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## Case Study: Barcode400 Is "Just What the Doctor Ordered"

**Bay Area Hospital uses T.L. Ashford's Barcode400 to help ensure prescription accuracy.**

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When patients check into a hospital, the last thing that should concern them is the efficiency and accuracy of the hospital's pharmacy. Yet, at some hospitals, what the doctor prescribes doesn't always get to the right patient. That's why [Bay Area Hospital](#) in Southern Oregon invested in a solution that reduces prescription errors and streamlines the collection of patient data. By automating the data collection processes at the time the prescription is delivered, Bay Area Hospital can verify that the correct medication is being administered to the appropriate patient. In other words, they are making certain the patient gets what the doctor ordered.

How did they do it?

They implemented TL Ashford's [Barcode400](#) barcode printing software with Siemens' [Med Administration Check](#) solution. Bay Area Hospital's IT staff worked closely with T.L. Ashford system engineers to meet the requirements of this unique and important hospital patient service. In the process, they learned that the quality of a vendor's technical support can be as impressive as the technical details of the solution itself.

### **The Medical Center of Oregon's South Coast**

Bay Area Hospital, the largest hospital on the Oregon coast, is a 172-bed, publicly owned acute-care facility. It has more than 1,000 employees, 130 staff physicians, and 100 volunteers. It serves as a regional referral center to other medical facilities, offering a comprehensive range of diagnostic and therapeutic services.

The hospital's inpatient and outpatient services include medical, surgical, mental health, pediatric, critical care, home health, outpatient psychiatric, oncology, obstetrics, and other specialties. Its focus is on quality healthcare, and it is accredited by the Joint Commission on Accreditation of Healthcare Organizations. The hospital's use of modern technologies

provides unique healthcare opportunities for the Oregon southern coast. The hospital provides laser treatments, MRI, CT and PET scans, mammography, and many other medical services that might normally be unavailable in this area of Oregon. Moreover, its highly trained staff is constantly involved in the processes of educational advancement, permitting the hospital to stay closely attuned to the latest medical innovations.

To run this organization efficiently requires state-of-the-art computer systems, world-class software, and a dedicated staff of 20 IT professionals. That's why Bay Area Hospital uses the IBM System i and best-of-breed software solutions, including Siemens' Med Administration Check and T.L. Ashford's Barcode400 software.

### **The Genesis of a Solution**

The hospital chose the Med Administration Check software because it was designed to positively correlate the drugs prescribed with positive patient identification. The solution's aim is to deploy point-of-care barcode technology: the ability to automatically capture and record the use of prescriptions at bedside. The solution at Bay Area Hospital specifies that each patient receive an identity bracelet upon admission to the hospital, with a unique patient ID printed as a barcode on the bracelet. Then, as patient prescriptions are sent to the hospital's pharmacy, a corresponding patient ID barcode is printed on the medication container, along with the identity of the medication. When the medication arrives at the patient's bedside, both the patient's wristband and the medication container are scanned, checked against the hospital's pharmacological database, and verified by the Med Administration Check software.

This solution solves two important problems. First, it vouchsafes that the correct prescription has been delivered to the correct patient. Second, it streamlines the records-keeping process, eliminating manual data entry while maintaining an accurate chart of what medication the patient has actually received.

The Med Administration Check software looked good on paper, but as Bay Area Hospital began to deploy the solution, barcode printing technology created a few snags. That's where the T.L. Ashford's support staff answered the call.

### **Writing the Prescription for Success**

Piecing together a specialized solution that uses barcode technology can be a daunting task because it often includes many diverse and detailed requirements. For instance, in the hospital's case, identification bracelets needed to meet FDA requirements to ensure they are both appropriate for the patient and resistant to contamination. The bracelets and the barcodes also have to last as long as the patient is expected to be in residence and remain legible throughout the patient's stay.

In a similar manner, barcode printers have their own set of requirements. In the hospital's case, a specialized barcode printer had to be chosen that could print the desired ID bracelets. This printer—like most specialized barcode printers— used a unique, proprietary language of control

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codes to transform human-readable characters into the barcodes.

All of these pieces of the system needed to be synchronized in order for the entire solution to work properly. The goal was to ensure that automation was streamlined and seamless. Consequently, as the hospital team assembled the pieces of this technology puzzle, they first chose the kind of ID bracelets they needed. Then they selected the barcode printer itself—a newly manufactured design that created those unique ID bracelets.

But when they approached the problem of connecting the barcode printer to the main information system on the System i, they had a choice to make: the printer the hospital had selected was engineered to interface with a limited number of operating systems. In particular, the manufacturer's proprietary software was designed for Windows-based PCs, not for the hospital's System i.

Should they try to connect the printer using the manufacturer's proprietary PC software? To do so would require adding another layer of complexity. Or should they try to directly connect the barcode printer to the System i and build their own interface? Greig Barrie, the hospital's iSeries Specialist, asked the hospital's team of IT professionals to look for solutions to the printer-to-software compatibility issues.

But it was more than simple printer connectivity that the hospital sought. Its goal was to find a *comprehensive* barcode solution for his System i that could meet both the present and future needs of the hospital. The hospital, they believed, needed to minimize the potential of getting locked into a single proprietary barcode printer technology. It also needed to maximize the technology's ability to work with the hospital's main information system on the System i. Most importantly, they needed a cost-effective, centralized solution that worked with the Siemens software. Anything less would not meet the hospital's prescription for success.

As the IT team began investigating the options available, T.L. Ashford's Barcode400 solution intrigued them.

### **What Is Barcode400?**

T.L. Ashford's Barcode400 is a native System i software application for printing barcode labels and RFID tags. It's designed specifically as an *architectural interface* between the System i and a comprehensive line of high-function barcode and RFID tag printers manufactured in the IBM and non-IBM printer product lines.

The hospital discovered that Barcode400 provided:

- The ability to quickly print labels without programming
- Easy integration through Barcode400's Integration Assistant Utility
- A "Call" facility to permit label-printing directly from existing or custom-built applications
- An easy graphic-import facility to custom-design labels
- The ability to create 2D barcodes

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- The capability to use HP/AFP PCL printing functions
- An enhanced graphical designer that can be used by an *unlimited number of users*
- Support for a wide selection of printers
- Compliance label templates
- The capacity to perform remote label design and remote label printing
- Support for RFID tags

Importantly, T.L. Ashford's single-tier pricing structure for Barcode400 offers low-cost affordability to reduce the total cost of ownership (TCO) and significantly increase a company's return on investment (ROI).

From the IT team's perspective, Barcode400 offered exactly the kind of solution the hospital was seeking: a centralized solution that was native to the System i, that would potentially work with the Siemens' Med Administration Check application, that had an excellent reputation, and that had an easy-to-use, centralized label-design capability. Moreover, they saw that Barcode400 supported many of the barcode printers built by the same company that manufactured the barcode printer the hospital had chosen for their ID bracelets.

The question was: Would Barcode400 work with the new, untested model of the barcode printer? How could they find out?

### **Evaluating T.L. Ashford's Barcode400**

T.L. Ashford offered the hospital a free, fully functional 30-day trial version of the software that they could download and test before buying. IT obtained the trial software from the Internet, quickly installed it in their test environment, and began evaluating Barcode400 in the real context of the Siemens application *and* their chosen barcode printer.

They discovered that designing the bracelet barcode label with Barcode400's tool was straightforward and easy to accomplish. The package included label templates, a complete selection of human-readable fonts, a catalog of barcode symbologies, an image-import capability, and a GUI-based design tool that was easy to learn and quick to use. In addition, unlike design tools from other vendors, T.L. Ashford's tool centralized the design process so that authorized users throughout the organization could access formats, templates, images, and the software itself.

Using Barcode400's Integration Assistant, they discovered it was also extremely easy to interface the newly designed label with the Siemens database on the System i: as new patient data was entered, the system readily prepared the barcode label for printing on the ID bracelets.

But when they connected the printer to the System i, they discovered that the printer wasn't aligning properly with the data. The printer printed the data, and the interface functioned, but it wasn't delivering the results they expected. What was the problem? To whom should they turn? Siemens? IBM? The label manufacturer? The printer manufacturer? The hospital hadn't even

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purchased the Barcode400 software yet, and the 30-day trial package was about to expire! But could T.L. Ashford help?

**T.L. Ashford on Call**

As soon as the T.L. Ashford support team heard there was a problem, they stepped in. Over the telephone, they immediately extended the expiration date of the software package. "We want our potential customers to fully test out the application *before* they commit to purchase," said Allison Vormbrock, the company's tech representative. "So extending the trial period was the logical first step."

Next, by diagnosing the problem over the phone, the technical underpinnings of the difficulty became obvious: the printer worked but just didn't align the labels properly according to the label design. So T.L. Ashford surmised that the unique control codes that the printer needed were not being fully communicated by the software driver on the System i. The solution was to create a new software driver that was unique for this new barcode printer.

But who would write such a driver, the hospital's team wondered. Not the barcode printer manufacturer. Not IBM.

"Send us the printer," responded Vormbrock. "We'll get right on it."

And so, the printer was sent to T.L. Ashford's office in Covington, Kentucky, and T.L. Ashford's software engineers created a new printer driver that perfectly matched the control code requirements of this new printer. It took less than a week and was completed *at no cost to the hospital*. When the entire software system was tested back at the hospital, it worked flawlessly.

After reviewing the entire process of selecting the printer and the software, evaluating the benefits of Barcode400, testing the solution in a live setting, and witnessing the level of support T.L. Ashford provided, Bay Area Hospital concluded that Barcode400 was the right solution for them. More importantly, they decided that T.L. Ashford was the right company for the hospital's business.

**T.L. Ashford: "One of the Best Companies..."**

Specialist Greig Barrie is proud of how the hospital's team responded to the challenges of this system's engineering and how the solution was achieved through their careful evaluation. Just as important, he's pleased with the cost-effectiveness of the solution and the hospital's continuing ROI. "What I like about T.L. Ashford's product is their pricing structure. We can add more printers or we can enhance our System i, and we don't have to worry about tiered pricing or increased licensing fees. We just pay the yearly maintenance contract at a very reasonable rate and we're free to use Barcode400 on all the systems within our environment."

But the final decision was also based on T.L. Ashford's service. "We didn't have a maintenance contract—we hadn't even purchased the software yet—and still they provided us with an excellent

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level of support to help us complete our evaluation," Barrie said. "I think they're one of the best companies I've ever worked with, and we're extremely pleased with their product, their support people, and their service."

Today, Barcode400 has been running for two years at Bay Area Hospital, acting as the linchpin tying the System i to the barcode printer's function. Every patient receives a barcode ID bracelet upon admission to the hospital, and the Med Administration Check software verifies all prescriptions. Consequently, patients can be assured that the medications that their doctors prescribed are the prescriptions that they are receiving in the hospital. Furthermore, the system streamlines the record-keeping processes so physicians can verify that their patients received the appropriate medicines on time and in the prescribed doses. Finally, the configuration of the entire system, using T.L. Ashford's Barcode400, ensures IT that the solution will continue to perform with state-of-the-art functionality and with the highest level of ongoing technical support from T.L. Ashford.

And that's *exactly* what the doctor ordered.