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Setting a Plastics Recycling Benchmark

BY ALISON BRYANT

HPRC and Practice Greenhealth present key results from a survey on plastic packaging and products recycling in U.S. hospitals

Health care facilities in the United States generate approximately 14,000 tons of waste per day,¹ most of which is disposed of in landfills or by incineration. It's estimated that between 20 percent and 25 percent of that 14,000 tons can be attributed to plastic packaging and plastic products.² In addition, it's estimated that 85 percent of the hospital waste generated is nonhazardous, meaning it is free from patient contact and contamination.³

Environmental Benefits From Recycling Plastics

Recycling one ton of plastic saves:

- 16.3 barrels of oil⁴
- 30 cubic yards of landfill space⁴
- 5,774 Kwh of energy,⁴ enough to power an average house for six months⁵

While hospitals have been champions of recycling for decades, efforts have largely focused on food service and administrative functional areas and not on patient care settings where the majority of health care plastic materials are in fact generated. To establish a baseline characterization of current plastics recycling activity across the U.S. health care system, and, in particular, to better understand the challenges limiting plastics recycling in patient care areas, the Healthcare Plastics Recycling Council (HPRC) in collaboration with Practice Greenhealth recently conducted a survey, receiving responses from 207 individual healthcare professionals representing individual hospitals, or in some cases hospital networks, that include as many as 663 hospitals nationwide.

The survey was sent to health care professionals across Facilities, EHS (Environment, Health and Safety), Environmental Services, Procurement, Sustainability and Clinical Staff departments. Targeting clean, noninfectious plastic waste materials, the survey sought to distinguish what the current activity level is and the types of both products and packaging being collected and recycled from various clinical settings. The survey also explored general recycling practices, including material accumulation methods, equipment use and waste hauling of recovered plastics.

Overall State of Plastics Recycling

Of the survey respondents, 66 percent indicated that they either led or oversaw recycling activities at their hospital or hospital network, a positive sign that the survey reached its intended audience. Seventy percent (145) of the 207 respondents indicated that all of their hospitals recycle plastics and 19 percent (39) of respondents indicated that some of their hospitals recycle plastics. This is an encouraging statistic, though it is assumed that representatives from hospitals that have active plastics recycling programs were more likely to complete the survey. Of the hospitals currently recycling plastics, the Cafeteria and Surgical Services were most frequently identified as locations where plastic material collection was taking place, followed by Office and Receiving. Significant frequency of plastics accumulation was also occurring in Patient Care Areas, Ancillary Care Areas,



and Outpatient Clinics.

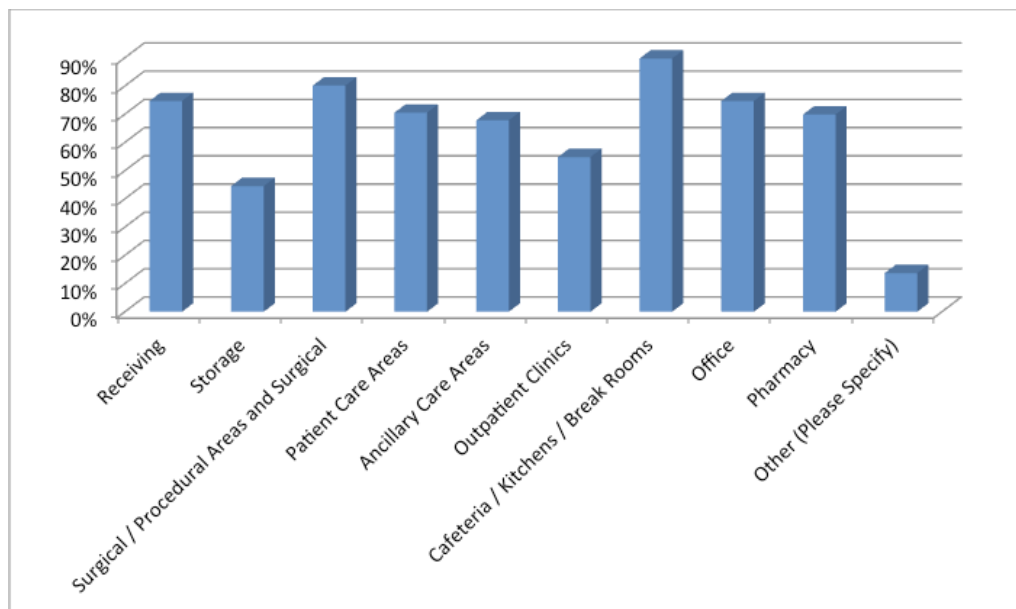


Figure 1. Frequency of plastics collection and recycling by hospital area (based on survey responses from 146 healthcare professionals who answered the question: "From which departments do your facilities currently collect and recycle plastics? (Select all that apply)."

Additionally, when respondents were asked to identify all hospital departments having responsibility for recycling, the Environmental Services/Janitorial department was identified by 80% of respondents as having responsibility, followed by Facilities, identified by 33% or respondents as having responsibility.

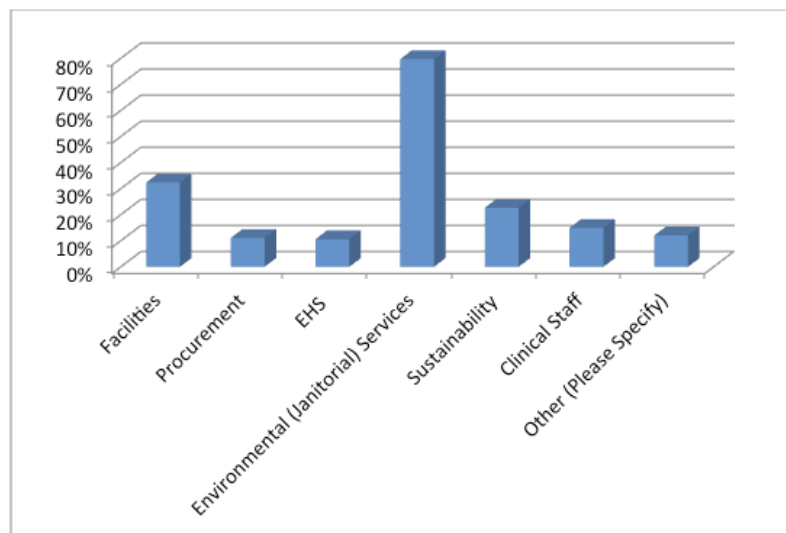


Figure 2. Frequency certain hospital departments were identified as having responsibility for recycling (based on survey responses from 146 healthcare professionals who answered the question: "Which function has overall responsibility for recycling at your facilities? (Select all that apply)."

Common Recyclable Health Care Plastics

Tyvek®, made from high-density polyethylene (HDPE), is a common material used in sterile barrier packaging, typically as part of a chevron peel pouch or lid on a rigid tray. It can be recycled with other #2 plastics.

Sterilization wrap, often referred to as "blue wrap," is a sterile material made from polypropylene that protects

surgical instruments and other items from contamination. It can be recycled with other #5 plastics.

Saline bottles are a common operating room product, typically made from polypropylene, and when easy to drain, can be recycled with other #5 plastics.

Water pitchers, basins and trays are common patient care products, typically made from polyethylene terephthalate, which can be recycled with other #1 plastics.

Accumulation and Recycling Rates

According to the survey results, 72 percent of respondents indicated that plastic materials were accumulated through commingled or single-stream collection practices, where a materials handling contractor then sorted or otherwise processed the health care plastics at an off-site location. Sixteen percent of respondents indicated use of a single-stream collection practice where sorting occurred at the hospital prior to pickup by the materials handling contractor. The remaining 22 percent of respondents indicated that material accumulation occurred in the hospital through use of separate collection receptacles for different material types (i.e. one bin for bottles, one bin for blue wrap, etc.).[1]

For specialized equipment, 39 percent of respondents whose hospitals have plastics recycling programs indicated that their hospitals utilize a compactor, ten percent use a baler, and 25 percent indicated use of a dedicated roll-off box for handling plastic materials. Thirty-one percent indicated their hospitals do not have specialized equipment to support plastic material accumulation.[2]

When respondents were asked to identify the different types of suppliers involved in taking their plastic materials respondents most frequently indicated that general all-waste contractors were involved in removed the materials (66%) followed by recycling companies (46%).

[1] Based on survey responses from 146 healthcare professionals who answered the question: "How would you best describe how plastic materials are aggregated from around your facilities? (Select all that apply)."

[2] Based on survey responses from 146 healthcare professionals who answered the question: "Do your facilities have any specialized equipment to support the aggregation of your collected plastic materials? (Select all that apply)."

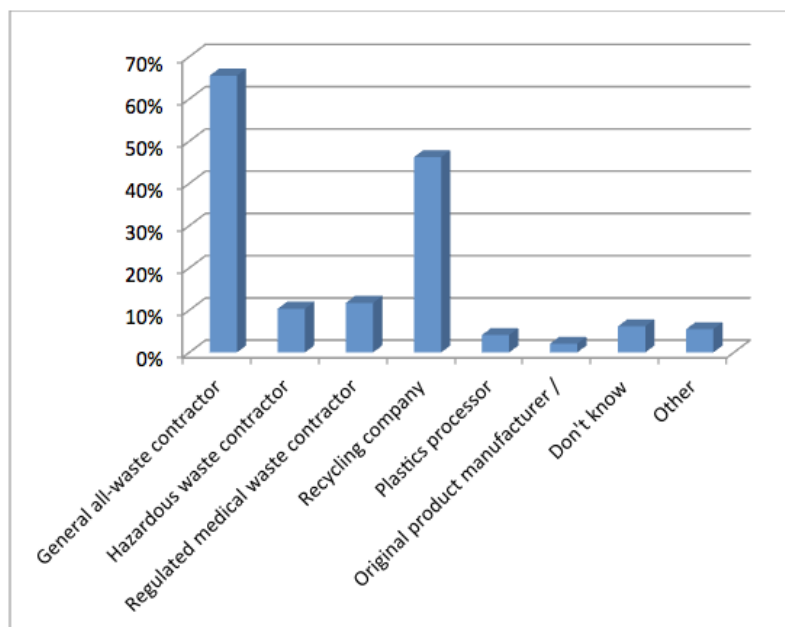


Figure 3. Frequency different types of service providers were identified as responsible for accepting accumulated plastic materials (based on survey responses from 146 healthcare professionals who answered the question: "What type of contractor takes your facilities recovered plastic materials? (Select all that apply)."

To gauge the current scale of plastics recycling in health care, survey respondents were asked to provide their best estimate of the total percentage of recyclable plastic materials that they are collecting and recycling. On the high end, 4 percent of respondents indicated that they were capturing more than 80 percent of recyclable plastics, while 66 percent of respondents estimate that their hospitals are collecting 40 percent or less of what could be recycled. Responses for estimated amounts of plastic materials collected and recycled on a yearly basis spanned a broad range from 1 ton to 700 tons per year for a 12-hospital network.

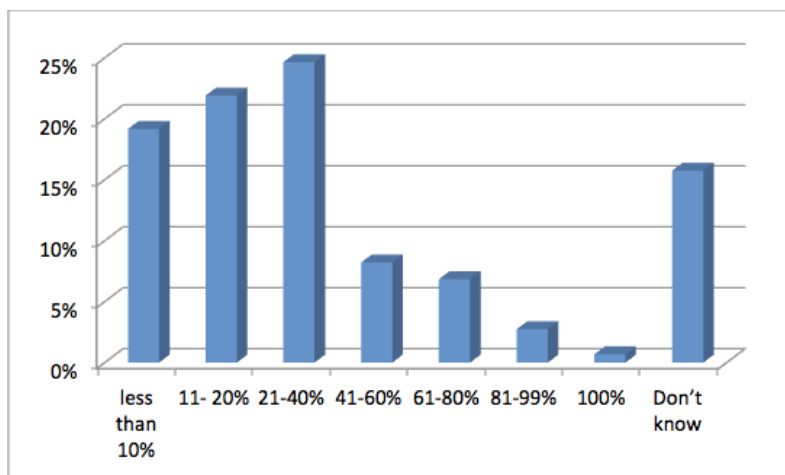


Figure 4. Estimated percentage of recyclable plastics that are collected and recycled through hospital recycling programs (based on survey responses from 146 healthcare professionals who answered the question: "What is your best estimate of the total percentage of recyclable plastic materials that are being collected and recycled?")

When asked about costs, 40 percent of respondents indicated that their recycling program was cost neutral to their organizations, 26 percent indicated it was a cost center, 8 percent indicated it was a positive revenue generator, with the balance (26 percent) uncertain of financial impacts.

Challenges Today and Future Prospects for Expanded Recycling

What are the biggest challenges to recycling of health care plastics? When asked to identify their top three challenges to recycling healthcare plastics respondents most often mentioned space limitations, both in the clinical settings (53%) and waste disposal areas (38%), followed by 36 percent citing difficulties finding a recycler to take hospital waste, 32 percent facing difficulties separating and collecting materials, and 31 percent facing difficulties identifying which materials can be recycled.

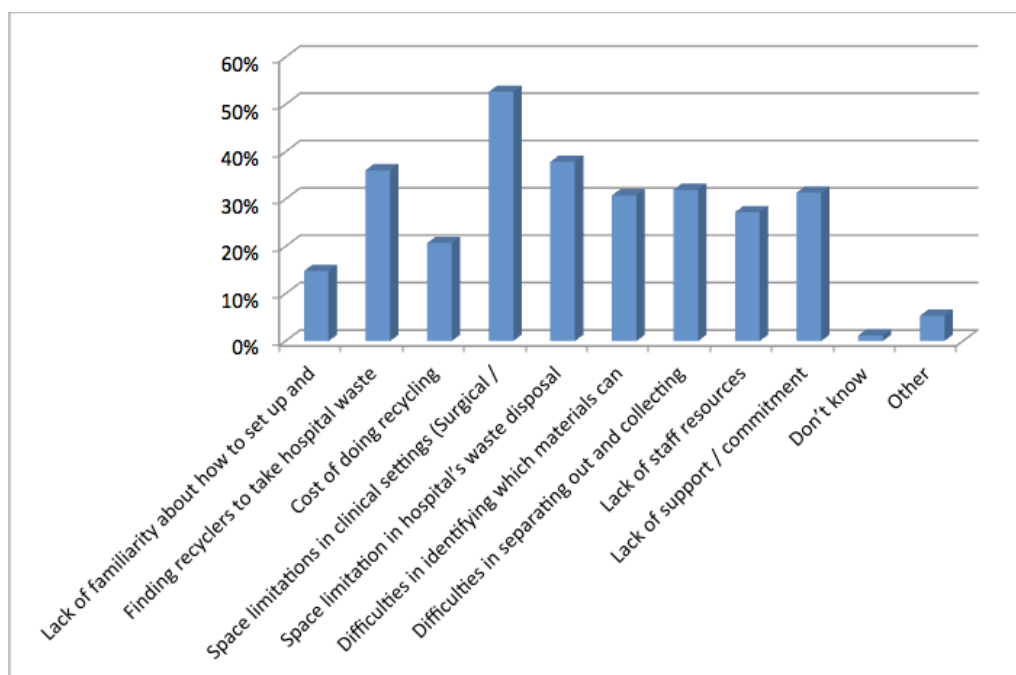


Figure 5. Frequency specific challenges were identified in performing healthcare plastics recycling (based on survey responses from 169 healthcare professionals who answered the question: "What are the top three challenges to recycling health care plastics? Select up to three that apply")

Over the next two years, 71 percent of survey respondents said that they expect their plastics recycling programs to expand, suggesting a growing appetite and desire for more sustainable management of plastic resources generated by hospitals.

The Final Tally

Implementing and running a health care plastics recycling program is an advanced sustainability effort that involves a complex recipe for success. Insights gained from the survey point to a few key takeaways for hospitals looking to begin recycling plastics in clinical settings or enhance their existing program.

1. **Ensure key stakeholders are engaged and committed.** In particular, talk to your Environmental Services and Facilities departments about your recycling aspirations. As they typically manage most of the hospital waste stream, their understanding and support is critical for program success.
2. **Target surgical, procedural, and patient care areas.** Collectively, these areas appear to generate the highest volume of recyclable plastic materials, and written comments provided by respondents completing the survey indicate that employees in these areas tend to be enthusiastic about supporting recycling programs.
3. **There is opportunity to significantly increase recycling, even within existing/mature programs.** Most respondents (over 60 percent) feel they are collecting 40 percent or less of what could be recycled.
4. **Need to make room for recycling.** Most frequent challenges are lack of space in both clinical and waste disposal areas. Finding ways to maximize use of existing space or include space for recycling in new construction or remodeling appears critical to program success.
5. **Locating and partnering with the right service provider makes a difference.** Most existing hospital plastics recycling programs are reliant on a key service provider – a full service waste management or specialized recycling company – who is willing to accept plastic materials from hospitals and able to manage these in a comingled or single-stream. Look for a firm you can work closely with to establish program goals and define material acceptance criteria.

Alison Bryant is a consultant with Antea Group and manages communications for the Healthcare Plastics Recycling Council.

About HPRC

HPRC is a private technical coalition of industry peers

across health care, recycling and waste management industries seeking to improve recyclability of plastic products within health care. HPRC is made up of 10 brand-leading and globally recognized members, including Baxter, BD, Bemis, Cardinal Health, DuPont, Eastman Chemical, Halyard Health, Johnson & Johnson, Medtronic and SABIC. The council convenes biannually at meetings hosted by an HPRC member, which include facility tours to further learning and knowledge-sharing opportunities through firsthand demonstration of best practices in sustainable product and packaging design and recycling processes. For more information, visit www.hprc.org.

1 Practice Greenhealth, <https://practicegreenhealth.org/topics/waste>

2 Lee, B., M. Ellenbecker, and R. Moure-Eraso. "Analyses of the Recycling Potential of Medical Plastic Wastes." *Waste Management* (2002): 461-470

3 Grogan, Terry. "Solid Waste Reduction in US Hospitals." *Hospital Engineering & Facilities Management* (2003): 88-91.

4 Santa Barbara County Recycling Resource, <http://www.lessismore.org/materials/28-why-recycle>

5 U.S. Energy Information Administration, <http://205.254.135.7/tools/faqs/faq.cfm?id=97&t=3>



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