

# serres



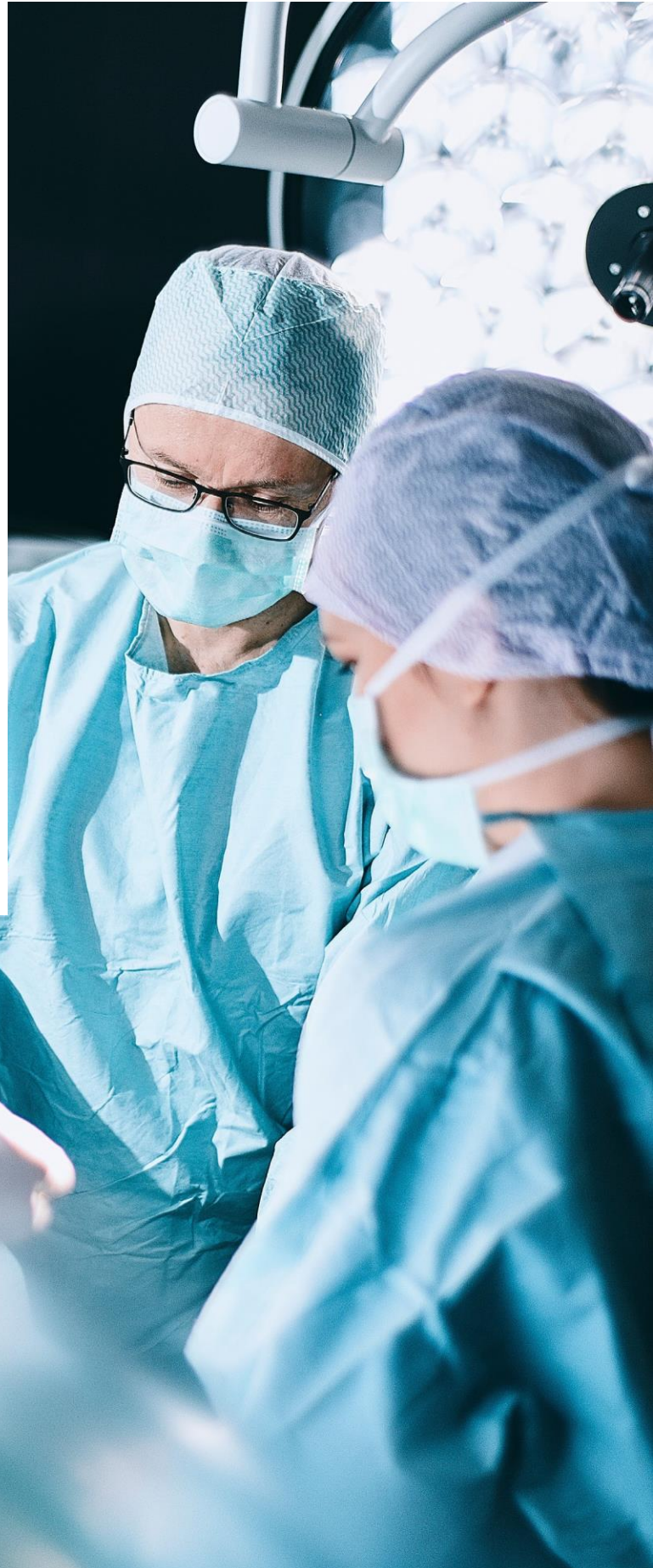
Optimizing  
Surgical Fluid  
Management  
Practices Based  
on Collection  
and Disposal  
Volumes

**Today's operating rooms are rapidly evolving and technically complex environments.**

OR leaders must ensure all workflows and equipment have a positive impact on efficiency, safety, cost, space and sustainability. All these factors are essential, yet often overlooked, when evaluating surgical fluid collection and disposal systems.

Our experience powering more than 60,000 cases each day has led us to develop progressive solutions around surgical suction. Rather than use the same system for every case, we found that efficiency, safety, cost, space and sustainability are heightened when solutions are optimized specifically for the amount of fluid volume produced by each surgery.

In this white paper we will demonstrate how a few modifications to workflows and technology can align your fluid collection and disposal solution with prevailing surgical trends, and healthcare facility financial, operational and clinical priorities.



Based on Serres' experience, approximately 2/3 of all cases produce less than 2 canisters of fluid waste, and would be considered low fluid volume surgical cases.



## The Difference Between High and Low Fluid Volume Surgical Cases

### Surgical Fluid Volume Definitions:

Low = <2 Canisters | Medium = 2-4 Canisters | High = 4+ Canisters

Healthcare facilities have the opportunity to adopt more optimal fluid waste management systems by understanding the difference between low, medium and high fluid volume cases. There are now solutions available that are tailored specifically to the amount of fluid waste produced. Many facilities are eager to embrace these optimized solutions for specific fluid volume cases due to their cost savings and workflow efficiency benefits.

The amount of fluid produced during a surgical procedure ranges depending on the procedure type and physician technique. Based on Serres' experience, cases that produce less than 2 canisters of fluid waste can be considered "low volume" surgical cases. Cases that generate 2-4 canisters of fluid waste can be considered "medium volume." Therefore, any cases producing more than 4 canisters can be deemed "high volume."

By treating low and medium volume cases differently, with workflows and technology ideal to smaller volume needs, facilities can see significant improvement in operating room turnover time, cost per case, staff and patient safety, and sustainability.

### The Prevalence of Low Fluid Volume Surgical Cases

Based on Serres' experience, approximately 2/3 of all cases produce less than 2 canisters of fluid waste, and would be considered low fluid volume surgical cases.

### Reviewing and Analyzing Current Surgical Fluid Volume Collection and Disposal Methodology

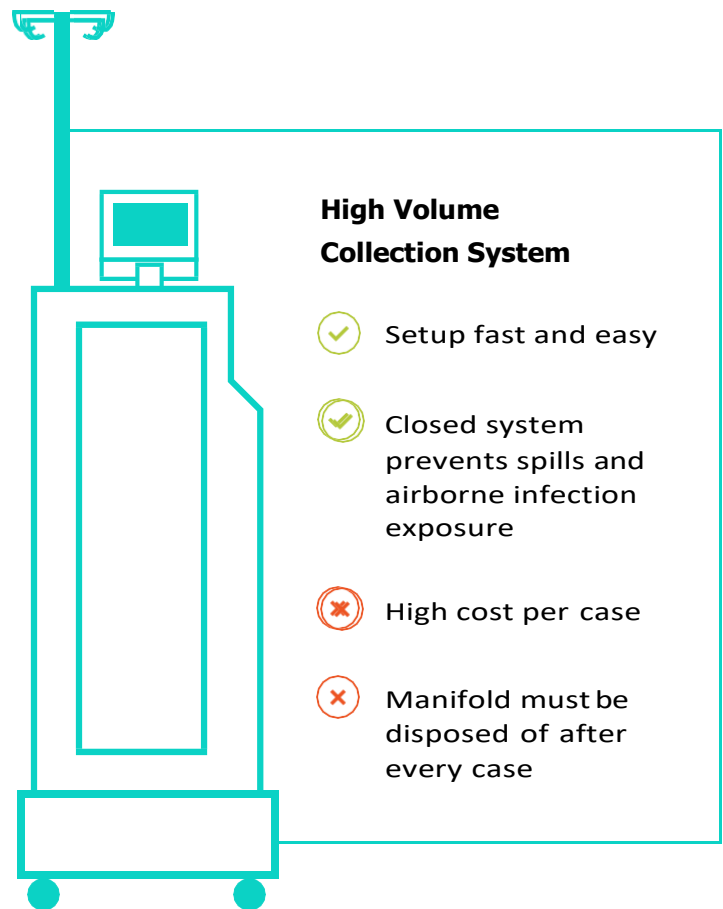
An audit of collection methodology for low and medium volume cases generally reveals that the facility is either over utilizing their high volume fluid waste management system or relying on a traditional canister system that is in need of several modern updates.

## Reviewing and Analyzing Current Surgical Fluid Volume Collection and Disposal Methodology

Many healthcare facilities choose to utilize high volume fluid collection and disposal systems, even for low volume cases, because they are fast to set-up and offer a closed system for disposing surgical fluid waste that reduces staff exposure to infection. These high volume systems can create safe and efficient workflows for healthcare facility staff.

While staff safety should certainly be a priority, the financial burden of these systems is significant. The cost of the manifold needed for every case is \$20 or more, which adds up quickly when facilities are performing many procedures every day. Disposal of these manifolds is both costly and wasteful.

If a facility does not have a closed-system for smaller volume cases, the additional financial cost may be worth added safety, but with a closed system for low volume cases in place, facilities can save significant time and money per case.



## The Shortfalls in Traditional Canister Collection and Disposal Systems

Many healthcare facility leaders are unaware of how antiquated and potentially dangerous their current protocols for disposing of surgical fluid from canister cases are. Especially for low volume cases, healthcare facilities have historically utilized disposable canisters that are costly and can lead to increased risk of staff infection.

From setup through to disposal, traditional canister systems are over-due for an update on best practices that inform better efficiency, safety, and cost for healthcare facilities.

### Fluid Collection

When utilizing a traditional canister set-up, canisters have to be removed and replaced after every procedure. This requires that OR teams take apart and re-setup the suction system before each new case. This process is filled with repetitive steps that contributes to slower room turnover times.

Besides adverse effect on the OR turnover time, the process also introduces more opportunity for set-up mistakes that can lead to canister failure. Presently, most canister caps are built with multiple connections which create unnecessary problems for healthcare facility staff. When connecting caps to the vacuum line, confusing attachments can lead to costly and dangerous errors.

The financial impact of a canister falling and opening or being incorrectly connected can run between \$11,160 and \$29,760 per incident, depending on the length of OR downtime. Additionally, healthcare facilities may need to purchase vacuum system cleaning services that can cost another \$3,000 to \$10,000 per incident.

<p><b>3</b> hour shutdown costs <b>\$11,160*</b></p>	<p><b>8</b> hour shutdown costs <b>\$29,760*</b></p>
<p><b>Average OR cost per minute = \$62*</b></p>	



**Cost for vacuum system cleaning services: \$3,000-\$10,000 (per OR / per incident)\*\***

Service required after a product failure when collected medical fluid enters the vacuum system and contaminates the internal vacuum system lines.

\*Based on industry data, case studies and market research.  
 Macario, A. "What does one minute of operating room time cost?" J. Clinic Anesth. 2010, 22, 233-236  
 \*\*Di Marco, Jason. (2015, September 3). 5 Steps to Restore Your Medical Vacuum System.

## Fluid Disposal

The most eye opening factor in reviewing traditional canister case methodology is the disposal. Facility leadership is often shocked when witnessing the most common method of disposing of surgical fluid from a low and medium volume cases.

This method requires staff to open the filled canister and pour the fluid waste into the hopper in the decontamination area. This process unnecessarily exposes staff to splashing and bloodborne pathogens such as Hepatitis C and HIV. Not to mention, it is disgusting and can contribute to decreased staff satisfaction.

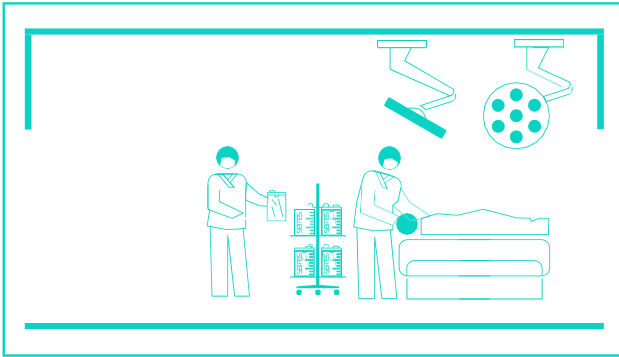
Disposing as red bag waste improves safety but increases cost. Healthcare facilities can generate up to 25 pounds of waste per patient per day. With the stringent regulations surrounding the disposal of medical waste, costs can be extremely high. According to most estimates, red bag waste costs 10-15x more than standard waste.

**Traditional Canister System**

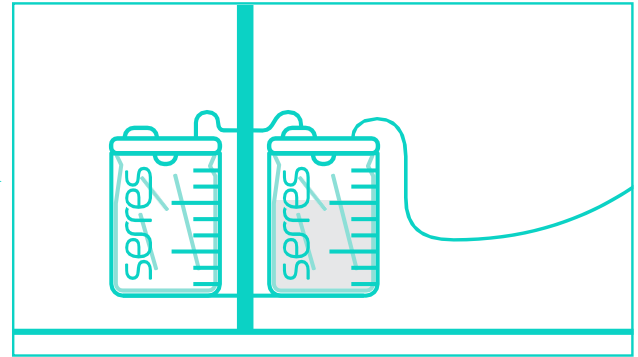
<ul style="list-style-type: none"> <li><span style="color: red;">✗</span> Slow setup for each case</li> <li><span style="color: green;">✓</span> Takes up less space in OR</li> <li><span style="color: red;">✗</span> Multiple connection ports increase risk of spills</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: red;">✗</span> Open system exposes staff and patients to airborne infection</li> <li><span style="color: orange;">!</span> Medium cost per case</li> <li><span style="color: red;">✗</span> High amount of disposables per case</li> </ul>
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## New Best Practices for Low and Medium Volume Cases

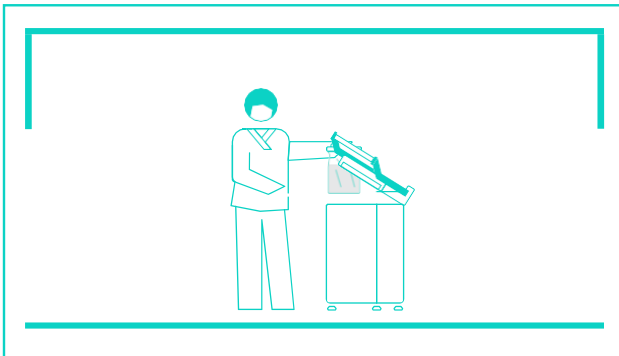
Fluid waste and disposal solutions from Serres mimic the easy set-up and safety of a high volume closed system, and the reduced waste footprint of a canister system, while adding additional cost effective and sustainable attributes.



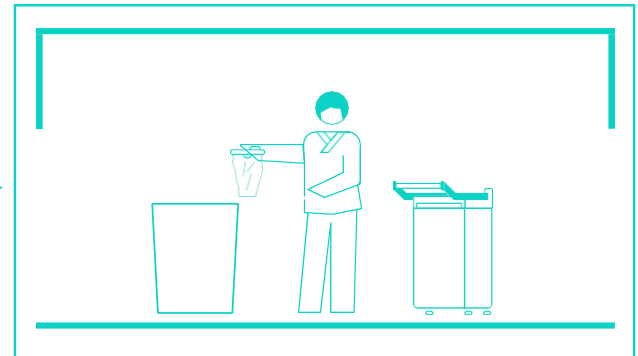
Suction bag with pre-attached lid is inserted into canister tree with the vacuum line permanently attached.



At end of procedure, lid is capped and sealed bag is removed for disposal in decontamination room.



Full bag is inserted into the Serres Nemo waste evacuator.



After a 20 second run time, the bag and lid can be disposed of.

 To learn more about the benefits of the Serres workflow, [click here](#) to watch a short video of our solution in action.

### Fluid Collection

The modernization of fluid waste collection and disposal has led to the introduction of suction bags which serve as canister liners. This revolutionizes the traditional canister set-up, as the suction bags are the only part that touches the fluid, allowing the canister to be installed and connected to vacuum line without needing to remove it again before or after each surgery.

Serres helps hospitals decrease their environmental impact through smart design, manufacturing, transportation, storage and disposal. The Serres suction bags are smart by design using much less plastics compared to other solutions in the market. Less plastics means lighter products creating space and cost savings in transportation, storage and disposal.

At the end of procedure, rather than dismantling the entire canister set-up, utilizing Serres suction bags allows for an easier and more efficient workflow. Staff can simply remove the plugged suction bag that lines the canister to prepare for disposal.

Serres suction bags utilize a single connection port, which simplifies the set-up process and removes opportunity for human error. This allows procedures to begin quickly with the confidence that a misconnection is virtually impossible, reducing mistakes that lead to dangerous spills and leaks.

A serial connection system allows suction capacity to expand to 36 liters. While this setup is best for low and medium volume cases, it can expand for larger volume cases.

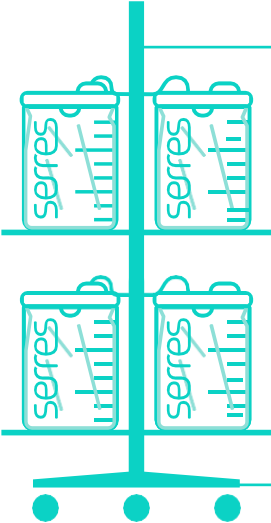
## Fluid Disposal

After the suction bag is removed from the canister set-up, the fluid waste disposal workflow is simple for facility staff. The suction bag should be taken to the decontamination room, where instead of opening and pouring the canister contents into the hopper, Serres has introduced a safer solution.

The sealed Serres Suction Bag can be placed into fluid waste disposal equipment, called the Serres Nemo, and an automated 20 second cycle is run. During the short cycle, all of the waste is flushed from the suction bag directly into the sewer.

At the end of cycle, the empty suction bag can be removed and disposed of in accordance with hospital-specific instructions.

By disposing fluid waste on-site with the Serres Nemo, hospitals generate significantly less red bag waste. Less waste on the road means lower CO2 emissions from transportation and incineration, supporting hospitals bring down their environmental impact.



**Serres System**

- ✓ Fast setup
- ✓ Low cost per case
- ✓ One connection port reduces risk of misconnection
- ✓ Closed system prevents airborne infection exposure
- ✓ Lighter disposables
- ✓ PVC free
- ✓ Uses less plastic

## Conclusion

As facilities look for new ways to improve OR efficiency, improve patient outcomes, and lower costs they should start with an audit of their surgical fluid collection and disposal system. Utilizing the right system for the right case will improve workflows, staff and patient safety, lower the cost-per-case, and contribute to a greener work environment.

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Visit us at **serres.us**  
to learn how you  
can improve the  
efficiency and safety  
of your surgical fluid  
management system.

[serres@serres.us](mailto:serres@serres.us)

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