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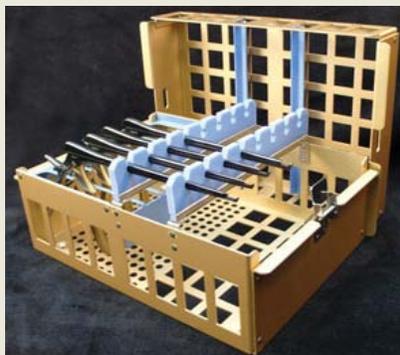
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CS Connection

SPD not boxed in by instrument storage, container products

by Kara Nadeau Della Vecchia

Properly organizing, processing, packaging and inventorying medical/surgical devices are key to running an efficient, safe and cost-effective sterile processing department (SPD). When evaluating products in this area, SPD professionals have countless choices and considerations. Do you sterilize/store instruments in wrap or containers? When prepping sets for the operating room, do you organize instruments by weight or order of use? How do you overcome resource and space limitations when working to enhance your SPD operations?



In this month's column, *Healthcare Purchasing News* presents factors SPD departments should take into consideration when evaluating products in this area. We also feature some of the latest innovations that SPDs are using to organize medical/surgical devices and inventory supplies efficiently, as well as process them safely and effectively.

Keeping the bugs out

Michelle Farmer, North America Product Manager, Sterilization, [Kimberly-Clark Health Care](#), reports that her company gathered insights from over 2,000 SPD and OR staff members across the globe when developing its latest sterile wraps to learn what's most important to them when selecting sterile packaging.

According to Farmer, the top priorities (in order of importance) were:

- Maintains integrity throughout all steps of handling
- Contents are free from moisture after the sterilization process
- Packaging that clearly shows when sterility has been compromised
- Can be inspected easily with no extra steps
- Saves time
- Is cost effective to use
- Has the lowest possible environmental impact

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*Sterilization
Wrap from
Cardinal Health*



"Sterility assurance is a critical cornerstone of effective patient care," said Linda McNeilly, Director of Marketing and Product Management, [Cardinal Health](#). "The ever-present challenge of upholding the integrity of the sterilization process has recently been coupled with the challenges of leaner budgets and shrinking staff sizes. This creates a demand for sterilization products that increase efficiency while maintaining the same high standards of infection control."

Sterile wrap and rigid containers both have their pros and cons in maintaining instrument sterility. While sterile wraps can be prone to tears, nicks and holes, the latest generation of wraps feature designs that make it easier for SPD and OR professionals to identify breaches. As for containers, the rigid metal or plastic construction provides an excellent barrier to microbes but those that are not properly cleaned or maintained pose a risk for contamination (see sidebar).

So is sterile wrap or a rigid container the better solution?

According to Tom Stang, CRCST, CHL, Clinical and Education Manager for [Key Surgical](#), it often comes down to personal preference.

"Just like many things in the sterile processing world, much of it comes down to healthcare facilities' individual preferences," said Stang. "While in the past five years there has been more of a movement toward rigid containers, there is still however a need for wrap. Often facilities will use containers for bigger, heavier sets and then wrap the smaller, lighter trays."



Key Surgical Mesh Trays are available in a wide variety of shapes and sizes.

Stang notes that regardless of which option they choose, healthcare facilities must have a solid policy in place that dictates how trays will be assembled, sealed, stored and protected to prevent against contamination.

Compatibility with sterilization cycles

When choosing packaging for medical devices, a SPD professional must also evaluate for which sterilization methods the packaging has been approved. First look to the manufacturers' instructions for use (IFU) to determine which methods have been validated with the device, and then choose a packaging product that has been FDA 510 (k) cleared for that specific type of sterilization.

"Facilities often have a variety of sterilizers in place — for steam and low temperature modalities, such as - gravity displacement steam, pre-vacuum steam, immediate use sterilization (IUS), STERRAD, Steris V-PRO, Eto - so they should consider a container system that's universal, and DIN sized to accommodate 'loaners' otherwise they will have to purchase separate containers for each method," said Marcia Frieze, MS, CEO of [Case Medical Inc.](#)

Ed Nuber, Senior Project Manager in Marketing for Sterile Technology at Aesculap Inc., notes how the use of multiple sterilization packaging methods necessitates additional SPD staff education and complicates processes.

"I've seen facilities where they use wrap for most of their instruments and then use containers only for immediate use steam sterilization," said Nuber. "In these cases, the staff has to learn two different systems. When selecting a rigid container system, I urge facilities to choose one that is compatible with a variety of sterilization modalities. This lends some simplicity to sterilization, which overall is a complex and labor intensive process."

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Chris Toth, Product Manager, [V. Mueller, CareFusion](#), notes that as the design of the instruments themselves evolve, and SPD departments are required to process more complex and intricate devices, container systems must evolve as well to accommodate various modes of sterilization.

"With the continued release of more progressive instrumentation, unable to withstand the high temperatures of steam sterilization, SPDs will continue to require containment options compatible with lower temperature sterilization modalities," said Toth.

Wet packs

A major challenge with steam sterilization is the incidence of wet packs — packaged instruments that are wet even after sterilization is complete and dry times have elapsed. In its Guideline for Disinfection and Sterilization in Healthcare Facilities, the Centers for Disease Control and Prevention (CDC) describes some of the factors that contribute to wet packs, including heavy metal mass, the density of the wraps and the design of the set.¹

The Association for the Advancement of Medical Instrumentation (AAMI) recently issued an amendment to its ST79 Landmark Recommended Practice for Hospital Steam Sterilization and held a webinar related to this amendment that explored issues with wet packs, identification of wet packs, and troubleshooting activities to eliminate or avoid wet packs.²

With wet packs identified as a factor that increases the chance for microbial growth — and instrument contamination — SPD departments should seek out packaging that promotes efficient drying.

"Occasionally the size and density of metal rigid containers necessitate the need for additional dry times," said Stang. "But typically metal containers dry quicker than plastic containers because metal retains heat better than plastic and that heat accelerates the drying process.

Maintenance and cleaning

Unlike disposable sterile wrap, which is used once and discarded, rigid containers require regular cleaning, rinsing and drying after each use. Frieze questions the practice of wiping down containers with disinfectant as an alternative to thoroughly cleaning them with detergent and water, whether it is cleaned manually or through an automated washer. Some facilities are now using enzymatic wipes for manual cleaning in lieu of disinfecting wipes, but she still stresses the importance of rinsing and drying containers as you would with any medical device.

"Many in the industry have underestimated the importance of cleaning because they've been so focused on sterilization," said Frieze. "That goes for the instruments themselves as well as the containers and case carts. Wiping down these surfaces with a germicide only smears bioburden from one side to another. To facilitate effective sterilization, equipment must first be properly cleaned, adequately rinsed and thoroughly dried."

She points out the difference that the materials of construction can make to the integrity and durability of rigid containers. For example, rigid reusable containers should be constructed of corrosion resistant material, such as anodized aluminum alloy, to withstand the rigors of cleaning and the effects of sterilants on the device surface. She adds that only pH neutral detergents should be used, since alkaline detergents will destroy the outer anodized layer, making the container prone to corrosion.

In regards to case cart materials, Frieze recommends carts be constructed completely of metal, specifically stainless steel for durability. She notes that case carts with stainless steel casters are better able to bear the weight of a fully loaded cart compared with those made of plastic.

"Case carts constructed completely of stainless steel with no plastic parts are not only more durable but also easier to clean," said Frieze. "You also want to ensure that the cart has a lock on at least one wheel to prevent it from rolling and good latches to keep doors closed and contents secured."

Storage, space and disposal

In many cases, *Healthmark's TEARGUARD provides a solid plastic barrier from the sharp edges and bumps of wire shelving*



healthcare facilities have modernized and expanded their surgical suites over the years but have not enlarged and updated their SPD departments accordingly. As a result, SPD departments

typically struggle with finding the space to adequately store supplies so they are well-organized and easy to access. Matthew Smith, Marketing Manager at [Healthmark Industries](#), provided his suggestions on how healthcare facilities can better store and manage their supplies, even when they are experiencing space constraints.

"Saving space and time are very important when storing supplies in medical facilities," said Smith. "Some of the most efficient storage bins provide a way for contents to be easily accessible and easily identified through large open fronts. Space should be maximized by stacking bins on one another. This will help effectively decrease the amount of wasted storage space.

"When choosing your storage bins, you should find a selection that allows you to slide in your own labels into large label slots. This will help you and your staff members become more organized. Other options to keep your supplies in proper order are different colors and accessories like dividers, louvered panels and bin rails for wall-mounted storage."

The right fit

One of the main arguments for the use of sterile wrap over rigid containers is that wrapped trays take up less space.

"Real estate within the hospital is hard to come by," said Shaun Sweeney, Vice President of Sales at Cygnus Medical.



"Closed container systems are sometimes impractical in terms of storage space and (staff) may not find the real estate they need. Wraps on the other hand are more space efficient but can be compromised with rips and tears. Protecting the outer surface of the wrap can offer greater protection and higher percentage of problem free trays while preserving valuable real estate."

For those SPDs that want to use rigid containers, but are concerned about space constraints, Nuber recommends they first take a step back and optimize their instrument sets.

"Start on the right foot and really think about the instruments you really need and try to standardize them so that you are not making one specific tray for Dr. Smith and a different tray for Dr. Jones when both could be using the same basic set," said Nuber. "If you can reduce the number of sets, you can even put two baskets in one container to minimize the required storage space."

When choosing a container system, Nuber recommends facilities select the vendor that has the widest select of container sizes, enabling them to containerize all of their needs. This includes a wide array of footprints and sizes, such as full size, three-quarter size and half size containers as well as mini, quarter, wide body, extra long and "scope containers."

Frieze notes size

Case Medical's rigid containers within a closed stainless steel case cart



considerations apply to case carts as well as the packaging. She recalls that when Case Medical first began exploring the manufacture of case carts, the standard carts on the market were not deep enough to house a full-sized container. For closed carts, users often could not close the doors because the containers were too large. When evaluating cart vendors, she recommends facilities carefully assess whether the carts are large enough to house their container systems. She adds that facilities performing a high volume of bariatric procedures may also need specially designed bariatric-sized case carts to accommodate the long instruments used in those procedures and the containers that house them.

Tray and container organization

According to Toth, there are a variety of products on the market today designed to make instrument organization easier for SPD staff, including colored lids, identification and basket tags and container accessories.

"CareFusion recently added colored lids to its offering for use with the Genesis rigid sterilization container system. Lids are now offered in gold, purple, blue, green, red and black. The wide range of colors can help the customer easily identify sets and specialty-specific instrumentation trays," said Toth.



CareFusion's half-, mid- and full-length 5-in deep Genesis containers with colored lids

Frieze points out that organization doesn't just involve the arrangement and identification of wrapped sets and/or container systems in storage but also the organization of the instruments within the trays and containers to secure them during transport, protect them from damage and facilitate efficiency in the OR. She urges facilities to choose a vendor that offers multi-level tray systems and inserts. As a general rule of thumb, Frieze suggests that lighter, more delicate instruments should be secured on top levels and heavier, more durable instruments on lower levels of a multi-level tray system.

"In general I like separating heavy from light but some facilities prefer instruments organized by order of use," said Frieze. "Either way, we can provide a visual representation of where the instruments should be placed, such as a digital photo of a properly assembled tray or container, to assist SPD staff when preparing instruments for a case."

Environmental impact

In recent years, the amount of waste that a healthcare facility generates has become an issue of increasing importance as the healthcare industry strives to decrease its environmental impact and the costs associated with discarding waste. While facilities have multiple waste streams — from paper materials to food waste — the waste generated by the SPD and OR is not insignificant. For example, the Nightingale Institute estimates that 19 percent of the waste stream generated by surgical services is blue sterile wrap.³ This statistic demonstrates how the product choices made in SPD can have a significant impact on a facility's carbon footprint.

Although sterile wrap often gets a "bad wrap" when a facility is evaluating its waste stream, Farmer points out that environmental impact isn't just about what's in the trash can.

"When talking about going green, everyone always looks at what's been thrown away but there are many other aspects to it — you've got to look at the full picture,"

*Kimberly-Clark
Health Care's
Kimguard
Smart-Fold
sterilization
wrap*



"Although containers may seem like a greener option on the surface, they are very resource intensive. Facilities use gallons of water to clean containers each time they are used. Then you

have the energy required to run the washers and the detergents used — all of that has an impact on the environment. With wrap, you purchase one and some tape and you're done."

To minimize the waste stream from sterile wrap, Farmer suggests that facilities look into step-by-step recycling programs. She notes how Kimberly-Clark offers the Blue ReNew program, assisting customers with implementing a recycling program for both sterile wrap and uncontaminated outer wrappers of surgical gowns and drapes.

SPD staff considerations

Because SPD staff face complexity in all aspects of organizing, processing, packaging and inventorying medical/surgical devices, they should choose vendors that can offer products and resources to make their jobs easier.

"When you are looking at a vendor, you should first consider whether the products you are evaluating are a core competency for them or just a side product line," said Nuber. "It's important to know whether their sales force really understands the products they are selling and can help you pick the right ones to meet your needs, rather than trying to sell a SKU number they know nothing about."

Safety is another key consideration when choosing products for the SPD. When choosing a container system, a facility should evaluate container design to determine if it is easy and safe for SPD staff to handle. While ANSI/AAMI ST79:2006 states the maximum weight of instrument containment devices (including the instruments, trays, wraps, inserts) should not exceed 25 pounds, that is still a heavy load for a staff member to lift and transport.

"Having an ergonomically designed container where your hand centers naturally on the handle makes it easier for staff to carry one or multiple, stacked containers and cuts down on finger injuries," said Nuber. "While a cut knuckle doesn't seem like a major issue, it's not just the injury itself that a facility must take into consideration but the downtime that occurs when a staff member must stop what he/she is doing to clean, care for and bandage a finger. All of that time adds up." **HPN**

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