



Less Waste



How to Guide

This guide is designed to provide a step-by-step approach to implementing the HH Challenges and submitting data for this program.

How to use this guide

The Healthier Hospitals (HH) How-to Guides provide a step-by-step approach to achieving and measuring the benefit of six specific areas of environmental intervention. The challenges have been carefully selected for their positive impact on human health and the environment, as well as to drive increased demand for healthier products in the marketplace. HH How-to Guides provide simple steps, case studies, resources and sample language to help facilities meet the six challenges and lead communities to a healthier future.



Engaged Leadership: The furthest reaching sustainability programming has leadership support, demonstrated by environmental charters, reporting structure and goal setting that recognizes the importance in continuous environmental quality improvement for the long term.



Healthier Food: Offer healthier food for staff, patients and visitors, positively impacting human health and the environment. Less meat, better meat and local and sustainable food are within reach.



Leaner Energy: Partner with ENERGY STAR for health care and reduce greenhouse gas emissions through decreased energy use. Case studies, sample RFP for developing a strategic energy master plan and other resources shine a light on energy conservation success.



Less Waste: Gather baseline waste data and reduce regulated medical waste (RMW), increase recycling and recycle construction and demolition debris to take control of materials and wastes.



Safer Chemicals: Improve health of employees, patients and communities by choosing safer chemicals in materials and products. Transition to greener cleaners, reduce PVC/DEHP in medical devices and reduce toxicity of furniture and finishings.



Smarter Purchasing: Follow step by step guidance to green the supply chain by taking on surgical kit reformulation, single use device reprocessing in certain categories, and purchasing greener electronics using the EPEAT certification.

Healthier Hospitals

Twelve of the largest, most influential U.S. health systems, comprising over 500 hospitals with more than \$20 billion in purchasing power, worked with Health Care Without Harm (HCWH), the Center for Health Design and Practice Greenhealth to create the Healthier Hospitals Initiative as a guide for hospitals to build upon the Centers for Medicare and Medicaid Services (CMS) Triple Aim—better health, better care and lower costs, and institute frameworks and implementation tools that can be used by every health care facility in the nation.

Due to the momentum and success of the Initiative, Healthier Hospitals will continue to use data to engage around proven environmental strategies and lead communities to a healthier future as a program of Practice Greenhealth.

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SPONSORING ORGANIZATIONS

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Introduction

While some health care environmental impacts are hard to see to understand or quantify, waste is different. It’s tangible and measurable. One missed pick-up can result in a pile of trash and a phone call from senior leadership. Take a walk through the hospital’s waste handling area to develop a sense of the organization’s waste handling patterns. First-hand observations can be revealing and helpful. Follow that with data collection and analysis to identify opportunities to reduce toxicity and volume, conserve natural resources and reduce associated costs.

Hospitals are pouring, burying, burning and cooking garbage made up of plastics, chemicals, paper, food, needles, packaging and lots of electronic equipment. With rising waste removal fees, beach wash-ups, medical waste incinerators identified as a major source of mercury in the environmentⁱ and the Associated Press’ recent investigation on pharmaceutical waste in the country’s drinking waterⁱⁱ, it’s undeniable that “away” is a rotary that loops right back to where we started. Steps hospitals take to make less “stuff” can reduce dollars thrown in the trash and help to protect the environment.

Health care workers benefit from education around materials and wastes. With a clearer understanding of the waste types and categories, and with detailed education and training programs, workers are safer, and at less risk for biological or chemical waste exposure and mismanagement.

The multitude of service providers and ever-growing types of waste make understanding the costs and generation rates of the various waste streams quite a challenge. Pulling this data together in one place can be eye opening. The first step is to create a baseline and an ongoing process for continuous tracking and performance measurement. Over time, hospitals can get quite sophisticated with the depth of this measurement. With recycling rates of over 40 percent, top performers are quantifying their diversion rates through software programs or detailed spread sheets. This guidance document provides a step-by-step approach for baseline basics which can be expanded over time.

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WASTE FACTS

42 pounds
of total waste per patient day.

11,725 tons
total generation of health care waste per day

4.3 million tons
annual health care waste generation*

* The text box total includes Regulated Medical Waste (RMW), solid waste, hazardous and recyclables. It does not include diversion like donated equipment, pallets or other diversion activities which would make this number larger.

* DataSource: Practice Greenhealth Environmental Excellence Awards.

Goals for the Less Waste Challenge are outlined in the table below. The identified levels were chosen for their opportunities for cost savings and environmental impact. Many other waste reduction initiatives can be accessed through Practice Greenhealth.

Less Waste Challenge

Level	1	Commit to one of: Regulated medical waste reduction, recycling or construction and demolition diversion goals.
Level	2	Commit to two of: Regulated medical waste reduction, recycling or construction and demolition diversion goals.
Level	3	Commit to three of: Regulated medical waste reduction, recycling or construction and demolition diversion goals.

Regulated Medical Waste Reduction: Report a waste baseline for: Solid waste, regulated medical waste, recycling and hazardous waste. Reduce reduce RMW to either less than 10 percent of total waste or less than 8 tons per operating room per year.	Recycling: Report a waste baseline for: Solid waste, regulated medical waste, recycling and hazardous waste. Achieve a 15 percent recycling rate compared to total waste.	Construction and Demolition Diversion: Implement a construction and demolition debris recycling program for major renovations and new construction to achieve at least 80 percent recycle and diversion rate.
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HH Data Collection

The Less Waste Challenge Requires data submission through the Institute for Health Care Improvement’s Extranet Site. (www.ihl.org) See

the less waste measures for data collection details and the [data submission guide](#) for guidance on IHI Registration and data submission.

Get Started - Conduct a Baseline Assessment

This baseline assessment—understanding what is generated and how much it costs—is the first step in improving waste management. Conducting a waste baseline is required in both the recycling and RMW reduction Goals. This how-to guide defines the various waste streams (see [Defining Materials and Wastes in Resources Section](#)), how to standardize material and waste data collection, how to normalize the data for comparison, and how to set waste targets for improved performance and associated cost savings. So let's get started:



1. Identify the team

The team could be a subcommittee of an existing green team or members of The Joint Commission Environment of Care's Hazardous Material and Waste Management subcommittee, and staff responsible for material removal,

invoice payment or contracting. The team may decide that an outside consultant, Practice Greenhealth or a service provider is needed as a partner. Or, the facility may feel prepared to accomplish this task on their own, without outside consult.

2. Engage Leadership

Leadership engagement and support are critical to long-term success and a cohesive strategy. Making the case for improved waste management may require team effort and the ability to demonstrate a return on investment. The Practice Greenhealth Sustainability Benchmark report can be used to show industry benchmarks. After seeing baseline

data and the costs involved in material and waste management, most leaders get on board with waste reduction programs. Waste reduction efforts offer some of the largest pay-backs of any sustainability programs.

3. Understand Waste Streams

Health care waste management is more complex than ever, due to the growing types of wastes, including pharmaceutical wastes; state regulations; and the multitude of waste treatment options, including diversion and recycling. Refer to Practice Greenhealth or state and federal guidelines for detailed definitions of each waste stream. Keep in mind that waste definitions are open to interpretation, and that facilities within the same system may generate vastly different

categories of wastes due to variations in red bag waste definitions, recycling efforts and other factors. Refer to the accompanying document "Defining Waste Streams" for a standardized method of waste measurement, standard practices and benchmarks.

DON'T FORGET

Batteries from biomed
X ray film
Kitchen grease
Research labs
Electronic equipment
HIPAA documents
Dental amalgam
Cell phones, pagers
Controlled substances
Lead aprons

4. Gather the Data

To calculate tons of waste and associated costs, identify the vendor or business partner for each waste stream and conduct a thorough invoice review. Contract and invoice review will enable the team to assess where the pounds or tons are reported and identify samples or estimates for each. Some materials may have no data associated with their removal. Reach out to departments throughout the organization to identify additional streams and the vendors and costs associated with them. For example, engineering, biomedical or laboratories may have their own vendors for special wastes, such as kitchen grease, x-rays, lead aprons, laboratory chemicals and placenta. Make sure these wastes are not overlooked in the facility's waste reduction plan.

Accuracy Counts! – While certain waste streams will be easier to capture, such as RMW (red bag waste) and compacted waste, others will require some work. For example, a facility may collect materials for recycling in reusable totes. Simply

weigh a sampling of the totes to obtain an average weight, and calculate by the number of totes exchanged each week. Most types of waste can be estimated with this method. It may take some time, but the accuracy of estimates based on a sampling of materials at the hospital far surpasses online industry conversions. Business partners may be able to help with reporting some weights, such as compacted, hazardous and RMW. If vendors resist providing this data, work with purchasing or consider identifying a new business partner. In some cases, loose waste pick-up or tote exchange may commingle material in a truck with material from numerous other sites, making specific weight reporting impossible. Talk with business partners to identify solutions or develop an in-house methodology for tracking materials before they are removed. Conversion factors, such as an estimate of pounds per cubic yard of material, should be a last resort, due to great disparity in the sector. See the accompanying document entitled "[Defining Waste Streams](#)" for conversion factors.

5. Recycling Versus Diversions

Practice Greenhealth has years of experience with data collection around materials and wastes through the Environmental Excellence Awards. A close look at recycling versus diversion has resulted in some changes in the awards program and the need for clarification. While Practice Greenhealth values recycling, the awards are now designed to celebrate and quantify waste prevention through total waste per adjusted patient day, FTE or other normalizing factor in addition to recycling rates. Total waste is the sum of solid waste, hazardous waste, recycling and RMW. It would be a shame if waste prevention was lost in the data, which is why a measure of total waste management is so important. The [end of this document shares a recycling check list](#), which should clarify distinctions between the two. Standardization, also important, is also explained in the waste and material definitions in the resources section. While standardization may have little to do with the baseline data collection, it is an important feature in success waste management programming.

While a hospital may want to capture diversion activity and its impact, tracking diversion can be tricky. Commonly diverted items include reusable pallets and reusable dishware. Food donations, equipment donations and even single-use device reprocessing also fall in-to the diversion category. Reusable sharps containers will be reflected in the RMW rate and do not count toward recycling. Successes in these areas will show up in measures

of total waste or, for single-use devices, in red bag rates.

Although some single-use devices and the reusable containers themselves are eventually recycled, they are not counted in recycling rates. It's too hard to know the frequency of this recycling and its impact on individual sites. A vendor may report that 90 percent of single-use devices are recycled, but that doesn't mean that 90 percent of what a hospital reprocesses is recycled. The same holds true for sharps. A container may be reused 600 times before it is recycled; however, calculating that number for each customer is nearly impossible.



Kaiser Permanente Antioch Earth Day

6. Set up a System

Once waste stream costs and methodologies are identified, develop an ongoing tracking system. This may require file sharing or an intranet for inputting data on a regular basis from a variety of users, or shifting invoice responsibilities and data input to one individual. The process of identifying waste stream costs

may reveal opportunities for consolidation and the need for total waste management contracting that includes detailed, standardized measurement and reporting by numerous locations. If this is the case, implement a temporary strategy for ongoing data collection and recommend a contract and bid review for materials and wastes.

7. Track Material

The data can be tracked monthly or quarterly with the ultimate goal of a 12-month baseline for each location. The table below can be used to identify waste streams, contacts responsible parties. The team should set a deadline for the submission of data for each stream. The Less Waste Challenge requires this monitoring for three years; however,

Practice Greenhealth urges organizations to continue to track waste indefinitely. This data is critical in ongoing efforts to reduce volume and toxicity, and to shift wastes to less costly streams with improved waste stream segregation and staff training. The table below can help to identify service providers, data sources and a lead for each stream to form a reliable baseline.

Waste/Material Type	Pick up Frequency	Service Provider & contract details	Data Source	Internal Responsible party
i.e. Regulated Medical Waste – includes disposable sharps containers	3 X a week	ABC Carting, Anywhere, State, Contact Name, Phone, Email, Web Site Contract ends 12/31 Charged by the pound	Weights provided on monthly invoice, currently signed off by Director of Environmental Services, sampling of container weighed each year for quality assurance.	Name, Department of Environmental Services

The following table provides a method for tracking the waste baseline, the challenge baseline requirement. The color codes correspond to the definitions in the attached document, “Defining Waste and Material Streams.” The table asks for tons per year and cost per year; however, providing percentage of total by weight and percentage of total by cost help identify the most expensive waste streams on a per- unit basis.

12 Months Waste Baseline Data

Waste Category	Tons per Year	% of Total by Weight	Cost Per Year	% of Total by Cost
Municipal Solid Waste				
Recycling**				
Regulated Medical Waste*				
Hazardous Waste				
Total		100%		100%

* Regulated Medical Waste (RMW) may be separated into two streams with one for incineration and one for “other” treatment. Some measure it all together. Feel free to add another line to break this in two. Ensure that sharps management is captured in this stream.
** Universal Waste, if recycled, goes in the recycling stream. If removed as hazardous waste, it goes in the hazardous waste stream.

8. Analyze the Data & Set Measurable Goals

Once the waste table is filled out, with costs associated with each stream and percentage of total waste identified, targets and measurable goals can be set. Understanding the sector benchmarks for award-winning facilities and the costs associated with each stream helps quantify waste prevention, improved segregation and recycling. Many hospitals focus on the higher-cost streams first, such as hazardous waste and RMW. Keep in mind that hazardous waste is the most expensive by far, but it only accounts for about one percent of the total waste stream. RMW, the next most expensive, can offer cost savings through improved segregation for a target goal of 10 percent of total waste or five pounds per adjusted patient day. Goals can be qualitative or quantitative. Setting up a

Average Waste Stream Generation Rates for Award Winning and Top Performing Facilities:

Better ➔ Best
29.8% ➔ 47.2% Recycling
6.5% ➔ 3.6% RMW
0.5% ➔ 0.9% Hazardous Waste*

*The increase in hazardous material as “best” is an indicator of proper segregation of hazardous pharmaceutical waste and the resulting increase in hazardous waste generation.

process to continuously track the data is a legitimate qualitative goal because it provides an opportunity to improve the process. because it provides an opportunity to improve the process.

9 Track, Report and Continue to Monitor

When the team has identified each waste stream, and its associated tonnage and costs, the next step is to develop a process to continuously track and report this data. Some organizations enter the data to a share site; others identify a lead for all material and waste invoice review and tracking. The goal is to control and manage the process on an ongoing basis. Generate reports at least every quarter to establish targets. Tracking data in this way may also help uncover invoice errors, double billing and other cost-savings.

Percentages offer a relatively simple way to compare the facility’s performance to its award-winning peers and help identify priorities. (Refer to Practice Greenhealth Members’ Only Sustainability Benchmark report for more information.)

Adhering to Practice Greenhealth’s preferred reporting methods will help to standardize approaches and ensure accurate data collection and comparisons for the sector. Reporting standards will continue to evolve with new programs, regulations approaches.

Diversion and Source Reduction checklist: This is for documentation but these weights do NOT go in the baseline.

The following items identify opportunities for red bag reduction or waste prevention, but their data is captured in the **total waste** per FTE, staffed bed or adjusted patient day metric through its impact on waste generation. These items should not be included in the recycling table because they are diversion activities, not recycling

activities. These diversion activities are equally (if not more) important than recycling because they extend product life and reduce consumption.

- Single-use device reprocessing
- Reusable totes for material delivery, eliminating cardboard boxes
- Book donation
- Equipment donation and refurbishment
- Computer donation
- Food donation
- Furniture donation
- Ice pack/Cooler reuse
- Medical supplies and equipment donation
- Pallet reuse
- Reusable Sharps Containers (listed in RMW)
- Reusable linens (surgical drapes and gowns, isolation gowns, scrubs...)
- Regulated Medical Waste shipping containers
- Other reusable products: hazardous waste or pharmaceutical waste collection bins, rigid sterile cases for surgical items, surgical basins/ biowaste tubs, trocar (tubing).

SAMPLE GOALS:

- Go out to bid for total waste management
- Increase recycling rate to 15 percent
- Reduce red bag generation to less than 10 percent of total waste

Reduce Regulated Medical Waste

Regulated Medical Waste Reduction: Report a waste baseline for: Solid waste, regulated medical waste, recycling and hazardous waste. Reduce RMW to either less than 10 percent of total waste or less than 8 tons per operating room per year.

Because RMW or red bag waste can cost between five to 10 times more than solid waste, over-use of red bag waste receptacles is like throwing away dollars. Depending on current practices, hospitals have saved thousands, tens of thousands and even hundreds of thousands of dollars by addressing container over-use. If a facility generates more than

10 percent RMW, reducing this waste is a worthwhile priority due to the potential cost savings. In fact, the Centers for Disease Control and Prevention (CDC) suggests that only three to five percent of hospital waste requires disposal as RMW. Practice Greenhealth's 2011 Top Performers have an average generation rate of five percent. If the facility is already at or below this rate, then move on to Level B or C. However, be sure to submit the data to demonstrate this success to HH.

Additional guidance can be found in the Green Guide for Health Care (www.gghc.org) in the Version 2.2 Operations Section under Waste Management Credits 2.1-2.2 on Regulated Medical Waste Reduction.

STEP 1: Define Regulated Medical Waste at the Facility Level

Step 1 assumes that a team and leader have been established and a baseline assessed. Additional expertise for RMW reduction could include risk management, regulatory affairs, safety and infection control staff. These individuals can review RMW handling and disposal and compliance with federal and state regulations and define RMW for the organization as a whole and for specific areas, such as laboratories, animal laboratories, research, dialysis and patient units. Many of the regulations regarding RMW are open to interpretation. The team should review all discarded materials to determine which items go in a red bag, a clear bag or a sharps container. Specify as a group which items are autoclaved, sharps, RMW or NRMW. Solicit the participation of Infection Control in signing off on these decisions. Their involvement will provide a solid foundation of credibility from which to develop organization-wide education and training.

Implementation of RMW reduction programs at many hospitals is folded into The Joint Commission's Environment of Care Committee under the Hazardous Material and Waste Management Plan. This effort can also be implemented as a green team activity. In either case activities can be reported to the Environment

of Care Committee. In some instances, green teams and Environment of Care Committees are embarking on parallel programs and duplicating efforts. Communication is critical to avoid unnecessary duplication.

The team should include waste haulers, treatment vendors and landfill operators in developing quality assurance and educational protocols for proper segregation and an action plan in the event of solid waste stream contamination. A clear protocol for reporting and dealing with problems is critical. It is also essential to ensure that all vendors use proper engineering controls and protective equipment, and have the proper licenses and permits. Some vendors may define an item as RMW when it does not meet the definition. For example, if a local landfill is concerned with Betadine (povidone-iodine) soaked dressing because it looks like blood, the facility may decide to categorize this material as RMW. Practice Greenhealth encourages hospitals to work with haulers and landfill owners to make decisions about RMW based on science and current regulations rather than perceptions.

Leadership oversight to make sure that team members have access to and understand current definitions and information will support the facility's efforts to reduce RMW.



More information

- Read the Waste Management Section of the Practice Greenhealth website and Ten Steps to Reducing Regulated Medical Waste at www.practicegreenhealth.org.
- Occupational Safety and Health Administration (OSHA) Blood-borne Pathogens Standard 1910.1030 is available at: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051

- EPA Medical Waste information: <http://www.epa.gov/osw/nonhaz/industrial/medical/index.htm>
- Green Guide for Health Care's Operations Section - Waste Management Section of Version 2.2 - (Pages 9-18) - www.gghc.org

Inova Health System reduced their Regulated Medical Waste stream by over 1 million pounds, saving over \$200,000 in waste removal fees.

STEP 2: Define the Problem and Develop a Cost/Benefit Analysis

The baseline assessment can determine whether RMW reduction offers the facility an opportunity for improvement. Using the cost per unit and current generation rate, the team can calculate potential savings from a generation rate of 10 percent or less. These numbers can help secure support for the program.

Other potentially useful information could

include a review of workplace exposures, such as needle sticks, blood spills or splashes to identify safety issues related to current waste segregation practices. Connect waste reduction and improved segregation with worker safety, morale and patient satisfaction, and emphasize these connections with the marketing/PR staff. Consider meeting with Environmental Services, Infection Control, Safety and Risk Management to assess the need for workplace exposure reduction as part of the larger waste reduction strategy.

STEP 3: Set Goals and Develop an Action Plan

With a baseline and an understanding of disposal costs, the next step is to develop goals and an action plan. Creating and implementing the plan require participation and support from multiple departments. Therefore, it is critical that the multidisciplinary team oversees this activity. Infection Control must be involved to ensure a safe environment during segregation.

Select SMART goals (**S**pecific, **M**easurable, **A**ttainable, **R**ealistic and **T**imely) that consider health and safety, cost reduction, waste minimization and resource use, and develop a written action plan to ensure a common understanding of goals among team members. Delegate a leader to take responsibility for each goal. These goals can include, but are not limited to:

- Audit of facility and identification of departmental needs and standardization of methodology
- Educational development: posters, a newsletter, new employee and existing staff orientations, temporary staff training, student training, clinician training, and labels for receptacles
- Pilot test, evaluation and identification of purchasing needs
- Contract development and relationship building with business partners, including haulers, treatment vendors, transfer stations and disposal sites.
- Policy development for placement in appropriate binders, and communication to various committees and department heads

A facility audit, including individual meetings with nursing and department heads, is critical to communicate program goals, identify the types and locations of receptacles in various areas, and garner support for key decisions and pilot tests. While soiled utility rooms are the standard collection location, critical care areas may require additional receptacles. The operating room, dialysis and labor and delivery generate large amounts of RMW, while examination rooms and medical units generate less. Some areas may appear on the surface to generate a larger amount of RMW due to the large number of red bag receptacles present. However, by talking to staff and observing, it may become clear that current practices are not based on current definitions of RMW. Look in receptacles for true RMW. Big lessons can be learned by looking. This is sometimes the case in laboratories, the emergency room and patient care areas, including isolation rooms – places where red bags are plentiful but true RMW is scarce.

The audit can also help clarify varying needs in different locations; uncover problems and opportunities for improvement in other areas, such as recycling and linen use; and identify possible pilot test sites, .

Ultimately, RMW, sharps, recyclables and solid waste should each have separate, clearly-labeled, easily-accessible containers. It takes time to standardize and label receptacles, train staff and continuously monitor to ensure compliance.

STEP 4: Standardize, Develop a Plan and Purchase Materials

Once the audit is complete, (See Material Waste Generation Type Assessment Form in Resources), conduct a pilot test in a variety of areas to evaluate receptacles, signage needs and training, and to work out any kinks before purchasing materials for the entire organization. Standardize receptacle purchases so that all RMW receptacles look the same and have the same labeling. The receptacles can vary in size to accommodate different generation rates. Purchase new containers and/or signage depending on the required changes in the facility – maybe the bins were large and should be smaller, for example. Containers for each type of waste should be separately color-coded and/or consistently labeled throughout the building.

The red bag receptacle should be covered, labeled and as small as possible for the area. The solid waste receptacles should be much larger, open-topped, clearly-labeled and located next to the RMW containers. This system supports segregation and uniformity. Work with the Group Purchasing Organization (GPO) and Purchasing to standardize receptacles so that the same bins are used throughout the facility. This uniformity supports understanding of the segregation protocol among staff and

compliance with Joint Commission standards. Work with Communications to develop signage and educational material.

Most facilities have eliminated bedside cans due to potential patient safety hazards. Some staff may resist giving up their containers. Consider wheeled receptacles in high-use areas or one waste station per several beds. A surgical intensive care unit generates more blood-soaked material than a medical unit and may require a step-on, red container for every few beds or a wheeled receptacle to take to the bedside.

Eliminating improper or outdated disposal habits among clinicians can be a challenge. Many consider anything that comes into contact with a patient or clinician to be medical waste. Repeatedly reinforce the facility's new definition of RMW. (see Step 1). Collaborate with Infection Control to provide education and training on the new definition and policy. Shifting waste from one stream to another does not increase the amount of waste generated, but it does impact the waste collectors. Pick-up schedules will be changed with increases in solid waste and decreases in RMW. Review the RMW definition, program goals, safety protocol and bloodborne pathogen standard with environmental services staff.

STEP 5: Implement and Educate

Proper container size, placement and signage are critical to the success of the waste segregation program's success. For best results:

- RMW containers should display the biohazard label.
- RMW containers should be as small as possible (as small as three gallons, depending on the area) and covered to reduce the amount of solid waste that is casually tossed in.
- Signage should be clearly posted above and directly on lids. Signage should have a large font, preferably in color, and a bulleted format so it is easy to read and understand at a glance.
- Remove red bags from underneath sinks, hallways, restrooms, non-critical care patient rooms and other areas where people are likely to dispose of their solid waste.
- Always place a larger, non-regulated waste container beside the regulated one.
- Size the container for the amount of waste generated. The smaller the container, the less likely clinicians will be to throw extraneous items into it. Small, eight-gallon containers with step-on lids work well.
- Use multiple languages if necessary.
- Modify bag purchases to reflect RMW

reductions.

- Ensure that solid waste receptacles are emptied in a timely manner so that overfilled cans don't result in improper use of red bags.

Consider visuals for training in areas such as laboratories, where confusion exists on the various instruments in use. Note: If labs with a Biosafety Level of 1 or 2 are onsite, the CDC recommends developing on-site strategies to inactivate amplified microbial cultures and stocks using an approved inactivation method (e.g., autoclaving) instead of packaging and shipping untreated wastes to an offsite facility. Labs with a Biosafety level of 3 or 4 are required to inactivate microbiologic wastes in the laboratory by using an approved inactivation method or to incinerate them at the facility before transport to and disposal in a sanitary landfill.

Sample RMW posters are available at:

- California Integrated Waste Management Board: www.ciwmb.ca.gov/BizWaste/Posters/RedBag.htm
- Practice Greenhealth members may view samples in the Member Toolkit on the Practice Greenhealth website (login required) <http://practicegreenhealth.org/tools-resources/member-toolkits>.

The team may wish to include RMW reduction information and goals in the OSHA Bloodborne Pathogens Exposure Control Manual. Make sure documentation is in place, policies developed and included in the Joint Commission Environment of Care Committee minutes and manual.

Training is a critical component in an RMW reduction program. Staff requires clear, consistent information to understand the reasons for proper segregation: regulations, cost implications, health and safety impacts, and environmental leadership.

- Implement a unit at a time, a floor at a time, a building at a time and monitor the area 24/7, making spot checks throughout and only easing up on inspections when staff are very clear on roles and responsibilities. Waste vendors may be able to help with training and inspections.
- Environmental Services must be trained to collect all waste as if it is potentially infectious. Whether they are collecting solid waste, recycling or performing any other task, proper protective equipment must be in place and a safety protocol must be clearly articulated and inspected to ensure a safe work environment.
- Environmental Services can be instrumental in identifying problems. Through a visual inspection, environmental services staff can identify a segregation issue and contact a supervisor for follow up and on-the-spot education. Conduct a tour of trash areas regularly, and periodically inspect red bag waste after it is collected to make sure that clear bags are not commingled into red bags.
- RMW training should be done for all departments and should be a part of new employee orientations. Include the facility's commitment to compliance, good segregation practices and stewardship policy statement. Staff must understand that improper waste disposal poses potentially serious safety threats to frontline staff and waste haulers, and may increase liability for the hospital. Make it clear that it is part of each person's job to manage waste safely. Write "compliance with hospital waste management policies" in every job description. Even staffers who do not generate RMW need to understand the definition so they will not use the red bag.
- Re-train current staff on the newly agreed upon definition of RMW. Inform staff about the facility's RMW reduction initiative and goals, and train each employee several times using annual inservices, updates and as needed during rounds. Improved awareness leads to good segregation practices. This training can

sometimes be used to meet both OSHA's and the Department of Transportation's training requirements.

- Remember that each individual learns differently, so use different training methods, including lots of physical examples of different types of wastes. Be sure that the training schedule catches all staff, including relief and night shifts. Adapt training to the needs of different departments (e.g., emergency versus ICU) and different stakeholders (e.g., physicians working in the operating room versus nurses doing emergency intake).
- Monitor work areas regularly and consider tracking generation rates, employee training, and rounding through Environment of Care's Hazardous Material and Waste Management Committee.
- Take a team approach! Proper segregation of RMW requires group oversight and day-to-day management. Old habits come back, so departmental leaders can help on a day-to-day basis.
- Continue with training on a regular basis, including spot checks, monitoring and reporting.
- Remember to stress the dollar amounts e.g., solid versus RMW disposal costs. Create some friendly competition between units/department/floors. Remember to publicize and celebrate the winners. Consider providing theater tickets or a pizza lunch for additional motivation.
- Include training information on Requests for Proposals for waste vendors to see if required training and reporting can be included in haulage contracts.

Make sure the following items don't end up in an RMW container:

- Product packaging
- Office paper
- Paper towels
- Batteries
- Non bloody Gloves
- Linens
- Diapers
- Flowers, Pizza, Take-out

Overusing red bags is like throwing money in the garbage!!

It costs 24¢ a pound to dispose of red bag trash and 7¢ a pound to dispose of regular trash. THINK before you put that regular waste in the red bag! Reduce red bags and save money!!

Med Star Montgomery Medical Center

STEP 6: Review Specialty RMW Streams

Sharps Management

Sharps, including needles and scalpel blades, are singled out for special regulatory provisions by many states. Does the facility have a problem with needle sticks or sharps injuries due to improper waste handling? The CDC estimates that more than 800,000 accidental needle sticks occur each year among health care workers.

Consider reusable sharps containers or a methodology to capture the contents for recycling. Reusable containers eliminate disposal of thousands of containers to landfills and incinerators. Take time to review the sharps management policy, as there may be opportunities to reduce and improve the facility's sharps management program.

- Train staff on the proper use and disposal of sharps, including the imperative to dispose of sharps in the right container. Train also on what does not belong in sharps containers: gauze and bandages, tubing, empty, unbroken vials, mercury thermometers, certain hazardous pharmaceuticals and other non-infectious, non-sharp materials.
- Safety is the priority. Assess opportunities to maximize container use by optimizing their size and placement. Overfilled containers can lead to needle stick injuries. Likewise, removing half-full containers uses extra labor and can increase container replacement costs.

Liquid Waste

Liquid medical wastes, such as suction canisters, present another unique disposal challenge. Suction canisters can be responsible for up to 40 percent of infectious waste in the OR. Is the operating room discarding liquid down the drain, using solidifiers or putting liquid waste into red bags? Solidifiers can add chemicals into the mix and expose employees to splashing and spills. Removing liquids and eliminating solidifiers can often cut the RMW waste stream in half, but it must be done carefully. Several technologies are now available to mechanically manage liquid waste disposal that empty liquid canister contents into the sanitary sewer, reducing transportation costs and removing canisters from the waste stream. Canister-free vacuum systems are also available. Review the facility's protocols and OSHA guidelines for managing liquid infectious waste, and work with the local publically-owned treatment works (POTW) and state regulatory officials to determine the best disposal options.

Single-Use Device Reprocessing

Single-use device (SUD) reprocessing provides another money-saving and waste-reduction opportunity. Instead of treating these items as disposable, they can be diverted from the RMW or solid waste stream. Collected units are cleaned and reassembled for reuse. Reprocessing reduces both the purchase and disposal costs of SUDs. Significant savings have been reported by Practice Greenhealth members. See the Smarter Purchasing How-To Guide for a step-by-step approach to SUD reprocessing as an excellent way to reduce RMW and sharps waste.

"Trace" Chemotherapy Waste

See the accompanying "Defining Waste Streams" document for a definition of this material. When there is confusion about what items are considered "trace" versus "bulk" chemotherapy waste, the yellow or white chemotherapy containers often become a dumping ground for all chemotherapy waste. Since this container is disposed of by RMW haulers and may be treated in a medical waste incinerator, it is important not to include "bulk" chemotherapy waste. A medical waste incinerator does not have the same level of environmental and worker protection as an RCRA hazardous waste incinerator. Also, ensure that trace chemotherapy waste is not disposed of in red bag waste containers. These containers are often autoclaved or microwaved and could potentially expose waste management employees.



As part of the organization's pharmaceutical management plan, be sure to train staff regarding where to safely and properly dispose of chemotherapy waste. Be sure that staff understands the difference between "bulk" and "trace" chemotherapy waste. Use two very different container colors for the two waste streams and ensure that bulk chemotherapy waste is always handled by a licensed hazardous waste hauler.

More information

- Reusable Sharps Containers. Safety Institute, Premier Inc. Available at: <http://www.premierinc.com/quality-safety/tools-services/safety/topics/needlestick/reusable.jsp>
- Sharps Containers- Recycling Services. Sustainable Hospitals project. Available at:

http://www.sustainablehospitals.org/cgi-bin/DB_Report.cgi?px=M&rpt=Subcat&id=19128

- Case Study on Reusable Sharps Container Program: Methodist Medical Center, Peoria, IL. Available at: <http://www.premierinc.com/quality-safety/tools-services/safety/green-link/green-corner/methodist-hosp.pdf>
- Suction Canister Waste Reduction. MN Technical Assistance Program. Available

at: <http://www.mntap.umn.edu/health/resources/91-Canister.htm>

- Distinguishing Between Trace and Hazardous Chemotherapy Waste. P. 28-32. From: Managing Pharmaceutical Waste- A 10-Step Blueprint for Healthcare Facilities in the United States. Available at: <http://practicegreenhealth.org/sites/default/files/upload-files/pharmwasteb Blueprint.pdf>

STEP 7: Be Ready to Identify and Solve Problems

Even after program implementation and staff training, facilities may still encounter resistance to change and improper segregation. Have a plan of action to resolve problems. Administration support will help drive the initiative and the staff person assigned to police the program. If problems are not addressed quickly, they will persist and increase.

Develop a monitoring form, ongoing rounds and a mechanism to immediately report concerns and communicate appropriate solutions back to all staff. Include monitoring and quality assurance reports through Environment of Care Committee minutes. Respond to Environmental Services reports immediately to address any problems at the moment they are identified.

Retrain staff on the unit immediately. This retraining can take 30 seconds.

Photographs and checklists to provide feedback at the departmental level can help address issues as they arise. For example, document each waste-generating area with a photograph, and catalogue these areas according to department or floor and responsible party. This documentation is critical, in the event of a contamination or regulatory infraction. Some facilities utilize waste tracking systems with a bar code that allows the organization to pinpoint different waste volumes coming from different units/departments. Conduct inservice training for units that are not following through with the program. Engage a nurse leader to help communicate the new program.

STEP 8: Consider all Waste Treatment and Hauling Options

RMW must be “disinfected” before it can be disposed of, meaning that the waste must be treated to destroy or kill infectious microorganisms with a potential to cause disease. Requirements and acceptable treatment methods vary state to state. State health agencies often determine the level to which microorganisms must be undetectable.

Reduce red bag waste generation before sizing any type of onsite treatment equipment! Make sure to include all costs when comparing onsite to offsite treatment. While reducing your RMW decreases the amount of waste that requires treatment, it is also important to understand how the waste is being treated, and to consider the environmental footprint of the treatment technology. Given the adverse impacts of incineration on public health and the environment, explore the available treatment options and specific waste management challenges posed by the different types of medical waste, from both a technical and a regulatory standpoint.

RMW treatment technologies rely on two basic approaches to sterilization: excessive heat,

including steam autoclaves, microwaves and dry heat, or chemical agents, including chlorine compounds (hypochlorite, chlorine dioxide), ozone, alkali and other disinfectants. Note that pathological and trace chemotherapy wastes are the only wastes that some states require to be incinerated. Consider an aggressive source segregation and minimization plan for those waste streams. And, as noted above, bulk chemotherapy waste will need to be handled as RCRA hazardous waste.

If RMW is treated onsite, ensure that proper testing protocols are in place to ensure complete disinfection prior to the waste being sent to the landfill. Treatment onsite can lessen the risk of hospital waste traveling through the community to a treatment site. Whether using onsite or offsite treatment, ensure that RCRA hazardous materials and heavy metals are not ending up in red bag waste bound for treatment. No mercury should ever go into a sharps container or red bag. This is a common, dangerous and illegal error.

More information

- Health Care Without Harm: Non-Incineration Medical Waste Treatment Technologies. Available at: http://noharm.org/lib/downloads/waste/Non-Incineration_Technologies.pdf

A successful, sustainable program needs a strong leader, good tracking and reporting, and sustained vigilance. To realize the full benefits, track and celebrate the positive changes in waste volumes (reduced RMW and increased recycling) and cost -savings. The team cannot assume that leadership will take notice of improved segregation and cost-saving outcomes. Through ongoing reporting to The Joint Commission Environment of Care Committee, green teams or other committees, the documentation can demonstrate success. A formal memo or

Let the community know about the hospital's successes and the positive effects those improvements are having on the environment and community health. Inform hospital administrators about the cost savings the RMW reduction program is generating. These savings are often significant and can create momentum for other environmental programs. Write a case study of the project's results to use as a performance improvement indicator for The Joint Commission, share with community newspapers, state and federal agencies, and publish results on the hospital's website and in your newsletter. Apply for an Environmental Excellence Award with Practice Greenhealth and get local and national recognition for the hard work!

Reward staff for their efforts, and encourage continued participation in the RMW reduction program. A change in work habits takes a commitment and deserves recognition. Consider doing something creative with a percentage of savings to recognize staff for their efforts. Rewards help to reinforce good work habits, including proper waste segregation and disposal practices. Easy-to-implement rewards include movie tickets or a catered lunch (something simple like pizza is appreciated) for the area/group with the largest waste reductions.

presentation to leadership highlights successes. Without shining a light on the success, these successes could go unnoticed. It may take getting used to at first, but sharing success is not patting oneself on the back, it is patting many on the back for a job well done and a genuine accomplishment. Program achievements can be a quality improvement performance indicator. Progress toward program goals should be shared with staff to maintain momentum. Continuous tracking can help address issues as they arise and support lasting change.

“Portrait of a Housekeeper” campaign at Beth Israel Medical Center, NYC, raised awareness around workplace safety and proper waste segregation.

Recycling

As with Regulated Medical Waste Reduction, a baseline assessment is the first step. The team reports a waste baseline for: Solid waste, regulated medical waste, recycling and hazardous waste. Recycling is implemented to achieve a 15 percent recycling rate compared to total waste (as identified in level 1.)

STEP 1: Define the Recycling Team and Stream

Step 1 assumes that a team, team leader and leadership engagement have been established. Expertise for recycling could include Environmental Services, Purchasing, Chief Security Officer Administration, Clinical Liaison and Regulatory Affairs. Review local regulations regarding recycling and any regional goals. The team can report their activities to the green team or through The Joint Commission Environment of Care Hazardous Material and Waste Management Plan.

Working together, the team should review the baseline data and consider conducting a walk-through to get a feel for the vast amount of papers, plastics and other recyclables in the waste stream. The team should consider other stakeholders, especially the existing waste hauler, GPO and purchasing department to identify existing contracts, market conditions and recycling potential in the region. Recycling opportunities vary state to state. Sitting down with waste and recycling vendors is the best way to identify recycling opportunities. The key

to recycling is simplicity – maximum material collection with minimum effort. Sitting down with business partners can help identify opportunities for “single stream” or “commingled” recycling to capture as much material in one process as possible. In order to decide what and how to recycle, the first step is to find out what options are available in the marketplace. Advantages to single stream or commingled recycling include simplified collection and one vendor for many materials.

Once local markets and vendor opportunities are understood, the team can assess whether existing haulers can meet the demands (pick up needs, training, marketing of material) or if other business partners should be considered.

This process can lead to a definition and a written policy identifying the types of materials that will be recycled and the method (commingled or not) of their removal. Leadership oversight and an updated definition understood by all members of the team make training and education around proper segregation possible.

STEP 2: Develop a Cost/Benefit Analysis

Using the baseline assessment, the facility can perform a cost/benefit analysis to determine recycling opportunities and areas for improvement. With an ultimate goal of zero waste, recycling is a long-term initiative for most hospitals. There are costs associated with recycling, though they are usually less than

for waste removal. Education, training, poster campaigns and branding have costs that will be considered during program implementation and budgeting. Understanding the cost per unit and current generation rate can help the team calculate savings if it achieved a 15 percent or more recycling rate. This information can help secure buy-in for the effort.

STEP 3: Research and Identify Business Partner(s)

With the baseline information, the team is in

a position to request information from the marketplace to see what offerings are available. There may be a need for more than one vendor



to manage the various waste streams and recyclables. The facility's needs can be articulated in a formal request for proposal, and then the team can review the options. Some facilities decide that a consulting firm is needed to help with the entire program to ensure success and adequate staff training. GPOs can also be extremely helpful. Make sure that negotiations include reimbursement for commodities based on market conditions, staff training, and reporting of types and amounts of materials recycled.

The following should be considered:

- **HIPAA:** Most hospitals have a system for protecting the security of health information through a program approved by the chief security officer. Some choose to shred onsite, others partner with a vendor for a mobile shredding truck and still others use locked bins but send the material to regular recycling, since HIPAA mandates
- Using the checklist at the end of this guide, the team can identify programs that capture as many materials as possible and consider high generating areas like the operating room, pharmacy, food services and dialysis for maximum material recovery.

STEP 4: Set Goals

Select SMART goals (Specific, Measurable, Attainable, Realistic and Timely) that include health and safety considerations, cost reduction, waste minimization and resource use considerations. It is important that the team share a common understanding of these goals. A written action plan will help team members stay focused. An example of a measurable could be to increase the recycling rate by five percent

STEP 5: Audit, Develop a Plan and Pilot

The following steps are required to have a well-coordinated and cohesive recycling program.

- Identify a lead for each task to take a shared approach to recycling strategy and implementation.
- What are others doing? It can be helpful to connect with other hospitals to learn about various models. For example, some have individuals transport their own desk-side recyclables to a storage bin by a photocopier, while others have staff collect recyclables from every desk. Various scenarios can be explored and piloted to ensure that hidden costs such as time, labor, storage space and elevator waiting time are addressed. Practice Greenhealth can help hospitals make connections with other hospitals to learn about their recycling successes and challenges.
- In practical terms, the audit really means walk every single floor and every single unit to identify the sizes and amounts of receptacles needed to collect various materials. Specific departmental needs and

“destruction,” not shredding. Whatever the facility chooses, it's important to consider all the options and to price out the variety of options to see what works best. One facility in California even purchased its own HIPAA shredding truck to take the process in-house--not a bad idea for managing what is actually a commodity. Standardizing HIPAA vendors for multi-facility systems is a very good way to reduce costs. Don't forget – paper is a commodity, and while it may have protected health information (PHI), it is still a commodity. As a result, going out to bid for multiple sites can both standardize operations and reduce expenses.

in the first year. Consider use of Practice Greenhealth's “members only” Sustainability benchmark report to view industry benchmarks to set short, medium and long-term goals. Present program goals to appropriate committee to ensure leadership and the team are on board with the plan before going forward.

tight spaces make a visual inspection of every area critical. A few locations that will require more frequent pick-ups, due to high generation and low storage capacity.

- A facility audit and individual meetings with nursing and department heads are required to explain the program and expected outcomes. Involve key management in decision making, program pilots and identification of the types and locations of recycling bins in each area.
- Standardize receptacle purchases so that all recycling bins look the same and have the same labeling but vary in size, depending on the location's generation rate. For example, every staffer sitting at a desk or a work station should have a small, blue bin for paper collection. Large, wheeled bins, where possible, can be placed by photo copiers and other standardized locations. Users can collect their waste paper regularly and place it in the larger bins in standardized locations



“HCA has implemented one of the first system-wide Integrated Waste Management Programs in healthcare, designed to both decrease costs and increase recycling.”

Alan Yuspeh

Senior Vice President & Chief Ethics and Compliance Officer
Hospital Corporation of America, Inc.

around soiled utility rooms and other locations to reduce labor time. Large generators may identify the need for a large, wheeled bin and eliminate the smaller bins altogether. The largest generators of recycling include administrative offices, computer rooms, laboratories, medical records and other areas that are identified through communication with staff and observation. The audit offers the opportunity to identify pick-up locations and to create a service schedule for material collection, transport and pick-up.

- Once the audit is complete, the team can review, discuss and prepare for a pilot in a variety of areas. The pilot needs to evaluate the recycling bins, signage and training needs, and to work out any kinks before materials are purchased house-wide. Don't standardize or order bins until they are tested in a variety of units.
- Practice Greenhealth's Greening the Operating Room offers full support for waste reduction initiatives in the Operating Room.
- Develop a plan to delineate and document the entire process from materials pick-up, training, monitoring, transport, storage and ultimate removal. The plan should include a process for monitoring and a number that employees can call if they need a pick-up, additional bins or departmental education.
- Educational development – posters, newsletter, labels for recycling bins, new employee and existing staff orientation, float staff training, student training, clinicians, grand rounds.
- Evaluation - Conclude pilot with a written evaluation and identification of any additional

purchasing, training or educational needs.

- Purchase receptacles, lease equipment and complete any needed construction to prepare for smooth, safe, ergonomic, and efficient material collection and storage.
- Identify how recyclables will be stored, e.g., compactor, totes, bales or bags
- Standardization of container purchases and labeling helps with staff training. It may sound simple, but staff must be properly trained to understand which waste is to be placed into which container. It takes time to standardize and label the receptacles, and to properly train staff. Team review and staff input on the bins can help identify the standardized containers for each type, e.g., desk-side recycling bins, larger bins by photocopiers and wheeled transport bins. The various bin needs can be identified by the material audit, following the process from collection to storage to transport to removal. Take the time to find the right pace to ensure that staff can meet the program's pick-up needs.
- Develop a written plan for placement in appropriate binders, including the Environment of Care Manual, and for communication to various committees and department heads.



Fairview "Greening the OR" Team

STEP 6: Implementation and Training

Overfilled containers and confusion over separation and collection of recyclable materials can create frustration and pose significant challenges. Memos and staff announcements can be used to keep staff abreast of the implementation dates. Ongoing training should be provided to ensure clear understanding among all staff. Signage, handouts, screen savers and email updates can help staff understand their own important role in the program. Vendors also can help education, implementation and ongoing monitoring. Provide Education should be provided on all shifts, for several days and then provided on a regular basis. and then continue on a regular basis, with less frequency, indefinitely. Consistent monitoring and adequate pick-up can either make or break a program.

Education tips:

- Implement the recycling program one unit,

floor and building at a time. Monitor the area 24/7, making spot checks throughout and only easing off on inspections when staff thoroughly understand their roles and responsibilities. Waste vendors may be able to help with training and inspections.

- Environmental Services staff is critical. They can be the first line of defense and the first to identify problems with collection.
- Recycling training should be part of new employee orientations and should be provided at a departmental level. Include the facility's commitment to compliance, good segregation practices and stewardship statement.
- Remember that each individual learns differently so use different training methods, including physical examples of different types of wastes. Some will be more motivated by environmental benefits (how many trees recycling paper saves, how many barrels of oil recycling of plastics saves), while others will

be more motivated by monetary benefits (the cost savings of avoided solid waste disposal). Ensure the training schedule catches all staff, including relief and night shifts. Adapt training to the needs of different departments (e.g., emergency versus ICU) and different stakeholders (e.g., physicians working in the operating room versus nurses doing emergency intake).

- Monitor work areas regularly and consider tracking generation rates, employee training

and rounding through Environment of Care's Hazardous Material and Waste Management Committee.

- Continue to train, spot check, monitor and report regularly.
- Stress the cost benefits of recycling versus regular waste disposal. Create some friendly competition between units/department/floors. Publicize and celebrate the winners, and consider providing theater tickets or a pizza lunch.

STEP 7: Be Ready to Identify and Solve Problems

Even after program implementation and staff training, facilities may still encounter resistance to change and improper segregation. Have an action plan to resolve problems. Administration support will help drive the initiative and empower the staff person assigned to police the program. If problems are not addressed quickly, they will persist and increase.

Develop a tracking form, a schedule for ongoing

rounds and a mechanism to immediately report concerns and communicate appropriate solutions back to staff. Include monitoring and quality assurance reports in Environment of Care Committee minutes. Respond to Environmental Services reports immediately to address problems and retrain staff immediately. Monitor vendor recycling removal to ensure pick-up needs are met and storage areas are clean and maintained.

STEP 8: Track Progress, Report Successes and Reward Staff

Celebrate even small successes to build momentum. Consider celebrations, pizza parties and applying for Practice Greenhealth's Environmental Excellence Award. Hospitals have

achieved recycling rates of more than 25 percent through recycling of operating room materials, electronics and much more. Encourage friendly competition between floors or departments, or display recycling percentages with graphic signage to make the program more fun.

Recycling Checklist

This worksheet can help track material segregated for recycling. Data is entered for recycled materials. If the facility does not recycle a material, just leave it blank. If plastics are commingled with other materials, do not record data by plastic type but in the “commingled” box.

Place the sum of these amounts in tons (either actual or estimated) in the blue section of the recycling table above as part of the baseline. This checklist can be continuously expanded and revised as your recycling changes and grows. Pacing is important.

Recycling Checklist

Material Type	Estimated or Actual Tonnage in 12 month period
<input type="checkbox"/> Batteries	
<input type="checkbox"/> Boxboard	
<input type="checkbox"/> Cans, aluminum	
<input type="checkbox"/> Cans, steel	
<input type="checkbox"/> Cardboard	
<input type="checkbox"/> Commingled or single stream	
<input type="checkbox"/> Computers and electronics	
<input type="checkbox"/> Food waste composting	
<input type="checkbox"/> Fluorescent lamps (not crushed)	
<input type="checkbox"/> Glass, all	
<input type="checkbox"/> HIPAA confidential paper recycling	
<input type="checkbox"/> Ink jet and toner cartridges	
<input type="checkbox"/> Cooking oil	
<input type="checkbox"/> Motor oil	
<input type="checkbox"/> Paper, mixed	
<input type="checkbox"/> Paper, white	
<input type="checkbox"/> Plastic, #1, PET	
<input type="checkbox"/> Plastic, #2, HDPE	
<input type="checkbox"/> Plastic #3, PVC	
<input type="checkbox"/> Plastic #4, LDPE	
<input type="checkbox"/> Plastic #5, PP (and blue wrap)	
<input type="checkbox"/> Plastic #6, Polystyrene	
<input type="checkbox"/> Plastic, mixed types	
<input type="checkbox"/> Clear wraps (e.g. shrink wrap)	
<input type="checkbox"/> Steel	
<input type="checkbox"/> Wood	
<input type="checkbox"/> X-ray	
<input type="checkbox"/> Other	

Construction and Demolition Diversion

Implement a construction and demolition debris recycling program for major renovations and new construction to achieve a recycling and diversion rate of at least 80 percent.

Introduction

Construction and Demolition Debris (C&D) is bulky, non-compactable material generated during construction and renovation projects. This material includes ceiling tiles, bricks, glass, carpeting, cabinetry, cement and much more. (See accompanying document, “Defining Waste Streams.”) Hospitals have demonstrated the financial and environmental value of reducing the amount of C&D headed to landfills through reduction, reuse and recycling.

STEP 1: Deconstruction

If construction is from within an existing space, the hospital can inspect, identify and capture materials, equipment and resources instead of having them removed as waste. Old laboratories, offices and patient care areas have numerous recoverable items that can be donated, reused or recycled. Any material removed from the waste stream translates into dollars and a healthier environment. A walk-through should be part of any renovation to ensure that any leftover wastes or specimens are properly handled and managed before workers enter the space. This is particularly important in grant-funded laboratories and other facilities where potentially infectious or hazardous materials can be left behind. If not properly labeled, these materials can lead to an accidental exposure or regulatory infraction. Conduct a walk-through and sign-

off on the space before the end of every grant. Materials such as cabinetry, casework, desks, file cabinets and other leftover furniture, hardware, lighting fixtures and ballasts, and office supplies and equipment are all recoverable. Often this process is overlooked during a project, and dollars are poured down the drain while waste is dumped into crowded landfills.

Check regional resources, such as Habitat for Humanity, the Salvation Army reuse outlets, other architectural reuse stores and other nonprofit organizations that accept donations. Document waste diversions for LEED credits, sustainability reporting and Practice Greenhealth Environmental Excellence Awards. Work with partners to weigh and quantify diverted materials.

Develop a written deconstruction policy for use with all space renovations.

STEP 2: Plan Ahead

C&D recycling can be written into any construction specification. Many contractors and construction companies now routinely track C&D recycling for LEED credits or other green building rating systems. While the facility may not be working toward LEED certification with a project, the contractors work with the organization as business partners for C&D recycling and reporting. The contract should specify that:

- Any rebates should come back to the hospital in a form of a rebate.

- All C&D recycled should be tracked by final destination. Volumes should be reported to the facility monthly.
- The contractor/construction company should delineate whether materials will be sorted onsite or comingled. If there is no room to segregate material onsite, then the comingled material can be sorted offsite. This is common among large hospitals, where space is tight and renovation is constant.
- If using LEED, percent of C&D recycled (out of total C&D) should also be reported.

These percentages are the LEED indicator required under Materials & Resources Credit 2 in LEED for HC (50 percent threshold for 1 point, 75 percent threshold for 2 points, 95 percent diversion for exemplary performance). (Excavated soil or land-clearing debris

does not count toward this credit.) The HHI challenge seeks an 80 percent C&D diversion. Roll-offs should be placed where possible in a secure area or fenced area inaccessible to the public to prevent dumping.

STEP 3: Contracting

Check contractors’ references and ask them about service, reliability and reporting. Consider checking with the GPO and Purchasing to see if any contracts are established. Consider visiting

any C&D transfer locations to see the operations first- hand, and to learn more about the process and other opportunities. Consider in-house reuse strategies for donation and reuse.

STEP 4: Pilot

If segregating onsite, start with a small pilot to work out problems and maximize return. Onsite segregation usually maximizes return, but this is not always an option. Educate staff about

the possibility of a long-term commitment to C&D segregation even on a day-to-day basis. A small container for materials such as carpeting and ceiling tiles can be used to collect the C&D generated every day.

STEP 5: Educate

All employees and contractors shall be educated about the organization’s C&D recycling and overall sustainability initiatives, including hazardous and RMW management. The importance of education cannot be overestimated. At one facility, the sustainability manager witnessed a contractor putting construction debris in a red bag and throwing it down the trash chute. Signage can

help to identify bins, and support ongoing monitoring and inspection. Occasional off-site visits can ensure that materials are being recycled as specified.

Consider writing a newsletter piece or creating a poster for staff, patients and community members who otherwise may not know about the hospital’s C&D recycling program.

STEP 6: Track & Report

C&D recycling rates should not be added to the general waste baseline because hospitals are renovating at widely varying rates, and these differences can skew data for the health care sector. Data can be tracked per project and then

aggregated for total percent recycled per year. This data can be reported to The Joint Commission Environment of Care Hazardous Material and Waste Management Committee or a green team, construction team or other group to ensure that it is captured as part of an overall sustainability plan.

Track & Report

Tons C&D Land filled or Incinerated per project	Tons C&D Recycled or Reused per project	Percentage Recycled

7. Written Plan

Develop the written plan after the pilot to ensure lessons learned are addressed. Include the plan in

policy and procedure manuals and make it part of RFPs for renovation and construction projects.

8. Continuous Improvement

Review the process at least annually to ensure the recycling rate stays above 80 percent. Continuously look for additional materials to recycle or reuse. For example, carpeting is frequently recoverable for recycling, and recycled carpeting can be used in renovation projects. Recycling lessons learned can be applied to material purchases. Purchases of recycled products can also help identify additional opportunities for the facility to segregate and recycle materials.

Resources

The Green Guide for Health Care Operations

Section WM Credit 1.4 Recycling & Reuse of Facility Alterations and Additions offers guidance and resources, www.gghc.org.

The Institutional Recycling Network offers resources, including sample specification language and written case studies with an over 90 percent recycling rate - <http://www.wastemiser.com/resources.html>.

Practice Greenhealth Waste Web Page - <http://practicegreenhealth.org/topics/waste>

Less Waste Action Plan

HH enrollees identify which level they seek to achieve. Discuss with the team and set the facility goal.

Additional Resources

Easy to use templates, sample language, check lists and others tools facilitate program implementation.

Defining Materials and Waste Streams

Definitions of Materials and Wastes to assist with Material and Waste Baseline

<http://healthierhospitals.org/hhi-challenges/resource-library/defining-materials-and-waste-streams>

12 Months Material and Waste Baseline Worksheet

Material and Waste Baseline Work Sheet

<http://healthierhospitals.org/hhi-challenges/resource-library/12-months-material-and-waste-baseline-worksheet>

Department Material and Waste Management Assessment Form

Audit Form to facilitate the departmental receptacle and service needs for each waste and material type. (Assists with receptacle standardization)

<http://healthierhospitals.org/hhi-challenges/resource-library/department-material-and-waste-management-assessment-form>

Red Bag Receptacle Standardization Worksheet

Audit Form to facilitate RMW container types per department. (Assists with standardized and appropriately sized RMW receptacle.)

<http://healthierhospitals.org/hhi-challenges/resource-library/red-bag-receptacle-standardization-worksheet>

Recycling Check List

Check-List to record recycling material streams and rates.

<http://healthierhospitals.org/hhi-challenges/resource-library/recycling-check-list>

Measures Overview Less Waste Challenge

A Power Point Guide to Submit Data on each level of the Less Waste Challenge.

<http://www.healthierhospitals.org/hhi-challenges/resource-library/less-waste-measures-overview>

For further information send an email: jhoward@practicegreenhealth.org or at (866) 598-2110.