

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.

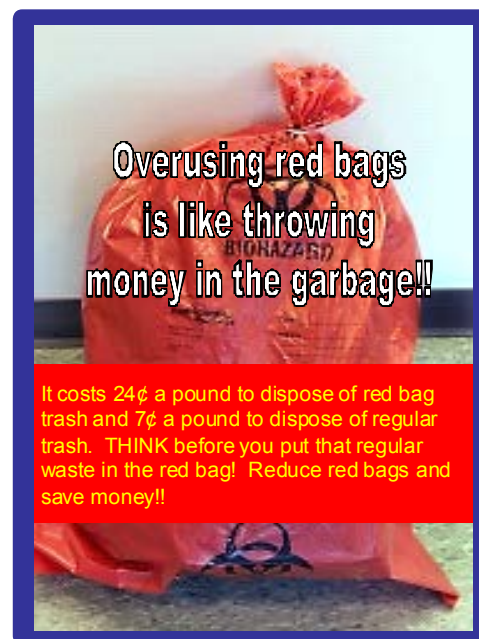
Training is a critical component in an RMW reduction program. Staff requires clear, consistent information to understand the reasons for proper segregation: regulations, cost implications, health and safety impacts, and environmental leadership.

- 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



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

STEP 9: Track Progress

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

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.

STEP 10: Celebrate Success

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.

The assessment form on the next page can help to assess waste needs by type at a departmental level.

Care & Compassion

PORTRAIT OF A HOUSEKEEPER

Meet Your Co-Worker
Gloria McIntosh
Her safety depends on you.

Hi, I'm **Gloria McIntosh**. I am originally from Jamaica and now live in Queens. I have four children and four grandchildren. I work on the bed team at Beth Israel, which means that I make up beds and prepare them for new patients. I have worked at Beth Israel for eight years. My husband, Rolando, works in Food Service.

Please help make Beth Israel a safe place for me to work. Remember how important cleanup is when caring for a patient. Don't forget to put needles into sharps containers and appropriate material into a red bag. If you do not strictly follow these waste management guidelines, my health is put at risk.

PLEASE PUT WASTE IN THE RIGHT PLACE!
For questions regarding proper segregation of wastes, call the Waste Manager at **(212) 420-2442**.

Gloria and your co-workers thank you for your care and cooperation.

Beth Israel University Hospital and Manhattan Campus for the Albert Einstein College of Medicine
Continuum Health Partners, Inc.

Printed on recycled paper.

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