

# Evaluation of an ultraviolet light device for decontamination of personal items of long-term care facility residents

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## Background

- Daily disinfection of high-touch surfaces in patient rooms is a common practice designed to reduce the risk for transmission of healthcare-associated pathogens
- However, hospitalized patients and long-term care facility (LTCF) residents often have a number of high-touch personal use items in their rooms that are not amenable to decontamination with liquid disinfectants

Figure 1. Personal items in long term care facility patient rooms



## Methods

- We performed a point-prevalence culture survey of personal use items in rooms of LTCF residents with methicillin-resistant *Staphylococcus aureus* (MRSA) colonization and evaluated the efficacy of a portable ultraviolet-C (UV-C) device (MoonBeam3, Daylight Medical) for decontamination of the items
- Wheelchairs and personal use items on tables and in drawers and closets were cultured for MRSA before and after running the device for 5 minutes
- Fischer exact test and Student's t- tests were used to compare the frequency of contamination and MRSA colony forming units (CFUs) before and after disinfection

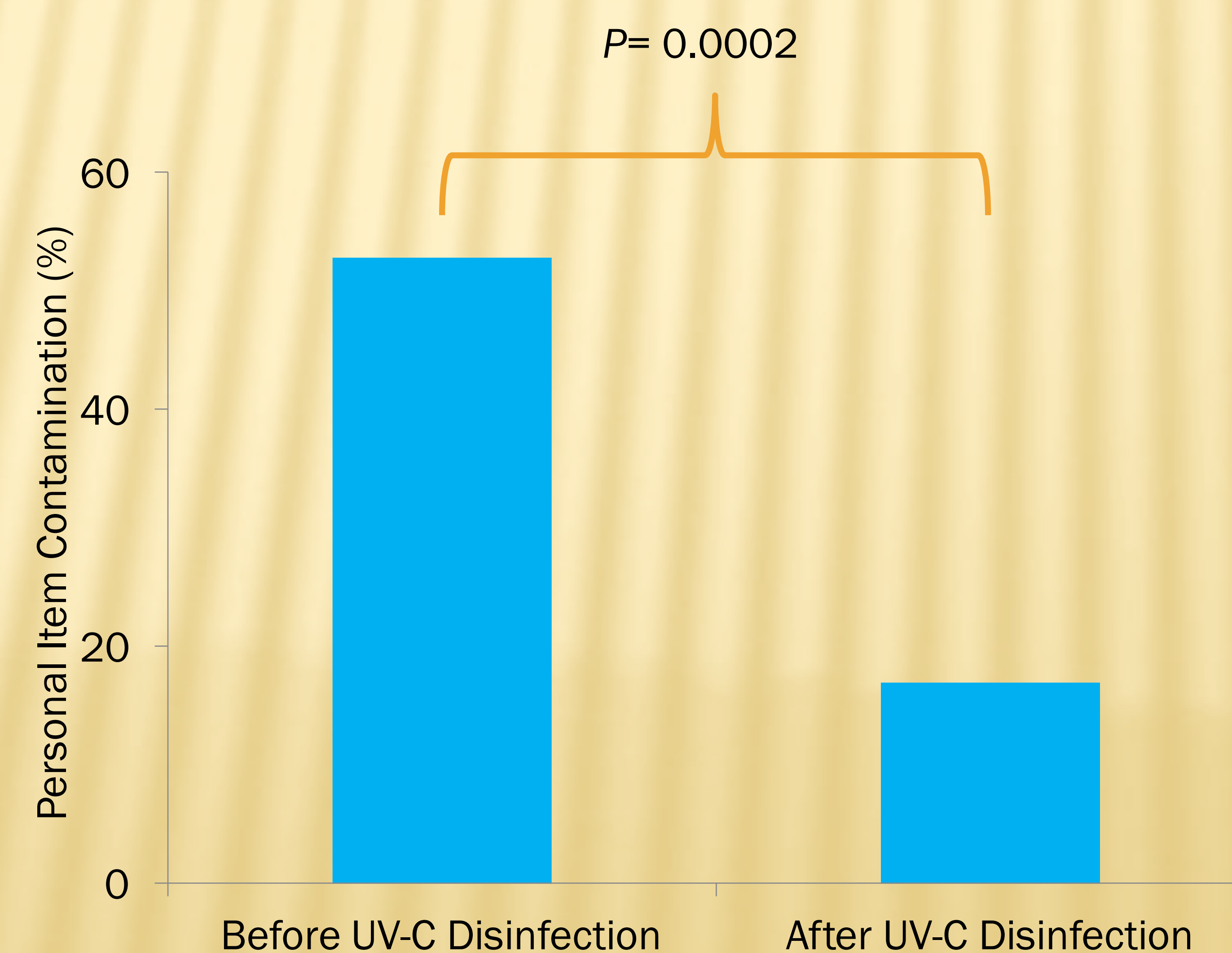
Figure 2. Moonbeam3 UV-C device



## Results

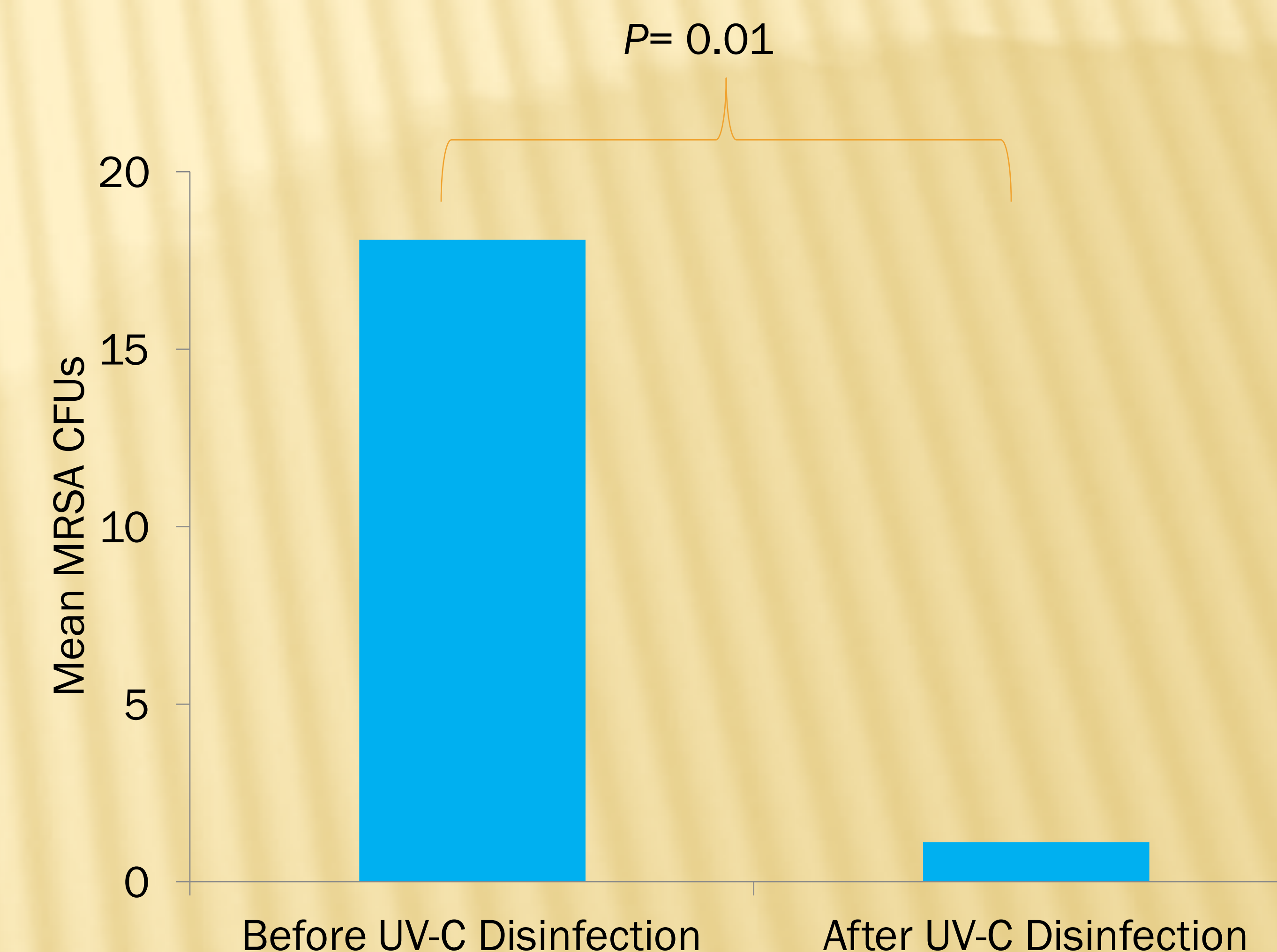
- Of 53 items cultured from 13 rooms, 28 (53%) were contaminated with MRSA
- A wide range of sites were contaminated, including wheel chairs, hats, pens, medication and food containers
- For positive cultures, the mean number of MRSA colonies recovered was 18 (range 1-303)
- The UV-C device reduced the frequency of recovery of MRSA (Figure 3) and the mean number of colonies recovered (Figure 4)
- There were no apparent adverse effects of UV-C on the items

Figure 3. Effect of portable UV-C device on frequency of personal item contamination with MRSA



## Results

Figure 4. Effect of portable UV-C device on number of MRSA colonies recovered from personal items



## Conclusions

- Contamination of personal items with MRSA was common in rooms of LTCF residents colonized with MRSA
- UV-C could provide a novel strategy to reduce levels of contamination on personal items
- Further studies are needed to evaluate if longer UV-C cycles will eliminate contamination

## Acknowledgements

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