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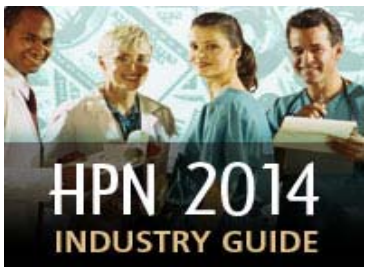
May Cover Story

[Sanford Fargo stands for SPD excellence]



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CLINICAL INTELLIGENCE FOR SUPPLY CHAIN LEADER

INSIDE THE CURRENT ISSUE

Infection Prevention

Wiping out the bugs with environmental cleaning

by Susan Cantrell, ELS

Healthcare facilities have an ongoing battle with bugs, both microscopic and multi-legged. We've all heard stories of hospitals or departments being closed temporarily due to, for example, bed bugs or outbreaks of multiresistant bacteria. However, such reports don't necessarily mean the facility in which the bugs were found were unclean or unsafe. Microscopic and multi-legged bugs are drawn to healthcare facilities like moths to a flame. The important thing is to be ready for

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them when they arrive.

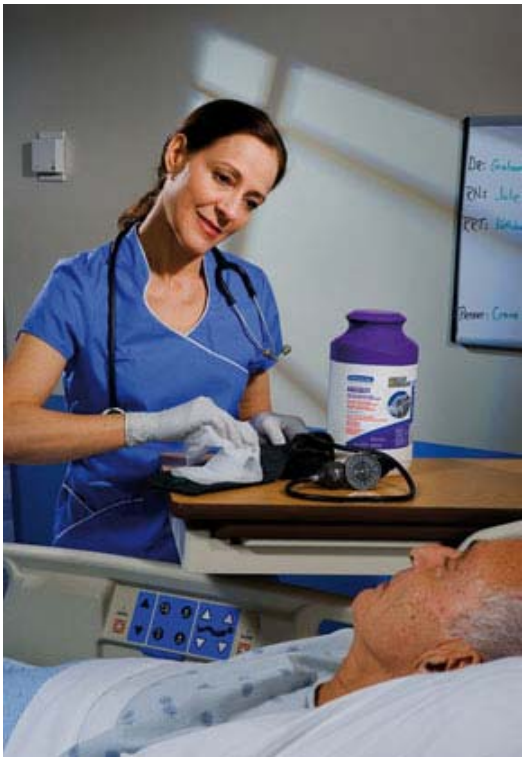
The patient-environment

Disinfecting rooms

Total disinfection of a room and its contents is a relatively new idea, but the time is ripe for this innovation in this age of multidrug-resistant bacteria. Room disinfection may be a lot less time consuming, less disruptive to routine, and more cost-effective than you might think.

Patients are significantly more likely to contract an antibiotic-resistant infection when they're placed in a room where the previous occupant had an infection, and studies point toward ineffective housekeeping in U.S. hospitals across the board, explained Brian Cruver, CEO, Xenex Healthcare Services LLC, makers of the Xenex pulsed xenon automated room disinfection system.

Some recent studies have found that as little as 20% to 50% of surfaces are adequately cleaned, Cruver noted. Unfortunately, process improvements tend to be short-lived when it comes to environmental services protocols and manual cleaning efforts, he observed. "The hospital may implement a new program, do some new training, and the cleanliness rate would go up for a short period of time, but ultimately people are going to go back to their old habits. There's human error involved, and there are certain organisms that are becoming resistant to chemicals," he said, highlighting just a few reasons why automated disinfection is starting to make sense for a growing number of facilities.



Kimberly-Clark Professional's KIMTECH One-Step Germicidal Wipe is the first EPA-registered disinfectant wipe that kills C difficile *spores in 6 minutes.*

The Xenex system is designed to target key high-touch surfaces, such as the remote control, telephone, tray table, and bed rails, places where there is a lot of transfer between the nurse and the patient and the doctor, said Cruver.

Using a pulsing xenon bulb, the Xenex system can disinfect a standard hospital room in as little as 5 minutes, achieving a 3- to 6-log reduction, killing all major classes of microorganisms without contact or chemicals. "For a spore protocol, we'd run it a little longer. If we're going after *Clostridium difficile,* we want to make sure we get it, and those are harder to penetrate because they're spores. If the room is much larger, such as a 350 sq. ft. suite, we might run [the device] in multiple positions."

The UV light has long been accepted as a disinfectant, said Cruver. "What's new is for it to be portable and practical within the hospital setting. Our device is about 3 ½ ft. tall. Anyone can wheel it around a hospital."

Xenex recently completed a trial at a leading U.S. cancer hospital. "They were running at 107% capacity," recalled Cruver. "Their big concern was room turnover time, cleaning time, and making sure we don't disrupt the operations." Cruver noted that the cancer hospital that participated in the environmental study is now deploying Xenex in other units and that a number of facilities are in evaluation stages with the Xenex system.

"We've designed the system to work within the constraints of an operating hospital, not one where they've shut down a wing because they've had an outbreak and they have all the time in the world to sterilize those rooms. We're looking to fit our device into the hospital operation day-to-day, hit all the terminal cleaning, intensive care units (ICUs), units where patients may be immunocompromised. That way we're lowering the overall microbial load in the hospital and lowering the overall infection rates. That's the goal."

SixLog's mobile iHP equipment rapidly disinfects and sterilizes complete rooms.

SixLog Corporation also offers cost-effective, environmentally friendly room disinfection technology suitable for use on equipment, rooms, entire buildings, ambulances, trains, cruise ships, and more.

Vanessa Valdez, general manager, provided more information: "SixLog is a startup company providing room disinfection and sterilization services utilizing iHP technology, ionized hydrogen peroxide, the next-generation of hydrogen peroxide fogging systems. Originally developed for the U.S. Department of Defense to combat biological warfare attacks, this breakthrough technology is now available for commercial use. iHP is a proven sterilant and is faster, more effective, and safer than alternatives. The result is a 6-log reduction of pathogens, eradicating common 'super bugs' such as methicillin-resistant *Staphylococcus aureus* (MRSA), *C difficile,* vancomycin-resistant *Enterococcus* (VRE), and other multidrug-resistant organisms and spores."

Valdez continued: "iHP does not damage sensitive electronics and dissolves into water and oxygen, making it safe for staff, patients, and visitors as well as the environment. SixLog's services can easily augment any hospital's terminal cleaning protocol to provide a more robust result. We believe this is the new direction of environmental cleaning and will push high-quality patient care to the next level with greatly reduced healthcare-associated infection rates."

Ultra-D Room Fogger, from Omni Bio Disinfection Inc., employs a dry-mist hydroxyl fog. Their MRA (magnetic resolution activation) technology is comprised of oxygen and water, which evaporates on contact, rendering it safe for use on sensitive electronics, touch screens, and other surfaces.

Bacteria, viruses, spores, and fungi are killed to a >6-log reduction, or 99.9999%, upon contact. Ultra-D is compact (23 in. by 17 in. by 38 in.), lightweight at under 125 lbs., and quiet. It plugs into a standard 110 outlet. The process takes only 15 minutes for a 2,500 cu. ft. room. The program is started by a touch of the screen. Because the Ultra-D Room Fogger is portable and quiet, it can be used in many places such as hospitals, surgical centers, laboratories, schools, prisons, cruise ships, buses, and more.

Cleaning surfaces

Environmental services play a critical role in the healthcare environment, but these

acinetobacter and klebsiella are infiltrating U.S. hospitals and some strains are proving nearly impossible to treat. Before 2000, less than 6 percent of acinetobacters were resistant to commonly used antimicrobials, according to the CDC. The most recent rate, published in 2008, was 34 percent. (Business Week)

professionals have not always enjoyed the respect their efforts deserve. Linda Homan, RN, CIC, senior manager of Clinical and Professional Services, Ecolab Healthcare, explained that is changing as research reveals the connection between environmental hygiene and hand hygiene. "In the past, the role environmental services played in infection prevention was somewhat overlooked. Hospitals are beginning to understand the critical link between environmental hygiene and hand hygiene in reducing the transmission of pathogens, leading infection preventionists to look at environmental services as part of their infection control strategy."

Homan also pointed out other reasons for increased respect for and attention to environmental services. "Multidrug-resistant pathogens and the rapid spread of *C difficile*, which survives in the environment in its spore form for extended periods of time, have made environmental contamination more of a focus. This is a positive change, because it recognizes the value of environmental hygiene and the positive impact it can have on improving patient safety."

"Ecolab's EnCompass program is a comprehensive environmental hygiene program that combines highly accurate dispensing equipment, effective chemistry and cleaning tools, training on efficient processes, and infection control best practices," said Homan. "It also includes the objective cleanliness outcome monitoring of DAZO fluorescent marking gel, to help facilities clean rooms more quickly, consistently, and effectively."

Another component of Ecolab's EnCompass program is a one-step product that cleans, disinfects, and deodorizes, reducing turnover time and the need for multiple products. Homan described how it works. "Virasept, Ecolab's new hard-surface disinfectant, is the first ready-to-use, nonbleach solution approved by the U.S. Environmental Protection Agency (EPA) to be effective against *C difficile* spores. Virasept works within 10 minutes of application against *C difficile* spores and in 4 minutes or less for a broad spectrum of other pathogens such as MRSA, VRE, *Escherichia coli*, HIV, hepatitis B, influenza A (H1N1), and Norovirus."

Ecolab's Virasept hard-surface disinfectant is an EPA-approved, non-bleach solution effective against a wide array of pathogens.

Homan stressed the importance of using the right products in conjunction with best practices. "The most successful environmental hygiene programs take a holistic approach that includes the right tools and EPA-registered products, education, training, and best practices to help hospitals clean patient rooms more consistently and effectively. Process improvement, along with ongoing training, is important because housekeeping staff need to know how to use specific products, how to clean without cross-contaminating rooms, and what their role is in preventing infections. A comprehensive program can significantly help reduce the environmental transmission of harmful pathogens," said Homan, noting "... studies have shown that, by reducing pathogens on surfaces and increasing hand-hygiene compliance, they are better able to break the chain of infection."

Brad Reynolds, senior category manager, Kimberly-Clark Professional, described how Kimberly-Clark Professional's new disinfecting wipe works. "Kimberly-Clark

Professional's new KIMTECH One-Step Germicidal Wipe is the first EPA-registered disinfecting wipe to kill *C difficile* spores in 6 minutes, as well as a broad spectrum of 35 pathogens in times ranging from 30 seconds (MRSA, H1N1, VRE) to 6 minutes. The revolutionary chemistry combines the power of peracetic acid and hydrogen peroxide with a unique, patent-pending basesheet treatment that keeps the active ingredients effective over time."

Other advantages over traditional spray or bucket systems, noted Reynolds, include no chance for dilution error, no reaction between chemistry and cleaning substrate, no spills, and no need for a separate detergent because the KIMTECH One-Step Germicidal Wipe is pre-saturated and ready-to-use. Because it's non-corrosive, it won't damage most surfaces.

Reynolds emphasized the importance of following the product's label instructions, "especially when it comes to wet contact time. For example, to kill *C difficile* spores, the surface must remain wet for the full 6 minutes. Unlike other surface disinfectants, which can require up to 10 minutes of wet contact time, KIMTECH One-Step Germicidal Wipe saves staff time."

"The pre-moistened KIMTECH One-Step Germicidal Wipe is dispensed as ready-to-use individual sheets," said Reynolds. "The single-use wipe means less cross-contamination between rooms and surfaces. Unlike bleach, which can cause inhalation-related issues and is harsh on the environment, the active chemistry decomposes into water, vinegar, and oxygen."

Sources agreed that proper training is the cornerstone for achieving effective environmental services outcomes. "You need to deploy the right product; at the same time, training is very important to make sure you have the right procedure and the right process," said Ying Zhang, senior product manager, hard surface cleaning, Rubbermaid Commercial Products LLC.

Rubbermaid HYGEN Microfiber cleaning system with Flexi-Frame mop

Zhang cited a study showing an improvement in cleaning effectiveness from 49% of high-touch surfaces being cleaned to 71% of surfaces after training was performed to help increase compliance to the cleaning procedure.

Despite best efforts, there often remains a disconnect between infection prevention departments and front-line housekeeping staff, described Zhang. For example, "the infection control community has a certain procedure they want to implement in terms of cleaning the patient room or the operating room; however, when it gets down to the housekeepers, a lot of things could be lost in translation or is just not being trickled down to the people doing the cleaning job."

To help bridge that gap, suggested Zhang, "it's important when selecting the right tools, to make sure that environmental services and infection control are involved in the decision-making process, [that they] understand the benefits of a particular

cleaning system, not just for the product performance but also for other benefits, for example: what kind of training the manufacturer would provide, how the systems can improve compliance, and how the system can help housekeepers better do their jobs. I think it's important early on that infection control and environmental services are on the same page, as far as what tools to implement. It's important for them both to understand the benefits."

Value analysis committees should include end users to help ensure acceptance of new products and systems. "Maybe there's something that makes perfect sense from an infection control perspective, but it's neither ergonomic nor easy to use," noted Zhang, "Environmental services can chime in and put on the table what's important to their staff, and then define critical points together and help them select the right tool."

At the foundation of Rubbermaid's HYGEN Microfiber Cleaning System is its unique microfiber technology, which, according to Zhang, has been split 16 times, both mechanically and chemically, to produce ultra-fine fibers. "The finer the fiber is, the better it is at capturing dirt and, more importantly, bacteria and viruses." Zhang cited a third-party clinical test by Dr. William Rutala, in which Rubbermaid microfiber was shown to remove up to 95% of microorganisms.

"Our Hygen has a unique 'zigzag' pattern," explained Zhang. "It translates into better cleaning performance. It gives you 17% more microfiber [surface]. That means it cleans 25% better than traditional microfiber products."

Hygen microfiber textiles are also bleach-safe, withstanding laundering with bleach for up to 200 cycles or 500 without bleach in water reaching 200˚F, thus meeting Centers for Disease Control and Prevention guidelines for laundering products contaminated with *C difficile.*

Using a pulsing xenon bulb, the Xenex system can disinfect a standard hospital room in as little as 5 minutes.

In addition to textiles, Rubbermaid offers innovative hardware designed for more effective cleaning and improved productivity. The Rubbermaid Pulse Microfiber Floor Cleaning System features an on-board reservoir attached to the handle and user-controlled release of solution for faster, easier, more effective cleaning in a bucketless mopping system. Rubbermaid's color-coded Hygen cleaning carts include a variety of features designed to prevent cross-contamination and increase compliance to cleaning protocols. The Rubbermaid Hygen Microfiber Charging Bucket platform also provides a green advantage, reducing chemical consumption by up to 95% and water consumption by up to 90%, noted Zhang.

Rubbermaid offers its customers a free training kit DVD detailing five common cleaning procedures: Preparing a cart, cleaning a patient room, discharge cleaning, cleaning the operating room between cases, and terminal cleaning for the operating room. Zhang noted that Rubbermaid worked very closely with key industry experts

to make sure that the procedures were implementable in real life situations and have subsequently been recognized with a seal of recognition from the Association of periOperative Registered Nurses.

Keeping the facility pest-free

Most pests found in healthcare facilities hitch rides in from the outside on people or deliveries. Control of these pests often is associated with use of offensive chemicals. Current thinking is to employ preventive measures, so that use of chemicals is a last resort. This approach, Integrated Pest Management (IPM), is more environmentally responsible and more people friendly.

Photo courtesy Orkin

Keep the lines of communication open with your pest-management provider. A strong partnership is the basis of any successful pest-management program.

Zia Siddiqi, PhD, BCE, director of Quality Systems, Orkin, LLC, explained further: "Integrated Pest Management is the environmentally friendly alternative to traditional pest-control practices of the past. IPM programs focus on the reasons pests enter buildings–food, water, and shelter–and restrict access to those survival needs with proactive measures like sanitation and facility maintenance. Preventing pests from entering in the first place can then help prevent chemical use. Orkin's Gold Medal Protection service is based on the IPM recommendations of Health Care Without Harm, the American Society for Healthcare Environmental Services (ASHES), and Practice Greenhealth."

Siddiqi cited success of Glens Falls Hospital, an acute-care 410-bed community hospital in upstate New York, which implemented Orkin's Gold Medal Protection for Health Care in August 2006. "For Glens Falls, it was just one more step toward greener operations, helping the facility earn an 'H2E Partner' designation just 2 months later. According to Director of Housekeeping and Laundry George Moxham, he measures their success in terms of the number of staff calls to report pest sightings, which is now next to none."

Siddiqi suggested choosing a pest-management provider carefully, offering these suggestions: "Be selective when choosing a pest-management provider. IPM takes a trained and licensed pest-management professional with knowledge of pest behavior and biology. Check with your colleagues or contact a reputable healthcare organization, like ASHES, for recommendations. The best way to ensure an effective program is to meet with your provider and determine the roles of each party involved. Communication is the key to pest-management success."

Siddiqi suggested visiting "the IPM Training Resources tab on

HealthcarePestControl.com (http://www.healthcarepestcontrol.com/ipm-training-resources.php) for an article on outsourcing pest management that ran in a past issue of ***Healthcare Purchasing News***."

It's a good idea to reevaluate your pest-management plan periodically. Siddiqi also recommends visiting www.HealthcarePestControl.com for a quick self-assessment of your IPM program and to get customized tips to help improve your pest-management program. HPN