

# Integrated Automation Helps Reduce Medication Errors



## Three Rivers Community Hospital

Location: Grants Pass, Oregon

Beds: 90

## Rogue Valley Medical Center

Location: Medford, Oregon

Beds: 305

This article explores how two hospitals of the Asante Health System implemented Omnicell™ pharmacy automation systems to discover benefits of improved medication safety and pharmacy efficiency.

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Sonja Nisson, RPh, PharmD, Regional Manager of Pharmacy for Asante Health System

Healthcare in Grants Pass, Oregon, took a giant step forward in June 2001 when Asante Health System opened its new, state-of-the-art healthcare facility, Three Rivers Community Hospital. In this new hospital is some of today's best and most advanced healthcare technology, including Omnicell™ automated pharmacy and supply dispensing and replenishment systems.

“According to the Institute for Safe Medication Practices (ISMP), automated pharmacy systems are one of the best investments a hospital can make in promoting medication safety and efficiency,” noted Sonja Nisson, RPh, PharmD, regional manager of pharmacy for Asante Health System. “And based on the positive experience we've had with Omnicell at our other hospital, we're confident that the newly installed Omnicell System at Three Rivers will play a key role in meeting its clinical and financial objectives.”

### Two Hospitals, Similar Goals

The new 90-bed Three Rivers Community Hospital (TRCH) is one of two acute-care hospitals owned and operated by Asante Health System. The other is its 305-bed Rogue Valley Medical Center (RVMC), located about 30 miles southeast of TRCH, in scenic Medford, Oregon.

While TRCH's newly installed Omnicell automation system has recently garnered most of the attention, Asante's automation experience actually began at RVMC.

“The driver for automation was definitely the new hospital,” recalled Nisson. “But we had issues at RVMC that we felt automation could help solve, so we began our automation journey at RVMC, and then built on that experience at TRCH.”

### Focusing on Pharmacy Automation First

RVMC's main focus was to automate its pharmacy's activities first, since its pharmacy issues were the most acute. Automating its medical supply processes would follow later.

“Our pharmacy automation goals were two-fold,” said Nisson. “First was to streamline the hospital's medication

ordering and dispensing process. Our old system, which was slow, complex, and inefficient, often led to delays in getting a drug to a patient.”

“Our second goal was to effectively redeploy our pharmacists,” added Nisson. “We wanted to get our pharmacists out of the dispensing role and into a more clinical role, where they could have a greater impact on patient care.”

### Selecting an Automation System

RVMC spent most of 1999 deciding which automation system to use. By January 2000, the final decision had been made.

“We started out with five vendors,” recalled Nisson, “and eventually we narrowed it down to two. We finally selected Omnicell because it best met the needs of RVMC—and the upcoming needs of TRCH. Importantly, the Omnicell System could also combine both pharmaceuticals and supplies into one integrated system—a feature other systems didn’t offer.”

### Ramping Up

By February of 2000, RVMC had established its automation implementation teams and set an ambitious goal of “going live” with the Omnicell System by the following September.

“To ensure that installation and implementation of the system went smoothly, we involved everyone who had a stake in the process, including pharmacy, nursing, materials management, information systems, plant operations, and nurse educators,” said Nisson. “Then we made sure that everyone who would use the system was thoroughly trained before the ‘go live’ date.”

### Implementing Automation

“It was a lot of work, but we met our goal of implementing our Omnicell automation system on September 18, 2000,” said Nisson.

Unlike many medical facilities, which often implement such systems in phases, RVMC chose to implement its automation system all at once.

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“We did so primarily because staffing shortages made a phased-in approach impractical, if not impossible, for us,” recalled Nisson.

To coordinate its automation program, RVMC installed a single OmniCenter® server in its pharmacy. This server, which contains a complete database of RVMC’s pharmaceuticals inventory, monitors 24 OmniSupplier® cabinets located throughout the hospital.

“When a physician writes an order for a medication, the order is sent to the pharmacy for review and entry into the pharmacy computer,” explained Nisson. “A nurse then uses the OmniSupplier cabinet’s touch screen to call up the patient’s name and select the needed drug. A green light on one of the cabinet drawers comes on, directing the nurse to the correct medication.”

“Each time a medication is removed from the cabinet, the OmniCenter server records the withdrawal,” added Nisson. “When the OmniSupplier cabinet falls below par, the server automatically generates a fill report in the pharmacy.” Typically, the OmniSupplier cabinets, which contain about 200 to 400 different medications, are refilled twice daily.

### **Staff Responds to Automation**

“Initially some staff members were skeptical about using the new automated system,” recalled Nisson. “Some were concerned about computer-based systems crashing, while others were worried about accessing the cabinets in an emergency or running out of stock. Some just didn’t see the benefits of using an automated system.”

However, after experiencing the Omnicell System first-hand, most were pleasantly surprised.

“Shortly after going live, the system actually went down for a brief period in one of our ICUs,” said Nisson, “so the staff got to see first-hand how the down-time procedures we developed worked—and that they worked well. This alleviated their greatest fear.”

The staff was also able to see the patient care benefits of automation early on.

“Finally, the Omnicell automation system has helped RVMC better monitor and reduce the incidence of ‘near misses’—for example, when one drug with a similar name or dose is inadvertently selected in place of the prescribed drug.”

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“During the first few weeks of automation, three potentially serious medication errors were caught by the Omnicell System. It made a big impression on the staff,” recalled Nisson.

### **Implementing Automation at TRCH**

With RVMC’s Omnicell automation program underway, and with a June 2001 opening date for the new hospital fast approaching, attention quickly turned to installing and stocking the Omnicell System at TRCH. This time, however, the automation system would incorporate both medications and supplies.

To coordinate its automation program, TRCH installed an OmniCenter server in its pharmacy and linked it to an OmniCenter workstation in materials management. The OmniCenter server, which contains an integrated database of TRCH’s pharmaceuticals and medical supplies, communicates directly with 18 OmniSupplier combination (drug and supply) cabinets located throughout TRCH. TRCH’s server is also directly linked to the OmniCenter server in the pharmacy at RVMC.

“The fact that TRCH’s server can communicate directly with RVMC’s server is a key benefit of the system, since TRCH currently doesn’t provide 24-hour pharmacy coverage,” noted Nisson. “With this system, TRCH can utilize RVMC’s pharmacists after hours to review medication orders for patients at TRCH. This helps to significantly reduce the number of drugs dispensed by TRCH’s nursing staff that are not first reviewed by a pharmacist.” Pharmacist review prior to dispensing the first dose is required by JCAHO and endorsed by ISMP.

### **Impact of Automation**

“Since it’s only been a month since the Omnicell automation system has been up and running at TRCH, it’s too soon to determine its impact there,” noted Nisson. “But in the 10 months it’s been used for pharmacy dispensing and replenishment at RVMC, it’s had a significant impact.”

“One of the most notable benefits is that RVMC has been able to eliminate 14 risk points in its drug dispensing process,” said Nisson. “In fact, since installing the Omnicell System, RVMC has seen a precipitous decline in its medication error rate.”

“Another benefit is that RVMC’s pharmacists are no longer tied up with a time-consuming dispensing process since dispensing is now done at the point of care via the Omnicell cabinets. Patients now receive their medications in a more timely fashion, and our pharmacists have more time for clinical activities,” said Nisson.

“Finally,” added Nisson, “the Omnicell automation system has helped RVMC better monitor and reduce the incidence of ‘near misses’—for example, when one drug with a similar name or dose is inadvertently selected in place of the prescribed drug.

“Omnicell’s technology allows you to separate problem drugs from one another,” Nisson explained. “And since the system directs the nurse to the correct drug bin with a green light, and sounds an alarm if the wrong bin is opened, there is less chance for medication misadventures.”

### **Final Thoughts and Recommendations**

“We’re very pleased with what we’ve achieved with automation,” said Nisson. “And now that we have TRCH’s automation system up and running, we will soon be turning our attention to adding patient care supplies to our automation program at RVMC.”

For those contemplating automation within their own institutions, Nisson offers some important advice.

“First and foremost, be sure to involve everyone with a stake in the process. Doing so encourages buy-in from all departments and compliance with the new system.

“Second, be sure to work closely with your nursing staff to determine how the system can best be used in conjunction with their work processes. This is essential in ordering adequate cabinet capacity to serve the needs of the nursing staff.

“Finally, use an implementation scheme that works for you. While many facilities installing automated systems rely on a phased-in approach, our ‘all at once’ approach worked well, too. The people at Omnicell were very helpful, supplying us with the needed support to make our implementation successful from the start. I’d recommend this approach to anyone.”



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