A growing surgical volume and too few instrument sets, particularly in orthopedics, was bringing a rising tide of calls from the OR to the central processing department (CPD).

The CPD already knew it had quality issues with its case carts. With the backing of the administration, a performance improvement (PI) team at William Beaumont Hospital in Royal Oak, Mich, identified problems and solutions that have helped mend relations between the OR and CPD. Beaumont’s CPD supports the 36-room main OR, which performs about 38,000 cases a year, or 120 to 150 cases a day.

Susan Nielsen, RN, MSA, CNOR, administrative manager for central services (CS), described the PI project and the difference it made. Nielsen, who wrote her master’s thesis on CS, reports to the OR director.

**Step 1: Get administrative support**

Nielsen emphasizes that before launching a PI project, “you really need the backing of the administration and your leadership. If you don’t have that, you don’t have the availability of resources.”

The PI project was sanctioned by the administration, which provided a management engineer to assist the team. The engineer was helpful in analyzing data and developing reports.

**Step 2: Organize a team**

The team included, in addition to Nielsen, a CPD staff member from each shift, the CPD supervisor, an OR nurse, a data technician, and the management engineer.

“We made sure we included a person from the OR,” she says. “We wanted to accomplish what our customers wanted, not just what we saw as the goal.”

The project began with one service, orthopedics, because it accounted for 30% of the instrument volume.

“We figured that if we could get ortho under control, it would be easy to do the other services,” she says.

Before starting the project, the team went for PI training, which the administration provided.

**Step 3: Gather data**

To prepare for data gathering, the team brainstormed about what they thought the errors might be—wrong or incorrect case carts, case carts missing, instrument sets missing, instruments missing from the sets, and disposable items missing. The team guessed the main problem was that case carts were missing instrument sets because there was not enough inventory. But rather than assuming that, they collected data.

“We designed a simple form the staff in the OR could use to let us know what was wrong with the case carts,” Nielsen says.

The form had check boxes the OR staff would use to indicate what was missing. The form was stapled to the case cart pick list for every orthopedic case. In all, 877 forms were returned over a 3-month period. The forms were collected by an OR nurse and given to a data technician to compile.

**Step 4: Analyze data**

Analyzing the data from the forms, the team was surprised to find the No. 1 problem was not missing instruments but disposable supplies. Disposables accounted for 33% of case cart errors, followed by missing instruments at 25%.

With this finding, “we changed our whole focus,” Nielsen says, deciding to concentrate first on the disposable issue.
Step 5: Analyze the process
Before planning and testing improvements, the team reviewed how case carts were currently assembled. The team did a flowchart of the assembly process plus a fishbone diagram to assess the reasons why disposables on a case cart might be incorrect.

“We found there were variations in how carts were pulled with new people and people who had been here a long time,” Nielsen notes. Among reasons they identified for errors were:
• items in the incorrect bin
• bins incorrectly marked
• incorrect pick lists, for example, with items that should have been deleted that weren’t
• different names for the same item
• no formal right procedure for picking items.

Step 6: Identify and test quick fixes
The team identified and tested easy-to-implement improvements to the process:
• **Checked to make sure terms used on the pick list matched labels on the bins.** Terms constantly change as new products are brought in.
  “We had new people who were trying to pull something that no longer existed in our storeroom,” Nielsen says. Now when a product changes, the materials coordinator automatically changes the bin label and alerts someone to change the pick list.
• **Developed a feedback form for CS technicians.** If a tech is pulling a case and discovers an item is labeled incorrectly, the tech fills out a form to give to the materials coordinator, who makes the labeling change.
• **Introduced an audit process.** In the morning or afternoon, one of the coordinators does a case cart audit.
  “We put little red dots on random pick lists on the case carts,” Nielsen explains. The coordinator takes each cart that has a list with a red dot and reviews the contents in detail. If something is incorrect, she fills out a feedback form, then goes over the form with the employee who picked the cart.
  “She will explain what was wrong and try to find out why. For example, was the item in the wrong bin? Then we try to rectify the process,” Nielsen says.
• **Instituted a grid for the case cart staging area.** With the large volume of case carts pulled for the next day’s surgery—60 or 70—the CPD needed a system to make it easy to find which case cart is for which OR and which case. (For space reasons, the CPD can only send case carts for the next day’s first and second cases to the OR the night before. The rest must be kept in CPD.)
  A grid is outlined on the floor with yellow construction tape and has a square for each cart. There is a white board with a corresponding grid where the staff writes the OR number and surgery time in each square.
  “When you need to find a cart or add something to a cart, it is easy to go to the board and find exactly where it is,” Nielsen says.

  As the process was improved, the team continued to survey the OR staff. Eventually, the rate of incorrect disposables went down to the point that instruments came to the top of the problem list.

Fixes for instruments
Improving the process for missing instruments was more challenging. With a growing volume, the hospital does not have enough instrument sets to supply all case carts for the next day’s cases. To address this problem, the team went through the same PI process.

  Among the fixes:
  • **A “missing list” for instrument sets for the next day’s case carts.** If a tech can’t fill a cart completely because a set isn’t ready, the tech files a “missing list.” Copies are given to techs processing instruments so they know the priorities. Unfortunately, because the list is so long, not even all of the priority sets get done, Nielsen says.
• *A tagging system for instrument sets.* CPD coordinators, who always know what instrument sets are needed, tag sets that will be needed again later that day before they are taken to the decontamination area. The sets are tagged with big red binder clips, which can be purchased in office supply stores. “The tags are easily seen in decontam, and the techs pick those sets to put through first,” Nielsen says. The clip stays on the tray throughout the process.

• *Documenting missing instruments.* Control charts are used to track the number of instrument sets missing from cases each day. “If the number of missing sets stays between the upper and lower control limits, we know we are able to meet the demand. If the number exceeds the upper limit, we look at that day to see why,” Nielsen says.

• *Reassignment of staff.* Technicians are moved around the department to accommodate the workload. For example, in the morning, some staff may be moved from decontamination to the processing area to take care of the priority sets. Also, more cases are pulled later in the day because if they are pulled in the early afternoon, not all of the instruments may be back from the OR, reprocessed, and on the shelf.

The next part of the project will be to decrease the number of errors in each instrument set.

> *Sample forms from Beaumont’s PI project are in the OR Manager Tool Box at www.ormanager.com*