

High Success Through Low RMW Rates

More hospitals are turning to fluid management systems to reduce RMW rates. Here's how to get started.

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REGULATED MEDICAL WASTE is one area where continuous education, communication, assessment and tracking are critical to maintaining low generation rates. Due to a surgical department's very nature, it's unlikely that regulated medical waste will ever be eliminated, but since as much as 30 percent of a facility's RMW is from the OR, it's a great place to focus efforts. Practice Greenhealth and Healthier Hospitals advise a less than 10 percent RMW generation rate facility-wide.

Blood and bodily fluids make up a large portion of RMW in the surgical suite. Historically, this waste stream has been collected using disposable plastic suction canisters. One study found that these canisters can be responsible for as much as 25 percent of an organization's regulated medical waste. Another

study found that up to 40 percent of surgical waste could be related to blood and bodily fluid disposal. Considering that a single canister can hold up to three liters of fluid and that three or four canisters could be used per procedure, waste adds up quickly – and that's not counting high-volume orthopedic and cardiac cases.

Realizing the significant environmental and financial opportunities at stake, many hospitals have switched to a reusable canister fluid management system – eliminating the purchase of disposable plastic suction canisters and chemical solidifiers, reducing staff exposure to these chemicals and bodily fluids, and cutting waste disposal costs significantly. The use of reusable canister fluid management systems has increased from 47 percent in 2009 to 75 percent in 2014, including 84 percent of

Practice Greenhealth's Top 25 Environmental Excellence Award winners.

Despite this trend, some hospitals have yet to take the plunge and others continue to face challenges. With that in mind, here are implementation steps and common challenges as well as resources and strategies for overcoming these challenges, celebrating success and continuing to engage, communicate and educate employees around this strategy.

Get Started

Engagement of key stakeholders from an early stage is critical to the success of any project. Ensure that your fluid management system implementation team is broad enough: Materials management, environmental services, housekeeping, OR nurses, surgical support services and others all play a critical role and can bring important observations and help facilitate smooth implementation.

Once this team has been developed, you can begin to build the business case for a new system. This team should assess current practice, identify potential complications or needs and help determine the most efficient plan for maximum compliance with staff. Below is an easy guide. A sample facility with 25 operating rooms averaging 13,000 cases per year was used to provide an estimated example of potential savings.

Step 1: Determine the volume of suction canisters used by the OR over a set period of time.

Check with materials management or with OR nurses for averages per case/case type. Ortho and cardiac cases will likely use more of the larger size canisters per case, while simpler procedures might only use one or two. If you're unable to do this, use a low-end estimate of the number of canisters per case and multiply by the number of cases performed annually.

Let's use the estimate of 3.5 suction canisters per case. With 25 ORs, we'll estimate a lower figure of 13,000 cases annually. This doesn't factor in high-volume cases such as ortho and, again, is a very low estimate.

So, 3.5 canisters per case X 13,000 cases annually = 45,500 canisters annually.

Step 2: Determine what method your OR is currently using for suction canister disposal.

Some facilities will empty the suction canisters directly down the drain (posing exposure risks to staff) and then dispose of the empty canister in RMW. Other facilities will dump a chemical solidifier into the canister to solidify the blood/bodily fluids and then dispose that canister into RMW. This typically results in 6 to 8 pounds per canister entering the waste stream. Still others discard the suction canister into RMW without solidifying (but for the purposes of this article we'll focus on the two methods above).

Step 3: Determine the weight of the container.

The weight is either empty after pour or full containing solidifier.

Empty: Each canister can be estimated to weigh 0.4 lbs.

0.4 lbs. X 45,500 annually = 18,200 lbs. or 9.1 tons annually.

If using a chemical solidifier: The average suction canister weighs 6 to 8 lbs.

6 lbs./canister X 45,500 canisters annually = 273,000 lbs. or 136.5 tons annually.

Step 4: Determine what your hospital is paying to dispose of RMW per pound or ton.

Sector low-end averages are \$0.28 per pound of RMW for disposal. Also determine the price of the solidifying agent per canister. This will come from purchasing and might vary, because more solidifier might need to be used for the very large suction canisters.

Empty: At 18,200 pounds per year X \$0.28 per pound, disposal cost is \$5,096.

With solidifier: At 273,000 pounds per year X \$0.28 per pound, disposal cost for the canisters alone is \$76,440! If you estimate the solidifier cost at \$5 to \$30 a piece but use a low-end figure of \$7 per chemical solidifier multiplied by 45,500 canisters annually, that amount is \$318,500, which comes to a disposal cost total of \$394,940.

Step 5: Obtain total costs for your current fluid management system.

Find out the cost per canister from purchasing and add that figure with the above amounts.

45,500 canisters x \$2/canister = \$91,000 for supply costs.

Empty: \$5,096 + \$91,000 = \$96,096 for total fluid management system cost.

With solidifier: \$394,940 + \$91,000 = \$485,940 for total fluid management system cost.

Step 6: If available, add in employee health costs related to fluid management.

These costs are often not included, but accidents happen. If an employee comes in contact with blood, bodily fluids or solidifying chemicals, the possible outcome can be incredibly costly to the organization and have a lifelong impact on the employee. Also consider other factors, such as room turnover time (with an average \$17/minute cost for OR use and solidifier taking about 10 minutes to work, that's \$170 lost between each case).

Once the groundwork for the business case has been made, evaluate your organization's needs relative to fluid management: What kind of system would work best for the setup and location of operating rooms? What types of procedures are typically performed? What space is available? And what kind of plumbing is already in place? Once the team has a good idea of needs or disqualifying factors, reach out to vendors to review and test the product options. Be realistic about ongoing supply or maintenance costs that could affect the business case or return on investment.

As these products and a new process are being identified, it's critical to involve infection control so they can review state and local regulations about the disposal of RMW and the disposal of bulk blood and bodily fluids to the sanitary system. Make sure to work with local authorities to uncover regulations specific to your area. Vendors will be your ally in this process—they should be familiar with any limitations and can help navigate the process. Work with them to identify the most important features to your organization and the value each of the



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Savings Snapshot

	Ridgeview Medical Center	Regions Hospital	Cleveland Clinic
ORs in facility	6	27	86
Procedures per year	5,193	20,642	38,766
Avoided waste tonnage through fluid management	1.92	66.76	89.6
Avoided waste disposal fees from suction canisters	\$1,498	\$33,111	\$118,140
Avoided purchase of disposable canisters	\$10,240	\$79,943	\$262,500
Avoided purchase of chemical solidifiers (if applicable)	N/A	N/A	\$81,200
Other benefits	Ridgeview reduced time spent in purchasing, stocking and hauling waste and avoided using 6,400 containers at 2,500 cc each. Staff efficiencies were gained, because staff no longer had to continually stock, change or dispose of suction canisters.	By using the Neptune fluid management systems, Regions dramatically lowered the potential for blood-borne pathogen exposure to its employees.	Cleveland Clinic avoided the potential cost of blood-borne pathogens through spills and exposures while enhancing safety for patients and staff. It also avoided labor costs involved in collecting, solidifying, packaging and transporting waste. It gained consistent suction, lower OR turnover cost/time and less waste entering the landfill.
Total cost savings	\$11,738	\$113,054	\$461,840

environmental considerations will play in the decision-making process. PracticeGreenhealth has developed a series of RFP questions specific to fluid management systems as a resource to supply chains during the procurement process; learn more at www.PracticeGreenhealth.org/gsc/standardized.

When a proper system has been determined, the team can bring information around the business case and payback period, ongoing needs, staff expectations and education needs to the leadership team and supply chain for the approval, procurement and deployment of the new system. Education and communication are critical at this stage: Ensuring staff are properly trained can mean the difference between a life-threatening accident and the success of the program, and adequately training, retraining, providing in-services, signage and information cannot be stressed enough. According to Stephanie Malkin, strategic sourcing,

supply chain management at Cleveland Clinic, her hospital took extra precautions by offering online training modules for every OR physician, nurse and staff member while implementing its latest fluid management system solution.

When baseline information is captured prior to implementation, health systems can easily track and assess the success of the program at intervals to realize where opportunities continue to exist and celebrate achievements. Recognizing success is perhaps the final, most important step. Highlight key players who have championed the efforts along the way and make sure the team members are proud of and celebrated for their work. Above all, make sure your organization is aware of the continued commitment to reducing the overall environmental footprint, operating more efficiently and supporting patient and employee health. 