

Issue Brief

Following a Greener Path:

*How Hospitals are Healing
Patients and Preserving the Planet*



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Northeast Ohio's Hospital Association

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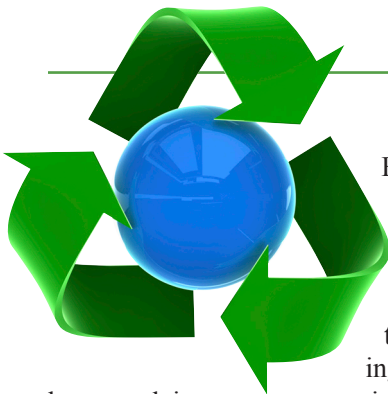


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For decades, mounting scientific evidence has demonstrated that certain human activities are having a negative impact on the natural environment. From water pollution to global warming to the millions of tons of garbage we produce each year, there is no doubt that modern civilization is taking a toll on our planet. As the evidence pointing to human-driven environmental damage has mounted, a movement advocating responsible environmental stewardship has evolved. Environmentalists have urged individuals to modify their behavior and industries to change their harmful practices in hopes of collectively mitigating any further damage. For many individuals and organizations, the environmental movement has resulted not only in behavior and organizational changes but in a true cultural shift that makes environmental stewardship a routine part of life.

Making the Case for Sustainability

In increasing numbers, hospitals are joining the ranks of organizations that have made an environmentally focused cultural shift. To be sure, there is no shortage of good reasons for hospitals to embark on the journey toward sustainability. One reason is that the healthcare industry is beginning to recognize the impact of its carbon footprint. Due to the very nature of what they do, healthcare facilities use more than double the energy per square foot than do commercial office buildings. After all, hospitals are open 24 hours a day, seven days a week all while maintaining a comfortable environment for patients and visitors.

It's not just hospitals that are increasingly adopting green business practices. It's also the businesses that serve them. Evergreen Cooperative Laundry, a start-up located on the east side of Cleveland, is one such business. This laundry service promotes environmental sustainability with its use of specially outfitted equipment, specifically designed to be the most energy efficient available on the market. What's more, the building that houses the Evergreen

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Total effects of healthcare activities in the United States account for 8 percent of the total U.S. greenhouse gasses and 7 percent of the total carbon dioxide emissions.

Hospitals also produce a substantial amount of waste— up to 30 pounds per bed every day.¹ Hospitals have the same administrative wastes as commercial businesses, the same food wastes as restaurants, and the same housekeeping wastes as hotels. Add to that the stringent sanitation requirements necessary for infection control that often leads to disposal rather than reuse and it's not surprising that the Environmental Protection Agency estimates that 1 percent of all solid waste generated in the United States originates in healthcare facilities.²

A recent report in the Journal of the American Medical Association estimates that the total effects of healthcare activities in the United States account for 8 percent of the total U.S. greenhouse gasses and 7 percent of the total carbon dioxide emissions.³ Considering these substantial effects, and despite the undeniable challenges, many in the healthcare sector are going green because they believe their actions can make a difference in these alarming statistics.

The Environment and Human Health

Some hospital leaders see green initiatives as an extension of their health-based missions. Business practices in the healthcare industry that harm the environment can also harm human health. Climate change provides a salient example of this link. The excess greenhouse gasses produced by human activity (including the 8 percent attributed to activities of the healthcare industry) trap heat in the earth's atmosphere and cause a rise in average temperatures. These more extreme temperatures result in an estimated 150,000 deaths each year and another 5 million illnesses. The warmer temperatures that result from climate change facilitate the spread of certain diseases, including malaria and dengue fever, create conditions that lead to potentially fatal malnutrition, and make devastating weather events like floods and heat waves more likely.⁴

As alarming as these dramatic health threats are, they are far from the only health-related consequences of climate change. Vulnerable populations are more susceptible to the extreme temperatures that result from rising temperatures. Increased temperatures have been associated with an increase of excess mortality among the elderly and individuals with cardiovascular, cerebrovascular and respiratory illnesses.⁵

Climate change does not affect health in isolation. The interplay of increased average global temperatures, emissions from cars and other types of air pollution is increasing the level of ground-level ozone—the primary component of smog. Exposure to high levels of ground level ozone has been associated with an increased likelihood of developing adult onset asthma, pulmonary edema, increased emergency room visits, increased hospitalizations, increased use of asthma medicines and even death. Children who live in high ozone areas and spend a great deal of time outside are 3.3 times more likely to develop asthma than children who do not.⁶ In Ohio alone, 8 million at-risk individuals live in an area that makes them susceptible to respiratory illness from these types of factors.⁷ As the earth's temperature continues to rise, the level of ground level ozone is also expected to increase, exacerbating an already growing problem.

A community's environment is more than just its air and trees and streams; it's all of the physical, biological and social elements that define a region.

Unfortunately, it's not just climate change that is having a negative effect on health. Scientists have found links between pesticides and cancer and between mercury and neurological damage— to name just two examples in a sea of scientific evidence.⁸ Even the materials used to construct and furnish buildings — including hospitals — can contribute to health problems. Volatile organic compounds (VOCs), or chemicals used to manufacture and prepare furniture, carpet, office equipment and other materials, have been shown to contribute to poor indoor air quality and can result in a number of health problems.

Hospital administrators understand that their institutions play a crucial role in promoting the health of their communities. In the past, this has simply equated to treating those who seek care within the walls of the hospital. Today, hospitals are playing an ever-increasing role in shaping the environmental movement because administrators now understand that a healthy environment means a healthier community.

Hospitals and the Larger Community

As hospital administrators have begun to embrace the idea that the health of the community is linked to its environment, their understanding of what is meant by “environment” has also expanded. A community's environment is more than just its air and trees and streams; it's all of the physical, biological and social elements that define a region. People who live in regions affected by poverty and job loss know all too well that their environment is not just challenging because of the smog. In fact for many, including many in Northeast Ohio, the challenges presented by the social elements of sustainability are more difficult to surmount than those presented by the natural ones.

Recognizing this, some hospital leaders believe that their institutions have a role to play in supporting the broader environmental health of the community. They believe that the importance of this role is about more than simply being a good neighbor. It is about playing a leadership role in the community by modeling corporate “greenness” while at the same time supporting environmental initiatives that promote social sustainability. In Northeast Ohio, a region beleaguered with manufacturing job loss and high unemployment, green initiatives from the health-care sector that promote employment opportunities within the community may be one small step toward healing an ailing social environment.

Cost Savings

As hospitals across the nation have begun to adopt green initiatives, many are finding that it's not just the health of the earth and its inhabitants that stand to gain from these endeavors. Many are enjoying a healthier bottom line as a result of their environmentally focused efforts. Since the crux of many green initiatives is conservation of resources, it makes sense that they can reap financial savings. After all, no one was ever taught that being wasteful saves money.

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Cooperative Laundry was constructed with principles of sustainability and will soon be certified LEED Silver. Opened in October 2009, the employee-owned Evergreen Cooperative Laundry promotes social sustainability by paying a “living wage,” providing affordable benefits and offering meaningful employment opportunities in an area experiencing high unemployment.

Energy conservation is a good place for hospitals to start if they are looking for ways to bolster the bottom line while minimizing their environmental footprint.

One frontier where hospitals are putting this principal into practice is energy use. Since hospitals are such intensive energy-users, operating 24 hours a day, seven days a week, much can be gained by conscientious energy conservation. In fact, the Environmental Protection Agency (EPA) estimates that for every dollar non-profit healthcare organizations save through energy conservation, \$20 in new revenue is gained. From a big-picture perspective, what does that really mean? According to the EPA, it can mean outperforming competitors in net operating income by as much as 10 percent.⁹

To be sure, energy conservation is a good place for hospitals to start if they are looking for ways to bolster the bottom line while minimizing their environmental footprint. It is not, however, the only option. Hospitals across the country have realized financial benefits from countless environmental initiatives both big and small. Some have focused on improved waste

segregation, which has diverted thousands of pounds of solid waste from being erroneously classified as regulated medical waste (RMW). This distinction is important because RMW can cost several times more per pound to haul than solid waste.¹⁰ Other hospitals have adopted the practice of safely reprocessing items that may have previously been used only once, such as ultra sound catheters or compression sleeves, to keep waste out of the landfill while avoiding the cost of continually replacing supplies.

Even a change as simple as switching from conventional loop mops to microfiber mops can make a difference to the planet and the bottom line. These mops, while more expensive initially, reduce chemical and water use, are less work intensive, and prevent cross-contamination better than conventional mops. These efficiencies can add up to 60 percent savings over the lifetime of the mop, a 95 percent savings on chemical costs and a 20 percent savings on per-day labor costs.¹¹

Reprocessed single-use products are much more economical than new ones — generally netting a savings of 25 to 50 percent. Many devices, like soft tissue ablaters and arthroscopic shavers, can be reprocessed. When the University of Washington Medical Center implemented a reprocessing program, it saved the hospital \$498,123 and diverted 5.8 tons of waste from the landfill. Despite the significant cost savings and positive environmental implications, some are leery of using reprocessed products because the original products are labeled as “single use only.”

What these hesitant individuals may not know is that since 2000, the Food and Drug Administration (FDA) has regulated reprocessors and held them to the same quality, tracking and adverse event reporting standards as the original manufacturers.¹²

ECO

friendly

CHA Member Spotlight:

St. Vincent Charity Medical Center

Sharps and the containers used to collect them are routinely sent into the waste stream together. Since the sharps collected in these containers can pose a threat to those who have to handle them, hospitals have traditionally provided new sharps containers rather than reusing them. As a result, hundreds of thousands of pounds of these plastic containers enter the waste stream each year.

In 2007 St. Vincent Charity Medical Center initiated a program to reduce the quantity of biohazardous waste produced by their facility by reusing these containers. Each week, full containers are collected by contracted workers who safely empty and sanitize them and then return them for reuse.

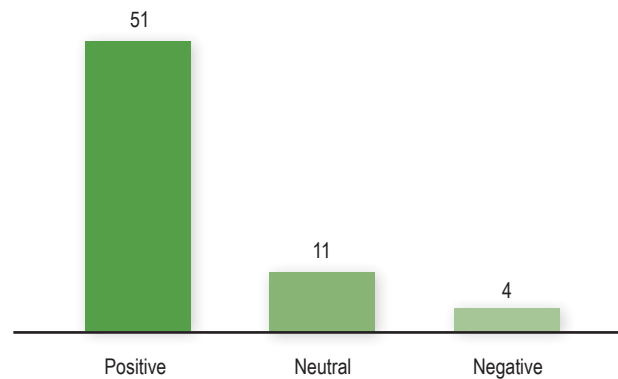
The program has been a huge success, resulting in a 36 percent reduction in biohazardous waste in just two years. Since the program began, the quantity of biohazardous waste has decreased from 211,086 pounds in 2007 to 134,699 pounds in 2009— a reduction that has not only benefitted the environment but one that has also yielded financial savings for the hospital.

Wal-Mart recently announced that purchases of the eco-friendly products tracked on its Live Better Index increased by an impressive 66 percent in 2007.

Sustainability and the Competitive Advantage

While these conservation-related cost savings are important in and of themselves, there is more to the business case for sustainability than what can be shown in the general ledger. Organizations that adopt sustainable business practices also gain a competitive advantage in the marketplace. A growing body of evidence suggests that sustainable organizations outperform their less environmentally oriented counterparts. A 2004 literature review that sought to determine whether environmental governance was positively correlated with financial performance found that in 51 of 60 organizations evaluated, it was.¹³

Positive, Neutral & Negative Correlations (Between Environmental Governance & Financial Performance)



Andrew White and Matthew Kiernan, "Corporate Environmental Governance."

One possible reason for this positive correlation is that as the environmental movement has grown, it has become a market differentiator for consumers. All else being equal, consumers tend to prefer to spend their money on goods and services that are produced or provided with the smallest environmental impact. Consumers demonstrate this preference readily when it comes to making purchases in their everyday lives. Data collected by the nation's largest retailer is proof positive. Wal-Mart recently announced that purchases of the eco-friendly products tracked on its Live Better Index increased by an impressive 66 percent in 2007.¹⁴ Understanding this consumer preference makes it easy to see why there is a positive correlation between environmental governance and financial performance. Obviously, there are big differences in the business models of retail chains and hospitals, yet it stands to reason that if sustainability is so strong a market differentiator in the retail environment, it must come into play for hospitals as well.

In addition to the many other benefits that sustainable practices bring to a hospital, they also provide a valuable marketing tool. Environmentally focused initiatives within the hospital are beneficial to the community for countless reasons and hospital marketing departments are beginning to use this information to their

92 percent of students and entry-level hires seek an environmentally friendly workplace.

advantage. Many hospitals have chosen to share their stories in marketing materials or in their annual reports.¹⁵ As the environmental movement has grown more important to the community as a whole, these types of stories have taken on a greater significance and have heightened the competitive advantage gained by sustainable hospitals.

Sustainability may provide hospitals another competitive advantage in the business place, as well. Green initiatives can make a hospital a more desirable place to work. In an era challenged by nursing and allied health workforce shortages, the fact that 92 percent of students and entry-level hires seek an environmentally friendly workplace takes on a new shade of importance. Not only does an organization’s social responsibility make it more enticing as a potential employer, 83 percent of current employees report it increases their loyalty and motivation.¹⁷ Greener facilities also tend to reduce health risks to staff, reducing absenteeism and improving morale.

While all of the reasons described above make a strong business case for sustainability, the fact that sustainable facilities lead to improved patient outcomes may be even more compelling. Sustainable facilities have been shown to reduce length of stay, speed recovery, ease depression, reduce the incidence of patients receiving a positive test for significant tuberculosis exposure, and decrease nosocomial (hospital-acquired) infection rates.¹⁸ For a hospital, making a commitment to environmental initiatives is more than just a good business move. It is truly an extension of a hospital’s health-based mission.

Beyond the Bottom Line: <i>What Hospital Leaders Can Expect from their Green Initiatives</i>
Shorter Length of Stay
Healthier Work Environment
Improved Patient Outcomes
Improved Staff Recruitment
Better Staff Performance
Decreased Risk of Patient Infections
Fewer Staff Injuries
Less Absenteeism
Better Public Image
Increased Access to Philanthropy

Source: Practice GreenHealth Presentation Materials, October 6, 2009.

Even the Internal Revenue Service has begun to recognize the value of environmental contributions from nonprofit hospitals by allowing facilities to report environmental initiatives on the new IRS 990, Schedule H, a form that collects information on hospital community benefit.¹⁶



While the up-front costs associated with sustainability can be more expensive than the status quo, many initiatives pay for themselves over a short period of time.

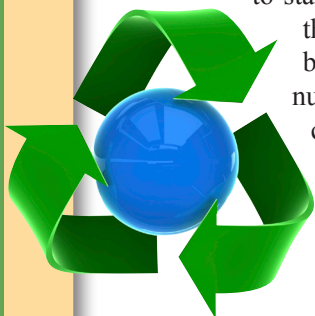
Hospitals and the Environmental Movement: Where to Start

Despite the many good reasons hospitals have for adopting sustainability, it is a relatively young movement within the healthcare sector and some administrators are hesitant to embrace it. For one, since the movement is young, it can take more effort on the part of its champions to find the right facts to build a case. Also, successful green initiatives take a great deal of employee engagement and in some cases, employees are content to continue doing things the way they have always done them. In other words, it can take a lot of effort on the part of leadership to gain enough momentum to create the necessary cultural shift. Some hospital leaders charged with navigating an environment of shrinking reimbursement, workforce shortages, and increasing scrutiny on quality believe that adding sustainability in the midst of these other challenges diverts valuable resources from their core responsibilities.

In addition, the belief that environmental initiatives cost more than operating “the old-fashioned way” is still prevalent. While the up-front costs associated with sustainability can be more expensive than sticking with the status quo, many initiatives pay for themselves over a short period of time. In other cases, though the initial investment may cost more, innovative green technologies can eliminate costs in other areas, offsetting the higher price of the original investment. The truth is, some green initiatives cost more than the status quo and some do not. Further, some of the more costly green initiatives are worth the extra money while some are not. Just like any other investment, green initiatives necessitate a thorough analysis to determine their value and feasibility.

A thorough analysis of a number of green initiatives is bound to unearth at least a few environmentally friendly policies that even the most leery hospital administrators could adopt. As more administrators begin to make changes to increase their hospital's sustainability, the volume of information about what works and what doesn't will grow. Consequently, green initiatives undertaken today do more than just benefit our planet. They can create a viable path to greater sustainability that others in the healthcare industry may choose to follow.

When the leadership of a hospital decides that moving their facility toward sustainability is a move they are ready to make, the next step is figuring out where to start. There are literally hundreds of changes, both big and small, that could kick off an environmental metamorphosis. Choosing between them all can pose a challenge. Despite the staggering number of choices, most green initiatives generally fall into five categories: waste management, energy management, environmentally preferred purchasing, building design and construction, and toxicity/volatile organic compound reduction. Each of these areas presents countless opportunities for hospitals to embark on a path of sustainability.



As much as 40 percent of the waste in this category is recyclable.

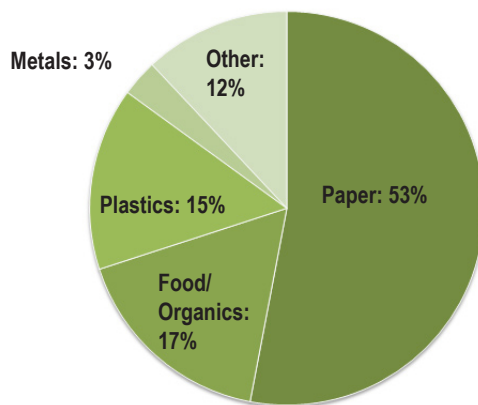
Waste Management

As mentioned above, hospitals create a substantial amount of waste — up to 30 pounds per bed each day.¹⁹ One reason for this abundance of waste is that hospitals undertake such a wide variety of activities every day. Hospitals do much more in one day than provide medical services. They must also prepare meals for patients, visitors and staff; maintain clean facilities; and provide the administrative support to keep it all running smoothly. These numerous and varied activities all create their own waste streams. The EPA describes four types of waste from healthcare facilities.

Municipal Solid Waste

Surprisingly, most waste produced by hospitals falls into the category of “municipal solid waste.” This is the same type of waste generally produced by facilities like restaurants, hotels and office buildings. It can also include some construction and demolition waste. Each year, hospitals produce 3.4 billion pounds of waste in this category. More than half of this amount is composed of paper and cardboard. This waste category offers an opportunity for hospitals interested in increasing their environmental commitment. As much as 40 percent of the waste in this category is recyclable.²⁰

Hospital Solid Waste Composition



Source: EPA, “Profile of the Healthcare Industry.”

GREEN

CHA Member Spotlight:

The Cleveland Clinic Main Campus

Recognizing that pre-consumer food waste made up a significant portion of their facility's solid waste, leaders at the Cleveland Clinic Main Campus embarked on a composting program to reduce what was being thrown away. As a result, food scraps produced during food preparation are now collected for composting. The pilot project began in June 2009 and was quickly and enthusiastically adopted by kitchen staff.

Today, the Cleveland Clinic Main Campus kitchens collect about one ton of food waste per week for composting. This waste is sent to Sansai Environmental Technologies, Inc., a company on Cleveland's east side that uses earthworms to turn food scraps into natural fertilizer. This successful project promotes sustainability not only by diverting food waste from the landfill but also by encouraging economic development within the community.²¹



Many hospitals might be surprised to learn that much of what they dispose of in this category may not actually be considered infectious waste.

Bio-hazardous Waste (Regulated Medical Waste)

Waste, such as sharps, that could potentially harbor and transmit infectious diseases or pose other risks falls into this category and accounts for around 15 percent of a hospital's waste. This equates to around 1,000 tons in the U.S. each day. Bio-hazardous waste is also sometimes referred to as infectious waste and requires extra care during the disposal process due to the health risks associated with it.²²

Many hospitals might be surprised to learn that much of what they dispose of in this category may not actually be considered infectious waste. Reducing the amount of solid municipal waste erroneously placed in infectious waste receptacles may be one way to reduce costs (since it costs more to dispose of infectious waste) while decreasing the amount of infectious waste that requires such careful disposal.²³

Hazardous Waste

Hazardous waste is waste that poses a risk to human health or the environment when not managed properly, regardless of its concentration. Included in this category are wastes such as solvents, certain pharmaceuticals, mercury-containing equipment or compounds, and lead-containing equipment.²⁵

Waste by Media Category

This category of waste simply implies that hospitals generate a number of types of media-specific wastes, including waste water, storm water, and air emissions. Sources of waste water include sinks, floor drains, showers, toilets, dish and laundry machines, and photographic development drains from radiology. Storm water originates from building and parking lot areas and from aboveground or underground fuel storage tank areas. Air emissions refer to emissions from sources such as air conditioning and refrigeration, boilers, on-site medical waste incinerators, asbestos, and paint booths.²⁶

In the general sense, "infectious waste" is fairly easy to define; however, since its disposal is so highly regulated, its exact definition is determined at the state, local or tribal level.²⁴

The precise definition of "infectious waste," as it is understood in the state of Ohio, can be found in the Ohio Revised Code, Chapter 3734, available at <http://codes.ohio.gov/orc/3734>.



**CHA Member Spotlight:
Huron Hospital**

In 2005, Huron Hospital began a significant waste-reduction initiative that resulted in reductions in solid waste, regulated medical waste and hazardous waste. At the same time, energy and water conservation policies were also put in place to even further minimize the hospital's environmental footprint.

Huron Hospital's efforts to encourage recycling have led to a 30.4 percent solid waste recycling rate. As a result of these waste-reduction efforts and a host of other green initiatives, Huron Hospital was awarded the 2009 Ohio Award for Outstanding Achievement in Environmental Stewardship from the Ohio EPA.²⁷

REDUCE

Waste Management Strategies

Waste Category	Waste Management Strategies
Municipal Solid Waste	Work with suppliers to reduce the amount of packaging waste requiring disposal.
	Recycle materials as local infrastructure permits.
	Donate durable/bulky goods for reuse in other settings.
	Collect packaging materials for reuse (foam peanuts, foam inserts, airbag inserts).
	Recycle mattresses and carpeting with specialty recyclers.
	Consider composting programs for organic wastes such as food and yard waste.
	Educate employees about the importance of source reductions, reuse and recycling.
Change to reusable drapes, gowns and linens where appropriate.	

Waste Management Strategies

Waste Category	Waste Management Strategies
Biohazardous Waste	Sharps: collect sharps waste in leak-proof, puncture-resistant, cadmium-free containers. Consider reusable sharps containers. Educate staff to ensure sharps containers are only used for sharps.
	Regulated Medical Waste: use cadmium-free red bags to collect waste. When possible, use reusable packing and shipping containers to eliminate cardboard shipping boxes.
	Use drain disposal for liquid wastes that are routinely generated and flushed down the toilet in household settings.
Hazardous Waste	Collect and recycle solvents.
	For pharmaceuticals in this category implement inventory control and management options. Use a reverse distribution company for unused and expired products.
	Discontinue use of mercury-containing supplies and equipment. Notify vendors and suppliers of a NO MERCURY policy.
	Identify lead-containing supplies and equipment and designate for reuse, recycling or hazardous waste disposal. Much lead-shielding material, when no longer suitable for its intended purpose, can be adapted for other uses within the radiology department.
Waste by Media Category	Wastewater: Identify all direct-discharge drains within the facility. Consider materials used and stored close to these drains and if they are problematic, ensure drain mat covers are available and spill cleanup materials and training for spills are part of operations for the area.
	Stormwater: Minimize use of fertilizers and pesticides; clean oil spills from vehicles; cover storage tank areas
	Air Emissions: Use CFC/Freon management systems; minimize biohazardous waste quantities to reduce frequency of needing to run medical waste incinerator..
	Air emissions- Minimize biohazardous waste quantities to reduce frequency of needing to run medical waste incinerator.

Source: EPA, "Profile of the Healthcare Industry," February 2005.

Note: To see a more extensive list of waste management strategies, please refer to the source material available at <http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/health.pdf>.

Experts suggest that the first step in undertaking an energy conservation project is to perform an energy audit.

Energy Management

Hospitals are voracious energy-users. With facilities that operate day and night, it's no surprise that hospitals use more than double the amount of energy per square foot than do commercial office buildings.²⁸ Strategies aimed at reducing energy consumption are beneficial not only because of their positive environmental consequences but also because energy conservation is one sustainability strategy that can also result in big savings. In the healthcare industry, which spends \$8.3 billion on energy every year, the potential for cost savings is significant. In fact, Chris Clark, the national healthcare manager for the EPA's Energy Star Program, believes those energy-conservation cost savings could total \$2.5 billion.²⁹

Hospitals' options for energy conservation strategies are plentiful— so plentiful, in fact, that one problem faced by administrators is figuring out where to start. Experts suggest that the first step in undertaking an energy conservation project is to perform an energy audit. After all, it is hard to know what to change if you don't know where you currently stand. One resource hospital administrators may want to consult during this process is the EPA, which has a benchmarking tool available that enables hospitals to compare their energy use to that of their peers. This tool rates a facility's energy use on a scale of one to 100. Those that score over 75 can receive the top Energy Star rating.³⁰ After an energy-use baseline is established, the next step is to identify individual opportunities for improving current energy use.

*Possible Sources to Consider for Improved Energy Efficiency*³¹

General Building Description & Construction	Indoor & outdoor lighting
Building envelope	Compressed air systems
Automation system	Cooking equipment
Fan system	Office equipment
Space heating systems	Laundry equipment
Water heating system	Hot tubs, spas & swimming pools
Refrigeration equipment	Elevators & escalators
Motors	Electric systems

Source: John Saams, "Department of Energy's EnergySmart Hospitals."

An EPP initiative can also be used to support local vendors, bolstering the health of the community and reducing the environmental effects of transporting goods.

The sheer number of possible targets for energy conservation initiatives makes it easy to understand why such a wide variety of strategies has been adopted by hospitals across the country. Some have simply switched from fluorescent to energy-efficient LED lighting and added controlled lighting to rooms that are not in regular use. Others have sought the EPA's Energy Star label when purchasing new electronic appliances to ensure that products are energy efficient. Still others have made even more sweeping energy strides by adopting alternative sources of energy such as solar and wind power or by making energy efficiency a cornerstone in new construction projects. Regardless of which initiative is chosen, energy conservation is an area that is indisputably teeming with possibilities.

Environmentally Preferred Purchasing

Environmentally preferred purchasing (EPP) is an environmentally focused strategy in which the amount of waste or other detrimental material a given product will generate is considered prior to purchase. The results of this analysis are then used to drive purchasing decisions. This strategy can reinforce hospital policies such as mercury elimination by deliberately prohibiting the purchase of products that contain it. It can also be used to reduce the amount of waste being sent to the landfill by intentional purchasing practices that favor products with more sustainable packaging. In some cases, it even means working with vendors of a favored product that is excessively packaged to reduce the amount of packaging material.

Sustainable initiatives that can be reinforced by EPP include toxicity reduction, allergen reduction, reduced packaging, increased adoption of recycled and reusable materials, and expanded adoption of energy efficient products.³³ An EPP initiative can also be used to support local vendors, bolstering the health of the community and reducing the environmental effects of transporting goods over long distances.

GREEN

Even small changes in energy use can make a big difference. One Virginia hospital performed an energy audit and found that the dozens of soft drink vending machines throughout the hospital ran continually and consumed an inordinate amount of energy.

In response, the hospital removed several machines and turned off the lights on the others. This one small change resulted in savings of more than \$10,000 a year.³²

CHA Member Spotlight:

University Hospitals Case Medical Center

Case Medical Center already puts the power of its purchasing practices to good use by engaging in socially responsible purchasing. In addition to diversity of the vendor's workforce, which is already used, administrators are considering adding sustainability to the list of criteria used to drive purchasing decisions.

University Hospitals Case Medical Center also encourages its employees to engage in socially responsible purchasing through its association with Farmer's Garden, a local vendor of organic fruits and vegetables. Through this program, employees of UH can order a box of produce each week and know that it contains only fruits and vegetables that are grown locally in a sustainable manner, without the use of chemicals or hormones.

This program not only demonstrates environmentally preferred purchasing but also promotes local agriculture while providing a convenient source of healthy food for employees.³⁴



Green building allows hospital leaders to consider sustainability in a very comprehensive manner every step along the way.

Building Design and Construction

Perhaps more than any other project aimed at sustainability, the way in which a building is designed or constructed presents opportunities for a hospital to make a commitment to the environmental movement. Starting literally from the ground up, green building allows hospital leaders to consider sustainability in a very comprehensive manner every step along the way. Careful planning during the design and construction phase can result in environmentally friendly facilities that encourage energy and water conservation, have healthy indoor air quality and promote responsible stewardship of natural resources.

LEED Certification

The United States Green Building Council (USGBC), a nonprofit organization leading the charge to advance green building in America, created an internationally recognized green certification program for builders. The Leadership in Energy and Environmental Design (LEED) certification is universally recognized as verification of responsible environmental building design and construction. The LEED certification process assesses building projects on six measures: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation in design.³⁵

As useful and meaningful as this certification has been in the broader field of building construction, many hospitals have been unable to obtain it due to a number of industry-specific challenges. First, hospitals have much higher energy needs than other commercial structures, which makes it hard for them to meet the requirements set forth by the USGBC. What's more, their complex operational requirements demand a higher degree of sophistication in building design than more traditional buildings. Add to that the numerous other regulations hospitals are required to follow and it's no mystery why so few hospitals have even attempted LEED certification. In response to these challenges, the USGBC recently created a special certification, or LEED for Health Care, designed specifically with the special circumstances of healthcare facilities in mind.³⁶

Green Guide for Health Care

While earning LEED certification entails review and certification by a third party, hospitals that are interested in green building design and construction but prefer a self-assessment tool can use the Green Guide for Health Care. This voluntary program is a building design toolkit that helps builders incorporate principals of sustainability and health into the planning, design, construction, operations and maintenance of their facilities. The USGBC and the Green Guide for Health Care have a long history of collaboration, with the Green Guide using LEED as a foundational document. As a result, some of the credits under the Green Guide for Health Care are identical to those found in LEED certification. Others are modified to more carefully account for the specific needs of the healthcare industry.³⁷

Hospital group purchasing organizations are getting in on the sustainability trend. One of the largest, Premier, has established a number of environmentally focused programs to help its members with their green endeavors. Premier's Environmentally Preferable Purchasing (EPP) program identifies environmentally friendly products, packaging, and services and can furnish members with a list of contracted suppliers and products that are environmentally preferable. Premier also has a self-assessment tool for hospitals that allows administrators to rate their organization's pollution prevention, purchasing and waste management/reduction programs, as well as a host of informational and training resources.

**CHA Member Spotlight:
University Hospitals**

The fact that many cleaning products emit VOCs creates a challenge for hospitals — buildings that by their very nature require strict infection control practices and diligent routine cleaning.

Fortunately, there are a number of cleaning products now available that eliminate or use fewer harmful chemicals than more traditional cleaners. University Hospitals has adopted green cleaning across the entire hospital system, using less caustic cleaning materials and microfiber mops that conserve water and require fewer chemical cleaners.

The main campus has also invested in a KaiVac Cleaning System, an advanced technology that can clean and disinfect using only steam, entirely eliminating the need for environmentally harmful chemicals. In addition, workers who operate the KaiVac no longer need to touch contaminated surfaces and report improved health since the introduction of the technology. It is currently being used to clean all first floor public restrooms daily and other areas when needed.³⁸



Hospital administrators can also reduce VOCs by selecting natural materials that do not require finishes during the planning phase.

Toxicity/Volatile Organic Compound (VOC) Reduction

Volatile organic compounds, or VOCs, are chemicals that are released as gases from certain solids and liquids. These chemicals are emitted from a wide variety of products that are routinely found in the hospital setting such as paints and lacquers, paint strippers, cleaning supplies, pesticides, air fresheners, building materials and furnishings, carbonless copy paper and office equipment. Health effects associated with VOCs vary depending on the particular chemical, amount and length of exposure. Many VOCs are known to cause cancer in animals and some are suspected of causing or known to cause cancer in humans.³⁹

<i>Possible Health Effects of VOC Exposure</i>
Eye, nose and throat irritation
Headaches
Loss of coordination
Nausea
Damage to liver, kidney & central nervous system
Allergic skin reaction
Fatigue
Dizziness
Nosebleeds
Shortness of breath

Source: EPA, "An Introduction to Indoor Air Quality: Volatile Organic Compounds."

Considering their potentially serious health effects, VOCs are an obvious area of concern for hospitals, and yet their omnipresence makes it almost impossible to completely avoid them. Nonetheless, many hospital leaders have launched initiatives to address this concern and reduce the VOCs in their facility. Today quite a few low-VOC products are available, ranging from caulk to paint to carpet. Proper ventilation that is efficiently operated and well maintained can also contribute to reduced VOCs and improved indoor air quality. Hospital administrators can also reduce VOCs by selecting natural materials that do not require finishes during the planning phase.

Since getting an idea of where to start can be a challenge,
included below are links to Web sites

Additional Resources

Clearly, there are countless environmental concerns that must be addressed in order to make a hospital truly sustainable. Since getting an idea of where to start can be a challenge, included below are links to Web sites that may be able to provide additional information. Some provide information about initiatives or groups in Northeast Ohio that promote sustainability while others detail organizations with a national or international scope.

www.practicegreenhealth.org

Practice Greenhealth is the leading membership and networking organization for healthcare institutions that have made the commitment to sustainability. This organization provides information and tools to help an organization advance its green initiatives.

www.gghc.org

This is the Web site for the Green Guide to Health Care discussed during the Building Design and Construction section above.

www.energystar.gov/index.cfm?c=healthcare.bus_healthcare

The EnergyStar program has developed this Web site specifically for the healthcare sector. It includes information on how to join, a potential energy-savings calculator and an extensive collection of publications related to energy conservation.

www.noharm.org/

Health Care Without Harm is a dues-free, international coalition of healthcare organizations that have made a commitment to promote the health of the environment and people. The Web site contains abundant information on the many aspects of the environmental movement including examples of successful green initiatives undertaken by healthcare organizations.

www.csuohio.edu/business/sustainability/csn.html

This is the Web site for the Corporate Sustainability Network, a group which aims to connect and facilitate dialogue among Northeast Ohio business leaders regarding best practices for sustainability.

<http://www.e4s.org>

In 2000 a group of Northeast Ohio entrepreneurs interested in putting the principles of sustainability to work in the region launched an organization to further this cause. The organization, known as Entrepreneurs for Sustainability, believes that sustainability can create prosperity and promote total community health. This Web site provides information on sustainability in Northeast Ohio as well as information on how to join.

The successful changes that hospital leaders adopt today may not only change the carbon footprint of their facility but may also inspire change on a grander scale.

www.medwish.org

Medwish is an international nonprofit organization that accepts donations of usable medical supplies that would otherwise be discarded from healthcare facilities. Medwish diverted more than 500,000 pounds of medical supplies from landfills in 2009.

Conclusion

Over the last few years, there's no question that the environmental movement has grown. Industry leaders and individuals are becoming increasingly aware of the link between certain human activities and harm to the natural environment and, as a result, many are beginning to take action to adopt practices that mitigate this harm. In growing numbers, hospital leaders are among those joining the environmental movement.

Yet, despite the many valid reasons hospital administrators have for pursuing sustainability, many have been cautious in their out and out acceptance of this movement. For one, undertaking any new major initiative requires not only an investment of time and resources but in many cases also requires an institutional cultural shift. After all, it is one thing for one person to start putting their aluminum can or plastic bottle in the recycling bin every day and quite another for hundreds of people to do it. In some cases, this institutional resistance to change can make committing to sustainability a serious challenge for administrators.

Additionally, hospital administrators who are exploring sustainability are faced with literally hundreds of choices of possible places to start. Since the environmental movement is relatively young, evidence to demonstrate the potential effects of some of these choices can be in short supply. Clearly, administrators who make a commitment to sustainability want to know that the institutional changes they implement will not only have a significant positive effect on the environment but will also maximize the value of their investment. In other words, when hospital administrators spend resources on an environmental initiative, they want to be sure it is one that is worthwhile.

Nonetheless, there's no denying the environmental value in moving hospitals toward sustainability. As hospitals across the country begin to address this issue, there is a growing opportunity to learn from what others have done. That means that sharing success stories is valuable not only from a marketing perspective but also because it may provide useful information for administrators who themselves are pursuing worthwhile green endeavors. It also means that today is an extraordinary time to lead. The successful changes that hospital leaders adopt today may not only change the carbon footprint of their facility but may also inspire change on a grander scale.

Suggestions for Stakeholders

Sustainability is important to hospitals and to our environment. Despite the significant progress that has been made, much more remains to be done. Included below are some opportunities to further the promotion of sustainability within the healthcare sector.

- **Support research** that evaluates financial considerations related to environmental strategies so that administrators can embrace sustainability with the knowledge that doing so does not jeopardize their financial stability.
- Whenever possible, align green initiatives in the healthcare sector in a way that also **strengthens the social wellbeing of the community**.
- Enable healthcare leaders to work together to discover environmental best practices by fostering an environment of **open dialogue**.
- Put **policies in place** to guide the healthcare industry toward the highest environmental priorities as they explore sustainability.





The Center for Health Affairs is a hospital trade association representing 40 hospitals in Northeast Ohio and serving those organizations and others through a variety of advocacy and business management services. CHA also works to inform the public about issues that affect the delivery of healthcare. Formed by a visionary group of hospital leaders 90 years ago, CHA continues to operate on the principle that by working together hospitals can ensure the availability and accessibility of healthcare services. For more on CHA and to download additional copies of this brief, go to www.chanet.org.

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Endnotes

1. Janet Brown, "A Green Guide for Green Administrators," *Outpatient Surgery Magazine*, April 2009.
2. Environmental Protection Agency, "Profile of the Healthcare Industry," February, 2005, <http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/health.pdf> (accessed January 20, 2010).
3. Jeanette W. Chung and David O. Meltzer, "Estimate of the Carbon Footprint of the US Health Care Sector," *JAMA* 302, no. 18 (2009): 1970-1972.
4. Larry West, "Environmental Issues: Global Warming Leads to 150,000 Deaths Every Year," *About.com*, http://environment.about.com/od/globalwarmingandhealth/a/gw_deaths.htm (accessed January 18, 2010).
5. Jonathan A. Patz and Mahmooda Khaliq, "Global Climate Change and Health: Challenges for Future Practitioners," *JAMA* 287, no. 17 (2002): 2283-2284.
6. Kent J. Bransford and Janet A. Lal, "Global Climate Change and Air Pollution: Common Origins with Common Solutions," *JAMA* 287, no 17 (2002): 2285.
7. Ohio Grantmakers Forum, "Issue Briefing: Energy," October 2005, <http://www.development.ohio.gov/cms/uploadedfiles/CDD/OEE/Grantmakers%20Forum%20Energy%20Briefing.pdf> (accessed January 21, 2010).
8. J. Dich, S.H. Zahm, A. Hanberg and H.O. Adami, "Pesticides and Cancer," *Cancer Causes Control* 8, no. 3 (1997): 420-443; L. Orsi, et al., "Occupational Exposure to Pesticides and Lymphoid Neoplasms among Men: Results of a French Case-Control Study," *Occupational Environmental Medicine* 66, no. 5 (2009): 291-298; Agency for Toxic Substances and Disease Registry, "Mercury," April 1999, <http://www.atsdr.cdc.gov/tfacts46.pdf> (accessed January 23, 2010.)
9. Clark Reed, "Boosting your Bottom Line through Improved Energy Use," *Managing the Margin*, June 2005, www.hfma.org/mtm (accessed January 22, 2010).
10. Edward Krisiunas, "The Options at Your Disposal," *Outpatient Surgery Magazine*, April 2009.
11. Environmental Protection Agency, "Using Microfiber Mops in Hospitals," *Environmental Best Practices for Health Care Facilities*, November 2002, <http://www.epa.gov/region09/waste/P2/projects/hospital/mops.pdf> (accessed January 26, 2010).
12. Shiela K. Jobe-Lockwood and Tung Thanh Nguyen, "Are You Reprocessing Single-use Devices?" *Outpatient Surgery Magazine*, April 2009.
13. Andrew White and Matthew Kiernan, "Corporate Environmental Governance," *Environment Agency Report*, 2004, http://www.sbnw.org/doc/2004-11-09-Environmental_Governance.pdf (accessed January 27, 2010).
14. *SustainableBusinessNews.Com*, "Wal-Mart Says Demand for Green Products Up in 2007," April 25, 2008, <http://www.sustainablebusiness.com/index.cfm/go/news.display/id/15883> (accessed February 1, 2010).
15. *Practice GreenHealth Presentation Materials*, "Infrastructure Process for Sustainability," October 6, 2009.
16. Ibid.
17. Ibid.
18. Ibid.
19. Janet Brown, "A Green Guide for Green Administrators," *Outpatient Surgery Magazine*, April 2009.
20. Environmental Protection Agency, "Profile of the Healthcare Industry," February, 2005, <http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/health.pdf> (accessed January 20, 2010).

21. Julie Marth, (Education and Outreach Coordinator, Office for a Healthy Environment, Cleveland Clinic) in discussion with author, January 2010.
22. Environmental Protection Agency, "Profile of the Healthcare Industry," February, 2005, <http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/health.pdf> (accessed January 20, 2010).
23. Edward Krisiunas, "The Options at Your Disposal," *Outpatient Surgery Magazine*, April 2009.
24. Environmental Protection Agency, "Profile of the Healthcare Industry," February, 2005, <http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/health.pdf> (accessed January 20, 2010).
25. Ibid.
26. Ibid.
27. Ohio EPA, "First Lady Frances Strickland Presents Six Recipients with the 2009 Ohio Award for Outstanding Achievement in Environmental Stewardship," Press Release, December 10, 2009, <http://epa.ohio.gov/portals/47/nr/2009/december/EnvStewardshipNR.pdf> (accessed February 22, 2010).
28. Janet Brown, "A Green Guide for Green Administrators," *Outpatient Surgery Magazine*, April 2009.
29. Chris Serb, "Think Green," *HHN Magazine*, August 2008, http://www.hhnmag.com/hhn-mag_app/jsp/articledisplay.jsp?dcrpath=HHNMAG/Article/data/08AUG2008/0808HHN_CoverStory&domain=HHNMAG (accessed January 11, 2010).
30. Chris Serb, "Think Green," *HHN Magazine*, August 2008, http://www.hhnmag.com/hhn-mag_app/jsp/articledisplay.jsp?dcrpath=HHNMAG/Article/data/08AUG2008/0808HHN_CoverStory&domain=HHNMAG (accessed January 11, 2010).
31. Ibid.
32. "11 Bright Ideas to Turn Your ORs Green," *Outpatient Surgery Magazine*, April 2009.
33. Colleen Keegan, "Environmentally Preferable Purchasing for Hospitals," *Health Care Without Harm*, <http://www.epa.gov/Region2/healthcare/presentations/epp.pdf> (accessed February 15, 2010).
34. Ron Dzedzicki, (Sr. Vice President, General Manager of Operations Hospital Services, University Hospitals Case Medical Center,) and Aparna Bole, MD (Pediatric Chief Resident, Rainbow Babies and Children's Hospital) in discussion with the author, February 2010.
35. GreenYour.com, "Get Your Building LEED Certified," <http://www.greenyour.com/office/office-space/building/tips/get-your-building-leed-certified> (accessed February 16, 2010).
36. Gail Vittori, "Green Guide for Health Care and LEED: Sorting out the Rating Systems," *Healthcare Design*, March 1, 2008, <http://www.healthcaredesignmagazine.com> (accessed February 15, 2010).
37. Green Guide for Health Care, "Green Guide for Health Care FAQs," www.gghc.org/faq.cfm (accessed February 15, 2010).
38. Ron Dzedzicki, (Sr. Vice President, General Manager of Operations Hospital Services, University Hospitals Case Medical Center,) and Aparna Bole, MD (Pediatric Chief Resident, Rainbow Babies and Children's Hospital) in discussion with the author, February 2010.
39. Environmental Protection Agency, "An Introduction to Indoor Air Quality: Volatile Organic Compounds," <http://www.epa.gov/iaq/voc.html#Steps%20to%20Reduce%20Exposure> (accessed February 16, 2010).



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