



Case Study: The Nebraska Medical Center

Improving patient safety while saving time and money

According to the Institute of Medicine medication administration accounts for up to 32 percent of adult patient hospital medication errors. To reduce preventable adverse drug events, more and more hospitals are moving toward barcode medication administration (BCMA) systems that improve positive patient identification through the scanning of barcoded patient ID wristbands. Dasco partnered with The Nebraska Medical Center to develop a BCMA system solution.

Challenge

Combining a labor intensive patient ID wristband assembly with the risk of human error that results from a verbal validation process, The Nebraska Medical Center was open to a new patient ID wristband solution that would better ensure patient safety, improve nurse workflow, and reduce labor costs associated with wristband assembly.

Manual Patient ID Validation. The Nebraska Medical Center had a manual patient ID validation process that increased the risk for human error. Nurses verbally verified a patient's name and date of birth and visually confirmed the patient's response to the information printed on their wristband. For infants and critical care patients this verbal patient verification was not possible which increased the risk for a preventable adverse drug event.

Manual Wristband Assembly. The hospital had a manual patient ID wristband assembly process. Between patient care, nurses were required to hand-assemble patient wristbands. This labor-intensive process involved loading forms in the printer, laser printing sheets of labels, applying and folding labels, and laminating each wristband. In addition, the existing laser-print technology was unable to simultaneously produce dual-barcodes for patient ID validation and glucometer device readings.

Solution

The Nebraska Medical Center realized that barcode medication administration technology would be a more accurate way of verifying and validating patient-specific information and in turn reduce the risk for medication errors. To initiate the barcode medication administration system, the hospital needed a printing solution that would produce a two-dimensional and a linear barcode on each wristband—one barcode for scanning to ensure positive patient ID and the other to facilitate glucometer device readings.

The Nebraska Medical Center engaged Dasco, a Minneapolis-based barcode labeling and solutions provider to implement a patient identification solution. Dasco recommended an integrated solution of Zebra Technology products. The Zebra® HC100™ direct thermal wristband printer was selected because of its small footprint, ease of use, and affordable price point. Adding to this, the HC100 printer utilizes antimicrobial-coated Z-Band® cassettes which produce dual-barcoded patient ID wristbands up to two minutes faster than the hand-

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Patient ID wristband processing saves The Nebraska Medical Center up to 833 labor hours annually across 25,000 inpatient admissions while scannable barcode technology reduces human error, improves nurse workflow, provides real-time charting, and improves patient safety through the five rights of medication administration.



The Nebraska Medical Center is a teaching hospital for the University of Nebraska Medical Center and has an international reputation for providing organ and bone marrow transplantation services. The Center is nationally and regionally known for its oncology, neurology, and cardiology programs. For four consecutive years, this 689-licensed bed academic medical center had earned J.D. Power and Associates' Hospital of Distinction award for inpatient services. It is a US News & World Report 2008 "Best Hospital" for Cancer, Neurology, and Neurosurgery.

assembled laser-printed counterparts. Plus the Z-Band wristbands are easier to use, more cost-effective, and time-efficient.

Dasco along with GE Centricity Enterprise health information system connected the ZBI interface, performed the data capture, and formatted the barcode and information configuration that would be printed on each patient ID wristband. The Zebra's ZBI™-based MiSim software made it possible for The Nebraska Medical Center to utilize the system data for wristband creation thus reducing duplication of effort and risk of entry errors.

After successful testing, The Nebraska Medical Center implemented HC100 patient ID wristband printers with ZBI-based MiSim applications at each nursing and admissions station. In labor, delivery, and the neonatal intensive care units, Dasco installed TLP 3844-Z™ desktop printers with ZBI/MiSim application to produce a security band system to link mothers with their babies.

“We were able to plug and play the HC100 with minimal changes to the IT software. Dasco got it done fast, efficiently and accurately,” said Brian Fox, lead IT project manager for The Nebraska Medical Center. “We have one consistent banding process across all inpatient care areas in the hospital, so if a patient transfers from one place to another, all departments are using the same printers and scanners.”

Results

Time and Labor-Cost Savings. Instead of the manual patient ID wristband assembly, a nurse generates a dual-barcoded patient ID wristband that lasts and remains scannable during a patient's entire hospital stay. The Zebra HC100 automated barcode printing process produces wristbands up to two minutes faster than the manual assembly process which saves up to 833 hours annually across 25,000 inpatient admissions.

Patient Safety. Most importantly, the automated dual-barcode patient ID system improves patient safety. The Nebraska Medical Center now prints a two-dimensional and a linear barcode on each patient ID wristband. The two-dimensional code facilitates barcode medication administration and the linear barcode supports positive patient ID and glucose readings.

Nurses have found that the wristbands are simple and reliable to scan within six inches of the wristband. “We're seeing little to no problems with barcodes that won't scan,” Fox said. “A common industry-wide problem.”

Real-Time Charting. Moreover, as nurses scan patient ID wristbands and administer medication, the scanned information updates the electronic medical record in real-time. This eliminates the need to chart medications administered at a later time, thus reducing the risk for entry errors. The primary benefit of real-time charting is that physicians can make clinical decisions with the most up-to-date information.

By implementing Dasco's BCMA system, The Nebraska Medical Center ensures the five rights of medication administration: that the right patient receives the right medication in the right dosage at the right time during the right route.

“Technology facilitates automation to validate the five rights of medication administration, adding a layer of patient safety to the existing process of manually validating the two patient identifiers,” said Rosanna Morris, Chief Nursing Officer for The Nebraska Medical Center. “Now our nurses manually validate patient information and scan the patient wristband to ensure positive patient identification—protecting both the patient and the nurse—a real win-win.” ■



Case Study

The Nebraska Medical Center

Challenge

Improve patient safety while saving time and labor costs through implementing scannable barcoded patient ID wristbands

Solutions Provider

Dasco Medical

Integrated Solution



- Zebra HC100 direct thermal printer
- Zebra Z-Band antimicrobial patient ID wristbands
- TLP 3844-Z desktop printer
- ZBI-based MiSim software
- ZBI Firmware

Results

- The Nebraska Medical Center improves patient safety by helping to ensure that the five rights of medication administration are met
- The Nebraska Medical Center reduces the chance for human error: Barcoded patient wristbands allow for accurate patient ID, real-time charting, and automated glucose readings
- The Nebraska Medical Center saves nurses' time and reduces labor costs associated with the assembly of manual wristbands: Nurses create wristbands up to two minutes faster than before saving up to 833 hours annually across 25,000 inpatient admissions.
- Durable and economic Z-Band patient ID wristbands with antimicrobial coating last through a patient's entire hospital stay



Call a knowledgeable Dasco Solutions Consultant Toll-Free: 1-800-927-7701
7787 Ranchers Road NE, Minneapolis, MN 55432 | www.dascomedical.com