Kanban: A fresh approach to case cart assembly

Opening a new hospital gave a New York health system an opportunity to take a fresh approach to the OR supply chain. The 483-bed Orange Regional Medical Center, with 12 ORs, opened in 2011, consolidates surgical volume from 2 smaller hospitals. The Orange Regional Medical Center is part of the Greater Hudson Valley Health System (GHVHS), Middletown, New York.

The system faced a familiar OR supply challenge: having needed supplies on hand without tying up money in excess inventory.

One objective—get away from “the blitz mentality” for building case carts. That entailed waiting until the next day’s OR schedule was final and staging a “blitz” to pick all of the next day’s case carts. With 35 to 50 case carts, that created a big demand for labor, generally during the second or third shift, notes Luis Soto, MHA, CMRP, administrator for supply chain for GHVHS.

GHVHS turned to Lean management for a solution, specifically, kanban, which uses standardized work and visual cues to streamline the workflow and reduce waste.

Kanban for case carts
In the new kanban approach, the first 12 case carts for the next day’s schedule are picked the night before and lined up (photo).

As soon as those carts are delivered to the OR, the staff assembles the next 12, the next 12, and so on.

All of the day’s case carts are picked by late morning or early afternoon.

“If they have 30 cases or 60 cases, the same rhythm and productivity level are maintained throughout the day,” Soto says.

Three-stage assembly
Case cart assembly is organized into 3 stages: Pick 1, Pick 2, and Pick 3, “basically like an assembly line,” he says. Carts move from one location to the next until completed.

- Pick 1: The process starts in the sterile processing department (SPD) where the staff adds the instrument trays and any surgical packs to the case carts.
- Pick 2: The carts are moved to the surgical storeroom where the staff picks the soft goods. They remain there until 6 am on the day of surgery.
- Pick 3: The carts are moved to the OR where surgical technologists (STs) take over, picking the items stored in the sterile core.

The day’s first 12 case carts, picked the night before, await delivery to the individual ORs. Staff then pick the next 12 case carts, then the next 12, and so on.
On the day of surgery, the first 12 case carts are placed outside the appropriate ORs. After the case is set up in the OR, the cart is moved back outside the OR door. That serves as a visual trigger. “When a cart is outside the OR, you know the room is in progress,” he says.

What if the schedule changes? Soto says that rarely happens once it is finalized. “But this does require good communication by the schedulers and surgeons’ offices.”

**Collaboration with the OR**
Close partnership with the OR was crucial in designing and executing the new process, Soto stresses.

The OR inventory manager and team, who report to supply chain, are responsible for all of the supplies used in surgery, including implants, custom items, and consignment.

It’s a collaborative process. “Everybody has a stake in making sure the system works,” Soto says.

The OR, SPD, and materials management must work together to make sure:
• preference cards are continuously updated
• the materials management and OR information systems are synched
• the correct supplies are in the right locations for Pick 1, Pick 2, and Pick 3.

OR teams invested time in updating preference cards. The supply chain team made sure all supplies on the preference cards were properly linked in the materials management database.

**Daily meeting**
The OR’s inventory manager meets with the OR staff daily. “It’s like a shift report,” Soto says. “They communicate any issues they have and make sure anything outstanding is resolved.”

Behind the scenes, the supply database is maintained in the information systems, McKesson for materials management and Epic’s Optime for OR documentation.

When a case is picked from the preference card, the items are automatically charged to the patient and decremented from inventory, Soto notes.

Items added during a case are journaled in Optime by the circulating nurse. Items not used are credited back to the patient later.

**Gaining efficiencies**
The case cart kanban system, in place since August 2011, has reduced the need for additional labor on the second shift.

“When we opened, we were short-staffed, but we have gained efficiencies to the point where service levels are high, and we seldom have issues in the OR,” Soto says.

“We can manage by having 1 shift that comes in on a staggered basis and ends by 7 pm.”

With case cart picking finished late morning or early afternoon, the staff has time to order and replenish supplies and work on quality improvement projects.

So far, he says, with consolidation of the hospitals, the inventory value has been reduced from over $4 million to $3.3 million. He forecasts that OR inventory turns will be 6 to 7 in 2012 because of streamlined supply management and a planned shift to a low-unit-of-measure system with the distributor.

Of the case cart kanban system, “I’ve never seen this done before, and it actually
works,” says Soto, whose experience includes more than 20 years in materials management and hospital administration. He particularly credits the facilitation by the system’s director of process excellence, Jeyaprakash Kathiresan, and the staff.

“It takes a tremendous amount of partnering,” Soto adds. “As long as people realize that everyone is a stakeholder and has something valuable to bring, and you work collaboratively, it can be successful.”

—Pat Patterson

Soto credits Emil Layacan, value analysis/systems director; Allison Diuguid, OR supervisor; Maria Quigley, OR director; Eileen Lake, systems analyst; Jonathan Schiller, COO; and Mitch Amado, CFO, as well as the surgical and supply techs for collaboration in the project.

References