



Regulated Medical Waste Reduction

10 Steps to Implementing a Regulated Medical Waste Reduction Plan

Hospitals are saving hundreds of thousands of dollars by improving their waste segregation and implementing Regulated Medical Waste (RMW) reduction programs. RMW is often the most expensive waste stream to manage. While the primary objective of RMW management is to minimize the risk of disease transmission from handling RMW, every facility has an opportunity to reduce its RMW thereby reducing risk *and* cost.

Many hospitals routinely throw from 50-70% of their waste into the biohazardous waste stream, although a large portion of hospital waste is very similar to that of a hotel or office building—mostly paper, cardboard and food waste. Hospitals often pay up to 10 times as much to dispose of infectious versus solid waste. Case studies prove that with comprehensive education, hospitals can realistically aim to decrease red bag waste to a mere 6-10% of their waste stream. In fact, the Centers for Disease Control (CDC) suggests that only 2-3% of hospital waste truly needs to be disposed of as infectious waste.

The tremendous opportunities for cost and volume reductions do not come from the “gray areas” where it is difficult to determine whether the item is “significantly contaminated” or not. Staff should ask the question whether the waste is potentially infectious (see definition below) and should know which container to throw the waste in- a red bag, clear bag or in a recycling container. If staff is not clear on where to throw the item, then they should err on the conservative side and dispose of it in a red bag. The significant opportunities for RMW reduction come from eliminating the coffee cups, packaging, paper towel waste, clean blue wrap and pizza boxes that get tossed in! To help you get started in implementing a Regulated Medical Waste (RMW) Reduction Plan, H2E recommends the following ten-step process.

Step 1: Understand Regulated Medical Waste Definitions

Review your facility’s policies, procedures and definitions for RMW handling and disposal. Check with your state regulatory authorities to make sure you understand state specific regulations. Meet with your Infection Control Staff to refine and clarify your facility’s guidelines. A strong partnership with Infection Control will help ensure a successful program. Include RMW reduction information and goals in your Bloodborne Pathogens Exposure Control Manual.

Proper waste segregation is critical. RMW, sharps, recyclables and solid waste should each have separate containers that are clearly labeled and easily accessible. Hazardous chemicals must be stored and managed according to policies that conform to RCRA regulations. It sounds simple, but staff must be properly trained to understand which waste is placed in which container.

Liquid wastes present yet another unique disposal question. Are you pouring your liquid waste down the drain? Are you containerizing it or adding gelling agents, then disposing of it in red bags? Removing liquids can often cut your infectious waste stream in half, but must be done carefully. There are now several products available to mechanically manage liquid waste disposal. Review your facility's protocols and OSHA guidelines for managing liquid infectious waste and work with your local POTW and state regulatory officials to determine your best disposal options.

OSHA's Definition of Regulated Waste:

Regulated Waste means liquid or semi-liquid blood or *other potentially infectious materials* (defined below); contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Other Potentially Infectious Materials means (1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Beth Israel Medical Center in New York City, implemented an aggressive RMW reduction program and continues to save over \$800,000 per year in waste disposal costs.

More information:

- Infectious Waste Management Section of the H2E website
www.h2e-online.org/tools/waste-inf.htm
- H2E Waste Minimization Guide: Section VII More About Regulated Medical Waste
www.h2e-online.org/tools/guide.htm
- Medical Waste - www.epa.gov/epaoswer/other/medical/index.htm .

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

First you need to understand your true waste costs and potential savings by identifying:

How much RMW are you generating?

What percentage of your total waste is RMW? Industry guidelines recommend that only 6-15% of your total waste should be going into RMW containers. You need to determine what portion of your waste is currently being disposed of as RMW. This will help you identify how much of an opportunity you have to reduce your volume and your disposal costs. Collect data from your waste hauling invoices or manifests. If you are billed by the box or other container, calculate the average weight to determine total weight. *Remember to subtract the weight of the disposal container and bags to calculate the actual weight of the RMW. Use H2E's Annual Facility Summary and Goals Form to record your current RMW numbers.

What are your total disposal costs?

Understanding your total disposal costs and your opportunities for cost savings is a powerful tool to not only get support from administration but also from staff. Does your staff realize that your facility pays approximately 10 times more for RMW disposal than solid waste disposal? Tell them! Your current disposal costs can be used as your baseline data– you will use these numbers to compare after you implement your RMW reduction program.

What are your potential savings?

Use the RMW Cost Benefit Worksheet (Excel spreadsheet) available on H2E's website to help you determine the potential for savings. When you present the program to administration, present cost savings first, but remember to include the other benefits of a RMW reduction program such as employee morale, improved safety implications, community and public relations.

More information:

- RMW Cost Benefit Worksheet (Excel spreadsheet)
www.h2e-online.org/pubs/WasteMgtTemplate.xls
- Volume-to-Weight Conversion Table (click on Appendix D)
www.epa.gov/epaoswer/nonhw/muncpl/pubs/red2.pdf
- H2E Annual Facility Summary and Goals Form - www.h2e-online.org/pubs/goalform.doc

Step 3: Create a Team to Develop Goals and an Action Plan

With a good understanding of the amount of RMW your facility currently generates, the cost of disposal and a cost/benefit analysis, you are ready to develop your reduction program's goals and action plan. For optimal results, create a diverse team that includes staff from Housekeeping, Infection Control, Nursing, Safety, Facilities, Education, Purchasing, Laboratory, and clinicians-- particularly those from the OR, ED and critical care areas. Be sure to establish and highlight management commitment to the effort.

It is important that the team share a common understanding of the goals. Make goals measurable and practical. A first step is to review the processes that are generating the most RMW. These areas should be targeted first. A written action plan will help team members stay focused on the steps necessary to achieve your goals and implement your RMW reduction program. Goals should include health and safety, cost reduction, and pollution abatement considerations. Delegate a leader to take responsibility for meeting each of the project goals identified. Each area of the hospital (i.e. different units/floors/specialties) should have a designated point person to whom team members can communicate with about goals and accountability for that unit's performance and waste generation rates. While the work is not difficult, it requires perseverance, accountability and an ongoing commitment.

Consider benchmarking your goal with a standard for your size and type of facility (for example, 4.5 pounds of RMW per adjusted patient day). Often facilities will try to achieve an (X) percent reduction in targeted areas. Graph your RMW reduction progress.

More information:

- H2E Self-Assessment Guide & Worksheets, Section 4 - www.h2e-online.org/pubs/selfasmt.pdf.

Step 4: Planning for Waste Segregation

Proper waste segregation is critical to any waste reduction effort. Provide the proper tools for employees to easily implement waste segregation. Once you make it easy for staff to properly segregate waste, you will end up with less misplaced waste in your red bags.

- First, work with department heads and nurse managers in each area to determine the types and volumes of wastes generated. This will help you determine their container needs. For example, an oncology unit may have a greater need for chemotherapy containers, while a dialysis unit may need more recycling bins for plastic dialysate bottles.
- It is important to stress the agreed upon definition of RMW. Working with clinicians to eliminate bad or outdated disposal habits is a challenge. Have a good policy and a clear definition of what Regulated Medical Waste means in your facility.
- Survey the facility to determine real waste needs- are there too many red bags available? If red bags are too easily accessible, clinicians and patients tend to dispose of regular waste in an RMW container. Prepare to remove red bag waste containers from sinks and other areas where the likelihood of RMW generation is low – this may include exam rooms and patient rooms.
- Purchase new containers and/or signage depending upon the required changes in your facility. Size the container for the appropriate amount of waste generated. Typically, the smaller the container, the less likely clinicians will be to throw extraneous items into it. Small, X gallon containers with step-on lids work well. Containers should be color coded or at least consistently labeled throughout the institution.

Step 5: Container Placement and Signage

Proper container placement and signage is key to the success of any waste segregation program. Proper signage and labeling provides instructions and on-the-spot education. All RMW containers should display the biohazard label.

- Red bag containers should be covered to reduce solid waste that is casually tossed in.
- Develop a sign to post above or on red bag containers, outlining what types of waste are to be disposed of as RMW. Do the same for sharps, hazardous waste, and other types of waste containers. The signs should use a large font and bullet type format, preferably in color, so they are easy to read and understand at a glance. Have the signs made into labels to easily affix to waste containers. And remember to use **multiple languages** if necessary for optimal communication.
- Remove red bags from underneath sinks, non-critical care patient areas, hallways and other areas where people are likely to dispose of their solid waste in RMW containers.
- Where there are infectious waste containers, locate regular waste containers directly adjacent, to ensure that employees are making a conscious disposal and segregation decision.
- Consider posting a letter signed by your CEO outlining your facility's commitment to waste minimization.

In the laboratories, a team approach should be used to go through the materials discarded to determine which types of items go in a red bag, clear bag or sharps container. Then develop appropriate signage for labs.

More information:

- California Integrated Waste Management Board RMW posters
www.ciwmb.ca.gov/BizWaste/Posters/RedBag.htm
- Virginia Department of Environmental Quality RMW posters - www.deq.state.va.us/p2/vh2e
- Going Green - www.h2e-online.org/tools/waste.htm

In the OR, one tip to reduce RMW is to line the red bag with a clear bag. This allows all of the packaging, blue wrap and other material generated by OR packs to be thrown into a clear bag. After all-- this is a sterile environment where there is little to no possibility of infectious materials being generated. Pull the clear bag immediately before the patient enters the room. True infectious waste can then be placed in the red bag without all of the solid waste commingled.

Step 6: Worker Training and Education Plans and Policies

Training is the key to success in a red bag reduction program. Staff need clear, coherent information to understand the reasons for proper segregation: **regulations, cost implications, and environmental leadership.**

- Train new employees on their first day as part of orientation. Include your facility's commitment to compliance, good segregation practices, and stewardship (policy statement). Staff should understand that improper disposal of their waste has potentially serious safety threats to waste haulers and increased liability for the hospital. Make it clear to them that it is part of their job to manage waste safely. Consider making "compliance with hospital waste management policies" a part of every job description.

- Re-train current staff with agreed upon definition of RMW. Inform staff about the facility's RMW reduction goals. Improved awareness leads to good segregation practices, which reduces the risk to the environment, reduces the risk to the hospital, and fosters a safer work environment. Fewer needle sticks, fewer spills, the less hazardous chemicals used and the more RMW properly disposed of, all generate cost-savings for your facility.
- Work with your CEO/administration to hold department heads accountable for their RMW generation and associated disposal costs, and make these numbers a part of their annual review. This must include the OR, which typically generates the most RMW in the entire hospital. Develop incentives for the department heads to work toward.
- Take every opportunity to educate staff. Annual in-services ensure continuous quality improvement. Annual in-services also reinforce the facility's definition of RMW and its relationship to volume reduction. Documenting this training can be used to meet the new DOT training requirements as well as to satisfy OSHA's current training requirements.

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

- | | |
|---------------------|---------------------|
| ■ Product packaging | ■ Gloves and gowns |
| ■ Office paper | ■ Linens |
| ■ Paper towels | ■ Diapers |
| ■ Batteries | ■ Waste medications |

Step 7: Sharps Management

Does your facility have a problem with needle sticks or sharps injuries due to improper waste handling? Are you spending an excessive amount on sharps containers relative to your patient activity? More than likely you have a sharps management policy but there are opportunities to reduce your sharps container usage.

- Train staff not only on the imperative to dispose of sharps and other potentially sharp items in the proper container, but also on what does not belong in sharps containers: gauze and bandages, tubing, empty, unbroken vials, mercury thermometers and other non-infectious, non-sharp materials.
- While safety is the priority, assess opportunities to maximize container use by optimizing when they are replaced. (i.e., unnecessarily removing half full or less containers or filling them with inappropriate wastes generates more sharps waste than necessary).
- Consider using a reusable sharps container system if a hauler is available in your area. Typically this saves money, can reduce worker exposure and handling, and can significantly improve environmental impacts.

Step 8: Problem Identification and Resolution Plan

You will encounter waste disposal issues: you will find infectious waste in the regular trash and perhaps even sharps in regulated RMW. Have a plan of action to resolve problems. Administration needs to support the plan and the staff person assigned to play "cop." If problems are not addressed quickly and adequately resolved, they will persist and increase.

Conduct a tour of your trash areas monthly. Develop a mechanism to report concerns or problems and appropriate solutions back to all staff. For example, document each waste-generating area with a photograph and catalogue them according to department or floor and responsible party. Education and feedback communicated via e-mail to departmental contacts using photos works best. Conduct in-service training for units that are not following through with the program. Engaging a nurse leader to help communicate the new program is often very effective.

Step 9: Waste Treatment and Waste Hauling

A big benefit to an RMW reduction plan is that it reduces the amount of waste that requires treatment, which not only saves money, but also minimizes environmental impacts. Understand how your waste is being treated, and consider your treatment technologies. Given the adverse impacts of incineration on public health and the environment, explore your opportunities for minimizing incineration- for both solid (municipal) and infectious waste. Some haulers have the option of providing both non-incineration and incineration technologies. Make sure your solid waste is being landfilled rather than incinerated.

General infectious waste requires treatment, but not necessarily incineration. 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. Note that some bulk chemotherapy waste will need to be handled as hazardous waste (P and U-listed RCRA wastes).

Develop a good working relationship with anyone handling your waste – this includes everyone from the housekeepers, to your RMW and solid waste haulers, to waste transfer stations, to the landfill operators. You should do site visits to every facility where the waste is sent. They should all understand your commitments to your waste management plan and ideally- share your definition for what is defined as ‘true’ RMW.

More information:

- Non-Incineration Medical Waste Treatment Technologies - www.noharm.org/nonincineration

Edith Nourse Rogers Memorial Veterans Hospital in Massachusetts has lowered their RMW to an impressive 6 percent of their total waste stream.

Step 10: Track Your Progress, Report Successes and Reward Staff!

A successful, sustainable program needs a leader, good tracking and reporting, and sustained vigilance. To realize the full benefits, track and celebrate the positive changes in your waste volumes (reduced RMW and increased recycling) and your cost-savings. Let the community know about your successes and the positive effects your efforts are having on the environment and community health. Hospital administrators should know about the cost-savings your RMW reduction program is generating- these savings are often significant. Write a case study of project results to share with community newspapers, state and federal agencies, and publish them on your hospital’s website. Even better, apply for an H2E Award and get local and national recognition for your hard work!

Reward staff for their efforts and encourage continued participation in your 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. Examples of some easy to implement rewards include movie tickets, or arranging for a catered lunch (something simple like pizza is appreciated) for the area/group with the largest waste reductions.

