

SHORT REPORT

Perceptions of environmental services staff regarding disinfectants for cleaning in healthcare facilities

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Abstract

This report examines environmental services staff (ESS) experiences when using bleach compared to a non-bleach, peroxide-based sporocide for disinfection at an academic medical center. Other studies focus on examining the efficacy of health-care disinfection products with little to no assessment of impact on the user. We found that ESS perceive better tolerability for non-bleach, peroxide-based sporocides compared with bleach-based products. Future studies should consider end user perceptions and experience when examining disinfection products.

Keywords: Disinfection; Disinfectants; Perception; Housekeeping

Introduction

The hospital environment is an important factor in the transmission of pathogens that cause infections in healthcare institutions. Environmental Services Staff (ESS) are responsible for practicing appropriate cleaning protocols. With the continued rise of *Clostridium difficile* infection rates in hospitals, effective sporocidal agents are crucial.

Bleach is a widely known sporocidal chemical disinfectant often implemented into cleaning procedures within healthcare facilities to decontaminate environmental surfaces, medical equipment, and spills of potentially infectious material such as blood and body fluids. For the last several years, bleach was used as a daily disinfective agent within our facility due to its sporocidal effectiveness. Twelve

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months ago, a hydrogen-peroxide-based disinfectant was implemented in a few units to test its tolerability. This product is a one-step cleaner and disinfectant that is bactericidal, virucidal, and sporicidal, while other advantages include five minute disinfection, environmental safety, increased compatibility with surfaces without any visible residue, and cost-effectiveness.

Many studies evaluate disinfection products within healthcare facilities but rarely address the frontline workers' perceptions of the disinfecting agent. We undertook a qualitative study to gauge ESS perceptions on bleach-based versus peroxide-based disinfectants approved for daily use in healthcare settings. A random sample of ESS at our facility was interviewed by a University of Wisconsin -Madison undergraduate researcher. Peroxide-based disinfectant users and bleach-based disinfectant users were interviewed to compare the perceptions of the staff for these two agents.

Methods

Procedure Review

Prior to implementing the trial of peroxide-based disinfectant, procedures for cleaning and disinfection at our facility were reviewed. Aside from the peroxide disinfection trial, all general patient room-cleaning procedures were performed using bleach. Here, we compare the use of bleach versus a peroxide-based disinfectant for routine disinfection and cleaning of hospital surfaces in patient rooms.

Interview Design, Strategies and conduction

A random sample of 40 out of a total of 298 ESS at our academic tertiary care facility was interviewed from February to March of 2015. All ESS had experience with both bleach and the new peroxide-based disinfectant. Interview questions were developed and pilot tested to ensure comprehensibility.

Both afternoon and evening shift staff were interviewed by a trained undergraduate researcher from UW-Madison in groups of 4-10 people depending on the staff availability. Each group interview lasted approximately 20 minutes.

Results

All interviewees agreed that peroxide-based disinfectant was easy and effective to implement into their daily cleaning routines. Peroxide-based disinfectant users indicated that cleaning required less time compared to bleach-based disinfectants that leave a powdery film or residue, which has to be wiped off. One interviewee elaborated, "you're basically doing the job twice. You're cleaning it and then you're cleaning up the clean...if someone uses bleach, it takes me two or three days to get the film out". Another interviewee reported patient complaints from bleach residue stains: "patients think it's dirty. Patients would say 'can you re-wipe that?' so I'll have to take a towel with water on it to go over it again." Users reported bleach contributing to nausea, headaches, migraines, dizziness, skin sensitivity, breathing problems, coughs, chest pain, burning eyes and nose sensations. Some stated that they couldn't work continuously after inhaling bleach fumes.

Peroxide-based disinfectant was reported as having a very strong vinegar smell that was, however, more tolerable than bleach. All interviewees reported complaints from patients who could not tolerate bleach smell, and stated that the majority of patients they had encountered better tolerated the peroxide smell. ESS complained about frequently ordering new uniforms and buying new clothes because of bleach, saying "it has a lot to do with your own pockets too, constantly buying shirts and blouses. The bleach stains your clothes easily and patients ask 'why are your clothes dirty'." Interviewees stated that bleach-based disinfectant was hard on fixtures and ruined equipment in patient rooms, causing discoloration and cracking of vinyl. One ESS described the harshness of bleach, "it's too harsh of a cleaner to be using in hospital settings. When you're wiping down pieces of equipment that they will eventually use to save someone's life, you have to take the safeguard approach."

There were no reports of peroxide-based disinfectants damaging surfaces or equipment. While three interviewees questioned whether peroxide-based disinfectant cleans as well as bleach-based disinfectant, the majority of interviewed ESS concluded that hydrogen peroxide-based and bleach-

based disinfectants were equally effective cleaning agents and that peroxide-based products were better tolerated.

Discussion

In the opinion of the ESS at our facility, the benefits of peroxide-based disinfectant include superior surface compatibility without any visible residue, no personal protective equipment requirement for users, no damage of uniforms and fabrics, and cost savings. Although bleach at a concentration of 10% sodium hypochlorite is recommended for cleaning of rooms with *C. difficile*, it may not be necessary for routine disinfection and cleaning of all rooms in healthcare institutions. Few studies evaluate use of bleach for routine cleaning.¹ We have found that bleach corrodes metal instruments in the hospital room, emits a strong and displeasing odor, and leaves a thin film that requires a second cleaning. Many patients prefer not to occupy rooms immediately after cleaning due to bleach fumes. ESS procedure compliance could significantly improve by using less corrosive disinfectants, since greater than 80% compliance with environmental disinfection is necessary to reduce hospital acquired infections.²

Bleach-based disinfectants can continue to negatively impact workers and disrupt their daily workflow; hence, more research should be devoted to finding efficient, well tolerated cleaning products for ESS in health-care facilities. Staff overwhelmingly rated peroxide-based disinfectant as easier, simpler, more time-efficient and effective than bleach-based disinfectant. Based on our results, further studies need to address the efficacy of peroxide-based disinfection and the frontline worker's perceptions of the cleaning product.

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