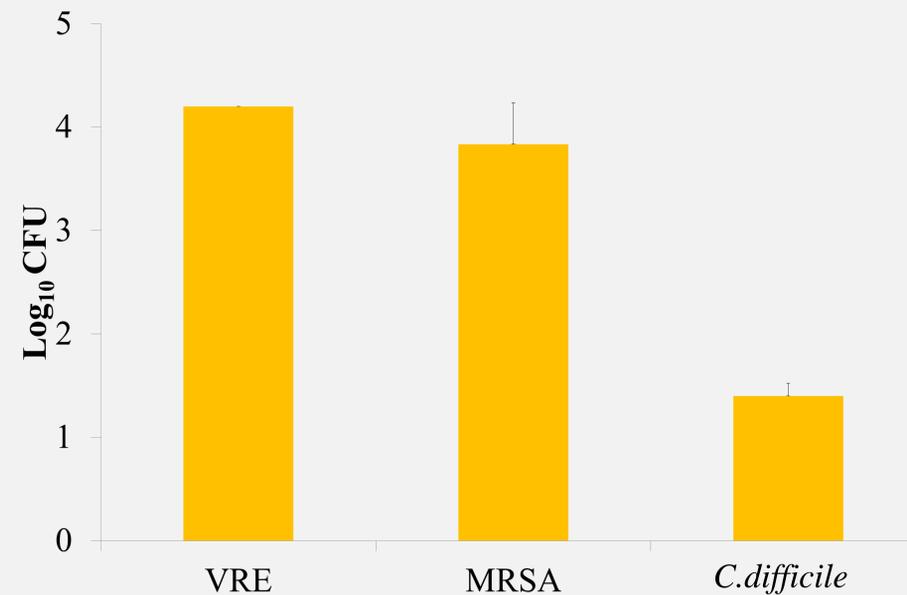
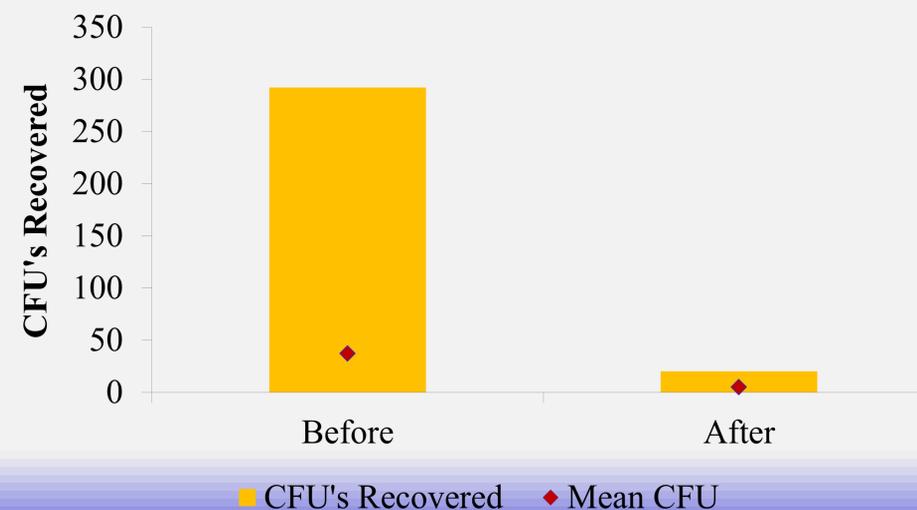


Figure 2. Maximum CFU's recovered and mean CFU's recovered from in use stethoscopes before and after exposure to UV Angel N=40



## Results

- ❖ Recovery of MRSA and *E. coli* was reduced by greater than 3.7 logs with 1 6-minute cycle (Figure 1)
- ❖ Based on indicator strips, there was no detectable UV-C penetration in areas outside the area of exposure directly beneath the lamp
- ❖ Use of the device significantly reduced aerobic colony counts on in use stethoscopes (p=.002) (Figure 2)



Figure 3. UV Angel Device

## Conclusions

- ❖ These findings provide further evidence that low-intensity UV-C could provide a useful means to achieve effective and automated decontamination of small common use objects in healthcare settings

