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## Abstract

**Background:** Floors in *Clostridium difficile* infection (CDI) isolation rooms may be contaminated with spores, but sporicidal disinfectants are not commonly used on floors in healthcare facilities. It is plausible that floors could contribute to *C. difficile* transmission because they are frequently contacted by surfaces that are subsequently touched by hands (e.g., shoes, socks, wheelchairs, portable equipment). OxyCide Daily Disinfectant Cleaner™ is a sporicidal peracetic acid/hydrogen peroxide-based daily disinfectant cleaner that can be used on a wide range of surfaces including floors.

**Study Design/Methods:** In the laboratory, we examined the efficacy of OxyCide versus a 1 to 10 dilution of household bleach for killing of *C. difficile* spores, vancomycin-resistant *Enterococci* (VRE), and methicillin-resistant *Staphylococcus aureus* (MRSA). In CDI isolation rooms, floors in bathrooms and adjacent to the patient bed were cultured for *C. difficile*, VRE, and MRSA. We compared the effectiveness of OxyCide versus a quaternary ammonium disinfectant for disinfection of floors contaminated with *C. difficile* spores.

**Results:** In the laboratory, OxyCide was as effective as bleach for disinfection of *C. difficile* spores, VRE, and MRSA, resulting in >5 log reductions in recovered counts of each organism. Of 54 CDI rooms cultured, contamination with *C. difficile*, VRE, and MRSA was detected in 7 (13%), 6 (11%), and 4 (7%). OxyCide eliminated *C. difficile* from contaminated floors, whereas a quaternary ammonium disinfectant resulted in redistribution of spores from contaminated to clean sites. There was no evidence of adverse effects to surfaces after multiple applications of OxyCide and no reported complaints from nursing staff or patients.

**Conclusions:** Floors in CDI rooms were frequently contaminated with *C. difficile* spores and other pathogens. OxyCide Daily Disinfectant Cleaner was as effective as bleach for in vitro killing of *C. difficile* spores, MRSA, and VRE, and it eradicated *C. difficile* spores from contaminated floors.

## Introduction

- Floors in *Clostridium difficile* infection (CDI) isolation rooms may be contaminated with spores, but sporicidal disinfectants are not commonly used on floors in healthcare facilities
- It is plausible that floors could contribute to *C. difficile* transmission because they are frequently contacted by surfaces that are subsequently touched by hands (e.g., shoes, socks, wheelchairs, portable equipment)
- OxyCide Daily Disinfectant Cleaner™ is a sporicidal peracetic acid/hydrogen peroxide-based daily disinfectant cleaner that can be used on a wide range of surfaces including floors

## Objective

To evaluate the effectiveness of OxyCide Daily Disinfectant Cleaner *in vitro* and for disinfection of floors in *C. difficile* and MRSA isolation rooms

## Methods

- In the laboratory, we examined the efficacy of OxyCide versus a 1 to 10 dilution of household bleach for killing of *C. difficile* spores, vancomycin-resistant *Enterococci* (VRE), and methicillin-resistant *Staphylococcus aureus* (MRSA)
- In CDI isolation rooms, we compared the effectiveness of OxyCide versus a quaternary ammonium product for disinfection of *C. difficile*, VRE, and MRSA

## Results

- In the laboratory, OxyCide was as effective as bleach for disinfection of *C. difficile* spores, VRE, and MRSA, resulting in >4-5 log reductions in recovered counts of each organism (Figure 1)
- Of 54 CDI rooms cultured, contamination with *C. difficile*, VRE, and MRSA was detected in 7 (13%), 6 (11%), and 4 (7%)
- In CDI rooms, OxyCide significantly reduced levels of pathogens on contaminated floors, whereas a quaternary ammonium disinfectant did not (Figure 2)
- There was no evidence of adverse effects to surfaces after multiple applications of OxyCide and no reported complaints from nursing staff or patients

Figure 1. *In vitro* killing of pathogens by OxyCide versus 10% bleach

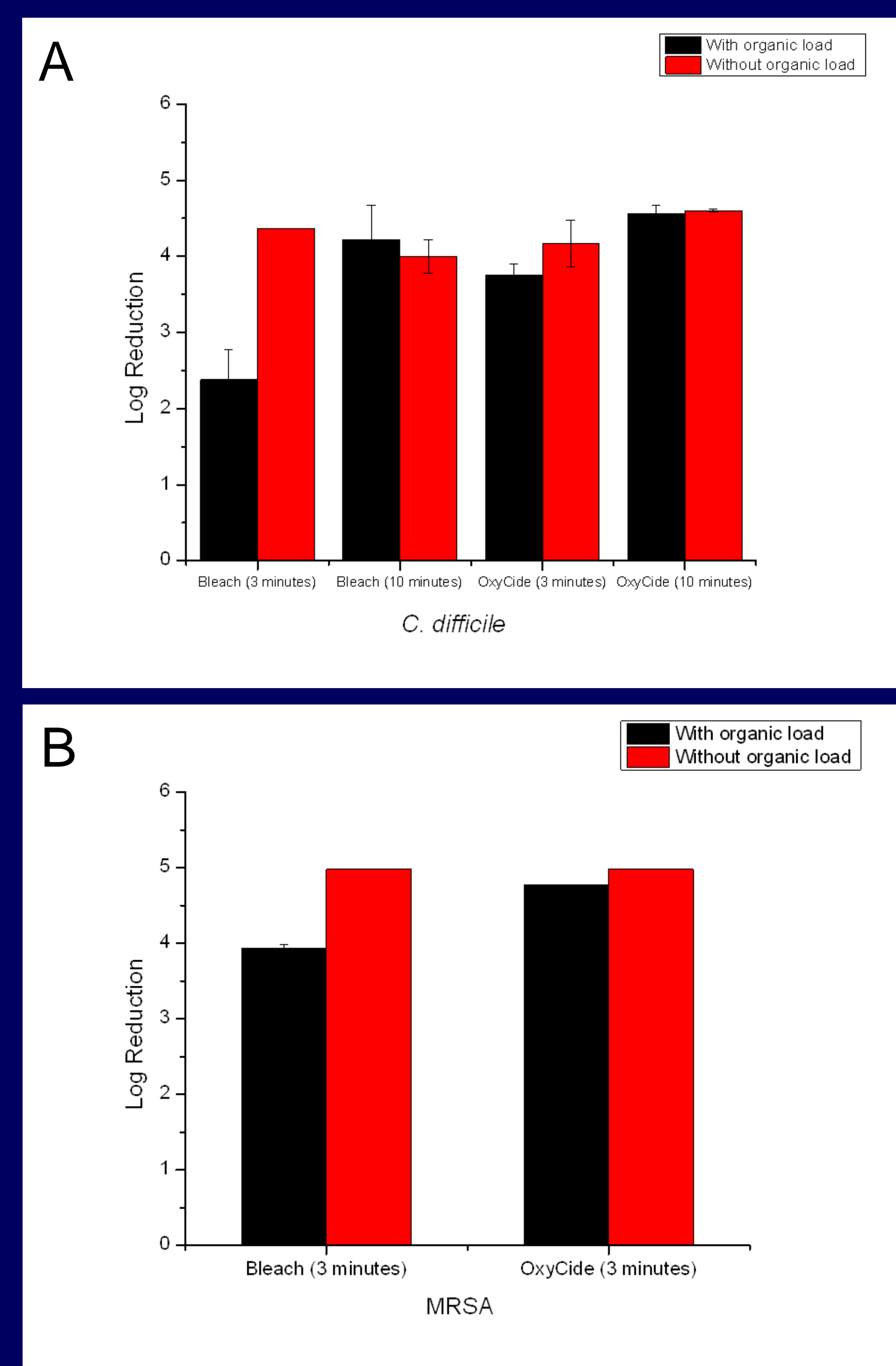
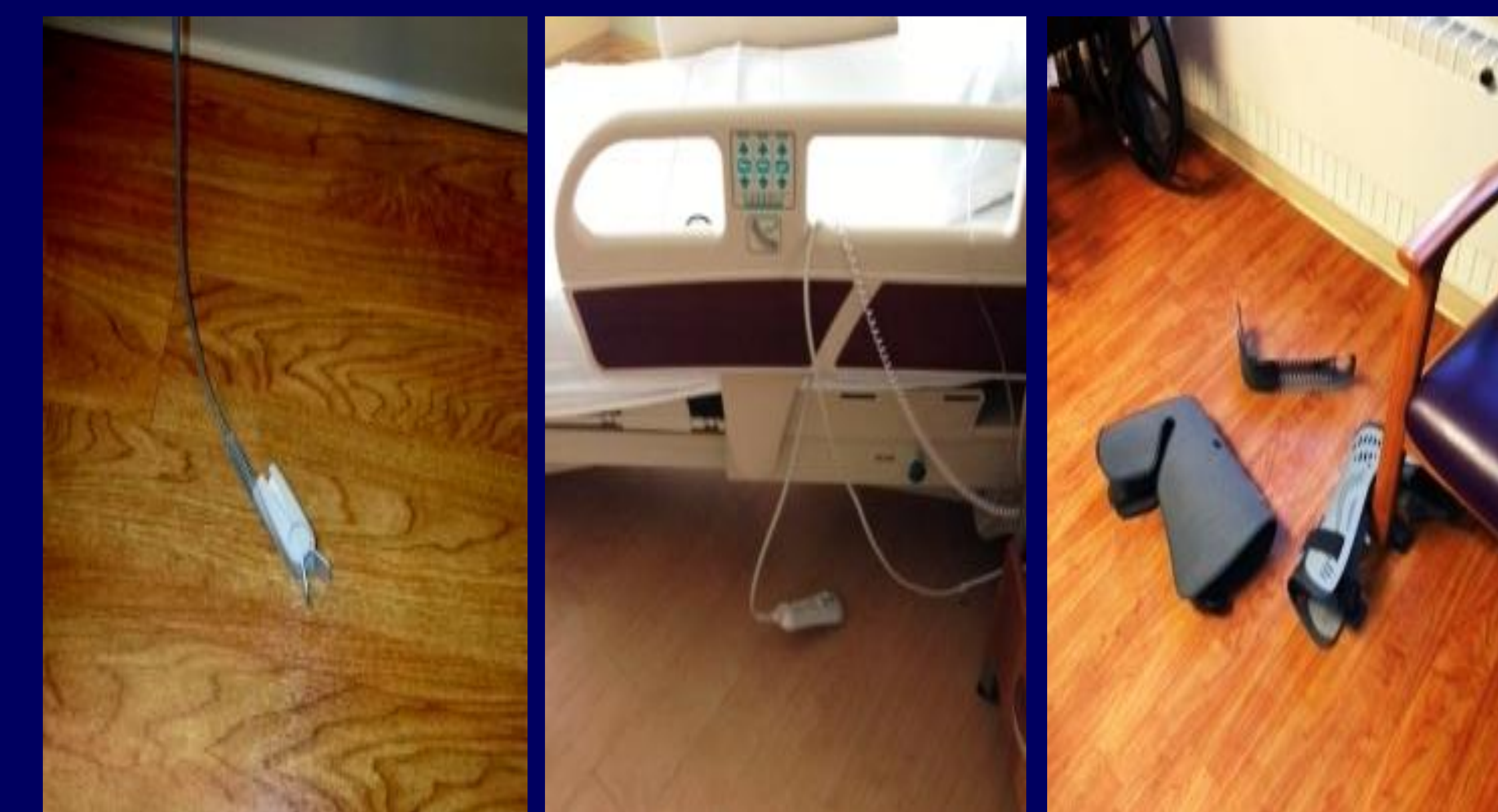
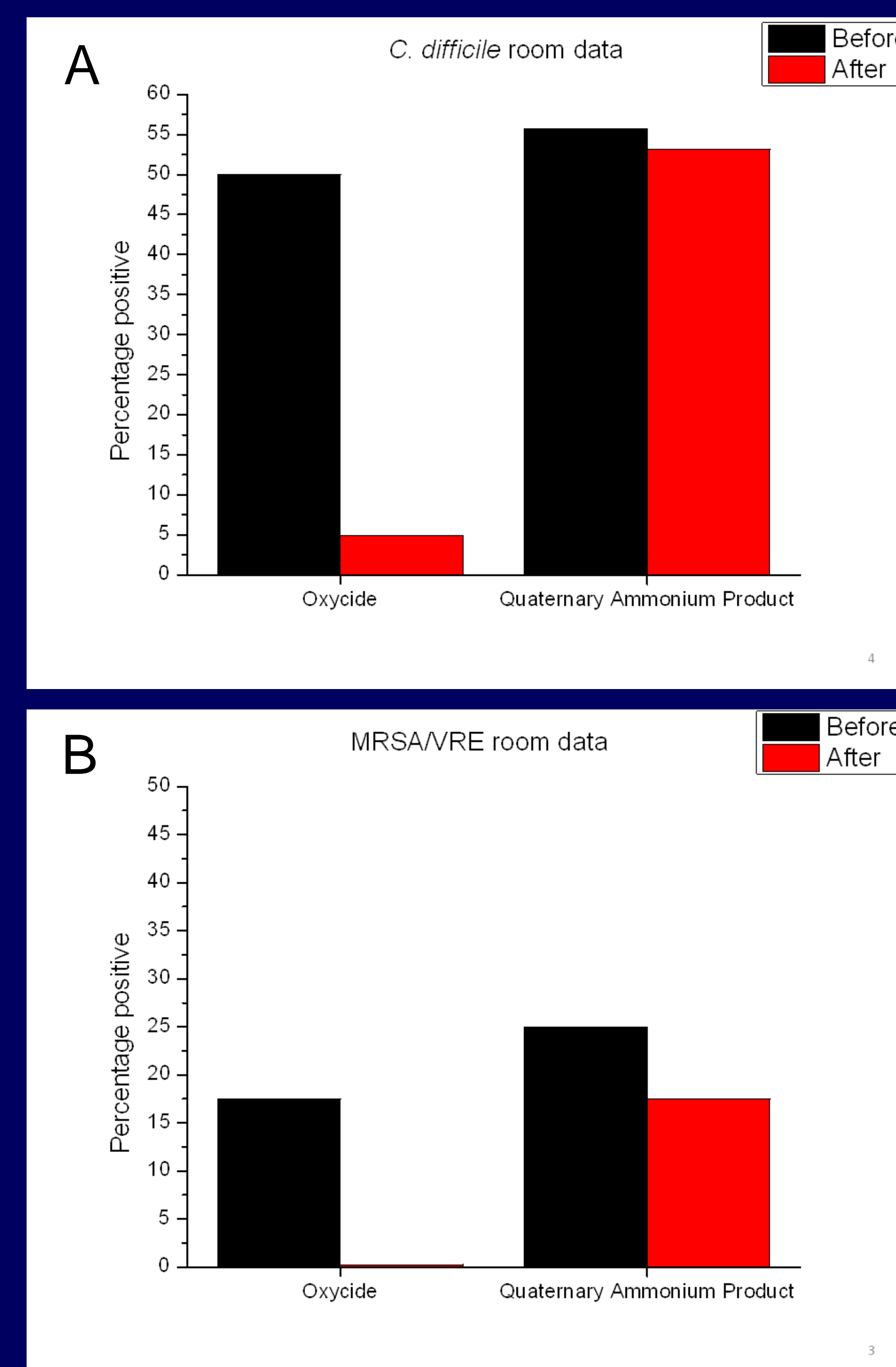


Figure 2. Effectiveness of OxyCide versus a quaternary ammonium product for disinfection of pathogens on floors in CDI isolation rooms



## Conclusions

- Floors in CDI rooms were frequently contaminated with *C. difficile* spores and other pathogens
- OxyCide Daily Disinfectant Cleaner was as effective as bleach for *in vitro* killing of *C. difficile* spores, MRSA, and VRE, and it eradicated *C. difficile* spores from contaminated floors