

# Thermal Printing Solutions for Healthcare



**HC100™ Patient I.D. Solution**  
Combining a reliable HC100 thermal printer with easy-to-use cartridges containing the industry's only antimicrobial-coated wristbands, Zebra's HC100 Patient I.D. Solution makes wristband printing easier and more cost-effective than laser solutions.



**ZM400™**  
This rugged, full-sized printer for high-volume printing enhances productivity in pharmacy, lab, and materials management labeling. It produces crisp, clear print quality on all label sizes, from very small slide labels to blood bag ID labels and medication labels.



**QL 220 Plus™**  
The compact QL 220 Plus mobile printer with advanced, secure wireless connectivity is perfect for labeling at the patient bedside. It's easy for nurses and phlebotomists to carry to the point of care via a belt clip, shoulder strap or cart.



**G-Series™**  
The space-saving G-Series desktop printers with 4-inch print widths and optional wireless connectivity are perfect for printing blood bag labels at mobile blood collection centers or producing unit-dose labels in the pharmacy.



**P330i™**  
The easy-to-use, RFID-capable P330i card printer produces full-color cards ideal for staff and visitor identification, as well as patient health cards.

## Genuine Zebra™ Labels and Wristbands for Added Protection

Zebra has the right labels for hospital applications. Genuine Zebra labels are available in a range of sizes, materials and adhesives that can withstand all types of testing and storage requirements. Our labels are suitable for labeling all shapes and sizes of specimen containers, including test tubes, vials, microscope slides, petri dishes, and cassettes—plus pharmacy unit dose containers, including syringes and IV bags. Zebra even offers special blood bag labels that meet ISBT 128 compliance requirements.



Genuine Zebra™ wristbands and thermal printers are designed to perform together as a complete, optimal bar code wristband print solution—ensuring the highest-quality results for uncompromised patient safety. Available in a variety of sizes and closures, our wristbands are durable enough to last longer than the average patient's stay and still be comfortable to wear. Special top coating makes them resistant to alcohol, water, soaps, xylene and other hospital elements. And Zebra's Z-Band® Direct wristbands' patient-pending antimicrobial coating has proven in independent lab tests to eliminate from the band *S. aureus*, *P. aeruginosa*, *E. coli*, and MRSA Type II, III, and IV.

▶ For more information, visit [www.zebra.com](http://www.zebra.com)



# IMPROVING PATIENT SAFETY: AUTOMATED SPECIMEN COLLECTION SOLUTIONS FOR HOSPITALS, CLINICS AND LABORATORIES

Specimen collection errors present two immediate challenges to healthcare providers, and both are equally costly. For patients, mistakes result in missed treatments or medications, which may lead to a longer hospital stay, disability or worse. Hospitals experience increased costs for tracking, correcting or redrawing specimens in addition to any unnecessary treatment. Both Patient safety concerns and the growing financial burden to hospitals form a powerful argument for investing in technology to prevent specimen errors.

Many of today's specimen management applications offer some direction for healthcare professionals during the collection process. However, this software depends more on a person's skill and capabilities rather than creating systematic checkpoints for an error-free environment. Few existing systems enable healthcare providers to prevent errors during the specimen collection process.

Errors can occur anywhere in the process flow, from collecting to transporting to storage of blood, urine or other biological matter for testing. The repercussions of even a poorly timed specimen collection are felt throughout the healthcare system, from patient records to claims to payment. And until recently, the collection and movement of specimens from the patient bedside to the laboratory required a level of mobility that was virtually nonexistent in many hospital environments.

- Process Flow for Specimen Collection**
1. Identify the patient
  2. Collect specimen in the right quantity at the right time
  3. Locate and use appropriate container
  4. Print bar coded label for accurate identification of specimen
  5. Print bar coded label for accurate identification of specimen
  6. Match results to patient



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## Automated Specimen Collection Application and Wireless Mobility

Specimen collection applications running on handheld wireless mobile computers help eliminate errors at the point of care. This improves patient safety in addition to reducing the financial implications by preventing specimen collection mistakes before they happen.

Once testing is ordered, patient identification software sorts requirements for each patient and prioritizes by location, room and time of collection. This information is easily accessible to a healthcare professional using a mobile handheld computer. Using a bar coded system, accuracy is ensured. The wristband and badge are scanned to confirm the identity of both the healthcare practitioner and the patient. Further verification of the tests is performed and the appropriate container necessary is provided.

Any errors or discrepancies between the patient identification and the nature of the diagnostic testing are found before any specimen is collected. If there is a problem, an alert immediately appears on the handheld computer. This helps prevent mistakes before they occur. If all information is correct, the specimen is obtained and the time of collection is noted on the patient's medical record. Physicians are also assured that the test results match the patient receiving treatment.

Using an automated specimen collection system, patient records and documentations are more accurate, current and easily accessible. Handheld mobile computers with wireless local area network (WLAN) connectivity communicate directly with the facility database in real time or at scheduled intervals during the shift. So, accurate documentation is on hand for best practice assessment and speedier claims billings and payment process.



### Measurable Benefits of an Automated Specimen Collection System



Automated specimen collection systems using bar coded systems with rugged mobile computers and wireless communications deliver measurable benefits. Patients receive timely, accurate specimen collection with a reduced risk of error and less inconvenience.

Hospitals see reduced mistakes from specimen collection, which in turn saves money with fewer diagnostics tests, less of a chance of incorrect treatment being applied and more positive patient outcomes. Overall staff productivity is improved, and processing insurance claims is speedier, more accurate and less expensive.

Automating the specimen collection process enables hospitals and clinics to ensure a higher degree of integrity in the system. It means that the right healthcare practitioner is working with the right patient, using the right container, in the right priority order at the right time of collection.

### Benefits Summary:

- Eliminate specimen collection errors at the point of care
- Improve patient safety and treatment
- Reduce costs associated with errors

Although more emphasis is on specimen collection errors in the hospital and clinic setting, this offers only a glimpse into the overall problem. Other environments that provide often complex and sophisticated care are equally at risk and will realize similar benefits. These include ambulatory settings, outpatient surgery centers, medical offices, home caregivers and nursing homes.



### Choosing the Right Mobility System



When developing or establishing specifications for an automated specimen collection system, there are numerous factors a hospital or clinic should consider. For example, the handheld devices must be comfortable and easy for your healthcare staff to use. These devices must also be ruggedized to withstand the unique environmental conditions found in hospitals or clinics. From the handheld mobile computers to the wireless technology to the security implications and accessories, there are many critical decisions to make in the process of selecting an automated specimen collection system.

Many hospitals and clinics take advantage of the knowledge, long history and global experience of companies like Motorola and Zebra when considering the development and implementation of rugged mobile computing solutions.

## From mobile computers to bar code scanners to wireless infrastructure, there is a Motorola mobile device designed to cost-effectively meet the needs of your applications

### ENTERPRISE CLASS

#### MC50



The MC50 Enterprise Digital Assistant offers robust in-building wireless voice and data communications in a lightweight yet durable PDA-style design. The compact easy-to-carry device provides healthcare workers with the functionality they need to perform their jobs more efficiently and effectively, including: cost-effective VoIP voice services, including peer-to-peer, 1-to-1 and 1-to-many communications; the ability to capture 1D and 2D barcodes and images; wireless connectivity to crucial healthcare applications, such as laboratory orders and test results and patient records; and support for enterprise productivity applications such as email, calendars and scheduling.

#### MC70



The full-featured MC70 combines the power of a PDA, computer, scanner, imager and cell phone in a rugged device designed to endure everyday drops, exposure to moisture, wipedowns and more. The compact lightweight and highly flexible device offers anywhere anytime voice and data communications inside and outside the four walls through multi-mode wireless networking — WWAN/WLAN/WPAN. And robust voice functionality includes outstanding acoustical performance, superior voice quality, push-to-talk and handset, headset and speakerphone modes.

### GENERAL PURPOSE

#### LS4278



The cordless LS4278 offers superior scanning performance, ease-of-use and durability for 1D bar code scanning applications. The Bluetooth enabled device offers secure transmission of data over the wireless network. The innovative multi-line rastering scan pattern eliminates the need for exact aim and positioning for simple point-and-shoot scanning, and enables the capture of even the smallest, stacked and poorly printed bar codes. The patented single board construction eliminates a common area of vulnerability. And the elimination of hazardous cables helps provide a safer work environment.

#### DS6700



The multi-purpose DS6700 provides the power of a bar code scanner, a digital camera and document scanner in single cost-effective device. Ideal for environments with diverse data capture requirements, the device can capture 1D, 2D and PDF417 bar codes as well as documents as large as 8.5 in. x 11 in./21.59 cm x 27.94 cm, enabling the scanning of patient IDs and medication bar codes as well as the capture of paper prescription and lab orders. The 1.3 megapixel camera combines with text enhancement technology to deliver superior document clarity — even on fine print — enabling hospitals to move from paper-based records to electronic filing to streamline record-keeping and regulatory compliance.

### MOTOROLA WIRELESS SWITCH SYSTEM

#### WS5100 Wireless Switch



Designed for medium to large hospital environments, the WS5100 redefines enterprise class wireless networking with a new level of functionality, security, performance, manageability, scalability and cost-efficiency. The WS5100 also offers another industry first, Motorola's Wireless Next Generation (Wi-NG) architecture. Designed to support any of today's wireless protocols and emerging standards, Wi-NG enables companies to deploy and manage devices and infrastructure across the RF spectrum — from Wi-Fi and VoWLAN today to RFID, Mesh and WIMAX tomorrow.

#### AP300 Access Point



A key component in Motorola's Wireless Switch systems, the AP300 provides the point of connection between your mobile devices and the wireless LAN (the WS5100 or the WS2000). This thin, low cost zero-configuration device is centrally managed from the Motorola Wireless Switch, and does not require manual maintenance. Support for standards-based Power-over-Ethernet eliminates the need and expense for power cables. And wall, ceiling and above the ceiling mounting options provide complete installation flexibility.