by Marie Nelson and Maureen F. Steinberger

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A growing number of hospitals are taking the lead in reducing waste and recovering recyclable materials.

Waste reduction has emerged as a big expense and a big issue for hospitals. New laws and procedures governing infectious waste are getting most of the attention, but roughly 90 to 95 percent of the waste generated by hospitals is of the non-infectious type. This non-infectious waste accounts for an estimated 1 percent of U.S. solid waste and is rich in recyclables.

A waste audit conducted for Guelph General Hospital in Ontario, Canada, revealed the following waste composition: 5 percent infectious waste; 35 percent wet waste, such as food and yard debris; and 60 percent dry waste, including paper, glass, metal and plastic. In addition to a waste stream rich in recyclables, hospitals have opportunities for significant waste reduction by changing from disposable to reusable items and by requesting packaging changes of their vendors.

At the same time, doctors, nurses and staff at an increasing number of hospitals want to take a leadership role in implementing sound environmental practices. Engaging in responsible waste management is becoming part of the medical community’s larger mission to build a healthy community.

The design needs of hospital programs are the same as for other complex institutions:

- a motivated recycling committee
- a formally designated recycling coordinator
- support of powerful, high profile organization members
- a good education and promotion program, particularly at program startup
- a well-thought-out design so the program runs smoothly
- awareness of local resources such as free waste audits, technical assistance, grants, and hospital foundation volunteers.

What follows are summaries of six successful hospital waste reduction and recycling programs.

Kitchener-Waterloo Hospital: a prototypical program

Kitchener, Ontario was the first city in Canada to have curbside residential recycling collection service. It seemed natural to staff at Kitchener-Waterloo Hospital that the hospital should join its town in the effort to be, as manager of housekeeping Nancy Graham puts it, “green-oriented.” Grassroots persistence resulted in a recycling committee in March 1989 and a recycling program by October of 1989. Graham is the committee’s chair and Charles Whitchell, director of purchasing, is its secretary. Whitchell is working with the hospital’s major supplier, Baxter Corporation, to buy products in recyclable or reduced packaging. So far, the program has cut trash hauls in half and is breaking even financially.

The program started with waste audits provided by Laidlaw Ltd., the hospital’s waste hauler, and by a private equipment vendor. Graham feels that “These walk-through audits were a big help in identifying recyclable items and suggesting equipment options.”

The first phase of the program targeted confidential office paper. To preserve confidentiality, KWH had been destroying this material along with biomedical waste in its own incinerator. However, the paper caused the incinerator to emit smoke visible to the neighborhood. Diverting the ton of confidential waste paper generated each month serves to preserve the environment, the incinerator and the neighborhood goodwill.

The hospital uses a dual cylinder, low profile baler acquired on a lease-to-buy plan to compact the old corrugated containers (OCC) that were soon added to the recycling program. Diversion is easy since OCC is concentrated in the storage, kitchen and hemodialysis areas. Wide doors were cut into a storage area to allow easy access to the receiving dock. Up to fifteen 800-pound bales are stored before removal to the loading dock for collection.
Since waste dumpsters are located outside the hospital, janitors have the incentive of escaping Ontario’s sub-zero winter weather by taking cartons to the baling area.

KWH staffers are preparing for the third phase of the program that will target a full line of recyclables, including those generated in patient areas. In October during “Infection Control Week,” the incinerator will be shut down for repairs, and infectious waste will be shipped to another facility. Staff will keep biomedical waste and housekeeping waste separate. This will lower the cost of shipping contaminated waste and accustom staff to separation of these waste streams.

While Graham feels that comprehensive waste reduction would clearly save the hospital money in the long run, KWH, like many other institutions, operates on a tight budget. Graham states, “When resources are scarce, the first concern is patient care. And with prices fluctuating for recyclables, I can’t afford to count on revenues.” So for the moment, this hospital faces a common dilemma: How do you finance short-term capital costs with long-term savings and uncertain materials revenues? Lease-to-buy equipment arrangements are a popular option.

**Lutheran Medical Center: foundation support**

Lutheran Medical Center is a 280-bed hospital housed in a six story building in Denver, Colorado. Hospital offices are located in a few small outside structures. The facility generates about 2.5 tons of trash and recyclables each day. About 20 percent is composed of old corrugated containers (OCC).

Staff, including doctors, nurses, and environmental, housekeeping and public affairs personnel, are highly motivated to take a leadership role in providing truly comprehensive healthy care. The hospital’s mission includes “planting the seeds of a healthy community.” Responsible waste management is identified as one of these seeds.

About two years ago, a recycling committee composed of six doctors, three nurses and administrative staff was formed and submitted a successful grant application to the Wheat Ridge Foundation that supports the Lutheran ministries of healing. The grant was to cover the start-up costs of a recycling and waste reduction program that focused on procurement of reusables. Writing the grant helped the recycling committee develop a well-thought-out plan.

John Gillespie of Environmental Services is the recycling program’s coordinator responsible for negotiating with recycling service providers and seeing that the program runs smoothly. According to Gillespie, a key factor in the program’s success has been its staged implementation. OCC was the only material targeted during the first six months of the program; white paper was added next. Newspaper will be added to the program soon. The hospital saves about two trash compactor hauls a month, avoiding about $150 in disposal costs.

Gillespie works with LMC’s waste hauler, Browning-Ferris Industries, to recover OCC. A compactor that holds between six and eight tons of OCC is removed about every week and a half. The monthly haul charge and lease fee on the compactor is $175. Monthly revenues returned to LMC from sale of the material are about $250.

In the spring of this year, high grade
white office paper was added to the pro-
gram. Between 10 and 15 barrels of paper
are collected every Monday, generating
$100 revenue per month once the hauling
charge is subtracted. This program is
serviced by a different hauler, Arvada
Rubbish Removal, since BFI prefers not
to handle smaller office paper accounts.

For the most part, the recycling program
has run smoothly with high participation
achieved soon after implementation.
However, Gillespie does stress that, like
other commercial recycling programs, at-
tention at the start of orientation and
monitoring is crucial. In the first weeks, a
few employees contaminated loads of
OCC with trash. Stern memos and sup-
port by department heads and super-
visors have curtailed this problem.

The Miriam Hospital:
One compactor fits all
The Miriam Hospital in Providence,
Rhode Island started recovering corru-
gated containers, all grades of office
paper, and tin and aluminum cans in Jan-
uary 1989. This 250-bed hospital has siz-
able outpatient and research facilities that
generate about 55 tons of trash and seven
tons of recyclables each month.

Unlike the Luthern Medical Center,
Miriam’s program did not originate with its
staff but was spurred by Rhode Island’s
law that requires businesses and institu-
tions to implement recycling programs. As
a result, it has taken almost two years for
the program to reach good participation
levels, and contamination has been an
ongoing issue. Custodians leave polite
notes at the desks of workers whose recy-
clables are contaminated.

Sandra Cheng, director of the dietary
and environmental services departments,
also attributes a steady increase in recy-
cling awareness and participation to visi-
ble waste reduction efforts. For example,
employees are given reusable mugs and
a reduced price at the cafeteria if they use
them. In fact, she feels that staff has
evolved from “not really caring” to being
highly motivated.

Cheng worked with Miriam’s hauling
company, Truk-Away, Inc., to design a
program that was simple to use and one
that fit the hospital’s severe space con-
strants. Employees place office paper in
designated containers in office areas.
Custodians empty these containers into
large blue nylon bags. Aluminum and tin
cans are commingled in clear plastic
bags. Both types of bags are placed in
the compactor along with the cardboard
boxes and are pulled out at the hauler’s
yard. Truk-Away charges $15 a ton to
accept the commingled cans. Cheng says
that her program breaks even now.

Avoided disposal costs and revenues
from sale of OCC and office paper offset
the rental charge for the extra compactor
and the hauling charges.

In addition to Cheng, the program is
monitored by the infection control coor-
dinator and a recycling committee com-
posed of relevant department representa-
tives, one doctor and one nurse.

Kaiser Permanente: Product
Procurement/Waste Reduction
In addition to its effective in-house recy-
cling efforts, Kaiser Permanente’s North-
west Region in Northwest Oregon and
Southwest Washington, is reducing waste
through selective product procurement for
its two large medical centers, 17 medical
offices and 13 dental offices. We talked
to Carol Winter, director of the Materials Management Department, and her staff, who purchase and distribute supplies.

Organized product evaluation/value analysis committees and individual physicians, dentists and staff are a fertile source of suggestions for reducing waste and improving recycling efforts at Kaiser Permanente facilities. The Materials Management Department has emerged as a clearinghouse for these ideas. Staff in Materials Management work with people to evaluate suggestions and make recommendations to the decisionmakers. Winters points out that each new product and idea is evaluated by the same criteria: patient and employee safety, cost effectiveness and effect on the environment.

In discussing Kaiser Permanente’s recent switch from disposable to cloth diapers, purchasing agent Tami Draughsholt noted that staff evaluation confirmed that, in addition to reducing the volume of waste landfilled, use of cloth diapers would have no adverse effects on patient or staff safety. The switch was cost-neutral for the health care program.

Kaiser Permanente has reduced its use of polystyrene foam coffee cups by 15,000 each month. Employees now use durable thermal mugs, which have become a symbol of commitment to a waste-free environment. Polystyrene foam cups, however, continue to be used in select patient areas after a product evaluation committee determined that patient safety would be compromised if disposable paper cups were used - paper hot drink cups did not adequately protect patients from the danger of accidents with hot beverages.

Last May, Kaiser Permanente purchased reusable pressure-relief mattresses and discontinued the use of disposable mattress overlays. This change will result in annual cost savings of $200,000, reduce the volume of waste disposed, free up the warehouse and storage space once required for the disposables, and result in improved patient care.

On an ongoing basis, Kaiser Permanente is working to critique products for reusability, recyclability and unnecessary buffets.
sary packaging waste. For example, staff worked with a catheter kit manufacturer to replace polystyrene foam packaging with recyclable corrugated packaging material. Product evaluation committees are currently reviewing alternatives to disposable adult diapers and patient underpads. The health care program is looking at ways to recycle many of its disposable polystyrene products such as bed pans and patient utensils.

These efforts, combined with in-house recycling of cardboard boxes, office paper, and glass and metal containers, have paid off in reduced operating costs, a high level of employee espirit de corp, and the satisfaction that Kaiser Permanente is solving hospital industry problems. Before recycling and waste reduction measures were implemented, the Central Stores distribution center disposed of three to four 50-yard dumpsters of waste each month. The center now generates one dumpster load a month - the evidence of success.

Providence Medical Center: plastics recycling
Providence Medical Center, a 483-bed hospital in Portland, Oregon, has recycled cardboard boxes and office paper for three years. Last fall the hospital added plastics to its program. Recycling has saved the hospital about $1,300 a month; Stephan Wright, environmental services manager, and Sam Nero, housekeeping foreman, expect savings to increase as staff gain experience in recovering recyclable materials.

The plastics effort began when surgery nurses initiated collection of polyethylene sterile water bottles and transported them to a local plastics processor. The nurses eventually approached the housekeeping department to see if a more formal separation and collection system could be organized and if other plastic materials could be added to the program. After investigating alternatives with local processors, Providence Medical Center decided to include high density polyethylene syringe covers and plastic film bags (the type in which linens and hospital gowns are wrapped) in their recycling program.

The source-separated plastic materials are collected daily by housekeepers and transported to a central location near the main loading dock. The materials are then compressed by a small compactor that reduces each load to about one-fifth its original volume. Housekeeping staff transport between 1,000 and 1,500 pounds of material to a local processor every three weeks and receive between $0.05 and $0.10 a pound for the plastics. The $5,000 capital investment in the compactor is paying off, says Nero. He anticipates that earned revenue and disposal cost savings for the hospital’s combined recycling efforts will pay for the equipment in one year.

Working with employees to source separate, collect and transport the plastic material has not been a problem, and the hospital has experienced no incidents of plastics contaminated by infectious waste.

The biggest challenge has been to work out a suitable arrangement with a plastics processor. Providence’s initial recycling efforts were frustrated when the proc-
essor would arbitrarily reject loads without advance notice. After a second attempt with another processor, Providence has settled into a reliable arrangement with a third processor. Based on its experiences, it advises other hospitals to research markets and processors carefully before launching a plastics recycling effort.

Providence also advises other hospitals to tap into their own charitable foundations and volunteer networks to assist with in-house recycling programs. Providence Medical Center relies on help from a branch of its own Providence Medical Foundation, the Emilie Gamelin Institute, which rehabilitates workers into mainstream society. The housekeeping department employs institute participants to separate recycled office paper and perform other tasks related to recycling.

Sam Nero summarizes Providence’s overall recycling effort as “The baby’s been born and it’s started to walk.” He and other staff members are working to streamline the program and at the same time look for new opportunities to reduce, reuse and recycle.

Ladd Memorial Hospital and Simenstad Nursing Care Unit:

Ladd Memorial Hospital and L.O. Simenstad Nursing Care Unit, a 42-bed hospital and 40-bed residential care center, serve the 2,000 residents of Osceola, Wisconsin. The Ladd Simenstad recycling project was initiated by employees concerned about the environment. An employee recycling committee, which represented all major work units, formed on Earth Day and immediately began an office paper recycling program. In June, the program was expanded to include plastics, paper, glass and metal.

In the short time since the program’s inception, recycling has saved the facility an average of $360 a month in disposal costs and financed the purchase of recycling containers and other equipment. Ladd Memorial Hospital used to landfill 36 to 50 cubic yards of waste weekly; it now disposes about 18 cubic yards a week.

Debbie Peterson, Polk County assistant solid waste manager and recycling coordinator, worked with the Ladd/Simenstad employee committee to organize and plan the recycling program. The county also helped motivate and train Ladd and Simenstad employees to participate in recycling and provided technical and promotional assistance for the program.

The hospital and residential care center have gone beyond separating recyclables with an earnest effort to reduce the generation of wastes. Department heads now consider the cost of disposal when evaluating purchases for supplies and equipment. Cindy Thorman, Ladd Hospital accounting chief and employee recycling committee chair, reports that vendors have been very responsive and provided alternative packaging and recyclable materials when requested.

Thorman attributes the Ladd/Simenstad success to several factors: good organization, county assistance, employee commitment and the motivation to show other Osceola businesses what can be achieved through recycling and waste reduction. “Using resources wisely and prudently is not only an individual, but over a business responsibility,” she explained. “As a health care provider, our concern has to go beyond the patient. We should be concerned with the environment for the health of future generations.”