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Identifying the Key Personnel in a Nurse-Initiated Hospital Waste Reduction Program

Ruth McDermott-Levy, PhD, RN; Carol Fazzini, RN

Hospitals in the United States generate more than 6600 tons of trash a day and approximately 85% of the waste is nonhazardous solid waste such as food, cardboard, and plastic. Treatment and management of hospital waste can lead to environmental problems for the communities that receive the waste. One health system’s shared governance model provided the foundation to develop a nurse-led hospital waste reduction program that focused on point-of-care waste management. Waste reduction program development required working with a variety of departments within and external to the health system. The interdisciplinary approach informed the development of the waste reduction program. This article identifies the key departments that were necessary to include when developing a hospital waste reduction program. Key words: infectious waste, shared governance, solid waste, waste reduction

NURSING STAFF, clinical educators, and administrators are becoming increasingly aware of the role their organizations play in adding to the environmental burden of the communities they serve. One area where hospitals can play an active role in improving the health of the community while realizing economic benefits is the area of waste reduction. Hospitals waste streams are more complex than most industries because they include waste from laboratories, medical treatments, and surgical procedures in addition to hotel-type waste. Typically, hospitals generate solid waste (ie, paper, food, and construction waste) and regulated medical waste that includes infectious and biohazardous waste (ie, chemotherapeutic, radioactive, and sharps). There are economic, regulatory, and environmental factors to consider regarding hospital waste. Hospitals must pay for trash hauling and final disposition of their waste. In the United States, all waste is defined and regulated according to the Resource Conservation and Recovery Act of 1976. In addition to federal regulations, each state and municipality has waste disposal regulations. Once removed from the facility, there are 2 primary methods of medical waste treatment. The first method is incineration, whereas the other method is rendering the waste inactive by sterilization, disinfection, or irradiation and then placing the remaining materials in a landfill. The US Environmental Protection Agency has identified incineration of medical waste as a major source of environmental pollution by dioxin, mercury, other toxic substances and particulate matter. Dioxin is a known human carcinogen, and mercury is a potent neurotoxin. As our population has grown and we have more disposable consumer products, our landfill space has become increasingly limited. In addition, landfills are sources of methane, a potent
greenhouse gas, from the decomposition of organic matter. By reducing the amount of waste generated by the hospital, there can be economic and environmental benefits.

Hospitals in the United States generate more than 6600 tons of trash a day and approximately 85% of the waste is nonhazardous solid waste such as food, cardboard, and plastic. Much of the nonhazardous solid waste is the waste typically found in non-health care industry and thus could be subject to standard waste reduction plans such as composting or recycling. A waste audit of nonhazardous solid waste and infectious waste in a British intensive care unit (ICU) revealed that about 60% of the ICU waste was recyclable and 25% of the ICU waste was considered infectious. The proportion of infectious ICU waste was the same as other patient care units in the hospital. These data demonstrate that a targeted program to identify appropriate disposal of patient care waste could reduce items unnecessarily incinerated or placed in landfills. In addition, reduction in hospital waste could save in trash hauling and disposal fees and possibly generate income from recycling programs. Information regarding hospital waste and waste reduction programs can be found at Web resources listed in Table 1.

**Table 1. Hospital Waste Reduction: Web Resources**

<table>
<thead>
<tr>
<th>Web Resources</th>
<th>Web Address</th>
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</thead>
<tbody>
<tr>
<td>Alliance of Nurses for Healthy Environments (e-commons)</td>
<td><a href="http://e-commons.org/eh-tools/green-teams/">http://e-commons.org/eh-tools/green-teams/</a></td>
</tr>
<tr>
<td>Health Care Without Harm</td>
<td><a href="http://www.noharm.org">http://www.noharm.org</a></td>
</tr>
<tr>
<td>Practice Greenhealth</td>
<td><a href="http://www.practicegreenhealth.org">http://www.practicegreenhealth.org</a></td>
</tr>
<tr>
<td>US Environmental Protection Agency</td>
<td><a href="http://www.epa.gov">http://www.epa.gov</a></td>
</tr>
</tbody>
</table>

**ONE HOSPITAL'S NURSE-LED SOLUTION**

Main Line Health System (MLHS) is located in suburban Philadelphia and comprises 4 acute care hospitals, a rehabilitation hospital, a home care agency, and an inpatient addiction facility. As part of the shared governance model for nursing within the health system, the MLHS established the Healthy Work Environment Council (HWEC) in 2008 with representation from each facility. The council comprises nurse managers, staff nurses, physical therapists, clinical nurse educators, a marketing liaison, and nursing faculty member (acting as community liaison) from a local university. The HWEC is a new group within the health system and to meet the needs of their constituency, the HWEC surveyed members of the nursing staff to determine their concerns. Survey findings revealed that the impact of health care system on the environment was a priority for the nursing staff.

The HWEC members met with an environmental consultant who has assisted other hospitals to reduce the negative environmental impact of providing care. The consultant recommended that the group start by working on problems that are most easily addressed. It was agreed that reducing the amount of waste generated by the hospital system was something that could be achieved, would have administrative support, and would improve the environmental impact from the health care system.

Since the MLHS has 4 acute care facilities in 3 different counties and different municipalities, each hospital's waste regulations are unique. With different regulations, standardization across the health care system was challenging. Therefore, with nursing administration consultation, the group decided to pilot the program at 1 hospital. This would allow the HWEC waste reduction task force to
determine specific areas to be addressed at the pilot hospital and then tailor the waste reduction program for the specific requirements of each hospital throughout the health system.

A task force of the HWEC was formed to develop a nurse-initiated waste reduction program. To implement the waste reduction program, members of the HWEC applied for and were awarded a minigrant from Health Care Without Harm. The minigrant funded the development and implementation of educational programs for nurses and other direct patient care personnel regarding the problems of hospital waste, the environmental impact, appropriate use of trash receptacles, methods to reduce hospital waste, and the goal to reduce hospital waste by 5% by year end. Education has been identified as a critical component of waste reduction programs.\textsuperscript{10} The educational programs were offered in a “lunch & learn” format, with lunch provided by the hospital dining services through the nursing department budget. In addition, continuing education credit was offered to all nurses attending the educational program. The shared governance model of placing the point-of-care providers in the decision-making role and ensuring accountability for program outcomes\textsuperscript{11} was central to the educational portion of waste reduction program to teach the nurses at the bedside about the hospital’s waste stream and resulting potential environmental issues, effective waste reduction solutions, and the waste reduction goals.

**AN INTERDISCIPLINARY TEAM APPROACH**

To make this program successful, the HWEC waste reduction task force relied on the shared governance model and utilized the expertise of those within the organization to develop the waste reduction program.\textsuperscript{9} A Canadian hospital waste reduction program relied on a subcommittee of hospital environmental services, infection control, and the hospital’s waste management company to initiate a hospital-wide program.\textsuperscript{10} Because our program was nurse initiated, the HWEC waste reduction task force worked with several nursing administrators and other hospital departments within the MLHS to develop the program. Table 2 provides a brief description of each hospital entity that supported the waste reduction program development.

The health system’s chief nursing officer and pilot hospital’s vice president for patient services reviewed the program.

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Area of Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing administration</td>
<td>Ensured program within the health systems mission; reviewed objectives and educational program</td>
</tr>
<tr>
<td>Environmental services</td>
<td>Explained hospital’s waste stream and waste procedures</td>
</tr>
<tr>
<td>Materials management</td>
<td>Offered information about recycling programs</td>
</tr>
<tr>
<td>Trash vendors</td>
<td>Provided hospital’s trash data</td>
</tr>
<tr>
<td>Infection preventionist</td>
<td>Ensured program met hospital’s infection control policies and local, state, and federal regulations</td>
</tr>
<tr>
<td>Marketing/communications</td>
<td>Advertised educational program and will disseminate waste reduction outcomes</td>
</tr>
<tr>
<td>Nursing education</td>
<td>Obtained continuing education credit approval and educational program evaluation</td>
</tr>
<tr>
<td>Dietary services</td>
<td>Offered lunch with minimal packaging and minimized use of single-use plastic water bottles</td>
</tr>
</tbody>
</table>
objectives with the HWEC waste reduction task force to be sure they harmonized with the mission of the MLHS, were within the parameters of the nursing budget, and were realistic for nursing service to achieve. They also offered input to the implementation strategies to maximize the greatest outcome for this project and reviewed the educational portion of the waste reduction program. Their collaboration in the project provided valuable perspectives on the waste reduction initiative.

The operations manager for environmental services was included in planning and was instrumental in directing the task force to the appropriate waste vendors to learn about the hospital's waste stream and recycling programs. Environmental services also shared the waste management procedural practices of the institution as well as provided information about the final disposition of the hospital's waste. The Environmental services staff was eager to help and enthusiastic about nurses participating in a hospital-wide waste reduction program.

In addition to environmental services, the HWEC waste reduction task force collaborated with the hospital's waste vendors to gather data about the pilot hospital's waste stream. The waste vendors provided data and clarified, explained, and interpreted the data relative to the waste reduction program. As the waste reduction program continues, the vendors will provide monthly data of the pilot hospital's waste usage so that tracking of program's progress can be shared with the staff, administration, and the community. The vendors also invited the HWEC waste reduction task force to visit their sites for a firsthand view of their operations.

Materials management was also included in program planning. It provided information regarding the hospital's recycling efforts. This gave greater insight to the overall waste stream of the hospital.

The infection preventionist, a masters-prepared RN, was consulted for accuracy of the information that was presented to the nursing staff and to be sure that the information was in accordance with the organization's infection control policies. It is important that there is reduction in the hospital waste stream while maintaining the federal, state, and local regulatory standards. The solid waste and infectious hospital waste must be treated according to established regulatory policy to ensure public health and avoid the hospital being cited for a regulatory violation. Esceff and Shurtleff recommended that the institution's infection control officer be involved in the development of a hospital waste reduction program and that was also found to be true in developing MLHS's program.

The clinical nurse educator was instrumental in compiling information necessary to apply for continuing education credit and developed a tool to evaluate the educational in-service program. The clinical educator also provided feedback regarding implementation and evaluation of the educational program.

The pilot hospital's marketing liaison was consulted to advertise the waste reduction program to the nursing staff and to highlight the progress of the waste reduction program in the hospital's weekly Web-based newsletter and the quarterly hospital paper. These activities will remind staff members of the value and effectiveness of their efforts and inform the wider community of the hospital's greening initiatives.

Dietary services were included in the program because they provided a meal to the nursing staff during the educational sessions. They were informed of the purpose of the program and were asked to keep waste reduction in mind when providing the buffet lunch to the nurses. There was minimal wrapping of food. To reduce plastic waste, water was provided in pitchers and paper cups.

CONCLUSION

The education portion of the pilot hospital's waste reduction program required the HWEC waste reduction task force to work with a variety of departments within and external to the health system. The health
system's shared governance model served as an effective model to work across disciplines and within nursing departments while empowering nurses at the bedside. All parties contacted were immediately receptive, willing to support the program and pleased that nurses initiated a hospital waste reduction program. The HWEC has been asked to share the program objectives with the organization administrators. An ongoing partnership with key personnel can ensure a positive outcome for this project and a successful hospital waste reduction program. The interdisciplinary approach to system-wide problems within the framework of shared governance supports nursing professional development and strengthens the health system.

It took approximately 11 months from the time the HWEC met with the environmental consultant and then applied for the migrant from Health Care Without Harm to implementing the educational waste reduction program for nurses. The next steps are to reinforce the waste reduction strategies that were taught in the educational program through the hospital's Web-based newsletter and HWEC's Web page and report monthly statistics of the hospital's solid waste and medical waste to nurses and other employees. In addition, the interdisciplinary relationships that were established by the waste reduction program are the same key personnel needed to establish "green teams" (environmental teams) for the health system.

REFERENCES