WRISTBAND FORMATTING BEST PRACTICES:
Key Considerations for Improving Patient Care

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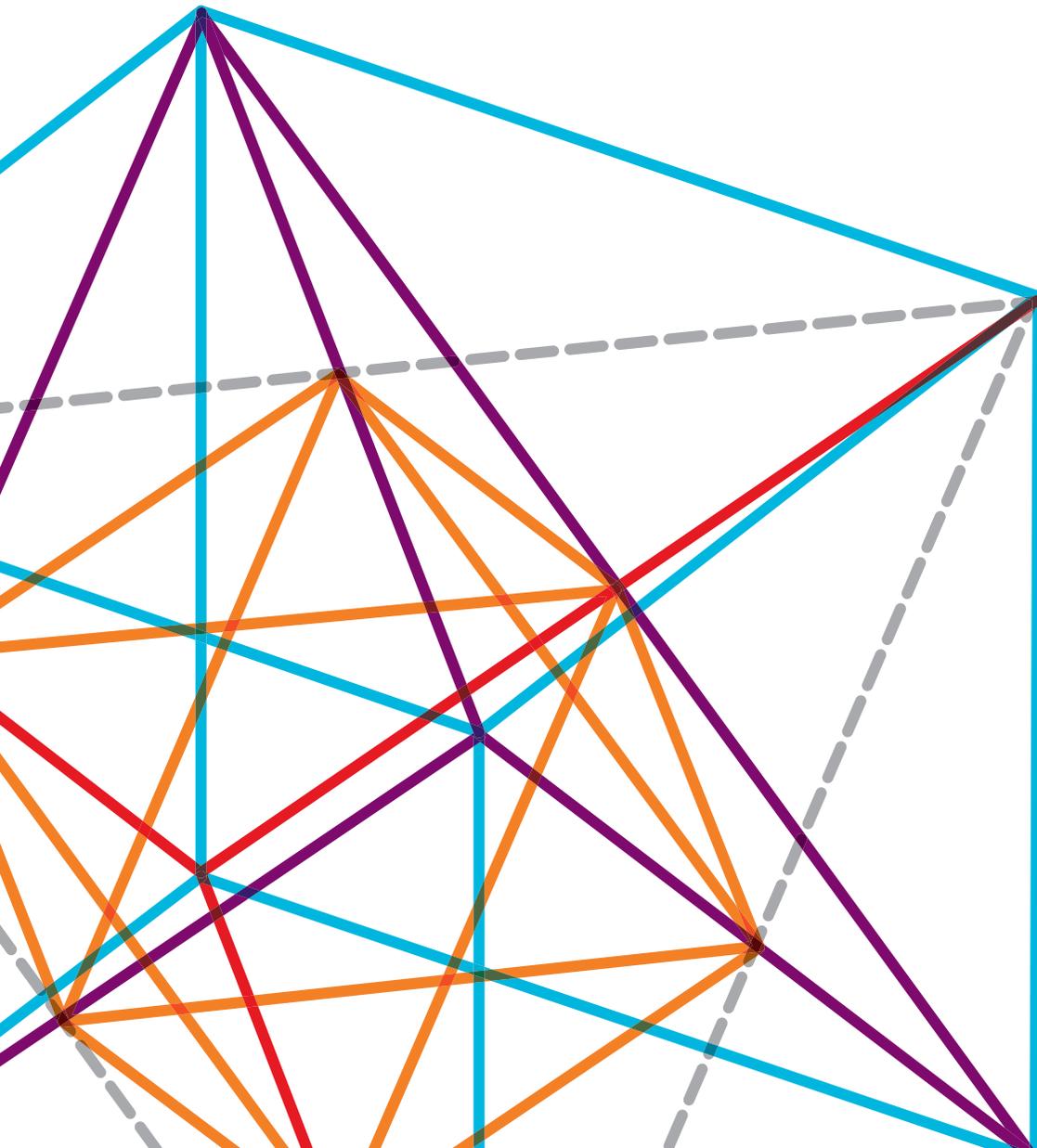
WRISTBAND BEST PRACTICES
FOR CLOSED-LOOP APPLICATIONS AND PROCESSES

Maximizing patient safety and improving the quality of care is the ultimate goal for healthcare providers. Doing so requires staying within regulatory compliance, while also advancing staff retention and meeting fiscal constraints. Barcode technologies provide a "virtual voice" to patients, applications and workflows. Barcoding accomplishes this by laying a solid foundation for enhancing patient identification, providing visibility into medical practices, and driving efficiencies throughout healthcare applications, and is an integral part of electronic medical record (EMR) adoption.

Barcoded patient wristbands are an excellent way for medical centers to improve the safety and quality of care while meeting industry and organizational mandates. To gain the most benefit, the information provided on the wristband must afford easy readability, and deliver the right information in the right way. In addition, barcode wristbands used in maternity wards must be the right size and be built with infant-safe materials.

Healthcare personnel who are starting to look at a patient ID solution need to know the key considerations of patient wristbands from a formatting and design perspective. Maternity ward staff requires specific information so they can make the right decisions when it comes to barcoded infant wristbands. Like any technology or process, following proven best practices helps ensure a smooth transition to deployment and beyond.

WRISTBAND BEST PRACTICES —
WHAT THEY ARE, WHY YOU NEED THEM

Numerous studies have shown that between 2 percent and 6 percent of patients are not properly identified by their wristbands. A College of American Pathologists (CAP) study of 217 institutions uncovered 45,197 patient identification errors. Missing wristbands accounted for 71.6 percent of the errors, but erroneous information and illegible text also plague healthcare professionals who rely on wristbands to deliver care accurately. By providing precise visibility, barcode-based patient IDs and systems provide the "virtual voice" that can help improve the accuracy of patient records, minimize errors, and enhance the overall safety and quality of care.

Barcode wristbands are not just for adults—infants need them, too. Imagine a mother's shock to find out that a maternity nurse gave her newborn to another mother for the infant's first feeding. Although this may seem like a simple, nonthreatening mix-up, the risks become acute when considering that many diseases like HIV and hepatitis can pass to a baby through breast milk.

Barcode wristbands form the foundation for positive patient identification and help prevent serious medical errors, or infants leaving the maternity ward with the wrong mother. To ensure patient safety, the wristband must stay on the patient and remain readable for the duration of the hospital stay. It also must uniquely identify the patient in a HIPAA-compliant manner. After a medical center chooses the barcode wristband, software application, scanners, and other supporting infrastructure, it is time to put best practices in place. Doing so prior to the actual deployment and wristband design helps ensure that the right processes are used throughout the facility. The program should cover 90 percent or more of general-purpose wristband needs. After implementing the general program, medical centers can start evaluating their individual needs for specific areas.

Best Practice 1 – Repeat 2-D Barcodes Across the Wristband

For the first best practice, always repeat a two-dimensional (2-D) barcode along the entire length of the wristband so it does not require adjustment during scanning. This helps to ensure ease of scanning and prevents the need for nurses to devise workarounds when verifying patient ID. Instead of lining up the scanner with each individual barcode, nurses can scan from about a foot or so away, from any direction. If there were just one barcode on the band, they would have to move the band on the patient's wrist so they could scan it. The extra barcodes eliminate the need to disturb the patient—the barcode is readable no matter how the patient is holding his or her hand.

While there are many different types of barcodes, also known as symbologies, 2-D barcodes serve as limited portable record files and provide commonly needed patient information. This data can include allergies, primary physician, blood type, and reason for admission. 2-D barcode symbologies, such as Data Matrix and Aztec Code, are best suited for patient wristbands because of their overall ease of use. With 2-D, medical staff can encode the desired information in the least amount of space. Doing so leaves extra space available on the wristband for additional text or graphics, or to print the barcode larger, making it easier for scanners to read.

Best Practice 2 – Use Two Linear Barcodes

Always use linear barcodes as part of the basic design. Be sure to include at least one, but preferably two, linear barcodes on the wristband to support glucometer readings. This is important because two barcodes help make scanning easier. 2-D barcodes are preferred for lining the band. Current glucometer scanners only support linear barcodes, not 2-D symbologies. The typical choice for linear barcodes is Code 128 because it is one of the densest linear symbologies. High density allows software applications to encode more information in a smaller amount of space.

Best Practice 3 – Include Human-readable Text

Beyond the actual barcode, print with human-readable text the patient's—or the infant's and/or mother's—last name and first name on the band so that clinicians can easily read it. Using both a patient-identification barcode and a human-readable name on the band fulfills the second part of the Joint Commission mandate to identify the patient in two different ways.

Best Practice 4 – Include the MRN and FIN

The software that encodes data for healthcare wristbands typically supports standard defaults including the patient's date of birth, age and sex. Another best practice is to include the medical record number (MRN) and the financial institution number (FIN) in the barcode. Including this information enables downstream efficiencies and helps streamline the overall patient identification and record-keeping process. It also helps digitally associate the parents with their baby.

Best Practice 5 – Include Check Digits for Security

The last thing a medical center needs is for just any barcode scanner to read a patient's personal information. Adding a check digit at the beginning of the barcode helps guarantee that only approved patient ID scanners can read the wristband. This prevents chart label scanners or other off-the-shelf scanners from decoding the wristband data. In addition, the check digit ensures that medical staff actually scans the band at the patient's bedside, and is a major factor for preventing workarounds.

When used on infant wristbands, check digits can help ensure precise parent-baby matching. Check-digits should be included on both the parents' wristbands. In addition to being visible to the nurse, the check code needs to be part of the barcode format so that the nurse's barcode scanner can read it.

Best Practice 6 – Include Print Time and Other Traceability Text

To improve security, add a print time/date and "who printed it" in human-readable text. When nurses find bands that are not on patients, they can go back to the clinicians and find out why they are printing extra bands. This alleviates any type of security concerns with copying the barcode, copying the patient's information, or putting the bands on other patients, etc. It also limits workarounds because the reason clinicians print bands is so they can carry extra bands and scan them away from the bedside. This will ensure they scan them at the bedside.

Best Practice 7 – Infant Wristbands must be Soft, Sizable, and Safe

A baby's skin is as thin as paper, and premature infants are even more delicate. The wristband must be the softest material available so it will not injure a baby's skin. Hypoallergenic barcode wristbands exist that use very thin, nonabrasive, soft nylon material that is much more supple than conventional thermal patient wristbands. Antimicrobial coating that protects the wristband is another consideration.

Also consider the material's flexibility—it must afford efficient, smudge-free printing. The size of an infant's wrist can range widely depending on her birth weight, and the age of prematurity. Barcode designs must be adjustable to fit the smallest of patients. Infant wristbands are simply too small to enable easy scanning of the linear barcode. The best solution contains a flat surface print area with enough room to contain both 2-D and linear barcodes. The flat tab allows easy, safe barcode scanning from all angles, without having to disturb the infant or move his arm.

Best Practice 8 – Deploy your Preferred Printing Technology

Barcoded wristbands are the foundation for positive patient identification and help prevent serious medical errors. For best results, choose printers that produce crisp, clear print quality on all wristbands, so barcodes scan quickly and reliably. A nurse's time is too valuable to waste by repeatedly trying to read poor-quality barcodes, or by rushed, manual data entry.

Laser printers

Most hospitals already own high-quality laser printers, so they will not be required to invest in new printer hardware. A dedicated tray of the existing laser printer can be used for barcode print media materials.

It is also very likely the solutions provider will have a software application that will allow for easy integration of its positive patient identification system with their legacy printers and other HIS technologies. Laser printers are capable of producing the very high print quality necessary for barcodes and other graphics used on wristbands.

Thermal printers

Thermal printers use controlled heat to create an image onto the wristband media. The print head applies heat to the coated thermal media, which turns dark where the heat is applied. There is no ink or toner required – the only supply needed for direct thermal printers is the wristband material itself. Printing wristband and labels on-demand saves time and enables hospitals to produce durable and high-quality wristbands, making printing very easy and convenient at the point of care.

Thermal printers are also compact and will fit easily on today's computers-on-wheels (CoW) carts that are used in many nursing areas to provide mobility for clinicians' care delivery and documentation.

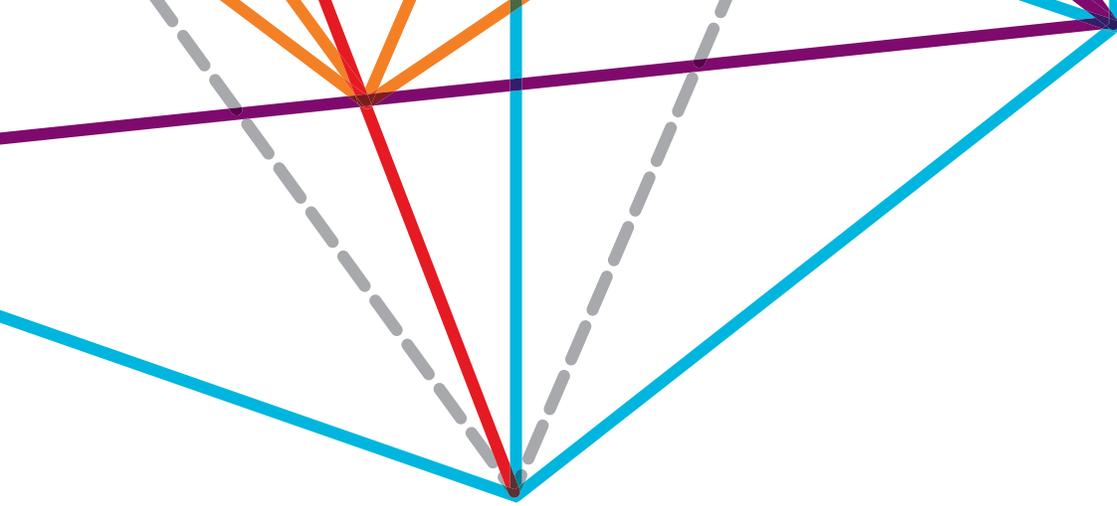An example of a properly formatted wristband.

CONCLUSION
CLEAR PATIENT IDENTIFICATION—ENHANCED PATIENT SAFETY THROUGHOUT THE HOSPITAL

Deploying barcoded patient wristbands is simply not enough. To gain the most value, medical centers must ensure that wristbands contain the right information, meet industry mandates, and provide staff with an efficient solution. When healthcare professionals can see more, they can do more for their patients. The reason that nurses and clinicians do workarounds is because the barcode is unreadable, or they cannot scan the wristband without disturbing the patient. Following the best practices discussed above forges a solid foundation for enhancing patient identification, providing visibility into medical practices, and driving efficiencies throughout healthcare applications.

Barcode printing solutions from Zebra Technologies can help healthcare organizations reduce errors and increase productivity. Now is the time to provide your patients a virtual voice—so you can work with the patient and continue to provide safe treatments and a caring atmosphere.

A global leader respected for innovation and reliability, Zebra offers technologies that illuminate organizations' operational events involving their assets, people and transactions, allowing them to see opportunities to create new value. We call it the Visible Value Chain.

Zebra's extensive portfolio of marking and printing technologies, including barcode, RFID, GPS and sensoring, turns the physical into the digital to give operational events a virtual voice. This enables organizations to know in real-time the location, condition, timing and accuracy of the events occurring throughout their value chain. Once the events are seen, organizations can create new value from what is already there. For more information about Zebra's solutions, visit www.zebra.com.

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