ZEBRA CASE STUDY

Atlantic Health Bolsters Bar Code Strategy with Zebra Printers and Wristbands

Challenge

Atlantic Health System, based in Morristown, NJ, is one of the largest non-profits in the state. The health system is well known as a technology innovator and operates two acute care centers and a 130-bed rehabilitation facility. As of 2005, they had already embraced bar code technology throughout the organization. Despite these advances, however, Atlantic had not yet standardized on one bar code symbology or format across the enterprise.

"One of the problems we were trying to solve was that our clinical information systems could not read administrative bar codes and vice versa," recalls Judy Wall, director of application support at Atlantic. "For example, lab technicians couldn't scan patient wristbands to verify identity. As a result, point-of-care bar code applications were off the table." Until patients were readily identifiable, nurses relied on paper charts and sticky notes where possible. In addition, Atlantic would have to put their implementation of McKesson's Horizon Admin-Rx system for bedside medication administration on hold until the staff could accurately identify patients with the scan of a bar coded wristband.

Atlantic faced another, more basic obstacle: wristband reliability. "Our nurses were using laser printers to generate adhesive-backed paper labels, which they placed on the wristbands in two-part process," added Jacque Brodt-Suggs, director of application support at Atlantic. Unfortunately, labels tended to come off the wristbands or get damaged, so caregivers had to replace bands with labels from the patient's chart or reprint bands at the nursing station, which increased the potential for errors. At one location, as many as 15 percent of glucometer test results were being attributed to the wrong patient due in large part to these problems.

Solution

By the end of 2005, Atlantic had finalized their project proposal and was ready to plan for workflow changes, standardize symbologies, upgrade wristbands, and establish a foundation for the many applications positive patient ID makes possible.

A committee comprised of representatives from the nursing, laboratory, finance, registration, purchasing, risk management, and information systems departments defined the project criteria. These included a range of qualities they were looking for in a solution. To streamline, they wanted the ability to print wristbands on-demand. In addition, they sought a symbology that could ultimately support bedside specimen collection, blood administration, and a range of additional applications. The wristbands needed to be tough and tamperproof, while feeling comfortable on adults, children and infants. The system also had to be practical as well as cost effective.

These changes would help improve charge capture for treatments and medications. With manual processes, the task of crediting a patient's account for unused medications is complicated and time-consuming. Bar code systems at the point of care make it possible to charge upon administration rather than from the pharmacy. This automation tends to boost patient satisfaction and overall efficiency.

As part of the selection process, the committee evaluated a range of print technologies based on cost, ongoing maintenance, image density, resolution, and waste. In contrast to laser and ink jet, thermal print solutions offered the best combination of quality and image durability as well as a lower total cost of ownership. Unlike laser printers that require users to print an entire sheet of labels at once, a thermal solution prints on demand, helping to

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minimize unnecessary waste. The project team further determined a preference for direct thermal print technology. These printers do not use a ribbon, saving on consumables and avoiding the hassle of destroying ribbons in accordance with HIPAA guidelines.

Next, the team researched symbology options and chose Code 128, the most compact of the linear, one-dimensional bar codes. The symbology was already compatible with Atlantic's existing glucometers, admission, discharge and transfer (ADT) software and the forthcoming medication administration system.

Lastly, Atlantic tested wristbands in a variety of settings to evaluate how exposure to alcohol, foams, soaps, blood and water would affect durability. Based on the results of this research, Atlantic chose Zebra's Z-Band Direct® antimicrobial wristbands and its H 2824-Z wristband printer. During the pilot phase, Atlantic was able to establish an interface between the thermal print solution and the organization's existing ADT software. This interface eliminated the need for middleware to print from the ADT application, a feature that would save Atlantic a significant amount in licensing fees and help to expedite the implementation process.

Results

Ultimately, Atlantic installed 133 Zebra wristband printers. "The results are tough to quantify, but it's had a tremendous impact. The health system has seen improved bar code read rates," says Brodt-Suggs. "The simple fact that wristbands remain intact with readable bar codes is huge and would have been justification enough by itself."

Wristbands are now produced on dedicated printers, and the process is much more streamlined and efficient. In addition to the advantage of fewer re-prints, Atlantic is now able to generate patient wristbands in a single step. IT staff report very few complaints. Wristbands are generated "on demand," one at a time, which means no more printing sheets of labels that can easily be lost or misplaced.

Most importantly, Atlantic began their rollout of bedside bar code medication administration in the summer of 2007. As the health system adopts applications like these and experiences the accompanying improvements in clinical workflow, they anticipate significantly fewer errors from manual transcription and more accurate clinical data readings at the bedside. The end result is safer, more efficient care delivery.

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