



## Healthcare Facilities Hesitantly Embrace Green Cleaning Principles and Products

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Many American hospitals suffer from "sick building syndrome" due to toxic cleaners and poor indoor air quality that could be mitigated through a switch to environmentally friendly practices. The continuing onslaught of infectious organisms, however, makes the prospect of switching regiments precarious.

But if there's any truth to the maxim, "if you keep doing what you're doing you're going to keep getting what you've got," then it's probable that change is necessary in order to create a healthier environment inside, and outside of healthcare facilities.

Several hospital staffs have adopted green cleaning principles, and most started in the least critical areas of the building. In the average healthcare center, after all, about half the building — offices and public corridors — have cleaning needs similar to those of any hotel or school.

Healthcare is one of the top five-fastest growing segments in the environmentally-friendly cleaning industry, says Mike Sawchuk, vice president and general manager of Enviro-solutions, which manufactures green cleaning chemicals and products.

"I think the reason for that (growth) is the products today are proven to work as well or better than traditional products and they're competitive in price for the complete bundle," Sawchuk says.

"When you think of it, healthcare should be a natural for using safer products not just for the users — the custodial staff — but because they're safer for all occupants of that facility," he adds. "It just stands to reason that the healthcare group, given their mandates, should be one of the fastest growing segments."

#### Defining Green

Before any staff can go green, the members must first ask themselves, "what is green cleaning?" The definitions vary, says Patti Costello, executive director of the American Society for Healthcare Environmental Services (ASHES). "There isn't even a widely accepted definition of green and it creates a great deal of confusion," Costello says.

Any definition should be based on an evolution toward effective products that have the fewest ramifications for human health and the environment. These choices can be confusing, however, when one takes into consideration the benefits and drawbacks of a product's acquisition, production and distribution processes.

A scientific approach to big changes is advisable, according to Costello. "Environmentally preferred changes will only be brought about by partnerships that focus on well-defined and measurable criteria so comparisons between current and desired practices can be made," she says.

"Simply put, what is the business case for green cleaning and is there efficacy data to back the desired changes? Once the business case and efficacy data are developed, there must be clearly articulated and widely distributed communications to all stakeholders and vehicles provided for dialogue between those stakeholders ... Presently, there is a very narrow and often opinionated objective for green cleaning. There must be a much wider vision for sustainability over the long term."

#### Danger Zone

Human health is a compelling reason to move toward less harsh products, as a plethora of standard cleaners and disinfectants are a "major contributor to indoor air quality issues," according to the 10-step guide to green cleaning implementation, which was coordinated by Hospitals for a Healthy Environment (H2E). H2E was jointly founded by members of the American Hospital Association, the U.S. Environmental Protection Agency, Health Care Without Harm, and the American Nurses Association.

"Many contain high levels of volatile organic compounds which can give rise to respiratory irritation, headaches and other symptoms in workers and building occupants," the document states.

Healthy indoor air requires the use of appropriate cleaners and disinfectants, proper temperature and humidity control, sufficient air circulation and exchange, and regulation of airborne contaminants, dust and odor.<sup>1</sup>

Even green products can be hazardous, however.

"It's important to understand that green certification doesn't mean 100 percent safe," Sawchuk says. "Green certification means it's safer. It's a relative term. A green-certified floor-finish stripper is still removing layers of finish off a floor. It's a pretty nasty chemical. All it means is it's safer for people than competitive floor strippers."

Several cleaners and disinfectants cause eye, nose, and throat irritation, headaches and nausea, but whether these ailments turn into chronic illnesses depends on the length and extent of exposure, says Sarah O'Brien, H2E program manager of environmentally preferable purchasing.

The Environmental Protection Agency (EPA) classifies all microbials as pesticides, and therefore, none are truly "green." There is, however, a wide range and some products are therefore better for indoor air quality, occupant safety and the environment.<sup>1</sup>

The following are the most common antimicrobials, all of which have some negative health impacts:

- Quaternary ammonium compounds: "Quats," such as benzalkonium chloride, are effective as sanitizers or disinfectants on a wide range of bacteria and some viruses.<sup>2</sup> They are sometimes combined with alcohols and can be corrosive when concentrated. Users should wear goggles and gloves.
- Phenols: Many phenols kill more organisms (including tuberculosis) than quats are able to kill, but have considerable environmental and health consequences. They can also destroy plastic, paint, and rubber surfaces. The environmental impact is rated as "high."<sup>1</sup>
- Aldehydes: Medical professionals often use glutaraldehyde and formaldehyde in the form of disinfectants, but the materials can also be used as sterilizers. Both types of aldehydes are extremely toxic and can cause headaches, nausea, vomiting, skin, eye and respiratory problems. People who use them should always wear protective equipment.<sup>1</sup>

- Oxidizers: These are not the most common disinfecting ingredients, but in proper concentrations are considered to be environmentally preferable because they are less toxic than most alternatives.<sup>1</sup>
- Chlorine: The dilutions should fluctuate depending on the job. On a clean surface, a dilution of 1:10 works against many spores, mildews, viruses, molds and bacteria. Bleach can be dangerous for people with lung and heart problems.<sup>1</sup>
- Iodine: Iodine works against some bacteria and viruses but since iodine's use is limited and can lead to several health problems, the product should be avoided whenever possible.<sup>1</sup>
- Alcohols: Alcohols are effective against some bacteria and fungus. When using concentrated alcohols, the user should have proper ventilation and protective equipment.

#### Careful Consideration

In order for the healthcare industry to widely accept greener cleaning practices, infection control and environmental services staff members need more efficacy data, Costello says.

"ASHES focus group data tells us healthcare cleaning professionals are tired of hearing about green cleaning from all angles without information needed to speak intelligently with their infection control colleagues," she says. "Additionally, there needs to be consistency in messaging between regulatory and guidance agencies and the entities promoting seals of approval for green cleaning products."

ASHES last year adopted a policy that offers moderate support of green cleaning. It states that, "ASHES supports cleaning procedures that are friendly to the environment, but warns against blanket support of green cleaning without tested research that it provides an equal or better level of care than current practices ... With a primary emphasis on healthcare infection prevention, patient and worker safety and sustainability of the environment, the ASHES supports the concept of cleaning for health and hygiene first and cautions against quick adoption of green cleaning for the sake of being green."

Prudence is indeed the key, says Linda R. Greene, RN, MPS, CIC, infection control manager at Rochester General Hospital in Rochester, N.Y.

"I think that switching to environmentally friendly products needs to be implemented with caution depending on the setting, the intended use and the risk," Greene says. "...There may be opportunities to move to more environmentally-friendly cleaning materials for routine cleaning of floors or other common areas in offices, non-clinical, or low-risk areas. "However, we must remain cognizant of the fact that critical and non-critical cleaning and disinfection remains a fundamental strategy for infection prevention in today's healthcare settings," Greene adds. "Products that have residual activity may delay recontamination of areas and thus decrease the potential for transmission of infection. A careful risk assessment must be conducted before making a switch to alternate products."

#### Slowly but Surely

While some organizations are reticent to fully adopt environmentally preferable practices, they are embracing some segments. Leaders of ASHES, for instance, are happy to recommend certain practices.

"Environmental is our ASHES name, so without question we are 100 percent committed to the environment and its preservation," Costello says. "There are many very practical and proven ways to move toward greener healthcare delivery and most are already being implemented. Use of hepa filter vacuums, microfiber cleaning systems, recycling, improved medical and hazardous waste management and minimizing solid waste production through environmentally preferred purchasing are primary areas ASHES has been and will continue to advocate for in greening healthcare.

"We have also advocated that these green activities will save thousands of dollars that can be redirected to patient care," she adds. "However, when it comes to cleaning healthcare environments, patient safety and quality comes first. With over 90,000 deaths per year from healthcare-acquired infections (HAIs) and the proliferation of multiple drug-resistant organisms (MDROs) and a focus on the potential for a pandemic, making educated product selections is paramount. On the flip side, ASHES also acknowledges some patients, staff and visitors are in fact sensitive to chemicals and we encourage clinicians and (environmental services) teams to make efforts to minimize exposures." Research and thoughtful planning are important, but overall the healthcare industry needs to move quicker, according to Sawchuk.

"It's out there and people are talking about it but I think there's still too high of a degree of reluctance to implement serious change," Sawchuk says. "They're doing some window dressing, they're doing some talking and sending out the signals that they're going to be making this change but it's not happening fast enough."

Sawchuk does, however, understand the myriad challenges that hospital administrators, environmental services and infection control employees have before them.

"I'm being somewhat critical but at the same time we all need to understand that people in these facilities have a lot of objectives and demands on their time," he says. "In time we're going to see exponential growth and more awareness as people read about success stories of people who went to green cleaning ... and the critical mass is going to happen. I think it's going to happen within two or three years in the healthcare segment."

Administrators and product representatives will need to work in greater tandem, Sawchuk says.

"The people running these facilities are very bright people and there's no reason they why can't implement quicker change," he adds. "Some fault lies with us manufacturers in getting more credible information to CEOs so that they say, 'enough is enough. We need to make fundamental change.'"

#### Waste Not, Want Not

Part of going green includes cutting down on waste. There is a financial case for this since full-fledged waste reduction efforts can cut disposal costs by up to 70 percent.<sup>3</sup>

Hospitals generate 6,600 tons of solid waste every day, and 2 million tons annually. Electronic waste is the fastest growing portion of the nation's waste stream. When computers, for instance, are thrown away instead of recycled, 95 percent end up in landfills or incinerators.<sup>3</sup>

The amount and content of healthcare industry waste is significant and includes:

- solid waste (trash)
- biohazards (sharps, red bag waste)
- hazardous waste (chemicals, solvents, mercury)
- pharmaceuticals (chemotherapy drugs, narcotics, controlled substances)
- universal wastes (computers, batteries, fluorescent bulbs)
- recyclables (paper, cardboard, metal, glass, plastic), food and organic waste
- radioactive waste<sup>4</sup>

Every hospital is different and will therefore have specific needs, but most facilities can easily reduce the use of non-recyclable chlorine paper, energy inefficient bulbs and electronics.

#### Keeping Bugs at Bay

Since infection control is a paramount issue in healthcare facilities, practitioners are often anxious when it comes to changing cleaning regimens, even though some practices are the result of perceived risks, as opposed to actual risks, according to H2E. H2E representatives do not pretend to be infection control experts, however, and therefore implore that any cleaning changes in critical areas be made judiciously.

The facilities that have worked with H2E have not seen infection rates go up after adopting greener policies, the organization claims. In fact, some facility staffs realized that they were treating entire buildings as though they were critical areas and then decided that this strategy was unnecessary.

Green cleaning may involve untraditional products, but the processes are the same. For instance, surfaces should be cleaned before being disinfected, and all medical instruments and machines, as well as oft-touched surfaces such as sinks, toilets and doorknobs, should be prioritized despite what cleaners are used.<sup>5</sup>

And of course, basic hygiene principles have a place in any cleaning regime.

"Research supports that simple practices such as hand washing and increasing the frequency of disinfecting high-touch areas will help provide a safer environment for patients, staff and visitors," Costello says.

While data does not show that green cleaning leads to lower infection rates, green cleaning doesn't seem to lead to higher infection rates either.

"If there has been research data published around green cleaning and demonstrating that it will break the chain of infection, we certainly have not heard about it," Costello states. "There are, however, articles and opinions and many why's for green cleaning, but nothing that has been fully embraced and accepted by all the key stakeholders.

For instance, green cleaning application is suggested in non-treatment or non-clinical areas such as offices and conference rooms. However, we know ventilation systems can carry organisms through the entire building. Data to refute that un-wanted organisms are not transferred through the HVAC systems would support the applicability of green

cleaning in these areas, but we certainly have not seen anything."

Green or not, facilities should be more consistent and compliant in regards to surface cleaning and prevention of cross contamination, says Bob Marrs, BA, CRCST, CHL, director of central service/sterile processing at St. David's Hospital in Austin, Texas.

"Are there facilities doing this (being consistent and compliant) wonderfully?" Marrs asks. "Yes. Are there facilities not doing it at all or not following recommendations? Yes. Because of budget constraints and a lack of housekeeping staff this is a task that typically falls to the central service/sterile processing department (CS/SPD).

"The Association for the Advancement of Medical Instrumentation (AAMI) recommends that all cleaning procedures in the CS/SPD areas should be the same as that used in operating and delivery rooms,"

Marrs adds. "CS/SPD staff can easily become overwhelmed with general processing tasks and cleaning can and will fall by the wayside, being half done or not at all. Again, this is the responsibility of CS/SPD leadership. We must fight for our departments to ensure that we have dedicated housekeeping staff. We must be available and in our departments to verify that cleaning is being done on a scheduled basis. I actually bear the physical and mental scars from a vicious 'dust bunny' attack. I am just kidding but I think most folks know what I am talking about. We cannot be vigilant enough about the proper cleaning of our departments. We owe it to our patients!"

Indeed, several facilities are not meeting the mark in terms of cleanliness, Sawchuk contends.

"Many, many hospitals today are not cleaned properly," Sawchuk says. "With all due respect, they're filthy. Yes, there are some exceptions but it's just sad to see that here's an institution that's important to keep people healthy but look at the number of germs and contractions of illnesses in hospitals and the amount of deaths caused by those contractions. "Part of the reason is that hospitals are not being cleaned properly with the proper chemicals, frequencies and procedures," he adds. "The whole idea of green cleaning ... involves proper training in cleaning for health and that alone should help improve the level of cleanliness in hospitals."

According to Sawchuk, it is easy to find products that are on the safer side of the spectrum, but that have necessary kill claims to get the job done.

#### Tips for Going Green

Some general tips on the way to greener pastures are to vacuum or damp-mop instead of sweep, to use fragrance-free products, to buff on medium speed (which generates fewer chemical particles than buffing on high speed)<sup>4</sup> and to avoid aerosol products. It is also wise to replace carpet with surfaces that harbor fewer germs and that require less-toxic cleaning products.

Dozens of organizations offer advice on environmentally friendly practices and products. One particularly helpful source is Green Seal, a non-profit organization that educates the public and certifies environmentally-preferable products.

Green Seal offers information about hundreds of green cleaners and disinfectants. Green Seal researchers suggest that products should not:

- be combustible
- be toxic to aquatic life
- contain carcinogens or products that cause reproductive toxicity
- contribute to tropospheric ozone, photochemical smog or poor indoor air quality

One of the first steps in ushering in an era of green is to start a team that can evaluate current cleaning practices and the effects. Experts suggest that this team hire an industrial hygienist or environmental scientist to critique the building so that the team members can better prioritize.

The "commandments" of green housekeeping, according to Stephen Ashkin, vice president of the Rochester Midland Corporation, begin with prioritizing health over appearance. Other tips are to:

- scrutinize contractors
- decrease human exposure to harmful products
- dispose cleaning waste in environmentally safe ways

Communication should be established between building managers, cleaning personnel and suppliers, Ashkin says.

"These communication vehicles should be designed to foster the team effort, develop a clear sense of shared responsibility, and to establish a framework for continual improvement," he adds. "Communication opportunities can include messages dispersed through ... newsletters, employee meetings and posted notices. These communications should explain the process and notify all occupants about upcoming meetings and major cleaning activities that are scheduled to take place."

When contemplating changes, many facilities find it helpful to go for the low-hanging fruit first, according to Sawchuk.

The easiest changes are switching the floor, glass and general purpose cleaners.

"Those are the most popular and highest volume," he says. "The next segment for growth are the floor finishers and strippers and odor eliminators."

#### Compost

The cleaning that occurs outside a healthcare facility is not nearly as important as the cleaning that happens inside, but can still affect patient and staff health, and certainly the health of the environment.

Composting is a great way to reduce yard and food waste and to decrease use of pesticides.<sup>4</sup> Compost is made from decomposed yard and food waste that turns into a rich soil-like substance.

"Composting provides institutions with a method to dispose of a large portion of these waste streams in a way that benefits their bottom line and the environment," according to H2E. "By composting, an institution avoids high per-ton incineration or landfill disposal costs for these dense and heavy materials. ... Many landscapers use compost instead of chemical fertilizers to provide nutrients to their plants. It is also commonly thought that using compost can reduce or eliminate the need for chemical pesticides because healthy plants resist pests better."

The following can all make good compost, according to H2E: grass, leaves, tree limbs, shrub clippings, paper plates, napkins, wax and paper cups, wax and non-wax cardboard, pre and post-consumer food waste such as fruits and vegetables, coffee grounds and filters, tea bags, egg shells, breads and cereals, and grains and pastas.

Items that should not be turned into compost include: oils, weeds, meat, bones, animal waste, hazardous material, plastic, glass, metal and treated wood.<sup>4</sup>

Composting leads to long-term cost savings, and if treated properly does not become an eyesore or impair infection control efforts.<sup>4</sup>

The composting can be done onsite or off, depending on space, regulations, available labor, finances, etc. Handling the compost onsite is usually cheaper in the long run.<sup>4</sup>

Whether a facility's stakeholders want to compost, consume less, switch to green cleaners, cut down on waste or only take on one of those tasks, in the end, even slight moves make a difference, Sawchuk says.

"I would strongly encourage everyone that it doesn't matter who you are in that organization, we all have the power to initiate change," he says. "Never underestimate the power of the people ... there are many, many things that impact green healthcare. We can't all do everything, but we can all do something. Let's not focus on trying to get everything done over night, but to focus on one thing. If we all did that there would be a profound effect on the healthcare industry."

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