Accurate Patient and Specimen Identification Can Improve Patient Outcomes

Effective Collection Management Starts with Bedside Technology

Healthcare professionals rely on accurate test results to make informed decisions about patient care. Research suggests that up to 70% of all medical decisions are based on some kind of pathology and/or laboratory result[1].

Specimen errors are among the most frequent and preventable issues in patient safety. Improperly labeled specimens can delay diagnosis and treatment, potentially compromising patient care.

Misidentification of specimens often leads to unnecessary redraws, retesting and additional treatment, and represents a drain on already stretched resources. The cost of mislabeling errors is estimated to be about $712 per specimen[3]. Multiplying this cost with the number of mislabeled specimens, it is believed hospitals lose $280,000 per million specimen, amounting to $1 million for large high-volume hospitals. In addition to increased financial costs to the healthcare system and prolonged hospitals lengths of stay, lost or mislabeled specimens can have devastating effects on patients and their families.

Bedside Technology Aids Matching Accuracy

Fortunately, many hospitals are adopting technology solutions to help improve patient safety while controlling costs. Deploying barcode labeling and scanning solutions at the patient bedside forms the basis of an effective specimen management process. Bedside specimen labeling can increase the effectiveness of a three-point check that confirms links between the specimen collection order, the patient and the labeled container. Further, a verification process that uses automatic identification systems such as barcoding aligns with widely accepted GS1 global healthcare standards[4].

73% of specimen errors are avoidable[2], offering a significant opportunity for improvement in hospital processes.

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1. Datta P. Resolving discordant specimens. ADVANCE for Administrators of the laboratory. July 2005:60
2. Link
3. Pre-analytical pitfalls: Missing and mislabeled specimens. Nm K Tran, PhD, HCLD (ABB), FAACC and Ying Liu, MD. February 2020 (link)
4. Link

Help Ensure Accurate Specimen-Patient Matching with Bedside Specimen Labeling

Limited clinical resources might make establishing a bedside specimen labeling process seem daunting. However, barcode labeling and scanning technology can give hospitals several advantages.
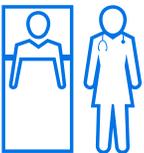
Creating a Safer Patient Environment

Bedside specimen labeling and matching can serve as an integral step in a three-point check of the specimen collection order, the patient wristband and the labeled container. An effective process that relies on mobile or desktop printers to generate specimen barcode labels at the patient bedside can help reduce preventable specimen collection errors and the misdiagnoses, delays and potential adverse patient outcomes. In addition, accurate matching can help prevent the need for redraws and retesting, which subject the patient to unnecessary pain and increase the overall cost of care.

Helping Reduce Operational Costs

The collection and management of specimens is a multifaceted process that includes a number of disciplines and handoffs. Incorrect specimen identification at the bedside can introduce errors that perpetuate throughout the whole process, translating into unnecessary redraws and retesting, misdiagnosis or inappropriate medical treatment. A bedside specimen management process that utilizes barcode specimen label printers, a barcode scanner or handheld mobile computer can help prevent errors from being introduced and help manage operating costs.

Maximizing Clinicians' Patient Care Time

By giving clinicians an efficient way to verify critical specimen and patient data at the patient bedside, health organizations can minimize their low-value activity in favor of meaningful patient care time. In an emerging global healthcare environment largely defined by growing patient populations and fewer clinicians to provide care, organizations can't afford wasted clinician effort.

Driving Greater Efficiency in the Laboratory

Future direction could include the use of Radio Frequency Identification (RFID) to reduce the prevalence of lost specimens. RFID relies on tags containing small radio responders that can be used to track the movement of specimens over a defined space. RFID was recommended in a study* that found a 75% decrease in lost specimens over a 6-month period after adopting this technology.

* Norgan AP, Simon KE, Feehan BA, et al. Radio-frequency identification specimen tracking improve quality in anatomic pathology. Arch Patrol Lab Med 2019; 143

Explore Zebra Bedside Specimen Collection Solutions

Mobile Printers

Reduce the risk of errors in specimen collection with premium mobile printing at the point of care. Zebra ZQ610 Plus-HC Series mobile printers deliver reliability, ease of use and design features that withstand the harsh clinical environment:

- Latest wireless connection for fast, reliable and secure printing
- Superior battery power throughout the entire shift
- Disinfectant-ready plastics that tolerate continual cleaning
- Comprehensive remote management tools

Desktop Printers

Clinicians who work in constrained areas can easily print specimen labels using the compact Zebra ZD411-HC model desktop printer. The ZD411-HC uses thermal transfer printing—beneficial as this process does not create additional personal health information that would require secure disposal. Zebra desktop printers are designed for the healthcare environment with:

- 2 inch or 4 inch compact desktop printers
- Available in Direct Thermal or Thermal Transfer
- Disinfectant-ready plastic
- Battery pack available for printing on the go
- IEC 6061-1 compliant power supply

Barcode Scanners

Clinicians working at the patient's bedside need to capture specimen barcode data from any medium, in any condition, the first time. Engineered for reliability in clinical environments, Zebra healthcare scanners offer accurate specimen data collection.

- Corded and cordless models
- Disinfectant-ready housing that can handle regular sanitizing

Handheld Mobile Computers

Clinicians need secure, instantaneous access to patient information and reliable scanning to match patients to their specimens with confidence. Zebra handheld mobile computers handle the demands of the healthcare environment with:

- Easy-to-clean disinfectant-ready plastic
- True hot-swappable, removable battery to last a full shift
- Fast wireless connectivity (Wi-Fi™ 6)
- Seamless staff communication with Workcloud Communications (voice, push-to-talk, and secure text messaging)
- Dedicated emergency alert button

Software, Supplies and Services

Patient ID Wristbands

Zebra offers a range of thermal, laser, RFID and alert wristbands that remain scannable throughout the average patient stay. Zebra wristbands help improve patient safety, and address different patients' comfort and durability needs. Z-Band® durability thermal direct-print wristbands can be secured to patients immediately, with no assembly. Laser-printable self-laminating LaserBand wristbands enable quick production without the need for a dedicated wristband printer and feature a patented self-laminating seal.

Zebra DNA™

Zebra DNA is the industry's broadest suite of enterprise software that transform Zebra devices into true enterprise-class devices. It is built from the ground up for Zebra devices, so hardware and software work perfectly in sync. From printers, to scanners, to mobile computers, Zebra DNA's robust suite of enterprise software elevates their capabilities and delivers maximum uptime, visibility, and workflow performance. With an ongoing flow of software enrichments and upgrades, Zebra DNA fully covers your needs, from app development to integration, from security to device management and optimizing performance.

Zebra Professional Services

Zebra Professional Services make it easier to integrate new technologies into your existing IT environments and workflows. Data insights from edge technologies can open up new business opportunities, but without the right skills or resources, you could miss out on the full benefits. Zebra Professional Service give you the expertise to optimize the adoption of edge-data solutions to run your business more productively.

Zebra OneCare™ Maintenance Plans

Zebra OneCare Maintenance Plans are a comprehensive option that can help you protect your Zebra devices and keep them running at peak performance while maximizing uptime. The portfolio offers comprehensive coverage, advance device replacement, on-site support and technical assistance. If needed, you can enhance them with battery maintenance, battery refresh and proactive battery replacement options. With our Maintenance Plan, you get access to VisibilityIQ OneCare™, a dashboard that allows you to track device repair and case trends, contract renewals, and LifeGuard™ security status.

Circular Economy

Zebra is committed to responsible innovation and creating a better, greener future. The Circular Economy initiative aims to revolutionize the way technology is produced, used and disposed of. This includes initiatives such as refurbishment, buybacks and recycling, which can help extend the life cycle of Zebra devices and minimize environmental impact.

* VisibilityIQ OneCare available for mobile computers and scanners only.

To learn more about Zebra's bedside specimen collection solutions,
visit **www.zebra.com/healthcare**

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