

## Blue wrap recycling pilot project at Harbor Hospital in Baltimore

*Editor's note: The following is adapted from a compilation<sup>i</sup> of environmental case studies from [Maryland Hospitals for a Healthy Environment](#) (MD H2E), a technical assistant and networking initiative that promotes environmental sustainability in healthcare. Participants include hospitals, clinics, nursing homes, research laboratories, and other ancillary health care providers in Maryland. MD H2E professionals provide assistance to healthcare facilities with preventing pollution; reducing the generation of solid, hazardous, and special medical waste; eliminating mercury; recycling; and implementing other programs such as environmentally preferable purchasing, green building, integrated pest management and sustainable food practices.*

### **Introduction**

Hospitals in the United States generate an average of seven tons of waste per day, including infectious, solid, and hazardous waste. Included in that amount is the waste generated by surgical services or operating rooms (OR)<sup>ii</sup>. Approximately 19 percent of the waste generated by surgical services is blue wrap – made of polypropylene or #5 plastic – the material used to maintain the sterility of medical and surgical instruments until opened. Blue wrap is a strong material, resistant to tearing and moisture, making it an effective barrier to contamination. Many hospitals are transitioning to reusable metal containers in which instruments are placed and then autoclaved before use. In the interim, most facilities are using large amounts of blue wrap. Recycling blue wrap offers cost savings, waste reduction, as well as environmental health benefits<sup>iii</sup>.

Reduction in total waste generated by a hospital translates into lower disposal fees. For example, Legacy Good Samaritan Hospital in Oregon has been recycling blue wrap since the late 1980s. In 2005, Legacy Good Samaritan Hospital recycled 65 tons of blue wrap, and saved approximately \$230,000 in solid waste disposal fees. In addition to avoided solid waste fees, hospitals can earn a modest profit by selling #5 plastic to a local buyer. Legacy Good Samaritan Hospital earns, on average, \$7800 a year by selling its blue wrap to local plastics recyclers<sup>iv</sup>. Blue wrap is not a biodegradable product and will persist in the environment. When blue wrap is diverted from the waste stream, it can be sold as a raw material for use in the production of other plastic products. This reduces the need for newly extracted raw materials and reduces energy needs as well as the



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potential air, ground and water pollution produced during extraction and production<sup>v</sup>.

### **Blue wrap recycling pilot**

Maryland Hospitals for a Healthy Environment (MD H2E), in collaboration with cdm eCycling, initiated a pilot project for Maryland hospitals to collect and recycle blue wrap. Harbor Hospital in Baltimore, Maryland was the first hospital to participate in the program. This case study summarizes Harbor Hospital's experiences.

The three organizations that participated in the pilot project are:

- **Maryland Hospitals for a Healthy Environment (MD H2E)** — a grant-funded initiative that promotes environmental sustainability in healthcare throughout Maryland. MD H2E professionals provide assistance to health care facilities on preventing pollution; reducing the generation of hazardous, solid, and infectious waste; eliminating mercury; purchasing more environmentally preferable products and services; increasing recycling; and implementing other practices that improve environmental performance.
- **Harbor Hospital** — a 203-bed facility located in Baltimore, MD, operating within the MedStar Health system. Harbor Hospital has eleven OR suites and three endoscopic/ gastrointestinal rooms. Harbor Hospital has created a Green Team to assess and implement environmental programs, and is currently finalizing its efforts to virtually eliminate mercury from the facility.
- **cdm eCycling** — a recycler located in Baltimore, MD, whose mission is to help clients prevent their retired electronic equipment from entering the national waste stream by providing innovative programs to reuse and recycle eWaste in a responsible manner. cdm also works with MD H2E to identify recycling markets for other usable waste products.

MD H2E and Harbor Hospital identified three goals for the blue wrap recycling pilot project: (1) to reduce the tonnage of waste by capturing at least 50 percent of the blue wrap destined for disposal; (2) to determine potential savings created by recycling blue wrap; and (3) to contribute to employee satisfaction and pride that their workplace is making an effort to fight global warming.

### **Blue wrap recycling project summary**

Harbor Hospital collected sterile blue wrap in eleven OR suites and three endoscopic/ GI rooms from May 2007 to December 2007. cdm eCycling collected the blue wrap once a month free of charge for a period of six months. The total weight collected over the course of the pilot was 1,666 pounds. Staff was educated about the blue wrap recycling via in-services, posted signs and fliers, and a number of electronic communications. Management and charge nurses were the “champions” who took responsibility to educate staff and act as resources for questions and concerns.

During this period, Harbor Hospital diverted nearly 75 percent of its blue wrap from the waste stream. Under a long-term contract with Curtis Bay Energy, Harbor Hospital pays 19 cents per pound to dispose of its regulated medical and solid waste. The avoided cost for disposal translates to a modest \$320 savings. cdm eCycling will identify a local market for polypropylene as it collects additional material from other pilot participants. Due to its low market value, high volume and low weight, it is inefficient to ship #5 plastics long distances.

The flow of blue wrap material through Harbor Hospital is outlined below:

- Nurses collect blue wrap in the operating room before the patient enters the room and place the recyclable material in clear bags from the procedure-based distribution kits. Reuse of these bags negated the need to purchase bags for the recycling effort and proved to be another source of cost savings.
- OR staff nurses move full bags of blue wrap from the OR to labeled carts in the hallway.
- Daily, environmental services (EVS) personnel transfer the clear bags with blue wrap from the labeled carts in the hallway to a laundry bin and cart them to palletsized gaylord boxes in a large closet on a back dock.
- cdm eCycling collects, on average, three Gaylord boxes of blue wrap each month from the hospital.
- cdm eCycling transports the Gaylord boxes to its warehouse in Baltimore for weighing and storage.
- Pending collection of sufficient volume of blue wrap, cdm eCycling will identify an appropriate market for the material.

### **Conclusion**

Blue wrap, a commonly used and disposed of operating room product, is nonbiodegradable and persists in the environment. By setting up a recycling program,

hospitals are able to divert waste from the waste stream and save money. To reduce its environmental footprint, Harbor Hospital undertook a blue wrap recycling pilot program with assistance from Maryland Hospitals for a Healthy Environment and in conjunction with cdm eCycling. The blue wrap recycling pilot project was successful in accomplishing the three original objectives.

Harbor Hospital was able to (1) divert 75 percent of its blue wrap from the waste stream; (2) realize potential savings created by recycling blue wrap; and (3) experience increased employee satisfaction. Hospitals considering a blue wrap recycle program can use the lessons learned by Harbor Hospital during the pilot project to help guide their own program.

## LESSONS LEARNED

- A hospital **team approach** is vital to the success of the program. Infection control, environmental services, central sterile, nurses, and management are all a crucial part of the planning and execution of the program and should be involved at the onset of the project with roles and responsibilities clearly defined.
- **Staff education** is important especially for contract workers who are not a part of the permanent hospital staff.
- Simple **labeling and proper signage** regarding placement of blue wrap is imperative.
- **Collection container size** must be large enough to hold the amount of blue wrap waste generated yet still fit in the allotted space in the room. **Placement of containers** matter too. Harbor Hospital found it was better to place the containers away from staff such as anesthesia and surgeons who dispose of many sharps throughout the course of a procedure and could accidentally dispose of sharps in the most accessible but wrong container.
- Visually inspect **storage areas** on a regular basis to ensure access remains available.
- Ongoing **communication** with MD H2E and the recycler can assist in troubleshooting.
- **Including saline and sterile water bottles** increased the volume of recycled material, improved the efficiency of the program, and diverted more items from the waste stream.
- Hospital employees were enthusiastic about the blue wrap recycling, program which resulted in **fewer complaints** about overflowing trash containers.
- cdm eCycling employees began using metal mesh gloves for sorting as a **precautionary measure** against accidental exposures and injuries.

<sup>i</sup> Source: Maryland Hospitals for a Healthy Environment' Compilation of Case Studies; November 2008

<sup>ii</sup> Waste Reduction. Why Focus on Waste? Practice Greenhealth. [cms.h2e-online.org/ee/waste-reduction](http://cms.h2e-online.org/ee/waste-reduction)

<sup>iii</sup> Reusable Totes, Blue Wrap Recycling and Composting. Environmental Best Practices for Health Care Facilities. (2002). Environmental Protection Agency Region 9 Pollution Prevention Program. [www.epa.gov/region09/waste/projects/hospital/totes.pdf](http://www.epa.gov/region09/waste/projects/hospital/totes.pdf)

<sup>iv</sup> Gaskill, M. (2006) Going Green— RNs Tackle Hospital Waste. *Nurse Week* April 24, 2006. [www.h2e-online.org/docs/nurseweek42406.pdf](http://www.h2e-online.org/docs/nurseweek42406.pdf)

<sup>v</sup> Reusable Totes, Blue Wrap Recycling and Composting. Environmental Best Practices for Health Care Facilities. (2002). Environmental Protection Agency Region 9 Pollution Prevention Program. [www.epa.gov/region09/waste/projects/hospital/totes.pdf](http://www.epa.gov/region09/waste/projects/hospital/totes.pdf)

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