

Health care facilities must operate as self-contained ecosystems, consuming vast amounts of material resources and generating vast amounts of waste.

The uninterrupted flow of waste away from the facility is vital to preventing disruption of ongoing operations and facility sustainability.

Industry estimates report that U.S.

go beyond the direct cost of disposal, including numerous indirect costs. Serious implications for risk, safety and liability are associated with waste. Many health facility waste materials are regulated, requiring categorization, segregation, controlled handling, employee safety precautions and special disposal. The diversity of specialized waste regulations and vendors creates a complex

The hospital worked with an industry partner to fully develop on-site processing for medical waste, as well as a sophisticated recycling program (compaction for commingled aluminum, glass, #10 institutional cans, bi-metals and plastics, compaction of cardboard and mixed office paper) and automated shredding of confidential material (patient information regulated under HIPAA) conveyed directly into a paper/corrugated compactor.

The program has saved the Thomas Jefferson University Hospital network more than \$600,000 per year by processing medical waste on-site and merging it with solid waste for disposal. The integration of numerous waste streams through a single partner is an extension of the collaborative relationship between Thomas Jefferson University Hospital and its industry partner, a relationship that has continued for 20 years.

WASTE AWAY

Key elements of an integrated waste management program



by Ronald Pierce

health care facilities aggregately spend \$10 billion annually to dispose of numerous differentiated waste materials, including solid, medical, Health Insurance Portability and Accountability Act (HIPAA), recycling, pharmacy, pathology, chemotherapy, nuclear, electronic and construction/demolition waste, among other special waste categories.

In addition to direct costs of diverse waste disposal, health facilities absorb indirect costs associated with managing waste. Waste is categorized, with policies for handling, storage, transfer, transportation and disposal that must comply with complex safety and regulatory requirements. Employees, in some instances, must be trained and vaccinated against pathogens as waste handling creates exposure to injury and illness. Waste storage, transportation and disposal create legal and environmental liability. Numerous vendors, each specializing in a portion of the diverse waste streams, must be managed.

Implications for waste management

and costly set of requirements.

Health care facilities must manage the life cycle of materials, from purchase and use to ultimate disposal, in a manner that meets the varying needs of patients, employees, communities, state and federal regulatory agencies and the environment. Irrespective of the serious possible negative consequences for mismanagement of waste, integrated waste management solutions have not been established at many health facilities. Opportunity lies in developing seamless integration of highly fragmented diverse waste streams, reducing operating complexity, risk, liability and cost.

There are examples of health facilities collaborating with industry to create integrated waste programs, generating cost savings and other measurable benefits. One such example is Philadelphia's Thomas Jefferson University Hospital, whose waste management story can be viewed online at www.wm.com/WM/services/HCS/JeffersonHealthSystem.pdf.

Integrated waste model

New models for integrated waste management at health facilities are evolving, facilitated by advancements in the waste industry. Thomas Jefferson University Hospital's integrated waste solution leverages its partner's expertise in managing diverse waste streams and the partner's infrastructure, including collection operations, transfer stations, solid waste landfills, material recovery facilities, landfill gas-to-energy facilities, waste-to-energy plants and hazardous waste landfills. As important as service capacity is the partner's expertise managing safety, compliance, risk, cost and operating complexity related to numerous health care waste streams. These critical core competencies and infrastructure have been synchronized into a vertically integrated waste management model for health facilities, directly providing disposal services across the breadth of health facility waste volumes.

WASTE MINIMIZATION / Waste minimization management properly classifies waste and promotes the recovery of materials through recycling or secondary use. Significant waste volumes are improperly categorized and co-mingled, increasing disposal costs.

Actively targeting all applicable materials for recycling significantly reduces volumes of waste requiring disposal, resulting in lower cost and improved environmental impact. The focus on facility-wide programs to properly categorize waste, both for recycling and for proper disposal, is the foundation of an effective waste management program.

ON-SITE MEDICAL WASTE PROCESSING / Prior to the Clean Air Act, many health facilities processed medical waste on-site via incineration. Most incinerators have been dismantled due to legislative changes and the increased expense of complying with higher emission standards. While a small minority of acute care facilities continue to process on-site, usually by autoclave, most health facilities contract with third parties licensed to transport and process medical waste. Per volume cost of medical waste disposal is significantly greater than the cost of solid waste disposal. Developing the capacity to process medical waste on-site, utilizing nonincineration technologies, positions health facilities to better control specialty waste cost inflation and eliminates liability for improper third-party disposal by merging treated (“sterilized”) medical waste with solid waste for transport and disposal.

Health care facilities, by federal mandate, must develop plans for disaster preparedness. The impetus for disaster preparedness was stimulated by the terrorist events of Sept. 11, 2001, by the devastation created by Hurricane Katrina and in preparation for the possibility of future epidemics of infectious diseases, such as the H5N1 avian influenza virus. Published in May 2006, the National Strategy for Pandemic Influenza Implementation Plan (www.whitehouse.gov/homeland/nspi_implementation.pdf) is a very detailed action plan for health facilities and communities. However, even the national strategy fails to anticipate the surge in waste, particularly infectious waste, associated with pandemic influenza infecting 30 percent of the population (Taiwan reported a per patient increase in infectious waste generation of over 400 percent during the SARS epidemic). Processing and treating medical waste on-site positions health facilities for sustainability and emergency preparedness

by diminishing dependency upon third parties for the removal of infectious waste, particularly during events precipitating anticipated service disruptions. Health facilities are increasingly developing on-site medical waste processing programs, seeking indemnification and service guarantees from industry partners.

INTEGRATION OF WASTE REVERSE-DISTRIBUTION / For years, health facilities have been working toward integration of distribution for products, supplies and materials consumed in day-to-day operations. The objective has been to consolidate vendors in order to maximize efficiency and cost reduction by streamlining procurement and material handling processes, while outsourcing management and labor responsibilities to vendors with specialized competencies. Such efforts led to the creation of sophisticated materials management strategies, including stockless inventory and just-in-time delivery programs.

Health facilities contract with numerous vendors to dispose of segregated waste streams. The typical health facility most likely has a different vendor for solid waste, medical waste, HIPAA waste, recycling, construction and demolition, and one for each specialty waste stream. Such a fragmented reverse-distribution system prevents achieving synergies and cost reduction in managing waste disposal. Unfortunately, there are few commercial companies with the capacity to integrate service across diverse waste streams. However, the integrated waste stream management model has evolved, enabling health facilities to develop integrated reverse-distribution for all waste materials.

OUTSOURCING FOR INTEGRATED WASTE MANAGEMENT / The mission of health facilities is clinical care, and historically many have outsourced institutional functionality (e.g., food service, laundry, housekeeping) ancillary to clinical care to manage quality and cost. In the area of waste stream management, core competencies required include managing employee safety, regulatory compliance, risk, cost and environmental impact, in addition to managing the waste. The ability to integrate waste streams while providing management competencies provides significant value. A secondary benefit is the availability for

outsourcing the labor component, eliminating the requirement for health facility employees to handle waste. Outsourced labor reduces direct labor costs and indirect costs including exposure to medical and hazardous waste, worker injury claims, workers’ compensation claims, insurance claims, legal claims and all of the associated worker benefits costs.

WORKPLACE SAFETY / Thomas Jefferson University Hospital’s industry partner has developed an aggressive safety program that resulted in the reduction of work-related injuries by more than 70 percent, including an award-winning return-to-work program, managing both occupational and nonoccupational absences, helping injured employees recover and return to productivity more quickly through proper care. Over 30 percent of managed facilities maintain a perfect annual record of zero injuries, and lost workdays have been reduced by 22 percent, with workers’ compensation costs reduced commensurately.

ENVIRONMENTAL STEWARDSHIP / There is a growing recognition of the social responsibility that all organizations bear to be better environmental stewards. Today, most businesses incorporate “green strategies” into their mission statements and strategic plans. Waste minimization and recycling are a good start at getting “green.” Ultimately, the final disposal for waste after leaving the health facility can have significant impact upon the environment. Waste is usually deposited in landfills or incinerated.

Both waste disposal methodologies can be designed to create renewable energy and managed for enhanced environmental impact. Landfills can capture methane gas, a renewable energy source. Waste-to-energy facilities can convert heat from combustion into electrical energy, another renewable energy source. Developing waste disposal strategies that facilitate renewable energy creates numerous benefits, from reducing carbon emissions and greenhouse gases to dependence on foreign oil. ■



Ronald Pierce is director of Waste Management Healthcare Solutions, Houston. He can be reached via e-mail at rpierce1@wm.com.

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