

## Gaining efficiency with instrument tracking

**A**n elevator door opens and a technician in the sterile processing department (SPD) at HealthEast St. Joseph's Hospital pushes a case cart filled with soiled surgical instrument sets into the decontamination room.

Locating bar code labels attached to the side of each set, a technician waves a scanner across the label. The scan enters real-time data into specialized software loaded in a desktop computer where it is time-stamped with the new location and the name of the technician.

In order of the SPD's assembly-line type process, instrument sets are washed, inspected, assembled, and then sterilized. Technicians can view special instructions for handling sets. The information is displayed on computer screens, where technicians can compare instruments listed for the set with the ones in the tray. Technicians note any missing or damaged instruments.

Once wrapped and labeled, the sets are stored until they are needed in the operating room, emergency department, or elsewhere.

To Mike Festa, director of sterile processing with the HealthEast Care System, St Paul, Minn, installing an instrument tracking system (ITS) last year at each of the organization's three hospitals and two surgery centers was a crucial step toward his goal of increasing department productivity and efficiency. Within the year, Festa believes, the ITS also will help him reduce costs, standardize sets, and improve quality.

But to garner the approximate \$200,000 to purchase the software and computer equipment, he had to convince administrators of its worth through a request-for-proposal process.

"Up until a few years ago, SPD was viewed as a basement-level (processing) department not at the forefront of administrators' minds," says Festa. "Now (with the emphasis on cost containment and quality improvement and an ITS) it is seen as an integral part of the hospital."

HealthEast's ITS also had another important effect: improving employee morale. "Employees are excited about using the system," Festa says. "They feel like they are a more important part of the hospital team now."

### Growth predicted

Experts estimate only 5% to 20% of hospitals have installed instrument tracking systems. In interviews with several ITS vendors and hospital users, most predict steady growth and a positive return on investment.

"It will become the standard way of doing things within the hospital in a few years," says Bonnie Court, senior manager of sales and marketing for McGaw Park, Ill-based Cardinal Health's Impress ITS.

But experts say less than 25% of hospitals with instrument tracking systems have implemented all components, including productivity improvement, quality assurance, sterilization monitoring, and staff accountability modules.

"Most people take (installation) slowly," Court says. "It can take six to nine months to get the system up and running and maybe up to a year for full implementation where they are running reports."

Cost savings and quality improvements can accrue through data tracking and process changes, Court says. Impress, for example, provides more than 70 reports.

### Better management decisions

At HealthEast, which uses Sterile Processing Microsystem (SPM) from Materials Management Microsystems, Mequon, Wis, Festa says data generated from the process will enable him to make better management decisions.

"We are in essence a manufacturing process. Without data, we are planning and scheduling based on our perceptions," says Festa. "Data can tell me if I need fewer or more FTEs. We can utilize our employees more effectively, and this can lower our costs and improve quality."

Festa says he eventually wants to track instrument sets to individual patients. "If a patient acquires a nosocomial infection, the data will enable us to consider or rule out the sterile processing element," he says.

There are a variety of tracking systems sold by surgical instrument manufacturers, software companies, and other vendors. (See directory.)

Up-front costs can run between \$30,000 for small hospitals and \$300,000 for larger facilities, according to experts. Initial costs depend on the number of modules and types of scanners, servers, and workstations needed.

But costs of the system can quickly be recovered in increased productivity and instrument inventory savings, says Ed Becker, president of Materials Management Microsystems, which developed SPM in 1991.

"We guarantee hospitals can save money," says Becker. "In a hospital doing 10,000 procedures a year, you can expect to find one-time savings of \$100,000 from improved instrument inventory management."

For example, Becker says reports might show a hospital owns 12 major instrument sets when it only uses nine per day. "You disassemble those sets, each containing perhaps \$3,000 worth of instruments, and you can use them as backups rather than buying new instruments," he says.

William Beaumont Hospital, Royal Oak, Mich, has been using SPM since 2000 to track 3,365 instrument sets, says Susan Nielsen, RN, MSA, CNOR, central service administrator. She says the hospital already has recouped the system's \$84,000 initial cost.

"We used to go up and down the halls looking for instruments," Nielsen says. "I won't say the system has cured our problem of lost instruments, but it has really helped us save time."

### **Standardizing in a system**

Tracking instrument sets is an even more challenging task for Fairview Health System, a seven-hospital health care organization in Minneapolis. In 1994, Fairview became the nation's first health care organization to create a centralized SPD for the system. During the past year, Fairview upgraded its ITS, which was developed by Vertical Systems of Eden Prairie, Minn, to help manage its 1,800 standardized, site-specific and doctor-preferred instrument sets in its eight surgery sites.

"We centrally perform decontamination and assembly for about 70,000 surgical cases per year," says Richard Huntley, director of Fairview's central processing center. In the center, attached to Fairview University Medical Center, 60 SPD staff members process more than 122,000 sets and 1 million line items of individual instruments each year.

"We started out (in 1994) with more than 500 different instrument sets," Huntley says. "Through standardization we dropped that to about 100 sets in two years. We saved about \$1 million a year (in instrument replacement costs) for the first five years. We didn't have to buy instruments because we could track them and manage them better."

Huntley says Fairview also saves on staffing. "Because we know what we need for tomorrow, based on the volumes, we can adjust our staffing," he says.

Aside from cost savings and productivity improvements, Fairview's tracking system has improved the ability of staff to locate instrument sets.

"If someone feels a case cart wasn't shipped to them, the system enables us to look into the computer and show them when it was shipped," Huntley says. "Anyone who has access to a computer can determine the status of an order. We couldn't do that at so many sites without a tracking system."

But the biggest challenge was standardizing instrument sets. "It took about three years and about 40 people working with each surgery specialty to standardize," Huntley says.

### **Tracking individual instruments**

Last year, the Cleveland Clinic, which has used SPM since 1996, began a pilot program to test tracking of individual instruments, says Richard Schule, BS, CST, CRCST, CHMMC, FEL, manager of surgical processing.

With use of technology developed by Key Surgical, Eden Prairie, Minn, InfoDot bar codes were attached to several hundred specialty instruments so they can be tracked.

InfoDots are small, round laser-printed labels that are applied directly to instruments.

"This reduces (theft or misplacement) for these expensive instruments. (It also) offsets the need for some technicians to know all the instruments because you scan the item, a label is printed out, and you don't have to thumb through a book or look at a digital photo to see what it is," Schule says.

While only a small number of hospitals track individual instruments, executives at Key Surgical and Censis Technologies of Franklin, Tenn, predict those numbers will steadily increase. Censis also uses a small, round, two-dimensional bar code known as a CensiDot on each instrument.

These labeling systems are a new alternative to laser etching of instruments, which is more expensive and requires a laser operator to mark instruments.

### **Should you track individual instruments?**

Peter Huck, general manager at Key Surgical, says SPD managers should consider four criteria when deciding if they should track instruments individually:

- Are instruments loaned in or out of the hospital?
- Do they have high-cost instruments?
- Do they want to track instruments for preventive maintenance?
- Do they want individual pictures of the instruments linked with their current software system? Schule says the InfoDot technology is compatible with the clinic's SPM software. InfoDot costs 45 to 60 cents per instrument.

Huck says most software companies are adding modules that allow InfoDot-labeled instruments to be scanned into the system.

Standard instrument tracking systems use a one-dimensional bar code scanner. Reading InfoDot requires a two-dimensional bar code imager (usually two at \$600 to \$800 each).

### **An aid for specialty instruments**

Schule says specialty instruments are located in each of the clinic's 13 services. "If a physician wants one, everybody has to drop what they are doing and look for it," he says. "With bar codes, you go into the history, and the database tells you where to locate it. This can be a difference of 25 minutes multiplied by the number of FTEs looking for the device, and huge savings are achieved."

Moreover, each of the clinic's 9,000 instrument sets is scanned into SPM at six key points in the reprocessing and delivery process. With the clinic's 59 ORs and 36,000 annual procedures a year, Schule says tracking instruments is now a critical part of the surgical process.

### **Reports aid productivity**

SPD technicians can be individually tracked to determine how well they perform their tasks as compared to hospital-specific benchmark times.

"Hospitals can use the productivity reports in the annual employee evaluation process," Becker says. "An average technician should achieve 100% productivity. The best technicians might work at 130% to 140%."

Reports also can help SPD employees identify quality breakdowns.

"The system allows us to print out a list of instruments in the sterilizer. If we have a biological indicator that is positive, we can identify what was in the load," Nielsen says. "If there is a problem with the sterilizer—it didn't meet the parameters for time, pressure—you know that fairly soon, within two hours, and you can take action."

Hospitals also use ITS to reduce loss of surgical instruments, says Becker. "I have heard some hospitals spend \$200,000 to \$300,000 a year to replace lost or damaged instruments."

Cardinal's Court estimates tracking systems can reduce hospital instrument replacement budgets by 20% to 30%. "They are not purchasing instruments they don't need because Impress allows them to track sets and items," she says. "They can use reports to compare sets and start to standardize, which can reduce the number of sets."

### **Looking to the future**

The future of ITS will be through the greater use of wireless personal digital assistants (PDAs) and integrating tracking software with surgical scheduling and billing, says Jon Wood, sales manager with Vertical Systems.

"(Instrument manufacturers) are looking at placing radiofrequency IDs inside specialty instruments," Wood says. "Twenty percent of the industry will go to individualized bar codes in the next two years. Once hospitals start to identify where they are spending money, they will look more closely at centralizing processing." ❖

—Jay Greene

*Jay Greene is a freelance writer in St Paul, Minn.*

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## **Reports from instrument tracking systems**

Gathering data from surgical instrument tracking systems is the key to improving quality, productivity, and reducing costs.

Here are a few types of reports tracking systems can produce:

- **Productivity.** Shows the time it takes for each employee to assemble instrument sets and can be used in employee evaluations and training.
- **Usage.** Can track how many times instruments are used to determine if there are enough instruments to meet demand.
- **Inventory transfer.** Can demonstrate where operational slowdowns occur.
- **Refurbishment.** Shows repair and maintenance schedules.
- **Set comparison.** Can identify sets and help in the effort toward standardization.
- **Sterilization.** Allows staff to track instruments by sterilization load.
- **Inventory management.** Shows contents of each tray, date of last repair, and refurbishment or sharpening. Also shows who processed the set, the length of time it took, and such problems as missing or damaged instruments.

—Jay Greene

*Source: Interviews with ITS officials and company documents.*

## ***Vendors of instrument management technology***

### **Aesculap**

Center Valley, Pa  
Instacount PLUS  
Integrated software solution for instrument management and sterile goods.  
800/282-9000  
www.aesculap-usa.com

### **Cardinal Health**

McGaw Park, Ill  
IMPRESS  
Instrument management software with bar code technology.  
1-800-SCOPE-1-2 (726-7312)  
www.cardinal.com/mps/servicesolution/EMS/ems.asp

### **Censis Technologies**

Franklin, Tenn  
Censitrac System  
Individual-instrument tracking system with CensiDot label technology.  
888/877-3010  
615/468-8002  
www.censis.net

### **Getinge**

Rochester, NY  
T-DOC  
Equipment tracking and asset management system.  
800/475-9040  
www.t-doc.com

### **Jarit**

Hawthorne, NY  
CIMS2  
Automated instrument tray management system.  
800/431-1123  
www.jarit.com

### **Key Surgical Inc**

Eden Prairie, Minn  
InfoDot  
Individual-instrument tracking technology with laser-engraved InfoDot labels.  
800/541-7995  
www.keysurgical.com

### **Lawson Software**

St Paul, Minn  
Apexion Technologies  
Surgical instrument tracking functionality and a scalable mobile platform using Windows CE operating system.  
800/477-1357  
651/767-7000  
www.lawson.com

### **Materials Management Microsystems**

Mequon, Wis  
Sterile Processing Microsystem (SPM)  
Software program for tracking surgical instruments and measuring data using Microsoft Access and Microsoft SQL server version.  
262/240-9900  
www.mmmicrosystems.com

### **Rosebud Solutions**

Ann Arbor, Mich  
Tray Controller  
Automated tracking for surgical trays and other components.  
888/980-8255  
www.rosebudsolutions.com

### **Specialty Medical Systems**

Kansas City, Mo  
ABACUS Instrument Resource Manager  
Bar-code based surgical instrument set tracking system.  
800/945-4767  
www.spmedsys.com

### **Teleflex Medical**

#### **Pilling Surgical**

Research Triangle Park, NC  
TrakkerPRO Bar Code Tracking System  
A system to locate instruments, sets, or equipment during the processing cycle.  
800/732-8302 ext 6646  
www.pillingsurgical.com. Look under Hospital Solutions.

#### **TerraGraphiX Inc**

Carmel, Ind  
Alex Gold Software  
Tracks the location and status of surgical instruments.  
800/732-1070  
www.terragraphix.com

#### **Total Repair Express**

Hillsborough, NJ  
Saphyre Automated Instrument Tracking  
New software includes bar-code tray labeling system, computer-generated count sheets, and individual instrument tracking with InfoDot.  
888/926-8863  
www.epower-inc.com/etek/Saphyre/SaphyreMain.htm  
or  
www.totalrepairexpress.com

#### **Vertical Systems Inc**

Eden Prairie, Minn  
Information Systems Solutions  
Instrument tracking software with radiofrequency handheld scanners with a WAN-based server application and interfaced to surgery schedulers.  
952/934-7533  
www.vertsyst.com

*We have attempted to provide a complete list. If any vendor has been omitted, we apologize.*

## ***Do homework before sending RFP***

Selecting the right instrument tracking system is most effective when a hospital knows what it wants.

A request-for-proposal (RFP) process can help a hospital both understand its own unique requirements and give prospective vendors an opportunity to show how their product differs from the pack.

Vendors say RFPs are becoming increasingly common. But RFPs aren't always carefully prepared or specific enough to allow for a good comparison. In many cases, RFPs are prepared by purchasing departments that don't understand sterile processing.

CS managers noted that some tracking systems don't allow reports to be customized to the specific needs of the hospital.

Jon Wood, sales manager with Vertical Systems, Eden Prairie, Minn, says the type of database is very important to know when purchasing a system.

"You want a (Microsoft SQL) server database," Wood says. "Some companies are pushing Access databases, but that can hamstring hospitals. Access isn't designed for multiusers. You are not able to integrate with billing or scheduling. Enterprise-based systems are much better."

Wood also suggests including in the RFP whether the company has knowledge in wireless networks and handheld devices.

Some other important questions to ask:

- What is the scope of training and support not only during implementation but also before and after?
- How many days are spent in training? Are trainers employed by the company, or are they under contract?
- If a decision is made to discontinue the product, and the vendor owns the hardware, can the hospital keep the database?
- What is the initial system cost? What is the annual maintenance cost?
- Are upgrades free, or under what circumstances do they cost extra?