What is the real problem with using surface disinfectant wipes?

by John A. Molinari, PhD

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It is an understatement to say that the general public has become increasingly aware, concerned, and even fearful about microbial cross-contamination and transmission of microbial infections.

News services and the media frequently report results of surveys and journal publications that investigate infection control topics such as hand washing, health-care infection risks for hospitalized patients, and the dangers of antibiotic misuse. Unfortunately, when reflecting on the reports that triggered the press releases, the major problem is often improper use of procedures or products — not their registered efficacy. As a result, we are subjected to sensationalized headlines and stories, which result in anxious public responses that are neither accurate nor warranted.

An example of this deals with the use of antimicrobial surface disinfectant wipes. Following the presentation of a paper at the 2008 meeting of the American Society for Microbiology, media medical updates appeared with titles such as “Are antibacterial wipes effective in killing germs?” and “Antibacterial wipes can spread superbugs: study.”

These stories arose from a Cardiff University in Wales investigation that evaluated the ability of environmental wipes to clean and disinfect contaminated surfaces. Researchers developed a surveillance protocol in which they observed and recorded how hospital personnel used surface wipes to clean and decontaminate a variety of surfaces including bed rails, tables, and key pads.

Findings from this study indicated that many hospital personnel were using a single wipe several times to clean and disinfect multiple surfaces before discarding it. Investigators then set up a system in their laboratories to replicate this practice using methicillin-resistant Staphylococcus aureus (MRSA) and methicillin-sensitive S. aureus (MSSA) as test organisms. The test protocol evaluated a variety of commercially available wipes for 1) the ability to disinfect surfaces contaminated with test bacteria; 2) the potential to transfer bacteria to other wiped surfaces; and 3) antimicrobial activity with repeated use.

The reported findings showed differences in cleaning between different commercial surface wipes, and cross-contamination of MRSA and MSSA when wipes were reused multiple times. In fact, variable concentrations of both test microorganisms were transferred to other wiped surfaces when products were used more than once. The resulting widespread public fallout and anxiety caused the study's authors to clarify their study's implications.

Contrary to the perception that inanimate surface wipes neither clean nor disinfectant contaminated surfaces, this investigation instead highlighted an inappropriate and potentially risky practice in health-care facilities.

Many disinfectant wipes can clean contaminated surfaces routinely and, when used on a cleaned surface, are registered as EPA-approved intermediate level (i.e., tuberculocidal) disinfectants. The key is using products that can clean to remove bioburden and using them in a manner consistent with their efficacy.

Wipes are designed for single use on a surface. Unfortunately, some personnel think that a quick application takes care of any potential problems. They may even use one, instead of multiple wipes, to "clean" a large area in a room or many contaminated items/surfaces. As was shown with the staphylococcal demonstration, this incorrect practice can spread potentially dangerous pathogens to previously uncontaminated surfaces.

What useful information can we glean from this report?

1. The use of environmental surface disinfectant wipes offers an appropriate choice to accomplish decontamination of inanimate surfaces.
2. The first important step in any decontamination process is adequate cleaning by removing microbial bioburden. Failure to adequately clean compromises the subsequent disinfection process.
3. The physical composition and active antimicrobial chemical content of a wipe are important considerations when choosing an effective product.
4. Antimicrobial capabilities of disposables can be compromised when too large a contaminated surface is treated.

Consumers should always read product labels for instructions on the proper use of wipes. Many manufacturers include statements regarding the use of multiple wipes for cleaning and disinfection, and for keeping treated surfaces wet for the required antimicrobial periods.

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