

Barcode wristbands: Putting patient safety first



WHAT YOU REALLY NEED TO KNOW ABOUT BARCODE WRISTBANDS

Nearly a quarter of EU citizens have been directly affected by medical error¹. In healthcare facilities throughout Europe, illegible, incorrect or missing wristbands are responsible for the majority of adverse incidents involving medication administration.

In contrast to conventional, low quality, handwritten wristbands, modern barcode wristbands help:

- Accurately identify the patient
- Provide an environment your patients and their families can trust
- Correctly identify and record patient details
- Ensure the patient record follows them wherever they are, always available to your staff at the point of care
- Provide your patients with a 'virtual voice' in their care from start to finish, even when conversation is not possible

With budgets and staffing levels pressurised, and legislative demands constantly evolving, you need to know that the decisions you make on behalf of your business are ultimately in the best interests of your patients and their well-being.

Studies throughout the EU have shown that up to 10% of all patients staying in hospital experience adverse events. Rushed or illegible notes, missing wristbands, human error, all contribute to unnecessary, potentially fatal incidents. In England, NHS estimates have suggested that preventable harm from medicines could cost more than £750 million a year². In the US, medical errors claim as many as 98,000 lives each year, and are the 8th leading cause of death³.



Where patient care and safety are concerned, compromise isn't an option. In order to provide the highest standards of care, you need to make patient data available, accurate and reliable, so that your staff can carry out their roles with confidence.

Barcode wristbands have been proven to be the most effective means of ensuring that your patients receive the medication they have been prescribed in the appropriate format. The solutions available are easy to implement and manage, giving access to patient information on-demand, minimising delays and distractions for your staff, as well as the potential for misidentification.

They help your people to fulfil the 'five rights' of medication administration — right medication, right dose, right time, right patient and right route. Essentially, they make the fundamental process of identification as failsafe as it can be, making use of modern technology to save time and money, and reducing complexity.

From a C-level perspective, barcoding is seen as a forerunner of advanced patient safety initiatives including e-prescribing, computerised physician order entry and the electronic medical record (EMR). These tools support healthcare organisations in continually evolving and improving standards of patient care worldwide.

1 Source: World Health Organization 2013 <http://www.euro.who.int/en/what-we-do/health-topics/Health-systems/patient-safety/data-and-statistics>

2 Source: National Patient Safety Agency 2007

3 Source: "To Error is Human: Building a Safer Health System," Institute of Medicine, November 1999

THE BENEFITS OF BARCODE WRISTBANDS...

...For Nurses

For nursing staff delivering care at the bedside, accurate identification and knowing that they are treating the correct patient is key. Time spent on administrative processes needs to be kept to a minimum, and tools easy to use and reliable.

With barcode wristbands, as long as information is entered accurately on admission, you can be sure that your patients will be identified correctly and relevant information will be presented every time the wristband is scanned.

Barcode scanning is vastly more accurate than any manual means of data recording, with printed identification having a one in three million chance of error. It improves patient safety by improving the quality of information, and making it more immediately accessible to your staff when and where they need it.

...For IT

With electronic health records the ultimate goal, the IT department needs to know that barcode technologies are easy to install, use and manage, while automating workflows, widening application across the organisation and increasing patient safety.

Today's solutions integrate easily with your existing systems and software, offering functionality, reliability and quality of output. The centralised device management solutions available enable IT to deliver state-of-the-art technology, consistent device configuration that save time and money, while improving efficiencies business-wide.

...For Management

Improved data accuracy is the single most common motivation for putting a barcode system in place, as this has a direct impact on patient safety. It also increases staff confidence, streamlines processes and reduces costs. In turn, the results improve the patient experience, which is also a key management target.

By transforming data into a digital format, barcodes enable instant conversion from physical actions into digital transactions. This conversion of former manual tasks to electronic processes occurs in real-time, increasing staff efficiency, so making more time available for active patient care, while enabling management to make decisions based on accurate, timely data. Information is adaptable for a variety of applications across the business, too, with automation greatly simplifying collection, processing and tracking.



How barcoding works

A barcode is simply an alternative to text for expressing information. Anything that can normally be printed on a wristband can be encoded in a barcode that can also act as a key to a database, so making more information more immediately available to the user.

Because barcodes store data in less space than handwritten or typed text, standard barcode wristbands can include more information than conventional ones, two-dimensional barcodes more still. They can serve as portable records or even carry a digital photograph of the patient, viewable on a PC or laptop whenever the barcode is scanned.

With this system in place, staff scan the wristband to identify the patient using a scanner interfaced to a mobile or bedside computer. The information is matched with the barcode on the medication or with blood or specimen samples. Application software then compares the medication to information in the patient's electronic record, called up by the wristband scan, to verify that the patient should be receiving the medication at the indicated dosage and method at that time.

Finally, staff can scan their own barcoded ID badge to record who administered the medication. The system essentially automates the Five Rights check, with the wristband scan verifying right patient, and the database search from the medication scan verifying the other elements.

1 Printing the right information

Ideally, a wristband will include two forms of patient identification. Encoding the patient's name in a barcode and printing an ID number in human-readable text will satisfy statutory obligations. Any type of text can be encoded in a linear or two-dimensional barcode.

2 Choosing the correct barcode type

There are many different types of barcodes, called symbologies. These vary by a number of factors including the amount and type of data they can encode, and the space they require to do this. Two-dimensional barcodes act as limited portable record files and provide commonly needed patient information including allergies, primary physician, blood type, and reason for admission.

By using wristbands that incorporate GS1 barcodes, you meet the most common global standard for automatic identification and data capture for patient identification.



3 Selecting a printer

Maximising Quality:

Healthcare quality requirements and environments demand excellent barcode symbol quality. Scanners decode the information from barcodes by measuring the differences between narrow and wide elements, and the contrast between dark bars and light spaces. If the ratios or contrast are slightly off, the barcode could be difficult or impossible to read.

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.

Leveraging an existing laser printer:

If your staff already have access to high-quality laser printers, there's not necessarily the need to invest in new printer hardware. A dedicated tray of the existing laser printer can be used for barcode print media materials.

The benefits of thermal printers:

Thermal printers use controlled heat to create an image on the wristband. 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 your people to produce durable and high-quality wristbands conveniently and cost-effectively at the point of care.

4 Selecting a Barcode Scanner

Barcode type – what type of barcode needs to be read?

Whilst both laser scanners and linear imager scanners read standard linear (1D) barcodes, only 2D Area Imagers operate across a wider spectrum of barcodes - 1D, stacked, and 2D. Not only are 2D imagers more "intelligent", their ability to analyse an image from any direction and off any surface (including screens), make them faster and easier to use – resulting in real time savings for operators.

Form Factor – what design of scanner will best meet your requirement?

Handheld – simply aim the scanner at the bar code and press the button. Easy and intuitive to use.

Presentation – these scanners are fixed to a counter top and, as they scan automatically, provide a hands-free scanning option.

Mobile Computer – as the name suggests, these combine PC functionality and a scanner in a single device. These hand-held devices offer complete mobility, providing storing and analysis of information on the move.

Connectivity – corded or cordless?

Using Bluetooth technology allows most cordless scanners to operate wirelessly within a range of over 30 ft from their base stations. However, if all your scanning requirements can be met from a central point, a corded scanner may be preferred.

Healthcare compliant?

Finally, within a healthcare environment you will need to ensure that any scanner you buy can withstand cleaning with disinfectant.

5 Selecting the best label material

Selection of the label material depends first on whether direct thermal or thermal transfer print technology is being used. For optimum printer performance and to extend the life of the printhead, it is important to choose the right media, including ribbon in the case of thermal transfer printing.

6 Understanding best practice

Repeating a two-dimensional barcode along the entire length of the wristband makes it easier for nurses to scan. Beyond the actual barcode, it helps to 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, and for compliance.

The software that encodes data for healthcare wristbands supports standard defaults including the patient's date of birth, age and sex. Specifying that wristbands are always issued with the same information, including patient number, first and last name, and date of birth in both barcoded and human-readable form, has the added benefit of ensuring the same data is always provided and in the same location for fast and efficient identification. This helps to streamline the overall patient identification and record-keeping process.

To improve security, add a print time, date and user name in human-readable text. This reduces security concerns with copying the barcode or patient information, or putting the bands on other patients.

SUMMARY



The definitive patient identification solution

Zebra's portfolio of Healthcare solutions extend from printers to scanners, wireless networks to mobile computing. Enhancing patient safety, improving operational efficiency and optimizing IT resources, their product range covers multiple applications, including medical administration, specimen collection, patient ID and personnel, remote patient monitoring, logistics, and laboratory/pharmacy management.

To find out more about our
barcode printing solutions,
visit www.zebra.com



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