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LEARNING OBJECTIVES

1. List considerations when evaluating disposable products
2. Identify common reasons for disposable usage

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When Is Disposable the Right Choice for SPD?

by Angela Ritchey

Which is cheaper, disposable or reusable medical items? The complexity of this question catches many off-guard. At first glance, disposable devices cost more but then you add in reprocessing costs and disposable looks better. Suddenly someone mentions the cost to throw away a biohazard item and the scale tips to reusable. Infection prevention chimes in with surgical site infections and the scale tips again. Then someone mentions “carbon footprint” and the discussion keeps going. These discussions leave sterile processing departments asking themselves “when is disposable the right choice?”

What is disposable?

There are a few definitions worth noting before reviewing why a facility may choose to use disposable products. The terms “disposable,” “single use,” and “consumable” are often used interchangeably, but there are a couple of distinctions.

Disposable is an item which is used once or a limited number of times before discarding.

Single use refers to an item that is used once and then discarded. It is a subset of disposable items.

Consumable refers to an item’s purchase category. Consumables are commodities

intended to be used and replaced. Bottles of cleaning chemistries and boxes of shoe covers are both consumables.

Single-use devices are disposable, and disposable products are consumable. Just as in geometry where all squares are rectangles but not all rectangles are squares, single-use devices and disposable products are always a consumable, but not all consumable products are disposed of after a single use. When assessing the choice of disposable, a clear understanding of use is needed.

Defining use

The exact meaning of “single use” varies based on the product manufacturer’s written instructions for use (IFU) and the facility’s policies. They fall into one of three categories: single-event use, limited reuse, and timed reuse. Single-event use means that once an identified event has occurred, the item cannot be used again. Peel pouches, chemical and biological indicators, and tip protectors come to mind. Once the sterilization cycle is complete, they cannot be sterilized a second time.

Limited reuse lists the number of times that an item may be used before disposal. This can be related to an event, such as the number of sterilization cycles, or to the



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item’s use, such as the number of surgeries performed. Another example would be using a disposable brush on a single case cart of instruments, regardless of the quantity of instruments in the case cart.

Timed reuse tracks the time that the item is available for use starting with its first use. For example, disposable flushing aides may have tubing that must be replaced after 24-hours. The number of times in which a cycle is started to flow detergent and fresh water through a reusable flexible endoscope, within that 24-hours does not matter.

How to choose between disposable and reusable?

Choosing between disposable and reusable items is a team effort. A team composed of sterile processing professionals, operating room staff, facilities, infection prevention, and materials management should perform an assessment to ensure that the total impact of both choices is understood.

The team reviews the total cost of use, impact on workflow, and impact on infection prevention / patient safety for both types of products. Items to review may include:

- Item cost
- Processing costs
- Repair costs
- Use and expected life
- Inventory storage requirements
- Infection rates / cross-contamination opportunities
- Disposal costs
- Environmental impact

- Impact on department workflow and capacity
- Compliance

In the example below, the disposable brushes that are discarded after each day are compared against the facility’s current reusable brushes. The department has been challenged with documentation of the disinfection process. Based on usage and an incident where a bristle was found within an endoscope, the facility is looking towards single-use brushes. The facility would need to weigh the total costs of single-use brushes against the resolution of the compliance and patient harm incidence that they wish to resolve. Performing a risk assessment is a great way to decide the best course of action.

Common disposables found in instrument processing

Sterile processing departments have many choices of both reusable and disposable options each with specific considerations.

Rigid sterilization container systems are reusable boxes that hold instrumentation. The design requires the use of several disposable components including, filters, data cards, and lock tags. Of these components, a reusable filter is available for many container models. Both reusable and disposable filters may be validated for use with a single rigid container system, meaning they will aid in maintaining a microbial barrier during storage of a sterilized tray.

Single-use disposable filters may have a “use by” date on the original packaging

that refers to the date by which the filter must be used for sterilization. They may also have a post-sterilization shelf life, or a date by which the sterile product must be used or reprocessed. Reusable filters may have the same limitations on use-by dates and shelf life. More comparison considerations include: how many times a reusable filter may be used? How will the uses be measured and monitored? How will the filters be cleaned? And ensuring SP, OR, and any other affected departments are educated on these factors.

Sterilization wrap is a disposable alternative to rigid sterilization container systems that can be made of cotton, polypropylene, cellulose, or a combination of polypropylene and cellulose. Many of the container systems use the same materials for their disposable filters. Several factors should be considered when choosing between reusable wrap, rigid containers systems, and disposable wraps. Not all items can be placed within a container system. Always check the instrument’s instructions for use.

Reusable wraps will wear over time and require replacement. Compliance with reusable wrap inspection can be low. Additionally, studies have shown that is difficult to find pinholes and bear threads that could lead to a sterile barrier breach and contamination.

Disposable polypropylene wraps can be recycled if they are removed from the OR prior to the patient entering the room. Polypropylene/cellulose wraps require more steps before recycling to separate the layers.

An evaluation for a time-related single-use brush that is discarded after 24 hours from first use.

Criteria	Reusable Brush (Current State)	Single Use Brush
Costs	5 brushes a month	5 brushes a day increase brush cost
	Cleaning and disinfection costs	Increased disposal costs
Workflow	Daily disinfection step	Added storage space needed
Compliance	Poor documentation of disinfection	
Environmental Impact	Not recyclable	Increased landfill usage
Infection prevention	Increased potential of biofilm formation	Low to no biofilm formation
	Failure to remove damaged brushes	Little chance of damage brush usage
Patient harm history	Bristle found in endoscope due to damaged brush usage	May resolve future bristle incidences

Surgical towels used to promote moisture-wicking within sets can be a concern due to a lack of instructions for use on the reprocessing of the towel; superheating caused by the towel; and small pieces of lint which may transfer to the tray or instruments, sterile field, or enter the surgical site causing infection. Disposable tray liners can be an alternative. Consider that different tray liner models absorb different volumes of moisture.

Single-use instrumentation

Medical procedures use many disposable medical devices. Foley catheters, surgical scissors, and syringes are a few of the most common. The increase in disposable surgical instrumentation and other medical devices has significantly contributed to an increase in medical waste generated. The practice of single-use medical devices has been called into question, especially considering that reliable, patient-ready reusable instrumentation and accessories can be produced by trained Sterile Processing (SP) technicians.

Under the right conditions, single-use instrumentation could be the right choice. Where clinics, ancillary departments, and dental practices, for instance, do not have quick access to sterile processing services, sterile disposable single-use instrument packs are an option. Using disposable instruments eliminates the need to have decontamination and sterilization services onsite, and eliminates the need to transfer dirty instruments to another location.

Single-use devices give a fall-back when sterile processing departments are unavailable such as weekends, holidays, or temporary closures. Although some point-of-use treatment products can accommodate up to 72 hours of moist contact, storage of treated items creates challenges.

Of course, the primary reason for the use of single-use instrumentation is infection prevention. Moving away from reusable instrumentation that has consistently been involved with surgical site infections or infectious outbreaks can help reduce infection rates.

Preparing for challenges

In recent years, sterile processing departments have had to respond to unique challenges from internal disasters, including poor steam and water quality due to degraded and damaged piping, as well as external natural disasters that have caused flooding, fire, and, of course, the collective response to a global pandemic.

Preparing for internal and external disasters is another challenge SP departments face. Having a plan is necessary for ensuring continuous patient care.

During the planning phase, several factors should be considered including how instruments and devices will be cleaned and sterilized when systems are not operational. Single-use, disposable instrument kits may help meet the need when sterile processing can't run.

During a prolonged disaster, disposable inventories will need to be replenished. As seen through the COVID 19 pandemic, product back orders and supply chain issues could prevent replenishment. Preparing for this possibility means reviewing alternative products that could be used if a backorder or disaster depletes available inventory.

Single-use instrumentation and kits may run out before replenishment can happen. Consider which single-use instrumentation would be needed, and if a reusable alternative could be stocked just for those emergency situations. Work with Supply Chain, or Materials Management, as well as Emergency Management and other departments' stakeholders to develop a plan should disaster strike.

Some questions to ask are:

- How much inventory needs to be on hand?
- Which products currently in use have alternatives and which companies supply them?
- Who is the representative point or contact person for these potential new suppliers, and will they be able to help if the need arises?

Environmental responsibility

As healthcare evolves, facilities are taking action to keep their communities and environments healthier. This includes prioritizing waste management and reducing environmental pollutants produced by the facility. Many healthcare facilities have a team of environmental champions who review facility practices and find alternative products, recycling, and reusing, are options. As noted, many single-use and disposable devices have recyclable components. Check the manufacturer's written IFU and with product representatives for the material composition. Some manufacturers have collection services for their devices. A facility's waste management department and local recycling programs are also good resources for more information about specific items.

Conclusion

The choice of whether to use single-use disposable products is often one left to the facility. The products an SP department chooses should be based on important factors, including process efficiency and a risk assessment. However, there are certain instances where single-use disposable products are the best choice for streamlining processes and preparing for challenges, including internal and external disasters. Preparedness is key. Reviewing department policies, procedures, and products now could be the deciding factor in the Sterile Processing department's ability to respond in an emergency and support patient care. **HPN**

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When Is Disposable the Right Choice for SPD?

Circle the one correct answer:

- Which of the following statements is correct?
 - All consumable products are single use
 - All consumable products are reusable
 - All disposable products are consumable
 - All single-use products are reusable
- When deciding between a single-use, disposable, and reusable product, what factors might be considered?
 - Cost
 - Environmental impact
 - Storage space
 - Recyclability
 - All the above
- Which of the following is *not* how a “use” might be defined in a policy for single-use disposable brushes?
 - Disposal only after brush bristles are frayed
 - Disposal after use on one case
 - Disposal after use during one shift
 - Disposal after use for one day
- What should be evaluated when considering a reusable filter?
 - The number of filters needed
 - The “Use by” and “Post sterilization” dates
 - The material of construction
 - Moisture-absorption capabilities
- Which of the following is a reason to use disposable products in ancillary departments, procedure rooms, and offsite clinics?
 - When soiled instruments cannot be delivered to decontamination in a timely manner
 - When staff do not wish to clean devices
 - When there is adequate equipment, space, education, and staffing for sterile processing activities to occur onsite
 - When disposable products cost more than reusable
- Which of the following is one reason to switch from using surgical towels to line trays to using tray liners?
 - Lint
 - Moisture absorption
 - Superheating
 - All of the above
 - A and B
- Which of the following are *not* disposable products?
 - Rigid containers
 - Polyethylene wraps
 - Foley Catheters
 - Tray liners
- Which question should be considered when preparing for potential disasters?
 - Who are the stakeholders?
 - Who are alternative suppliers?
 - How will the SP department pay their staff?
 - Will the department have warning before the disaster occurs?
- SP should prepare for what potential disasters?
 - Only natural disasters
 - Only construction disasters
 - Any disaster, internal or external, that may impact the ability of the department to render sterilization services
 - Disasters that happen at night
- Who should be consulted for guidance on recyclable materials and practices?
 - Waste management
 - Manufacturer
 - Both a and b
 - None of the above

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