The Nebraska Medical Center Saves Time, Improves Nurse Workflow

Efficiency gains from fast, reliable wristband printing adds up across 25,000 annual inpatient admissions

About The Nebraska Medical Center

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

Challenge

On average, medication administration accounts for 26 to 32 percent of adult patient medication errors in hospitals, according to the Institute of Medicine. To reduce incidents, hospitals are increasingly moving toward bar code medication administration (BCMA) systems to electronically scan patient wristbands for positive patient identification to reduce preventable adverse drug events.

Before implementing BCMA, The Nebraska Medical Center manually created patient wristbands. The only means a nurse had to positively identify a patient was to verbally confirm the patient's name and date of birth, and visually compare their responses to the information printed on the wristband. For incoherent patients (critical care, infants, etc.) this manual validation was not even possible, increasing the risk for a preventable adverse drug event to occur.

The hospital realized that BCMA could add a layer of patient safety by leveraging technology to verify and validate patient-specific information. But in order to fully leverage the BCMA system, The Nebraska Medical Center needed a printing solution that could simultaneously produce both two-dimensional bar codes as well as linear bar codes—a capability that existing laser printers lacked. It also needed to print two bar code types on each band; one for positive patient ID and the other to facilitate glucometer device readings.

Solution

The hospital engaged Zebra and one of its bar code labeling solutions providers. With the BCMA go-live date soon approaching, new printers had to be selected and implemented quickly. Considering the hospital's two-dimensional requirements, Zebra Technologies was recommended.

The Nebraska Medical Center trialed the Zebra® HC100™ direct thermal printer, designed specifically for the unique needs of healthcare providers. The compatible Z-Band® Direct wristbands are the only antimicrobial-coated wristbands currently on the market, and are easier to use and more cost-effective than laser printed wristbands.

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Customer
The Nebraska Medical Center

Industry
Healthcare

Challenge
Implement patient wristbands with 2-D bar codes, and two unique bar codes on each, while reducing the hassle of band creation for nurses.

Zebra Solutions
- Zebra HC100 thermal printer
- TLP 3844-Z desktop printer
- ZBI™ firmware
- Z-Band Direct wristband

Results
- Nurses create wristbands one to two minutes faster than before.
- The hospital saves hundreds of hours annually making bands.
- Scanning is flawless and reliable, even from six inches away.
- Two unique bar codes appear on a single band.
- Thermal heat printing eliminates ink smudges from showering and hand washing—a common problem with ID bands.

The right asset. In the right place. At the right time.

The solution with the GE Centricity Enterprise health information system using Zebra's ZBI™ interface, and performing data capture and formatting of the wristbands. The HC100 printers were loaded with ZBI-based MiSim® software to use the same data currently being printed to the laser printers, which allowed The Nebraska Medical Center to use the same printer application to print wristbands.

With successful testing, the hospital rolled out the HC100 printers with ZBI-based MiSim applications throughout its inpatient operations at all nurse stations and in admissions. Additionally, it brought in the TLP 3844-Z™ desktop printers with a similar ZBI/MiSim application for clear printing of smaller labels for their infant/mother security band system.

"We were able to plug and play the HC100 with minimal changes to the IT software," 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."

The Nebraska Medical Center now prints two bar codes on a single wristband—one two-dimensional and one linear—because the glucometer only reads linear bar codes. The two–dimensional code facilitates BCMA and the linear bar code supports positive patient ID and glucose readings. In labor and delivery and the neonatal intensive care units, nurses use a separate banding process to link mothers and babies.

Previously, nurses printed out sheets of labels and hand-created each wristband. Laser printing required them to load forms, print, apply labels to the bands and then fold laminate over the bands. Now, a single button generates the completed wristband, ready for each patient. Nurses also find the wristbands simple and reliable to scan—anywhere within six inches of the band. "We're seeing little to no problems with bar codes that won't scan," Fox said. "This is a common industry-wide problem that we're not encountering."

Moreover, as nurses scan bands and administer medication, that information updates the electronic medical record in real time, thus eliminating the need to chart medications administered at a later time. The primary benefit of real-time charting is that physicians can make clinical decisions with the most up-to-date information.

Results

Nurses now create wristbands one to two minutes faster than before—a significant time-savings across 25,000 inpatient admissions annually.

"We're facilitating the five patient safety rights in medication administration: right patient, right medication, right dosage, right time, right route," said Rosanna Morris, Chief Nursing Officer for The Nebraska Medical Center. "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. 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."
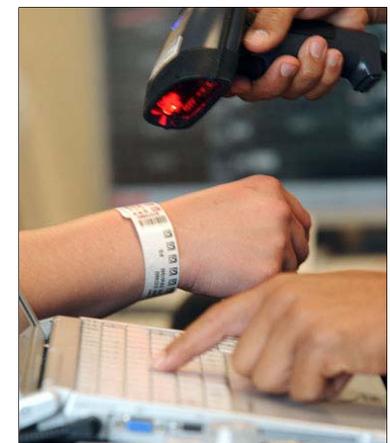
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