

SURGICAL PRODUCTS®

The No. 1 requested brand for surgeons, OR managers, and purchasers for more than 30 years.

FOCUS ON: Sterile Processing

Sterile Wraps Vs. Containers

Are containers more efficient and cost-effective than a single-use sterile wrap for surgical instrument sets? Accurately answering that question has major implications for SPDs.

In today's healthcare environment, it's a business imperative to identify ways to save money and boost productivity – without compromising quality. At St. John Providence Hospital in Southfield, Michigan, we set out to do just that by challenging a longstanding and widely held assumption – an “urban legend,” if you will – that containers are a more efficient and cost-effective solution than single-use sterile wrap for surgical instrument sets. What we learned has implications for sterile processing departments (SPDs) everywhere.



Randell Sprouse
Sterile Processing
Technician,
St. John Providence
Health System

in high-volume departments like the facility where I previously worked – continued to be a challenge.

What We Did

Using Lean Six Sigma methodology, we decided to prove – or disprove – these assumptions by conducting head-to-head trials timing the completion of the same instrument set in a container and a wrap:

- Both instrument sets were complete and ready for packaging
- Container packaging involved placing the set in the container, adding filters to the lid, locking the lid to the base, inserting two arrows to lock the set, and adding a data card and barcode label
- Wrapper packaging involved placing sterilization wrap on the table, placing two towels under the set, wrapping the set, taping the set, and placing two barcode stickers on the set

The trials were performed by staff doing their regular jobs, and I timed them with a stopwatch. We conducted 70 time trials, found the mean for wrap and containers and, taking the difference in mean, extrapolated the outcomes for a facility that processed 300, 600, or 900 sets per day. We also analyzed the time involved in the container decontamination process.

What We Found

Our analysis of container versus sterile wrap demonstrated that using sterile wrap is the faster process, with a 14-second difference between the means of each method (mean for containers was 68.286 seconds vs. 54.386 seconds for sterile wrap).

The Challenge

In my 30 years of working in hospital sterile processing departments, there has always been a problem meeting operating room set demand with containers. Intuitively, I felt containers slowed us down, and my hypothesis was that it takes less time to package an instrument set in sterile wrap than in a container. I also believed that containers added unnecessary non-value-added time to the processing area, and that unnecessary time was spent in the decontamination area breaking down containers to rewash them for future use.

Yet assumptions among staff and administration persisted:

- It's faster to process a set into a container
- Containers increase set through-put
- Containers cost less in the long run since they can be used multiple times
- Containers are the best solution to holes and, therefore, a safer packaging method

These assumptions continued to drive purchasing decisions and SPD operations. As a result, meeting set demand – especially

Containers per Day x Difference in Mean = Savings in Seconds:			
Containers Processed/Day	Savings in Seconds/Day	Savings in Minutes/Day	Savings in Minutes/Month
300	4,200 seconds	70 minutes	1,400 minutes
600	8,400 seconds	140 minutes	2,800 minutes
900	12,600 seconds	210 minutes	4,200 minutes

We also timed the breakdown of containers in the decontamination area, a process that entails receiving the container, remov-

ing the data card, removing two arrows, two filters and the bar code label, and racking the container for cart washing. The mean time to complete container breakdown was 30 seconds.

Decontamination Area Labor Savings by Switching from Containers to Wrap:			
Containers Processed/Day	Savings in Seconds/Day	Savings in Minutes/Day	Savings/Month
300	9,000 seconds	150 minutes	3,000 minutes
600	18,000 seconds	300 minutes	6,000 minutes
900	27,000 seconds	450 minutes	9,000 minutes

When you combine container disposables costs (\$1.33) with labor costs (\$.26), the total cost per container was \$1.59. When you multiply the savings in minutes per day by the total cost per container, you get the total cost savings an SPD could achieve by eliminating containers and the required decontamination process, based on container volume:

Containers Processed/Day	Savings in Minutes/Day	Cost Savings/Day	Savings/Month
300	150 minutes	\$238.50	\$ 4,770.00
600	300 minutes	\$477.00	\$ 9,540.00
900	450 minutes	\$715.50	\$14,310.00



Conclusions

Our analysis effectively “busted” the long-held assumptions about containers:

- Based on real-world testing, it’s not faster to process a surgical instrument set into a container. We found a difference of 14 seconds and that didn’t include the container gasket inspection required by the vendor, which would have made the time difference even greater.
- Set throughput does not increase with container usage; on the contrary, it decreases. Plus, in the decontamination area, work on containers adds up to 450 non-value-added minutes of labor a day – a huge drain on productivity. And after containers come out of the cart wash there are additional labor costs associated with making them ready for the processing area.
- Containers do not cost a facility less in the long run. Based on our analysis, it can be quite expensive to use containers due not only to the disposables cost but also the labor required in the decontamination area to render the containers re-usable. Plus, as containers age, repair costs increase.
- Containers are not the best solution to holes in sterile wrap. Rather, they’re one of the most expensive. Holes in sterile wrap are most often due to improper handling, use of incorrect wrap-per weight, inner pans with feet, and square corners. A relatively low-cost solution is proper staff training, including placement of towels under pans.
- Containers are not the de facto safer packaging method. There are well-documented issues around gasket and latch failure that visual inspection can fail to detect. This was clearly proven in the “Dunkelberg study,” which demonstrated that visual inspection is no guarantee against sterility failure and that whole container barrier integrity should be tested annually using a varying pressure bacterial aerosol challenge. Containers can fail even a simple water test in which the container is filled one third with water and latched/sealed per vendor instructions (the container is then tilted to observe any gasket/latch failures).

Based on these findings, our SPD is transitioning to becoming 100 percent container-free. Our output has increased, and we have realized measurable savings on supply costs alone. Notably, before making the switch, we did a one-month test of eliminating containers and using sterile wrap, and saw a 20-point increase in productivity. From my perspective as a Lean Sigma Six Black Belt, that was significant. From my perspective as a department manager with bottom-line responsibilities, it was all the proof I needed.

If other SPD managers are challenged to meet their facilities’ demand for set output, I encourage them to take a look at their container use. In today’s do-more-with-less environment, switching to sterile wrap may help them achieve similar labor and supply efficiencies in their organizations. And isn’t that just what the doctor ordered? **SP**