When Providence Sacred Heart Medical Center and Children’s Hospital in Spokane, Washington, decided to tackle waste and inefficiencies in its 4,400 square-foot-case cart and sterile supply room, leaders set modest goals for improvement: increase case picking productivity by 4% and relocate enough items to create 6 carts of space for growth.

Using a Lean methodology called “5S,” a team of staff, managers, and Lean specialists spent 2 days reorganizing their department. The results went beyond initial expectations, increasing productivity by 16% and identifying 14 carts for future growth and expansion.

Sterile supply’s customers include 34 ORs. As a tertiary facility and the only Level 2 trauma center for 280 miles, Providence Sacred Heart completes more than 21,000 procedures annually.

Initial measurements showed the sterile processing department’s (SPD) productivity at 2.5 cases per hour, or 24 minutes per case. With a growing demand for supplies and pressure to do more with fewer resources, the department decided to focus on becoming “Lean” in its operations.

**Flow equals efficiency**

“The walls in the SPD are not made of rubber. They do not stretch, regardless of how much we try to stuff into them,” says Ron Weaks, director of materials management.

“The solution is to make the room more maneuverable by organizing supplies to match the flow. Flow equals efficiency.”

Lean, or “Lean thinking,” has been used in manufacturing for decades but is relatively new to health care. The core idea behind Lean is minimizing waste while maximizing customer value.

With pressure to reduce cost, Providence’s Operational Excellence Department began using Lean tools at the 644-bed hospital in 2009.

In 2010, a value stream map (VSM) was completed on supply chain processes. A VSM is a detailed map of a process that includes the time taken to complete each step, the wait time between steps, and a determination of whether that step is value added or waste. The VSM always looks for waste from the customer’s perspective by asking, “Would my customer be willing to pay for this step or this wait time?”

**Case cart opportunity**
From this work, the case cart space was identified as a key opportunity to remove waste.

The 5 “S’s” are Sort, Set in Order, Shine, Standardize, and Sustain. Providence has added a sixth “S” for Safety.

A typical 5S involves bringing together key staff members for one or more days to overhaul a specific space. The area is emptied, and as each object is removed, it is categorized by whether it should be kept, repurposed, or thrown out. Floors, walls, shelves, and equipment are cleaned, and the team begins planning the layout and organization that best supports their work.

Appropriate par levels, frequency of use, flow of traffic, and room for growth are all considered. The team discusses the plan and must reach consensus before the work continues.

The remainder of the event is focused on placing everything in its new place, labeling shelves and containers, and making sure there are visual cues to help staff maintain the change. These cues (also called kanbans) can be as simple as a photo of the completed space showing the appropriate layout or tape on the floor showing where a cart should be placed.

### 5S benefits

5S has many benefits, including removing frustrations and obstacles, improving communication and employee satisfaction, increasing safety, and improving space utilization—but the most important is employee involvement. By design, a 5S event gives staff the opportunity to provide creative input on how their workspace should be organized.

### Trust the process

“I have participated in many 5S events in our 1.7 million-square-foot complex, and the number one thing I tell each team is to ‘trust the process.’ It works,” notes Tony Hill, materials manager.

“There are significant costs associated with time. Streamlining our operations through 5S measurably reduces that time-cost factor as well as the inventory-cost factor and the potential for errors.”

After the team had identified baseline metrics and determined timing and staffing requirements, the event was scheduled for 2 days over a weekend. This reduced customer impact and allowed more staff to attend. By adjusting staff schedules and using supplemental shifts, the event was completed with no overtime.

### The 5S’s of Lean management

**What is 5S?**

A methodology for organizing, cleaning, developing, and sustaining a productive work environment. 5S creates a visual workspace where abnormal conditions are easily recognizable, supplies are identified, and process standards are visible.

**Sort**

Separate the necessary from the unnecessary—the most critical of the 5S steps. Sorting forces an objective look at all the supplies in the workspace, identifies additional supplies needed, and establishes proper par levels.

**Set in order**

Determine a place for necessary items. Places supplies based on frequency of use, ensures less frequently used items are still accessible, labels bins/cupboards/shelves for quick and easy refilling, and labels equipment and mobile items for easy identification.

**Shine**

Inspect and clean the work area daily. Identifies items and clutter that do not belong, determines supplies that need replacing, cleans surfaces, and communicates standards.

**Standardize**

Set standard rules for Sort, Set in order, and Shine. Establishes scheduled inspections, ensures everyone is trained in the standards and inspection routines, and makes the first 3S’s a habit and part of a daily routine.

**Sustain**

Creates conditions and structures that help sustain a commitment to the 5S system. Trains everyone in 5S, schedules 5S audits, outlines responsibilities, creates accountability, and encourages staff through rewards and recognition.

### 6th S: Safety

Ensures that the first 5S’s support a safe work environment. Obstacles are removed, reaching and lifting are reduced, pathways are kept clear, and broken equipment is quickly identified.

Source: Tonya Dean, Providence Sacred Heart Medical Center.
A total of 19 people participated, the majority of whom were frontline staff. Management provided input, but staff decided how to best utilize the space.

After initial training on how to conduct a 5S, the team broke into 3 groups, and each focused on evaluating the needs of a specific area.

The groups then reported back to the team on their recommendations and agreed upon the plan for the next 2 days. Coming together periodically throughout the day to discuss progress and obstacles ensured good communication and shared decision making.

**Cart by cart**
Cart by cart, every bin was addressed. Items were regrouped by procedure type, expired stock was removed, bin sizes were adjusted, and quantities were modified to match par levels. Similar items prone to picking errors were separated.

Shelves were added or removed to better use the available space, and high-use items were placed in convenient reach. Large and heavy items were removed from upper shelves, and carts were reordered to ensure the best possible flow for staff picking cases.

Vendor items were moved to a dedicated space labeled “vendor row,” and instruments were organized by procedure and spread across more shelves to reduce stacking.

Throughout the process, floors were polished, liners added to shelves to protect supplies from damage, bins cleaned, and old stickers and tape removed.

Finally, all items were color coded by source; relabeled to match their new row, shelf, and bin locations; and their positions were entered into the inventory and billing information systems.

**New space is discovered**
In total, separate par locations were reduced from 9 to 6, 14 carts of space were made available for new stock, space was reserved on every cart for expansion, and the need for overflow carts was eliminated. The newly polished floors were retaped to establish cart boundaries and ensure proper cart placement.
**5S outcomes**

Case cart staff members now pick 3 cases per hour, supply damage is less frequent, and picking errors have been reduced. While the staff was initially hesitant to go through such a dramatic change, they report they are happier with the new space and appreciate the improved flow and access to supplies.

The director of perioperative services, Jo Quetsch, MA, RN, NE-BC, says she is happy with the project’s results.

“I was a little skeptical before I was able to visually inspect the project completion results, but I was immediately impressed with the orderliness of supplies and new naming system for supply location,” she says.

“I was even more excited about applying the 5S concept to the remainder of Sterile Re-processing, because as we grow the business, we will have a growing demand for supplies and instruments.

The core team has gained momentum with other perioperative 5S opportunities. Future plans include a “5S marathon” over holiday downtime to engage more staff and to maximize resources needed for upcoming projects.

**Sustaining gains**

Nine months after the 5S event, efficiency gains have been sustained. Nine of the 14 carts have been used for new supplies, and there is still room for growth. The areas are periodically audited to ensure the gains are sustained and to look for new opportunities to use Lean. Plans are already underway to complete dozens more 5S events throughout materials management and surgical services.

—Tonya Dean, Six Sigma Black Belt, Operational Excellence

—Tony Hill, Materials Manager

Bins before (top) and after 5S (below). Bin sizes were adjusted and quantities modified to match par levels.

—Mary Hamilton,
Sterile Processing and Decontamination Manager
Providence Sacred Heart Medical Center & Children’s Hospital
Spokane, Washington

Team members making this possible include: Jon Gilliland, Teresa Snyder, Anita Cumpton, Corinne Sims, Terry Bichler, Joyce Greear, Scott Labes, Marilyn Carman, Mary Hamilton, Sue Wren, Dale Fitch, Tony Hill, Brent Hoke, Jason Baker, Lee Benson, John Gamalielson, Mike German, Jennifer Offereins, and Tonya Dean.