



## ZEBRA CASE STUDY

### Hamilton Medical Center Takes Specimen Labeling to the Bedside with Zebra

#### Challenge

Every year, more than 160,900 adverse events occur in hospitals nationwide because of sample identification errors, resulting in misdiagnosis, unnecessary treatment and wasteful tests. The possibility of errors like these prompted Dalton, Georgia-based Hamilton Medical Center to deploy a patient safety strategy that utilizes bar code technology for phlebotomy services. As an organization, Hamilton is committed to patient safety and continually looks for new and innovative ways to minimize errors and improve the delivery of care.

“Even with an attentive staff like ours, it was difficult not to lose or misfile specimen labels when handling more than 1,000 each day,” says Margaret Herrin, director of laboratory services. Phlebotomists also had to constantly return to the lab for additional labels as new tests were ordered, which had a negative impact on overall productivity. By labeling specimen containers at the bedside, the 282-bed hospital would be able to eliminate the potential for error as well as many of the inefficiencies associated with manually printing, sorting and organizing labels in the laboratory before starting rounds.

#### Solution

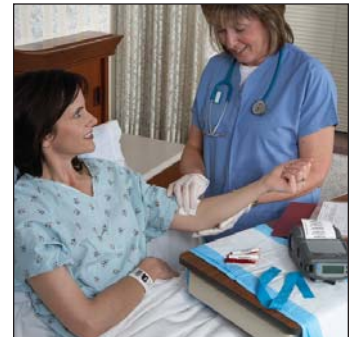
An early adopter of bar code technology for medication administration, Hamilton was already issuing bar coded patient identification wristbands in the admissions department. These wristbands provided the foundation for the laboratory’s bar coding efforts. They also enable the hospital to meet patient safety goals set forth by The Joint Commission.

When evaluating potential solutions, Hamilton carefully considered the three essential components of a bedside labeling system: a mobile computer or PDA that provides real-time access to draw orders and allows phlebotomists to document collection activity; a mobile printer that can generate labels at the point of care; and label media that would stay affixed to the container throughout the testing and storage process.

A committee of members from the nursing, information technology and laboratory departments first selected a handheld PDA device that also served as a bar code scanner for reading patient wristbands and confirming positive patient identification. Next, the committee moved on to labels, opting for a custom aliquot label format that would enable them to print a primary label and two secondary labels with just one click.

Finally, the committee turned to printer selection. Hamilton focused their search on thermal printers because the technology was developed specifically for bar coding applications. It was also well suited for the laboratory setting because it produces compact, highly durable codes that can be placed on small vials or sample containers.

“Since phlebotomists have several items to carry around the hospital, we tried to find a lightweight thermal printer that they could wear either on a belt, strap or carry in tray,” says Herrin. Ultimately, they chose a combination of Zebra’s QL 220 and QL 320 mobile printers. Weighing just over one pound, these printers were light enough for phlebotomists to carry while still being rugged enough to stand up to everyday wear and tear.



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## Results

Starting with the scan of a patient's wristband, phlebotomists now collect samples and generate patient-specific labels at the bedside using a mobile printer. The collection time and user ID are automatically printed on the label, and a record of the collection is entered in the PDA and stored in the database. This provides an audit trail of the process and enables Hamilton to produce management reports detailing specimen turnaround time and workloads.

After two years of use, Hamilton reports the system saves staff an average of 45 minutes per day. "Phlebotomists no longer have to sort through batches of labels printed in the lab, and they can view order updates through real-time collection lists on the PDA devices," says Herrin. "When new draw orders are added throughout the shift, they simply print labels at the bedside rather than picking them up at the central lab."

Turnaround times have improved. Re-draws are also down, helping to lower the overall cost of care. The most important benefit of all, however, has been the resulting improvements to patient safety. By printing labels one-at-a-time at the point of care, Hamilton virtually eliminated the possibility of applying the wrong label to the wrong specimen.

"By expanding our use of bar code technology to include specimen collection, we were able to further enhance safety for our patients and provide the highest possible standard of care," adds Herrin.

Since introducing the bedside specimen collection process, Hamilton expanded their use of bar coding to the blood bank to ensure the correct patient receives the correct blood product. This continues the hospital's forward-thinking approach to information technology, which includes the utilization of electronic medical records, CPOE in the emergency department, robotics in pharmacy, bar coded bedside medication administration and document imaging.



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