



Collaborating Across Industries to Effectively Recycle Healthcare Plastics

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Overview

In 2020, the global healthcare plastics market was [32 billion pounds](#), and market analysts project growth to [48 billion pounds by 2025](#). Most of that material is being disposed of by landfill or incineration even though 85% of the waste material is not hazardous.

In light of these challenges, hospitals and clinical product suppliers are striving to identify creative strategies to improve healthcare plastics recycling rates in hospitals.

In 2023, Deaconess Midtown Hospital, located in Evansville, Indiana, partnered with Evansville Packaging Supply, a local collection and sortation partner, advanced recycler Nexus Circular, and clinical product manufacturer Berry Global to pilot a healthcare plastics recycling program to reduce incinerated and landfilled plastic wastes.

The successes of their efforts serve as an important example to other healthcare facilities seeking to mitigate environmental impacts and make measured progress in plastic waste reduction.

Dedication to Meaningful Impact

Staff and interested cross-industry stakeholders were the key drivers and impetus for success within the Deaconess plastics recycling program. Madyson Partenheimer, Commercial Sustainability Manager for Berry Global and former healthcare practitioner, recognized a unique opportunity for meaningful impact within the healthcare plastics recycling space within her network and community. As a former Certified Nursing Assistant (CNA,) Madyson had firsthand exposure to high volumes of plastic waste materials commonly discarded in patient care settings, and familiarity with the Deaconess Health System as a Deaconess supplier company. She connected with Mindy Carlton, Director of Supply Chain of Deaconess Midtown Hospital, to explore potential opportunities to increase healthcare plastics recycling rates through a pilot program at Deaconess.

After deliberate discussions about areas within the hospital where plastics collection would have the highest impact, the team decided to pilot the program within surgical suites at the Deaconess Midtown facility.

During the initial stages of the pilot, the team committed to substantial training efforts to ensure that healthcare staff were well-informed about plastics sortation and recyclability. Facilities team members engaged in routine huddles to educate, communicate, and align on new single-stream processes to increase plastics recycling efficiently without burdening staff or distracting from patient care priorities.

To collect and manage plastic waste materials within the hospital, packaging materials and plastic components used prior to surgery are collected in clear plastic bags and removed from surgical rooms before the patient enters the room. Non-recyclable waste for landfill and incineration are collected in black bags. In this way, clear plastic bags of recyclable plastics are clearly distinguished and transferred to the appropriate designated location on the Deaconess Midtown loading dock.

Early collection successes during the pilot recycling work in Deaconess surgical suites quickly inspired program expansion to the hospital pharmacy, pharmacy laboratory, the gastrointestinal laboratory, the catheterization laboratory, laundry, and warehouse areas of the hospital.

Engagement of Strategic Partners

Beyond internal hospital collection and sorting processes, identification of the appropriate external partners for recycling is critical to healthcare plastics recycling success. Teams at Berry Global and Deaconess recognized that plastic materials collected within the surgical suites would not be well-suited to mechanical recycling processes. Advanced recycling processes were needed in order to recycle flexible plastics and other applications common to operating rooms.

Nexus Circular, a leading advanced recycler, evaluated surgical suite materials as a feedstock opportunity for their commercial pyrolysis-based advanced recycling facility in Atlanta, Georgia. In order to meet the specific feedstock requirements

for pyrolysis, additional sortation of the mixed healthcare plastic stream was required.

Deaconess and Berry teams sought to engage a partner that would both support sortation needs as well as provide potential social sustainability impacts in the community and identified Evansville Packaging Systems (EPS) as a potential partner. EPS is a local entity that seeks to promote a healthy work environment and provide support and encouragement to employees that have overcome obstacles of addiction, homelessness, abuse, and other life altering challenges.

Deaconess and Berry teams connected with EPS and agreed to leverage EPS for plastics collection from Deaconess, and for sortation of the polyolefin materials to meet Nexus' feedstock requirements. This support from EPS was crucial to the overall success of the pilot.

After sortation, Nexus Circular coordinates pick-up and transport of the materials from EPS to the Nexus facility. Nexus then utilizes a pyrolysis-based advanced recycling process to convert the sorted healthcare plastics into pyrolysis oil, which is used by plastic resin producers to replace fossil-based materials in the production of virgin quality resin. This high-quality resin which now contains recycled plastic content is subsequently supplied to companies, including Berry Global, to produce new plastic packaging and healthcare component films and nonwovens.

Lessons Learned

Local partnerships play a key role in the success of the Deaconess healthcare recycling program. Berry Global, Nexus Circular, and EPS are all vital to the success of the Deaconess healthcare plastics recycling program and are testament to the importance of partnership and community engagement for meaningful impact.

Employee engagement within the context of the hospital has also been imperative to program success. "...having teams that are committed to work through challenges in the early stages of the pilot, and having a project champion like Madyson who believes in the project and is willing to be hands-on at the collection sites, is key," shared Christy Sapp, Nexus Circular.

Still, hospital teams aren't without challenges. Turnover within hospitals requires ongoing training processes to ensure that new team members are informed and will follow appropriate collection and aggregation procedures.

While the Operating Room staff benefits from in-house educators to support training efforts, Environmental Services lacks the same level of dedicated support. To address this challenge, the team is actively exploring options for developing formal training materials and processes, aiming to ensure the sustainability and efficiency of the recycling program in the long term.

Furthermore, the relatively low volume of non-infectious mixed plastics that individual hospitals are able to collect can present challenges to recyclers. The need to sort paper, PVC, PET, and other materials from the other polyolefin-based

plastics to generate viable streams for advanced recycling may result in missed opportunities for recycling. This is especially true when the plastics cannot be separated due to being used in combination to create products. In order to increase the efficiency and circularity of the process, higher volumes of easily sorted, mono-material plastics are needed.

Berry Global is working to address this challenge by developing innovative mono-material plastic packaging products, as well as working to educate their customers and partners on the materials used in their packaging and healthcare component films and nonwovens.

Closing

The healthcare plastic recycling initiative undertaken by Berry Global, Deaconess Midtown Hospital, Nexus Circular, and EPS represents a step toward a more circular healthcare plastics system. By identifying and addressing the challenges associated with healthcare plastic waste management and implementing a comprehensive recycling program, this collaboration demonstrated key success factors from a viable model that could be replicated in other healthcare systems.

The team's dedication to refining and expanding this program underscores its potential to reduce the environmental impact of healthcare plastics and serves as a testament to the power of collaboration in addressing pressing healthcare industry environmental challenges.

About Berry Global

At Berry Global Group, Inc. (NYSE: BERY), we create innovative packaging solutions that we believe make life better for people and the planet. We do this every day by leveraging our unmatched global capabilities, sustainability leadership, and deep innovation expertise to serve customers of all sizes around the world. Harnessing the strength in our diversity and industry-leading talent of over 40,000 global employees across more than 250 locations, we partner with customers to develop, design, and manufacture innovative products with an eye toward the circular economy. The challenges we solve and the innovations we pioneer benefit our customers at every stage of their journey. For more information, visit our website, or connect with us on LinkedIn or X.

About Deaconess Midtown Hospital

Deaconess Health System is the premier provider of health care services to 51 counties in three states (IN, IL, and KY). The system consists of 20 wholly owned, joint ventured, sponsored or affiliated hospitals located in southern Indiana, southeastern Illinois and western Kentucky. Deaconess Clinic, a fully integrated multispecialty group featuring primary care physicians as well as top specialty doctors, provides patients with consistent and convenient care throughout the tri-state region. Additional components include a freestanding Cancer Center, Urgent Care facilities, a network of preferred hospitals and doctors, more than 100 care locations, and multiple partnerships with other regional health care providers.

About Nexus Circular

Nexus Circular is an advanced recycling company at the center of the circular economy. Nexus accelerates plastic recycling with a market-leading, environmentally efficient process so that people and the environment can thrive. Nexus works with sustainability-minded companies and recycling organizations to secure used plastics, especially hard-to-recycle films and flexible packaging, having diverted millions of pounds to date from landfill. Nexus then combines proprietary technology with a leading process design to convert used plastics into clean high-quality, ISCC PLUS certified circular liquid products for global companies who use them to produce virgin-quality plastics, displacing fossil-based materials. Aligned with global partners who seek proven scalable solutions to meet ambitious plastic circularity goals, Nexus is rapidly expanding its innovation footprint worldwide, moving decisively to address the complex challenges of plastics accumulation in the environment. With operations that scale and a team that delivers, Nexus is on a trajectory to convert billions of pounds of hard-to-recycle plastics into circular products to support their global partners' 2025-2030 sustainability commitments.

About Evansville Packaging Supply

At Evansville Packaging Supply our mission statement is to create a more sustainable future for generations to come by working with great companies around the tristate to minimize packaging materials and to create circular recycling economies to reduce vital resource waste. We pride ourselves on our reduction of materials but also our people that have not only grown from being employees but have become part of our larger EPS family. We strive to promote a healthy work environment, help employees that have overcome obstacles of

addiction, homelessness, abuse, and all kinds of life altering challenges find a clear path as well as personalize resources and encouragement to form healthy work relationships that restore minds, bodies, and souls. Working with the local court systems, safe houses and wellness homes we create a community where people have an advocate for change to help them reenter the workforce. In a way it's our own circular economy of watching people grow and learn to become better than they once were!

ABOUT HPRC

HPRC is a private technical coalition of industry peers across healthcare, recycling, and waste management industries seeking to improve the recyclability of plastic products within healthcare. Made up of brand-leading and globally recognized members, HPRC explores ways to enhance the economics, efficiency, and ultimately the quality and quantity of healthcare plastics collected for recycling. HPRC is active across the United States and Europe working with key stakeholders, identifying opportunities for collaboration, and participating in industry events and forums.

For more information, visit www.hprc.org and follow HPRC on LinkedIn.

