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Study Finds Gaps in Best Methods for Cleaning Hospital Rooms

A new systematic overview published in Annals of Internal Medicine finds a lack of evidence as to which methods are most effective at reducing health-care associated infections (HAIs). The study shows gaps in best methods for cleaning hospital rooms, gaps that should be filled keeping in mind the fact that nearly 75,000 HAI-related deaths occur in the US annually. Many experts believe that only 50 percent of surfaces are disinfected cleaning of hospital rooms.

The review as led by a team at the University of Pennsylvania and reveals major gaps in existing evidence for the best practices for cleaning hospital room surfaces.

“The cleaning of hard surfaces in hospital rooms is critical for reducing healthcare-associated infections,” said Jennifer Han, MD, MSCE, an assistant professor of Medicine and Epidemiology and the study’s lead author. “We found that the research to date does provide a good overall picture of the before and after results of particular cleaning agents and approaches to monitoring cleanliness. Researchers now need to take the next step and compare the various ways of cleaning these surfaces and monitoring their cleanliness in order to determine which are the most effective in driving down the rate of hospital-acquired infections.”

The researchers examined 80 published studies between 1998-2014 and found that comparative effectiveness studies were uncommon. They also found relatively few studies that measured changes in HAI rates or the presence of pathogens on patients. Only five of the studies were randomised controlled trials. Most of the studies that have been conduced have been before and after experiments and have compared the the magnitude of surface contamination after cleaning with a particular agent to the magnitude of contamination before cleaning.

For this particular review, the ECRI-Penn EPC team evaluated three categories of evidence: 1) which agents and methods were used to clean hard surfaces; 2) what approaches were available to monitor the effectiveness of cleaning; and 3) what systems-level factors are needed for cleaning and monitoring to be successful. They also interviewed national experts to obtain a more comprehensive overview of the issue.

The EPC team was able to identify studies that showed rates of C. difficile infections fell with the use of bleach-based disinfectants but a chlorine dioxide based product was ineffective in reducing C. diff contamination and infection rates. They also found that integrating various wipes moistened with hydrogen peroxide and other chemicals reported positive outcomes and sustained reductions in HAIs. Seventeen studies found no-touch modalities such as ultraviolet light or hydrogen peroxide vapor reported positive results and seven studies found enhanced coatings on hospital surfaces had positive impact.

"In addition to expanding the use of comparative effectiveness research and placing greater emphasis on patient-centered outcomes, future research should investigate the effectiveness of a number of promising new technologies and approaches," said Han. "These include self-disinfecting coatings and increasingly used surface markers for monitoring the presence of pathogens. Other challenges include identifying high-touch surfaces that confer the greatest risk of pathogen transmission and developing standard thresholds for defining cleanliness."

Source: Perelman School of Medicine at the University of Pennsylvania
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