Effectiveness of a sporicidal peracetic acid/hydrogen peroxide-based daily disinfectant cleaner for disinfection of floors in patients with Clostridium difficile infection

Abhishek Deshpande MD, PhD1,2 • Thirteen SC Mana MS MBA1,2 • Annette C Jencson BS, MT(ASCP), CIC1 • Jennifer L Cadnum BS1,2 • Brett Sitzlar BS1,2 • Dennis Fertelli 1,2 • Kelly Hurless BS1 • Sirisha Kundrapu MD1,2 • Venkata CK Sunkesula MD, MS1,2 • Curtis J Donskey, MD1,2

1Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Cleveland, OH • 2Case Western Reserve University, Cleveland, OH

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.

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 vitro killing of C. difficile spores
- 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. 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 Clostridium difficile infection (CDI) isolation rooms may be contaminated with spores, but sporicidal disinfectants are not commonly used on floors in healthcare facilities.
- 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.
- In CDI rooms, Oxycide significantly reduced levels of pathogens on contaminated floors, whereas a quaternary ammonium disinfectant did not.
- There was no evidence of adverse effects to surfaces after multiple applications of Oxycide and no reported complaints from nursing staff or patients.