

## Case Study

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# Modern Anesthesiology: Automating the Process

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### At a Glance

Saint Luke's Hospital  
Kansas City, MO  
[www.saintlukeshealthsystem.org](http://www.saintlukeshealthsystem.org)

### Solution Spotlight

- Anesthesia-Rx™

### Benefits

- Positive ROI in 16 months
- Reduced inventory by 49% over two phases of inventory optimization
- Reduction in discrepancies by 85%
- Improved charge capture
- Reduced tech time
- Reduced chance of restocking error
- Enhanced ability to prevent stock outs
- Eliminated anesthesia provider manual documentation
- Improved regulatory compliance
- Improved safety

### Overview

Saint Luke's, a 585-bed hospital in Kansas City, Missouri, had realized the benefits of automation in many areas of medication delivery. Operating under a decentralized model, the pharmacy department moved into a brand-new pharmacy in 2008 that utilized the latest technology including MedCarousel®, a PACMED™ high speed bar-code packager and notepad computers for access to real-time patient information.

Doug DeJong, Director of Pharmacy, was a fan of using automated medication dispensing cabinets that the hospital employed and was interested in automating the anesthesia process as well. "We had AcuDose-Rx® cabinets in the main OR, one in the cardiovascular operating room (CVOR) and one in our Labor/Delivery area. The anesthesiologists used the cabinets in the operating areas for controlled substances and less commonly used drugs while the frequently used stock was inventoried in a red Craftsman® toolbox on wheels. The anesthesia process was manual and as with any manual system, the two inherent limitations were documentation and security. From documentation comes charge capture, waste capture and controlled substance reconciliation and from security comes inventory control and possible diversion. Anesthesia is one of the last areas that we automated, but we felt it necessary to improve our processes."

### Challenges

Under the old system, access was a problem. The toolboxes were small, lacking capacity and security. "We wanted to improve in-room access to meds beyond non-controlled substances,"

said Doug. "We wanted more meds that anesthesiologists need right at their fingertips to improve delivery."

Reducing narcotic diversion was another benefit of an automated process that the hospital wanted. "Narcotic diversion is a problem in our country, and we have not been immune to those problems. Whenever pharmacy is less involved in the control of narcotics, there are more opportunities for diversion. We felt that we could definitely tighten up the process."

Documentation was manual, requiring excess time for the anesthesia provider and pharmacy. "We had to rely on the anesthesiologist to document on a manual charge sheet what drugs they used, wasted and returned, and then pharmacy would cross reference it to make sure they didn't miss anything," said Doug. "If they didn't document on the anesthesia records, those charges would be lost. Automation captures all actions on the system, which provides better documentation and inherently better security."

Perhaps the biggest challenge in switching to automated carts was the anesthesiologists themselves. According to Doug, "They were familiar with automation but using it to dispense medications in surgery was new to them and people don't always like change. Our fear was that anesthesiologists would never go for the automated carts because they were used to having control over their processes and a setup that was very convenient for them. They are not a shy group so it was critical that the anesthesiology team realized that automation would not slow them down

and would actually help to improve access, reduce documentation time and improve safety."

## Answers

Saint Luke's selected McKesson's Anesthesia-Rx as their automated cart solution and went live in December 2010 with 22 carts placed in all of the anesthesia areas. The implementation was smooth, which Doug credited to involving anesthesiology in cart design and developing a plan focused on user acceptance.

The cart configuration and pocket size determinations were made based on the PAR levels and drawer location of each of the drugs in stock in the old anesthesia carts. The top four drawers were outfitted with single, double and quad size pockets in a High Capacity Drawer, while the remaining drawers were matrix.

Mark Steinbeck, Pharmacy Operations Manager, explained, "The top volume controlled substance drugs were placed in the top drawer and divided into two pockets for each drug, which facilitated greater ease in accessing and counting the inventory. This also helped to reduce some of the look alike, sound alike errors when an anesthesiologist opens a drawer and the vials next to each other all look the same."

Both Doug and Mark really wanted their anesthesia providers' first experience to be great, so they put a lot of effort into the training. The hospital had web-based training sessions, computer-based training modules for each staff member and an actual cart was placed in the anesthesia office to allow them to get acquainted with the equipment before go-live. The planning paid off as Doug recalled, "I was expecting a period of rockiness and that didn't happen."

The reception has been favorable. According to Mark, "From a professional standpoint, our anesthesia providers recognized the importance of increased security and appreciate having nearly every med they

need in the room, including controlled substances."

As to the fear that Anesthesia-Rx would slow the anesthesia providers down and negatively impact their case turnover time—that didn't happen. The anesthesia providers are no longer required to complete the anesthesia charge sheet to document the drugs used, as well as the amounts of controlled substances used and returned for waste. Mark explained, "This has reduced paperwork and improved workflow for anesthesiology.

Pharmacy has realized improvements as well. "I can tell you that from an operational efficiency standpoint, we are avoiding all of the manual processes and have the ability to collect data and put it in front of the people responsible for making improvements."

Saint Luke's is already looking ahead to additional improvements that can be made to their anesthesia process. As Mark explained, "Our initial approach was that each room had the exact same inventory for drug consistency and the same par levels but I would like to put the carts on an inventory optimization schedule similar to our AcuDose-Rx machines. Since we have the ability to track usage by med and by OR, we can optimize room by room so we won't have as much money tied up in static inventory."

In retrospect, Doug is surprised about healthcare systems' hesitation to switch from a manual to an automated anesthesia process. "As an industry, we have been slower to bring automation into the anesthesia area than we have with other patient care areas. I look at hospitals that haven't taken advantage of what automation can bring to their medication delivery process and recall that this was an area that we let sit on the sidelines," stated Doug. "Now our controls are in place for documentation, drug security and inventory management. It has become our new norm and if we added or expanded, it would be part of what we would require to do business."

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## Doug DeJong

Director of Pharmacy  
Saint Luke's Hospital

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