

# Clinical and Financial Benefits of Automation



## Baptist Hospital East

Location: Louisville, Kentucky

Beds: 407

Community Population: 993,369

This article examines how one large hospital, Baptist Hospital East, has successfully implemented automation systems to increase patient charge captures, improve inventory control, reduce medication errors, and enhance patient care.

“It was pretty much a unanimous decision to go with Omnicell. We felt that the Omnicell system offered better functionality.”

Bob Oakley, R.Ph., Director of Pharmacy

Automated pharmacy and supply systems have played a key role in helping many hospitals better manage inventory, track and reduce costs, recapture lost charges, improve efficiency, and enhance patient care. One hospital that recently completed the installation of its automated system and has begun to realize its many clinical and financial benefits is Baptist Hospital East (BHE), a 407-bed, acute care hospital in Louisville, Kentucky.

## Looking to Automation

BHE is one of six member hospitals of the Baptist Health-care System (BHS) in Kentucky.

“Our corporate office, BHS, began looking into pharmacy and supply automation back in 1996,” said Bob Oakley, director of pharmacy at BHE. Oakley led a multidisciplinary, multi-hospital team that evaluated the potential benefits of automation throughout BHS. “Based on our analysis, automation offered a variety of important benefits. On the supply side, it would allow us to better capture patient charges and improve inventory control. On the pharmacy side, it would improve efficiency, allow expansion of floor stock medications, and simplify the management of controlled substances.”

## Choosing Omnicell

The team identified two automated systems that could potentially meet BHS’s needs, one of which was the Omnicell automated pharmacy and supply dispensing system. After completing a detailed analysis of both systems, the team decided to go with Omnicell.

“It was pretty much a unanimous decision to go with Omnicell,” said Oakley. “We felt that the Omnicell system offered better functionality. It also offered combination (pharmacy and supply) cabinets, and the cabinets provided a lot more space for supplies. We also liked the fact that the Omnicell automated pharmacy and supply systems both use the same operating system, so we would only need to code one interface to our ADT, billing, and inventory systems.”

## **Pilot Study Begins**

Once BHS chose to go with the Omnicell System, BHE decided to undertake an internal three-month pilot study to determine its financial and clinical impact on the hospital. It chose two of its most supply-intensive units—the mother-baby unit and the ICU—for the study.

As part of the study, the pharmacy also used the system to establish a cart-less medication distribution process on the mother-baby unit. “Having the majority of routine medications readily available in the Omnicell System improves the timeliness of medication delivery, decreases pharmacy time spent filling new orders, reduces credits, and improves the accuracy and timeliness of patient charges,” said Oakley.

## **Exceeding Expectations**

BHE completed its pilot study in August 1997, and it produced some remarkable results. “Overall, the Omnicell automation system met or exceeded all our expectations,” said Oakley. BHE realized significant reductions in supply utilization and lost pharmacy charges. In addition, the nurses saved a significant amount of time by not having to do end-of-shift narcotic counts, which are done automatically by the Omnicell System.

Because of the positive pilot study results, BHE expanded its automation program throughout the hospital. Between August 1997 and January 1999, Omnicell cabinets were installed in 14 patient care units.

## **A Second Look**

In September 1999, a new director of materials management, Linda Bottorff, arrived at BHE. Bottorff was initially skeptical of the benefits of automated pharmacy and supply dispensing because of her past experience with a different automation system that didn’t live up to her expectations. “But it was hard to ignore the data from the pilot study using the Omnicell System,” Bottorff recalled.

When Bottorff arrived, four patient care areas were still awaiting installation of their Omnicell cabinets: a medical-surgical unit, the orthopedics/neurosurgical unit, the vascular medicine unit, and the emergency department. After spearheading the effort to install these cabinets, Bottorff

“Overall, the Omnicell automation system met or exceeded all our expectations.”

Bob Oakley, R.Ph., Director of Pharmacy

“I’m very pleased with the results of the follow-up study. I’m a firm believer in automation now!”

Linda Bottorff, Director of Materials Management

decided to perform a follow-up cost-benefit analysis to convince herself of the financial benefits of the Omnicell System and to confirm that the data from the pilot study done five years earlier was indeed an accurate reflection of what could be achieved with automation.

Bottorff gathered data over a three-month period. Hard dollar savings (i.e., ongoing savings due to decreased supply consumption) and cost per patient day were analyzed.

Overall the study found that:

- Supply expense dropped by an average of 19.6 percent during the three-month evaluation period.
- Supply cost per patient day dropped by an average of 21.4 percent during the three-month evaluation period.
- After subtracting the amortized cost of the Omnicell supply and pharmacy system, the net supply expense dropped 11.7 percent.
- In the emergency department, a 26.7 percent reduction in on-hand inventory was achieved (pre-Omnicell data was not available to make this calculation for the other three areas).

Additionally, an earlier pharmacy/nursing Omnicell automation study that looked at soft dollar savings (i.e., nursing personnel time saved by the elimination of shift counts) found that the average nursing time saved per day was approximately 53 minutes per unit. Applying this data to the four units studied resulted in an annual savings of \$27,081 per unit.<sup>1</sup> When applied to the hard dollar savings data, the additional \$6,770 per unit in soft dollar savings over the three-month evaluation period increased total net savings to 15.3 percent.

### Realizing the Many Benefits of Automation

“I’m very pleased with the results of the follow-up study. I’m a firm believer in automation now!” Bottorff said.

“A lot of my skepticism about automation was related to the amount of down-time that occurred with a different system I had used in the past,” said Bottorff. “The reports that system generated also weren’t very good. However, with the Omnicell automation system here at BHE, we’ve had no down-time, and it has excellent reporting capabilities. I know exactly what

<sup>1</sup> 53 minutes x 365 days/year = 19,345 minutes/60 minute per hour = 322.4 hours x \$21 per hour = \$6770 savings per unit x 4 units = \$27,081 in annual savings.

supplies are being used on the units and by whom. This helps me better manage inventory and reduce inventory carrying costs. Inventory on-hand is now down to two days from seven," Bottorff said.

The Omnicell System has also allowed BHE to incorporate just-in-time (JIT) inventory management.

"Our Omnicell automation system is interfaced to our HBOC Pathways Materials Management System, which is tied in directly to Allegiance, our primary supplier. Orders from the HBOC system are sent to Allegiance by 1:00 p.m., and supplies are delivered by Allegiance by 8:00 p.m.," said Bottorff.

The Omnicell automation system has provided important benefits to BHE's pharmacy as well. Oakley noted that BHE's pharmacists are now less involved with the time-consuming dispensing process since narcotic and floor stock medication 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 other clinical activities," Oakley said. "In fact, over the past four years, our pharmacy's workload has increased 40 percent, yet we haven't had to add any staff. No doubt the Omnicell System has played an important role in helping us keep up."

Pam Kayrouz, RN, director of nursing at BHE, has noted similar gains in nursing efficiency since installing the Omnicell System. "Probably the most important benefit for our nurses is that they no longer have to do end-of-shift narcotic counts since the Omnicell System does it automatically. It's been a real time-saver," Kayrouz said.

"The automated cabinets have also allowed us to expand our selection of floor medications. This has reduced the time our patients have to wait for their medications," Kayrouz said.

She added that another benefit of the Omnicell automated system is that it makes the staff accountable for the supplies that are used. "Items can no longer be removed by physicians, nurses, or other staff members without accounting for which patient the item is for."

“In fact, over the past four years, our pharmacy’s workload has increased 40 percent, yet we haven’t had to add any staff. No doubt the Omnicell System has played an important role in helping us keep up.”

Bob Oakley, R.Ph., Director of Pharmacy

“The automated cabinets have also allowed us to expand our selection of floor medications. This has reduced the time our patients have to wait for their medications,”

Pam Kayrouz, RN, Director of Nursing

## **Future Plans**

While the four units included in the follow-up study were to complete the Omnicell installation at BHE, other patient care units have recently approached Bottorff about installing the automated cabinets after seeing the benefits provided by the Omnicell system.

“The rehab. unit and the endoscopy lab in the OR are interested in installing Omnicell cabinets, too,” said Bottorff. “Clinically and financially it makes sense for us to do so. We’ll be installing them over the next few months.”

## **Ensuring Ongoing Success**

To ensure ongoing success of BHE’s automation program, Bottorff intends to monitor lost charges and par versus usage on a monthly basis.

“During the past year, we’ve been able to keep our lost charges to less than three percent per month using the Omnicell system. This is excellent, and maintaining this level is our goal over the long-term. The great thing about the Omnicell system is that it makes it easy to track this data, so if the lost charge rate ever exceeds this level, I can easily track down where the problem is, make sure the unit manager is aware of it, and work with him or her to correct whatever the underlying cause is.”

Monitoring par versus usage is equally important to Bottorff. “It’s important to monitor and update the supplies stored in the cabinets so that they reflect the actual use of the unit. Not only does this help control inventory costs, but also ensures that the supplies stored in the cabinets continue meet the needs of both the staff and our patients.”



1101 East Meadow Drive • Palo Alto, CA 94303 • 800-850-6664 • [www.omnicell.com](http://www.omnicell.com)

OMNICELL, OMNICELL.COM, OMNIBUYER, OMNICENTER, OMNIRX, OMNISUPPLIER, DECISIONCENTER, MEDCENERCITY, SURE-MED, and the Omnicell Logo are trademarks or registered trademarks of Omnicell, Inc., in the United States and internationally. All other trademarks and trade names are the property of their respective holders. © 2002 All rights reserved. CP210-06/02