Kansas Hospitals for a Healthy Environment

KANSAS SBEAP
Small Business Environmental Assistance Program

The environmental health impact

Healthcare facilities and hospitals are charged with caring for their communities; however, while providing quality healthcare, the industry can have a negative impact on our environment. In fact, according to the national program, Hospitals for a Healthy Environment (H2E), the healthcare sector—

- Is the fourth largest source of mercury, a well-known persistent bioaccumulative and toxic substance (PBT). The National Academy of Sciences reported that each year 60,000 children may be born in the U.S. with neurological problems due to their mothers eating mercury-contaminated fish.
- Generates more than 2.4 million tons of waste per year, which is often incinerated or landfilled.
- Uses toxic cleaners, pesticides, and sterilants that can impact both patient health and safety.
- Use medical and solid waste incinerators that can be a source of dioxins and other hazardous chemicals.

Recognizing these environmental health issues, many hospitals across the country and right here in Kansas have taken steps to manage their wastes carefully—reducing solid wastes, eliminating elemental mercury devices, and educating staff about proper regulated medical waste (red bags) disposal.

Proper waste management saves money and reduces liability

As waste management costs have increased over the past several years, healthcare facilities across the country have begun to develop and refine their waste management plans. Developing these plans and educating staff has led to solid and toxic waste reductions at many facilities. Better waste management and reduced use of toxic materials can equal reduced liabilities, decreased regulatory burden, and big cost savings.

National program provides support and technical assistance

Are you already reducing wastes and phasing out use of mercury-containing devices at your facility? Would your CEO like to save money and reduce your environmental liability? How about gain community and national recognition? Then consider joining some of your other Kansas healthcare leaders by becoming a partner in the national program, Hospitals for a Healthy Environment, or H2E.

H2E is a national voluntary program designed to help hospitals reduce their environmental impacts while saving money and reducing environmental liabilities. H2E is supported by the following:

- American Hospital Association
- American Nurses Association
- Health Care Without Harm
- U.S. Environmental Protection Agency

When you join as a partner, you will pledge your commitment to eliminate mercury use; minimize waste through prevention, reuse, and recycling; and reduce your healthcare facility's use of hazardous and PBT substances. To become an H2E partner, simply register on line at *www.h2e-online.org* or call the Kansas H2E program at 800-578-8898. So reduce your environmental impact and join H2E. It will help you transform the culture of your hospital to minimize waste while maximizing cost-effective operations.

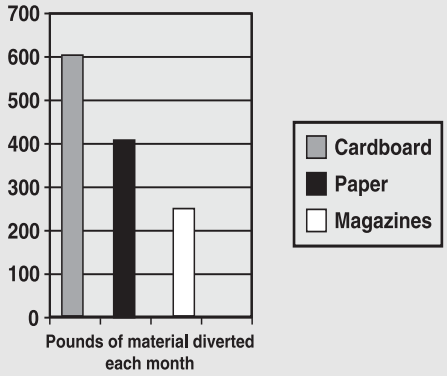
Case study

Defining and implementing plan made a big difference at Memorial Hospital

In 2000, Memorial Hospital, Abilene, Kan., realized it needed to change the way its waste streams were handled. The on-site incinerator that seemingly had made waste disposal simple needed to be shut down unless it could meet costly, new, upgrade standards to comply with environmental standards. In an effort to change the way waste was managed, the existing safety committee decided to form a waste management committee.

Entrance to Memorial Hospital, Abilene, Kan.

Building and grounds supervisor, Wade Needham, led this waste management team in developing and instituting a formal waste management policy. The resulting policy carefully defined regulated medical waste and how it is to be handled. It also defines how shredded confidential waste and recyclables should be handled. Once the policy was finalized for implementation in all departments of the hospital, the team began to train the staff. This policy is now part of new employee training as well. Each department representative takes ownership of making sure that the policy is adhered to. According to Needham, "Our top management has supported this effort since the beginning. It saves money, reduces liability, and proves Memorial's commitment to our community's health. We also have a stake in the community as individuals who live here and raise our families here."



As a result of management and employee support of this program, Memorial has experienced a 62 percent reduction in regulated medical waste (red bag) volumes based on data from 1999 to 2003. This amounts to a normalized savings of over $5700 a year. Memorial also has a staff of committed volunteers that haul recyclables each week to the local recycling collection center. Recent recycling data indicated that on average, each month, 607 pounds of cardboard, 240 pounds of magazines, and 416 pounds of paper are collected for recycling, or sent for reuse.

In addition to recycling cardboard, magazines, and paper, Memorial also recycles or reuses aluminum, plastic, newspaper, pasteboard, packaging material, metals and silver-rich fixer, and films. In line with Memorial's commitment to the environment, it began phasing out use of all mercury-containing devices over the past few years. Other than a few switches in the boiler room, the facility is nearly mercury-free.

In April of 2003, Memorial Hospital became the first Kansas facility to put this environmental commitment in writing by joining the national Hospital for a Healthy Environment pollution prevention program. Memorial was also a 2003 Kansas Department of Health and Environment Pollution Prevention Award recipient. When speaking about the award, Mark Miller, Memorial Hospital CEO, stated, "The successes we have achieved in preventing pollution were achieved through the combined efforts of a team of Memorial's talented staff and volunteers."

Memorial's baler makes hauling recyclables easier.

Why worry about mercury?

Mercury has been used in industry processes for years and in medicine since the 1500s…so why has it recently become such a "hot" environmental and public health issue?

> Mercury is a potent neurotoxin, especially to the unborn and children.

The spotlight is focused on mercury because it has been identified as a high-priority PBT or persistent bioaccumulative and toxic substance. In fact, of the more than 50 known PBTs, mercury has been identified as one of 12 high-priority types. In the environment, mercury circulates through land, air, and water, maintaining and in most cases increasing in toxicity. Human exposure to mercury is greatest when it enters aquatic environments. There it bioaccumulates in fish and humans, and other fish-eating animals such as birds are exposed to it when they consume these mercury-tainted fish.

Mercury is a potent neurotoxin, especially to the unborn and children. Mercury poisoning may cause lack of coordination, damage kidneys and liver, impair development, and in extreme cases result in death. It is hard to believe, but scientists estimate it only takes about one teaspoon of elemental mercury to contaminate a 22-acre lake to the point in which a fish-consumption warning must be posted. In fact, many of the New England and Great Lakes states have issued statewide fish-consumption warnings. In Kansas and nationwide, fish tissue mercury levels are on the rise (Kansas Environment 2000 Report). For these reasons, PBTs like mercury are being targeted for reduction and ultimate elimination.

EMS case study

Prevention can save hundreds . . . thousands

Cleaning up a mercury spill can be very costly. One Kansas agency made a concerted effort to replace all of its mercury-containing devices after a single thermometer broke in one of its ambulances. Because this agency is also trained in haz mat response, they knew that this spill needed to be remediated beyond simple visual inspection. The agency worked with EPA to monitor the vapors inside the ambulance and took the ambulance out of service for remediation. Although it only costs about $3 apiece to replace old mercury thermometers with non-mercury devices, the agency estimates it costs about $13,000 to respond and remediate the spill of one mercury thermometer.

Where is the mercury at your facility?

Medical uses of mercury include but are not limited to the following:

- Thermometers
- Sphygmomanometers
- Esophageal dilators
- Cantor tubes
- Feeding tubes
- Lab chemicals
- Medical batteries
- Pharmaceuticals preservatives
- Cleaning solutions
- Fluorescent lights
- Thermostats
- Pressure gauges
- Electrical switches
- Dental amalgam

Work with your current vendors (or see the reference section of this document) to replace these items with non-mercury-containing alternatives.

Too busy to worry about waste?

No doubt it is difficult for some staff to change the way they do things. But when shown the bottom financial line, top management will motivate these staff to change their work practices. When staff throw non-contaminated waste or even unused raw materials into the red bags, your facility is needlessly paying for expensive specialized disposal. In some cases, your facility may be putting a hazardous waste into these red bags. From both a cost savings and an environmental compliance standpoint, it is critical to define your waste streams and segregate them properly. Nationally and in Kansas, hospitals that reduce the volume of their regulated medical waste have saved 40 to 70 percent on waste disposal.

Sterile raw material found in red bags.

In this situation, the hospital is paying for this material twice—once as a raw material, and then again as a discarded raw material disposed of improperly by a very costly method.

Case study

Define what goes into the red bags

One Kansas hospital is seriously working towards a change after an informal red bag audit suggested it could save up to 50% of its annual costs of more than $50,000. By defining what is and what is not red bag waste, and then training staff, the hospital could see an immediate savings. In fact, it could see a savings of more than $300 per bed per year if it experiences the same successes that other Kansas hospitals have.

Assess your waste, then develop a plan

If your facility does not already have a plan or your plan needs updating, look around and assess your waste management practices. Form a waste minimization team made up of department representatives. Define waste streams, identify problem areas, and write a plan for waste management that includes goals for minimization. When possible, quantify your wastes in an effort to measure your success. If you need help with this assessment or development of a plan, contact one of the local or national resources listed at the back of this document.

According to Kansas Administrative Regulations 28-29-27: "...medical service wastes means those solid waste materials which are potentially capable of causing disease or injury and which are generated in connection with human or animal care through inpatient and outpatient services."

Case study

VAs committed to energy efficiency and H2E

Industrial boiler systems like those typically found in large hospitals offer a range of opportunities for decreasing energy use, purchased fuel costs, air emissions, and other discharges. The Robert J. Dole Department of Veterans Affairs Medical and Regional Office Center in Wichita, Kan., has started a process to upgrade the operation of its steam system.

One of the first steps was to implement a boiler combustion-monitoring program. Instead of hiring an outside firm to set up the burners after an annual insurance inspection or other major system upsets, the VA center purchased and began using combustion test equipment.

Keith Holt monitors boiler condensate return daily.

An outside firm would adjust the burners to provide between seven to eight percent residual oxygen (0_2) in the flue gas. 0_2 settings less than seven percent had resulted in incomplete combustion under some operating conditions. Hospital staff now maintains 0_2 in the three to four percent range. Lower excess air also reduces flue-gas temperature from an average of 345° F to 330° F. Overall combustion efficiency improved from 81.9 to 84.1 percent. This 2.2 percent improvement translates to an average annual savings of $6,800 and reduced CO_2 emissions of more than 81 tons. The combustion analyzer had an initial cost of $4,800 with annual costs for 0_2 sensors of $200. In addition, the hospital avoided $1,500 to $5,000 in charges per visit for boiler tuning by outside firms.

Other changes were also made to the steam system. The method of treating the boiler water was changed, reducing chemical costs and reducing the discharge of chemicals in boiler blow down. “The boilers look cleaner than they have for years. No scale, not even an eggshell thickness is left,” said Keith Holt, boiler plant foreman. Staff also monitors condensate return daily for pH and overall condensate return percentages. This enables them to find leaks quickly, saving energy and water.

On the electrical side, the health center is gradually changing lighting to T8 lamps with electronic ballasts. Standard-efficiency motors are being replaced with premium-efficiency motors when change-outs are needed. The VA also credits decreases in energy costs of $20,000 to $50,000 a year to knowledgeable staff that track energy markets and make purchases when prices are optimum.

Case study

Mission packs for Third-World countries

For the last several years, Hutchinson Hospital Corp of Hutchinson, Kan., has collected discontinued items, outdated supplies, worn linens, and leftover samples for the New Tribe Mission/Friends in Action. This group has distributed these supplies to a number of organizations that funnel the items to those in need. Among those receiving the supplies are "Hospital Of Hope" that distributes to areas of South America, and the" Open Door Pregnancy Care Center," and the "New Jerusalem Mission Aids Center." Friends in Action also sorts the supplies and builds small first-aid kits. These kits are then distributed to Africa and other Third World areas.

Congratulations to the Department of Veterans Affairs. Recently, all 162 facilities joined H2E as champions.

Helpful links and resources

The Kansas Small Business Environmental Assistance Program, SBEAP: This program, operated by the Kansas State University Pollution Prevention Institute, offers free, confidential compliance and pollution prevention assistance. The SBEAP hosts the Kansas Healthcare for Healthy Environment (KH2E) program and can provide on-site technical assistance. Contact the environmental hotline at 800-578-8898 or *www.sbeap.org*.

The Kansas Department of Health and Environment: This is the environmental compliance regulatory agency for the state of Kansas. Contact KDHE at *http://www.kdhe.state.ks.us/*.

Hospitals for a Healthy Environment: This national voluntary program provides technical assistance in the form of a Web site, monthly teleconferences, and a member listserv. H2E sponsors several recognition programs for hospitals. Contact H2E at *http://www.h2e-online.org*.

Sustainable Hospitals: This organization specializes in providing technical support for healthcare in selecting products and work practices that reduce occupational and environmental hazards while maintaining quality. Contact this group at *http://www.sustainablehospitals.org/cgi-bin/DB_Index.cgi*. Sustainable hospital sphygmomanometer devices and mercury take-back vendors: *http://www.sustainablehospitals.org/cgi-bin/DB_Report.cgi?px=W&rpt=Cat&id=14*

Healthcare Without Harm: This campaign for environmentally responsible healthcare can be reached at *http://www.noharm.org/*.

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The Small Business Environmental Assistance Program's (SBEAP) mission is to help Kansas small businesses comply with environmental regulations and identify pollution prevention opportunities. SBEAP is funded through a contract with the Kansas Department of Health and Environment. SBEAP services are free and confidential. For more information, call 800-578-8898, send an e-mail to SBEAP@ksu.edu, or visit our Web site at http://www.sbeap.org. Kansas State University is an EEO/AA provider.