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Hospital Waste Abatement and Handling Methods

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Regulated medical waste (RMW) poses direct risks to those who produce, handle, and dispose of it. Not only is RMW dangerous, it is up to 20 times more expensive to dispose of than regular waste. Over the last 14 months, BFI Medical Waste Systems has performed 204 waste audits using the Walsh Waste Auditor system. The Walsh system allows the qualitative and quantitative assessment and comparison of a hospital's waste stream. These audits are the first comprehensive attempt to evaluate on a national level what hospitals are actually doing with their waste. The findings indicate that in some cases, up to 65% of the biomedical waste produced is actually regular trash, such as paper, styrofoam cups, and packaging.
In the healthcare environment, regular trash is referred to as solid waste—materials that have not been soiled by blood of any other potentially infectious material. RMW is any waste that contains an infectious substance generated in the diagnosis, treatment, or immunization of people or animals. In the case of sharps and needles, mismanagement is a uniquely dangerous issue with people being injured and even dying each year. According to the Department of Transport (DOT), it is the waste generator's responsibility to ensure that RMW is always segregated from solid waste.

Herein lies the problem: much of the material that is being treated as RMW is actually solid waste. Of the millions of dollars that US hospitals spend annually on the handling and disposal of RMW, and estimated 40% is being spent unnecessarily. Poor segregation, along with being costly, is also potentially dangerous.

There is an assumption among some people that if medical waste disposal were free then we would simply classify everything as RMW and end up with a very safe system, no chance of red bag waste getting into the landfill, less work all around, and reduced chance of infecting people within or outside the hospital. This assumption is wrong. Research indicates that hospitals that routinely allow, or even encourage solid waste into their RMW also have the most problem with bloody materials ending up in their solid waste stream. Conversely, a hospital with a strict, legal, and enforced RMW policy that limits the users to only true RMW would have fewer instances of bloody or infectious material in their solid waste. While the costs to this hospital could be much less, they, ironically, could end up with a much safer system. They also avoid the cost of fines for improper disposal of RMW and the devastating press following bloody material being found in a landfill. The issue is people understanding the difference between RMW and solid waste.

Infection control personnel are one of the key players in the definition, enforcement, and management of RMW. Those who are too cautious, believing that "most is safer" may be doing themselves, the hospital, and the general public a disservice. Not only is the

definition costing their employer thousands of dollars in unnecessary waste disposal costs, it may be exposing workers and the public to increased risk.

Since the late 1980s, increased attention has been focused on medical waste and how it is handled. Various public and environmental health regulations have been enacted at the federal, state, and local level to govern the proper handling and disposal of medical waste. These regulations include the OSHA Blood borne Pathogens Standard, the EPA Infectious Waste Guidelines, the CDC's Standard Precautions and Isolation Guidelines, and DOT's Hazardous Materials Regulations, just to name a few.

The overriding aim of these regulations is to protect innocent people from exposure to infectious diseases or direct injury. However, the tendency among waste generators to take a blanket approach to these policies has resulted in soaring RMW disposal costs. Through a more acute understanding of what RMW really should be on a generator-by-generator basis and adopting a common sense approach to the interpretation of these regulations, the RMW produced would cause fewer problems, disposal costs would fall, and overall health and safety within the hospital would increase.

Those handling RMW in the hospital—generally housekeepers—are bound by all of the aforementioned regulations but are also forced to deal with the problems caused by improper segregation or packaging of waste at the generator level, bags that leak blood or other fluids, and dangerous loose needles.

Since US law prohibits employers from forcing employers from forcing employees to work in unsafe conditions, this is a potentially explosive situation. It is up to infection control professionals to ensure that waste handlers are protected adequately against such risk. This means being aware of the day-to-day realities of how RMW is actually being generated and disposed of within the hospital and ensuring that practice meets policy.

In 1998, the EPA issued a Memorandum of Understanding (MOU) for the establishment of a Mercury Waste Plan aimed at the virtual elimination of mercury-containing waste from the healthcare industry waste stream by the year 2005. The MOU also calls on all parties to develop a Model Waste Volume Reduction Plan that will assist in reducing the total volume of all healthcare-related wastes (both regulated and non-regulated) by 33% by 2005 and by 50% by 2010. This MOU could force as many as 80% of hospital-operated incinerators to shut down within the next few years unless hospitals are prepared to invest the dollars on pollution-control systems. This MOU is a significant push for hospitals to reduce waste and eliminate targeted materials.

When disposing of RMW, there are two main objectives: first, to render it unable to transmit disease and second, to make it unrecognizable. Although dozens of alternative technologies have been tried, none have established themselves as economical alternatives to incineration or autoclaving. However waste is disposed and whether it is by the hospital or by an outside contractor, waste production should be minimized.

Hospital personnel who are involved in generating or handling waste must deal with the medical waste stream as they would any potentially dangerous or expensive material. This includes infection control, nurses, doctors, and clinical staff. For example, paper for the photocopy machine costs two cents per pound and follows a strict set of material management rules. Medical waste, which costs 25 cents per pound to dispose of and is dangerous is a material management free-for-all. Why? Because it is garbage, and no one pays attention to the cost and end result.

To cut their RMW disposal and handling costs, hospitals have two options. The first is to lower the total cost per pound of their medical waste stream; the second is to reduce the number of pounds of RMW. Generally, reducing the cost per pound is done when the RMW contract is signed. Often alternative technologies appear to be very cost effective. If alternative technologies are being considered, do the homework. Talk to the hospitals that have been using the systems for the last five years and ask pointed questions. Really check it out because once a hospital has committed to an expensive waste handling technology, internal political realities suggest that there is no going back.

The second cost cutting initiative is for hospitals to reduce the pounds of medical waste they produce altogether. This is done through proper segregation at the point of generation. No matter how low you get your costs, still focus on reducing volumes. These are not mutually exclusive strategies.

There are several waste-reduction steps that infection control personnel can take, hand-in-hand with their colleagues in environmental services. First and foremost, conduct a waste audit. This will allow you to identify key areas that require improvement, either because of excessive expenses or potentially dangerous practices. Then review the RMW policy. Next, meet with hospital management and gain their agreement on what level of improvement they envision. Given this bottom-line goal, determine what steps must be taken to achieve it and implement a marketing program to sensitize those that generate and dispose of RMW.

Case Study, New York City, 1999

In an aim to cut costs and improve overall health and safety, one of New York City's most prestigious hospitals, the Weill Cornell Medical Center of New York Presbyterian Hospital, carried out an Infection Control Policy review and implemented a structured program of medical waste reduction. The 700 + bed hospital also started to track each department's RMW performance and provide ongoing feedback to department heads.

Using the Walsh Waste Auditor, the hospital personnel determined that approximately 120,000 lbs. Of the 200,000 lbs. of RMW generated on a monthly basis was actually solid waste. Using the auditor's hand-held computers with digital cameras, housekeeping personnel noted any situations of non-compliance. A comprehensive e-mail message and digital photo was sent to the appropriate manager of the non-compliant department. The waste audit determined that hospital was producing 9.6 lbs. of waste per bed per day, almost double the national average of 4.5 lbs., and four times the EPA and AHA target

levels. As the hospital was spending close to $1 million per year to dispose of RMW, there were significant potential savings to be had.

Following the audit, the hospital instituted a shared savings program using the Walsh Waste Tracker. Within one month of implementing this waste reduction program, RMW was reduced by 36%. The keys to the success of this program are people, policy, hardware, marketing, and follow up.

The most important factor in any waste reduction program is the people running it. The Director of Environmental services understood that the expenses did not have to be so high and that a better system would reduce the risk for his employees and the public. He took the initiative to outsource the work on a shared savings basis. The outsourcing company then sent one of its waste management professionals to the hospital to deliver ten separate three-day training and in-service sessions.

The director assigned his two top people to work with the company and ensure the cooperation of housekeeping, epidemiology, nursing, labs, etc. This team was also responsible for the day-to-day use of the tracker computer touring the hospital, taking digital photos, and tracking each department's performance. Without professional and dedicated people, long term, meaningful change is virtually impossible.

The policy is the next most important item. In this case, the hospital redefined the RMW as it applies to isolation cases. Previously, all waste from an isolation patient was considered RMW. Upon review, the hospital decided that this was not necessary. Today, if the patient is CDC class 4, then all waste is considered RMW; otherwise, it is to be treated as it would from any other patient: material saturated with blood or body fluid; waste from CDC Class 4 patients; animal waste and body parts; cultures and stocks of infectious agents; and pathological waste.

Sharps are handled through a separate system. While only about 10 % of the RMW is from isolation rooms, the policy change was a terrific way to get people interested and involved in the improvements that were wanted.

And important reason for non-compliance is that people don't have the correct bins for their waste. We took an inventory of which bins were available and where and ensured that there were enough solid waste containers and not too many RMW containers in each department. From here, Walsh developed a waste reduction for the hospital.

When the hospital agreed to install and use the tracker system, Walsh supplied all of the handheld computers, cameras, PCs, software, installation, setup, and training. Each day, e-mails were sent to every department that had been visited, alerting them to instances of non-compliance or congratulating them on waste reduction. This final step is what differentiates long term solutions from a short term fix. With a program of structured follow up, the hospital was able to attain objectives and maintain them. The hospital learned that while reducing waste once is not a problem, keeping it down is the real challenge.