

Decontamination of unused medical supplies reduces health-care costs

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In rooms of patients with multidrug-resistant organisms (MDROs), the outside of the packages containing sterile items can become contaminated. Unused medical supplies are often thrown away to prevent the items from becoming pathways for transmission of drug-resistant microbes, and in the process this leads to increased healthcare costs. Researchers at Johns Hopkins Hospital found that hydrogen peroxide vapor (HPV) is an effective way to sanitize the outside of the packages of these sterile supplies.

In addition to protecting patients, use of [HPV](#) could provide financial and environmental benefits. The study is published in the May issue of *Infection Control and Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America, in a special topic issue focused on the role of the environment in [infection prevention](#).

In a two-phase study, Johns Hopkins Hospital researchers assessed the rate of contamination of packages containing sterile supplies and the ability of HPV to disinfect the outside of these packages. In each phase, five pairs of supplies from 20 rooms of patients colonized or infected with various MDROs were selected. One of each pair was sampled without exposure to HPV and the other was sampled after decontamination using HPV on a metal rack in patients' rooms.

In the initial study of packaged supplies taken from rooms of patients known to be colonized with [vancomycin](#)-resistant enterococci (VRE), 7% of 100 untreated packages were found to be contaminated with

VRE, versus none of the 100 packaged supplies exposed to HPV. In the subsequent study that assessed all MDROs, one or more MDROs was grown from 9 of the 100 supply items not exposed to HPV and from none of the packages exposed to HPV.

Using inventory lists and [electronic medical records](#), researchers projected the annual cost of discarded supplies because of potentially contaminated packages from patient isolation rooms from the six units included in the study to be \$387,055. The researchers see this as a conservative estimate since medical waste disposal costs were not included.

"Our study results show that supplies in the rooms of patients in Isolation precautions can become contaminated with multidrug-resistant organisms, which may present a risk to other patients if they are not discarded or disinfected when the patient is discharged," said infectious disease specialist and study senior investigator Trish Perl, MD, MSc. "[Hydrogen peroxide](#) vapor looks to be a cost-effective and environmentally-friendly means to manage potentially contaminated packaged supplies."

Several study authors are employed by Bioquell, which provided HPV disinfection services without charge to Johns Hopkins Hospital for the duration of this study.

More information: Jonathan A. Otter, Elaine Nowakowski, James A. G. Salkeld, Mike Duclos, Catherine L. Passaretti, Saber Yezli, Tracy Ross, Karen C. Carroll, Trish M. Perl. "Saving Costs through the Decontamination of the Packaging of Unused Medical Supplies using Hydrogen Peroxide Vapor." *Infection Control and Hospital Epidemiology* 34:5 (May 2013).

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