

Optimal Patient Room Cleaning and Disinfection; Product and Compliance

(Boyce, Presented at the National APIC Conference, June 2016)

Abstract

Historically, the documentation of effective approaches to eliminating environmental reservoirs to reduce the spread of hospital-associated infections (HAIs) has posed a challenge. HAIs caused by antibiotic resistant organisms, such as vancomycin-resistant enterococci (VRE), methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile*, represent a significant impact on patient morbidity and mortality, in addition to the financial burden it has on the healthcare system. This combination emphasizes the importance of being able to assess the role of the environmental disinfection in HAI transmission as well as the degree of cleaning compliance by staff members. This study considers a relatively new yet proven chemistry broadly used in healthcare facilities known as Accelerated Hydrogen Peroxide® (AHP®) in contrast with current chemistries that have known shortcomings.

Background

There has been increasing recognition of the role that contaminated environmental surfaces play in transmission of HAIs. In some hospitals less than 50% of surfaces that should be cleaned and disinfected are actually wiped down by environmental services, emphasizing the importance of compliance monitoring. Disinfectants containing quaternary ammonium compounds (QUATs) are among the most widely used products in healthcare settings yet have long contact times, limited spectrum of efficacy and may be harmful to the user.

Study

The objective of this study was to evaluate the correlation between surface decontamination and HAIs using two different disinfectant chemistries; a QUAT based product and an Accelerated Hydrogen Peroxide® (AHP®) ready-to-use disposable wipe.

Over a twelve month period, using a cross-over design on two campuses of a university-affiliated hospital, two wards in each hospital were randomized to have housekeepers and nursing staff perform routine daily cleaning and disinfection of surfaces and shared patient care equipment. One ward was cleaned and disinfected with the QUAT based disinfectant, while the other used AHP®. AHP® wards did not use a sporicidal agent for suspected or confirmed *C. difficile* patients. After the initial six months, ward assignments were changed.

A review of housekeeper practices for daily patient room cleaning was performed before starting the study. Each month 5-8 high touch surfaces in several patient rooms on each study ward were cultured

using Rodac plates and tagged with a fluorescent marker before regular housekeeping was performed. Surfaces were then checked for presence of the fluorescent marker and cultured again after housekeeping was performed.

Results

The controlled comparison of AHP® with a QUAT disinfectant for routine daily room disinfection revealed that when there was ≥80% cleaning compliance:

- There were significantly lower aerobic colony counts (58%) on surfaces after cleaning with AHP®.
- There were significantly great proportions of surfaces with no growth on surfaces (36%) following cleaning with AHP®.
- The use of AHP® resulted in a 23% reduction of HAIs, including *Clostridium difficile*, VRE and MRSA.

Conclusions

This study was important in concluding that when a disposable AHP®-based ready-to-use wipe was utilized as a cleaning method on a daily basis to patient care high-touch environmental surfaces with a minimum of 80% compliance, the rates of HAIs caused by, *Clostridium difficile*, MRSA, and VRE were significantly reduced. This study indicated that to achieve HAI reduction there were three key components: a clearly defined housekeeping protocol with education, routine housekeeping cleaning compliance monitoring with a minimum of 80% compliance, and the use of an effective disinfectant cleaner.

Implications for AHP®

This is the second study¹ that has shown that AHP® can reduce HAIs including *C. difficile*, MRSA and VRE by 20% or greater.

AHP® Disinfectants are One-Step Disinfectant Cleaners

•AHP® has proven cleaning efficiency resulting in lower costs and faster results as well as added confidence that disinfection will occur

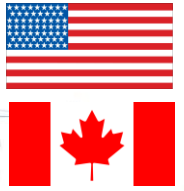
AHP® Disinfectants have realistic contact times

•Short contact times ensure surfaces remain wet for the required contact time, providing comfort and confidence that disinfection has occurred

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DISINFECTION DIGEST

...FOCUSED ON SCIENCE



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AHP® Disinfectants provide the perfect balance between safety and efficacy

- AHP's® non-toxic, non-irritating to eyes and skin and non-skin sensitizing formula is designed to be easier on employees and occupants resulting in protocol compliance

AHP® Disinfectants are compatible

- AHP® formulations are tested to ensure compatibility that preserve your investments in equipment, furniture, and building surfaces

AHP® Disinfectants are environmentally sustainable

- AHP's active ingredient, hydrogen peroxide, breaks down into water and oxygen leaving no active residues and will not negatively impact indoor air quality

ⁱ Use of a daily disinfectant cleaner instead of a daily cleaner reduced hospital-acquired infection rate. AJIC 43 (2015) 141-6

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